LIFE ANDROS PARK

AN ACQUAINTANCE WITH THE BIODIVERSITY OF ANDROS

Plants & Mushrooms

Plant and mushroom species names

Plants: *Erica manipuliflora,* Ericaceae - 'Whorled heath'

[Scientific name] [Family] [Common name]

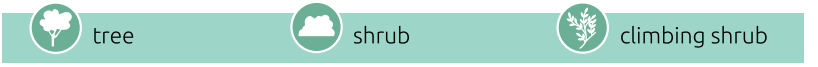
Mushrooms: *Amanita muscaria* -'Fly agaric', "Lolomanitis"

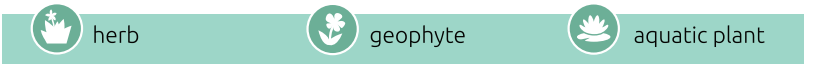
[Scientific name] [Common name] [Local name]

Symbology

Plant flowering/mushroom fruiting period:

Plants





Mushrooms

Both

PREFACE

Dear Reader,

The Guide you are holding aspires to be an introduction to the biodiversity of Andros Island, focusing mainly on two major categories of organisms, namely plants and fungi (mushrooms). Andros is a very distinct island of the Cyclades Archipelago, characterized by springs and streams of continuous flow, a highly differentiated relief and an abundance of various habitats. The flora of Andros is rich as it includes almost two-thirds of the plant species found in the Cyclades. Many of them are endemic or rare and the need to preserve them is obvious. In addition, it is the best-studied island of Greece in terms of mushroom diversity, since the research activity of the Agricultural University of Athens has led to the identification of more than 400 species, four of which were new to science.

This Guide was produced in the framework of the dissemination activities of the LIFE Andros Park project, funded by the European Union and dedicated to the preservation and restoration of the Andros alder forests (i.e. a tree species that forms riparian stands, which have shrunk considerably due to the devastating consequences of wildfires, uncontrolled grazing and floods), as well as to the protection of endangered species such as the Mediterranean monk seal, the Mediterranean shag and the Audouin's gull. LIFE Andros Park aims at the holistic management of the Natura 2000 sites of Andros Island with the support and active involvement of the local community and stakeholders. This will allow protection and conservation of the island's valuable biodiversity and the development of compatible activities (e.g. ecotourism or the promotion of local products), which will contribute to income generation and improvement of the residents' lives.

We are warmly inviting you to make use of the guide, wander around, use the extensive hiking trail network of Andros and get acquainted with the island's unique natural wealth.

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ABOUT THE GUIDE

Observation of the plants and mushrooms of an area provides a unique opportunity to discover its biodiversity, to understand its distinct habitats, to get a taste of its past and the changes it has undergone, as well as the special relationships that develop between various plants or between plants and mushrooms. The aim of the Guide you are holding in your hands is to be a useful aid in seeking and identifying plants and mushrooms during your excursions on the island of Andros.

Six typical habitats of Andros Island are presented along with information on their general characteristics, representative plant and mushroom species, as well as rare and endemic taxa. Short descriptions and characteristic photographs are provided for 62 plant and 25 mushroom species.

This Guide begins with a brief summary of Andros' biodiversity value accompanied by a short presentation of its flora, fauna, mushrooms (fungi) and main habitats, as well as the island's Natura 2000 sites. At the end, instructions for good behaviour on the countryside and basic guidance for excursions on the island are provided.

The Guide was prepared in the framework of the LIFE Andros Park project, which, with regard to the terrestrial environment, focuses on the study and implementation of conservation and restoration actions in alder forests. The riparian alder forests and its surrounding habitats are included in the Guide.

The Guide is accompanied by a map of recommended routes crossing areas where alder forests grow, which were selected in order to give hikers the opportunity to cross a variety of habitats and observe various plant and mushroom species. The hiking routes have been mapped and granted for use by the "Andros Routes" initiative.

How to use the Guide

The Guide presents plant and mushroom species for each selected habitat of Andros Island, while the accompanying map depicts locations - along the proposed routes - where these habitats are encountered. Key features used in the presentation of plant and mushroom species are provided on the inside cover.

ANDROS ISLAND, A BIODIVERSITY HOTSPOT

Andros is the northernmost island of Cyclades and the second largest after Naxos. The island is mountainous, with lush ravines and valleys, and plenty of surface water and groundwater. Its coastline is steep and forms sheltered gulfs, elongated capes and small isolated beaches, while the island is framed with small rocky islets.

Andros has many peculiarities compared to the rest of the Cyclades islands, creating suitable conditions for hosting a large number of flora and fauna species. It features rivers and streams flowing all year round and a large number of springs, making it the greenest island of the Cyclades Archipelago. Although it can be considered as a typical Cycladic landscape, it has also a unique habitat mosaic, due to its high altitude, intense relief, the presence of canyons, springs, streams and seasonal ponds.

Its vegetation is quite similar to that of the rest of the Cyclades islands, whilst more species are directly related to and dependent on water abundance. Furthermore, its rich fauna includes many species that are not found on the islands of southern Cyclades, and are rather found on Evvia Island, with which Andros was once connected, or mainland Greece.

Thus, Andros can be considered as an island sharing common characteristics to both mainland Greece and the Cyclades, with a particularly rich and interesting variety of flora, fauna and mushroom species.


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NATURA 2000 SITES OF ANDROS ISLAND

A large part of the island, as well as of its surrounding marine environment, is of particular value for biodiversity, not only at local and national, but also at European level, and is part of the Natura 2000 network.

Three Natura 2000 sites have been established for the protection of Andros' special characteristics and the protected species and habitats it hosts. The site established for the protection of birds is the Special Protection Area "Central and South Andros, surrounding islets and coastal marine zone" (GR4220028), while for the protection of terrestrial and marine habitats, plants and other fauna species two Special Areas of Conservation exist, namely "Andros: Vitali inlet and central mountainous area" (GR4220001) and "Marine Zone of Andros" (GR4220035).

The islands' elements in need of protection include:

- The vast Posidonia sea-grass beds found along its entire coastline in depths from 5 to 40 meters, as well as the rich in biodiversity coral formations at greater depths,

The Natura 2000 network is a European Ecological Network of sites that host habitats and species important at European level. It is the largest network of protected sites worldwide.

- The Mediterranean monk seal (*Monachus monachus*), which is one of the most endangered marine mammal species in Europe,

- Protected bird species, the most important of which are the Eleonora's falcon (*Falco eleonorae*), the Mediterranean shag (*Phalacrocorax aristotelis*), the Audouin's gull (*Larus audouinii*) and the Bonelli's eagle (*Hieraaetus fasciatus*),

- The small areas of alluvial alder forests, unique in the Cyclades,

- The areas of pseudo-steppe with grasses and annuals, important at European level,

- Reptile and amphibian species, such as the western Caspian turtle and the four-lined rat snake and

- The moth Jersey tiger (*Callimorpha quadripunctaria*).

The Management Body of the Protected Areas of the Cyclades is responsible for the management of the sites, while the Special Protection Area Management Committee operates on the island.

PLANTS OF ANDROS ISLAND

The Cyclades Archipelago includes hundreds of islands and islets that host a rich flora consisting of 1,661 plant species and subspecies. Andros, the northernmost and most humid island of the Cyclades, presents a unique habitat composition for the region and a particular flora numbering 1,046 wild plants. The majority of them are species with relatively wide distribution in the Mediterranean basin, both on insular and mainland areas. Two are the plant categories of particular interest for the island. The first concerns endemic plants of limited geographical range in Greece, which includes 50 species, most of them found on islands of the Aegean Sea. Some of them are extremely rare and are in danger of extinction, mainly due to the loss of their natural habitats by human interventions. The second category includes species having their main geographical distribution in northernmost regions, mainly in central and northern Europe, for which Andros is the southernmost or one of the southernmost distribution areas. Most species of this category grow in humid and shady habitats, along the numerous streams flowing through the island. Several of them are unique for the Cyclades Archipelago and are likely to have colonized Andros during Pleistocene, when the climate was colder than today.

The endemic flora of Andros includes some noteworthy species, most of them restricted to the Aegean islands, e.g., *Galanthus ikariae* (found only on Andros, Ikaria and Skyros islands), *Campanula sartorii* (Andros, Tinos), *Hypericum delphicum* (Andros, Evvia), *Hypericum cycladicum* (Andros, Naxos, Paros), *Trifolium andricum* (Andros, Tinos), *Scilla andria* (Andros, Tinos, Naxos, Kimolos) and the impressive *Paeonia mascula* subsp. *hellenica* (southern Greece), as well as *Dianthus fruticosus* subsp. *fruticosus* (Cyclades). The only locally endemic species of Andros is *Ferulago sartorii*, which has not been collected since 1968.

The streams of Andros host numerous plant species that are usually distributed in northernmost areas and have only a scattered distribution on the Aegean Islands. The alder (*Alnus glutinosa*) and the hawthorn (*Crataegus monogyna*) are tree species that belong to this category, while the oriental plane (*Platanus orientalis*) forms extensive riparian forests only on Andros (regarding Cyclades). Numerous herbaceous plants such as *Primula vulgaris*, *Listera ovata* and *Mycelis muralis* also belong to this category, as well as several ferns, e.g. *Asplenium scolopendrium*, *Blechnum spicant*, etc.

The indigenous flora of Andros includes also numerous plants of socioeconomic importance, such as medicinal and aromatic plants, honey plants, wild relatives of cultivated species important for the genetic improvement of crops, as well as many edible species, which are collected by the islands' residents.

Galanthus ikariae, © P.Trigas/AUA

MUSHROOMS OF ANDROS ISLAND

Andros, thanks to its position at the northern tip of the Cyclades, receives the greatest amount of precipitation compared to the other islands of the Archipelago. As a result it maintains a significant number of small streams of continuous flow along which grow riparian trees (planes, alders), but also extensive areas with residual clusters of deciduous and evergreen broadleaf trees (oaks, holm oaks, maples, etc.). This combination of vegetation and climatic conditions leads to the existence of a large number of mushroom species. In addition, Andros is the most studied - to date - island of the Aegean Archipelago, in terms of mushroom diversity. The systematic study of the mushrooms of Andros, which began in 1993, has so far led to the identification of more than 400 species, including four new to science. Three of them remain known only from Andros, and thus can be considered endemic, while as they have not been found since, they can be also considered to be very rare. The locations where they were found (Vori, Arni and Evrousies) are within the Natura 2000 site, while the presence of one of them (*Entoloma alnicola*) is considered to be associated with alder trees.

Mushrooms are the visible, ephemeral and -mostly appearing- above ground, reproductive organs of certain fungi termed “macrofungi”. Macrofungi perform very important functions in natural ecosystems. Some recycle dead plant tissues (leafs, reeds, wood, roots, etc.), while others are symbiotic to tree and shrub species. As a result, mushrooms grow in soil, on wood and manure (mainly of herbivores) and wherever plants or their residues are found. However, most species are found close to trees and shrubs, with which fungi develop symbiotic relationships. On Andros such trees are oaks, holm oaks, kermes oaks, chestnuts, as well as alders, poplars and willows at riparian areas. The

Omphalotus olearius, © E.Polemis /AUA

shrubs that commonly host a wide variety of mushrooms are the pink rock-roses (*Cistus* spp.), heathers and strawberry trees.

Many mushrooms found on Andros are edible and of exceptional quality. However, very dangerous toxic and even fatally poisonous species, such as the death cap - the most dangerous mushroom species in Greece and Europe - are also present. Residents of Andros, mainly farmers and livestock keepers from villages, collect only a few species at meadows and pasturelands, which they recognize empirically. Characteristic mushroom species are those belonging to the genera *Agaricus* and *Macrolepiota*, the edible *Pleurotus eryngii* var. *ferulae* growing close to the giant fennel plant, various other that resemble small balls (species of the genera *Lycoperdon*, *Bovista*, etc.) and, finally, the most popular of them all in Andros, the famous stubble rosegill (*Volvopluteus gloiocephalus*).

ANIMALS OF ANDROS ISLAND

Andros, due to its wide variety of habitats, their relatively good state, as well as its paleogeography, hosts a rich fauna. Hence, many vertebrate and invertebrate species are found on the island, the latter including several endemic species and subspecies of the Aegean fauna.

Birds

A total of 137 bird species have been recorded on Andros Island, which is an important area for them.

In summer, many species, such as the Mediterranean shag, the Audouin's gull and the Eleonora's falcon nest and breed on the island and its surrounding islets. Especially the Eleonora's falcon is an emblematic species for the Aegean Sea, as 85% of its global population breeds on the islands and islets of the Archipelago, after returning from Madagascar, where it overwinters. At the coastal wetlands of Andros a few pairs of waders can be found breeding.

The Mediterranean shag and the Audouin's gull are two protected seabird species. In this particular area, one of the five largest populations of Mediterranean Shag in Greece is found, while the presence of an Audouin's gull colony is also important, as it hosts the largest population of the Northern Cyclades.

The LIFE Andros Park project implements actions for their conservation.

Species typical of the Mediterranean shrublands, such as the blue rock thrush and the Rüppell's warbler, as well as raptors such as the Bonelli's eagle and the peregrine falcon, are resident to the island.

Andros is also a refueling and resting oasis for birds that migrate annually between Europe and Africa, with its wetlands being a stopover site for species such as the golden oriole, the night heron and the wryneck. Respectively, during wintertime the island can provide shelter to species that descent from northern areas to avoid cold, such as the mute swan.

Amphibians

On Andros two toad species are found, as well as the tree frog and the Balkan frog.

Reptiles

Andros hosts a wide variety of reptiles, namely 15 out of 61 terrestrial reptiles found in Greece. The Balkan green lizard and the Erhard's wall lizard, a subspecies endemic to the Northern Cyclades, the Kotschy's gecko, as well as snakes, such as the Balkan whip snake and the four-lined rat snake, are found on the island. In the wetlands of Andros, the Balkan pond turtle and the grass snake are also found.

Mammals

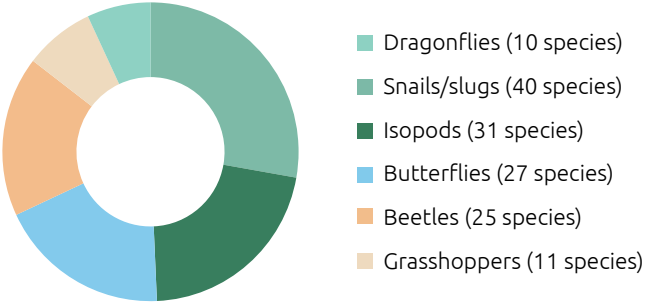
Twenty-four mammal species are found on Andros. Although some species that are characteristic of mainland Greece, such as the fox, are absent, the island hosts the edible dormouse (*Glis glis*), a species that strongly indicates the relation between Andros and mainland Greece. Hedgehogs and beech martens are also found on the island.

In the island's caves and in old mines 11 bat species have been recorded, with important colonies in some of those shelters. The bat feed usually at the island's wetlands and forests.

Invertebrates

A wide variety of invertebrates, such as butterflies, beetles, snails, isopods and dragonflies are found on Andros. Many of those species are endemic to Greece, the Aegean Sea, or even more locally, with one isopod species found only on Andros.

Twenty-seven species of butterflies have been recorded. Andros is one of the few islands where the southern festoon (*Zerynthia polyxena*) is found, a relatively rare butterfly species, as well as the moth *Callimorpha quadripunctaria*. Furthermore, 41 ant species have been recorded.



Marine area

The marine area surrounding Andros hosts various species of sea anemones, sponges and urchins, a variety of fish, as well as the protected noble pen shell. Mediterranean monk seals, loggerhead sea turtles and dolphins are also living in this area.

Mediterranean shag, © NCC Archive

Audouin's gull, © J.Fric/NCC

Mediterranean monk seal, © PDendrinos/MOm

The Mediterranean monk seal is a species that is regularly observed at Andros Island. It hunts in the sea surrounding the island and rests in its marine caves. The neighbouring Gyaros Island hosts the largest species population in the Mediterranean Sea. It is the rarest seal on Earth.

The LIFE Andros Park project implements actions for the species conservation.

MAIN HABITATS

The Mediterranean landscape, which is a result of the interaction of humans with the natural environment for thousands of years, includes a wide variety of habitats, as a result of its complex geographical history and paleogeography, its high diversity of geological formations and climatic conditions, as well as its very complex topography.

The Mediterranean Sea, the crossroad of three continents, is an important cradle of civilization, shaped by it, and undoubtedly defined it in a unique way. Anyone, who has experienced even once a dawn with a view at the Aegean islands scattered at the calm sea, can understand the decisive effect of this unique landscape on the spirit of people.

The Aegean Archipelago, counting more than 6,000 islands and islets, constitutes one of the most important areas of the Mediterranean Sea, in terms of biodiversity. Andros holds a special place in the complex Aegean geographical context. It is a link between the Cycladic insular microcosm and mainland Greece. The natural environment and the island's habitats reflect this transitional position. Nowhere else in the Cyclades has the presence of water such a dominant role in vegetation and terrestrial habitats formation. The riparian forests and the coastal wetlands of Andros constitute unique habitats in the Cyclades, which call for proper attention and protection.

The high relief of Andros, with its numerous mountains, fragmented by dozens of streams of permanent flow, is the base for creating a wide variety of habitats that host a great wealth of flora and fauna species. The vegetation has undergone significant degradation due to centuries-long human presence and activity on the island. It continues, nevertheless, to contribute to the formation of a varied mosaic of Mediterranean habitats. Today's stands of oak species distributed at

several areas of the island seem to be remnants of previously extensive forests that covered large parts of the island before being destroyed by humans. In many areas, mainly in the numerous valleys, mixed clusters of other broadleaved species, such as maples and ashes, are found. The forest formations continue to develop along streams, with a wide variety of tree species.

The largest part of the island's forests has been degraded into shrublands of broadleaved species or phryganic formations. The main reasons of this shift are wildfires in combination with overgrazing. The greatest part of the islands' mountain slopes is covered by shrublands and phrygana, habitats that, nevertheless, host an extremely high biodiversity. Extensive rocky formations with typical chasmophytes are scarce on the island, while small rocky outcrops are scattered at the mountain and hill slopes and ridges.

At the coastal habitats of Andros, small rocky formations with halophytes prevail. However, of greatest interest are the sandy beaches formed at the mouth of streams often combined with small coastal wetlands. At those, usually small habitats, a wide variety of plant communities exists, ranging from forest stands, reeds and/or Mediterranean sea meadows to typical Mediterranean sand dunes.

REPRESENTATIVE PLANT AND MUSHROOM SPECIES OF THE HABITATS

FORESTS AND BROADLEAVED EVERGREEN SHRUBLANDS

The forests and broadleaved evergreen shrublands alternate, depending mainly on the water availability and the degree of human influence. Oak forests are an important category of the island's forests and are mainly distributed at the mountainous areas and constitute of downy oak (*Quercus pubescens*), the Mount Tabor oak (*Q. ithaburensis* subsp. *macrolepis*) and the holm oak (*Q. ilex*). In several areas formations of Cretan maple (*Acer sempervirens*), terebinth tree (*Pistacia terebinthus*), manna ash (*Fraxinus ornus*), myrtle (*Myrtus communis*) and strawberry tree (*Arbutus unedo*) form a succession stage towards the formation of kermes oak brushland and heathlands occupying significant areas of the island. Dominant species in this formations are the kermes oak (*Quercus coccifera*), the mock privet (*Phyllirea latifolia*) and the tree heath (*Erica arborea*). Some small chestnut stands are present only at the area of Arni village and they have probably been planted.

Aristolochia rotunda subsp. *insularis*, Aristolochiaceae

Perennial herb with an elongated rhizome. Leaves without petiole, rounded with auricles surrounding the stem. Flowers with a long tube, cylindrical or slightly expanded above, with a limb broader than tube, dark purplish-brown, curving towards stem. It usually grows in wet places, at the understorey of woodlands and scrubs. Subsp. *insularis* is distributed in Greece, Italy, Corsica and Sardinia.

Crataegus monogyna, Rosaceae - 'Hawthorn'

Shrub or small tree up to 10 m tall. Leaves dark green with 1-3 pairs of lobes. Inflorescence 4-15-flowered. Sepals 5, narrowly triangular. Petals 5, white, 3-7 mm long. Fruit almost globose, 6-11 mm. A widespread species distributed in Europe and Asia, common in continental Greece and on major Aegean islands.

Cytisus villosus, Fabaceae

Shrub up to 2 m tall, hairy almost throughout. Leaves compound, with 3 leaflets, the central longer than the lateral. Flowers 1-5 in lateral clusters. Calyx 4-5 mm long, campanulate, bilobed. Corolla 15-20 mm long, yellow. Legume 15-45 mm long, oblong. A Mediterranean species distributed from Spain eastwards to Asia Minor.

Erica arborea, Ericaceae - 'Tree heath'

Erect, much-branched shrub 1-2.5 m tall. Leaves small, linear, dark green, leathery, usually in whorls of 3. Flowers numerous, in small, aggregated lateral racemes. Corolla with 4 small, white petals about 3 mm long. Anthers included in the corolla. It is distributed in the Mediterranean region, the Arabian Peninsula and E Africa.

Lamium garganicum subsp. *garganicum,* Lamiaceae - 'Large red dead nettle'

Perennial herb up to 50 cm tall. Leaves triangular-ovate, with dentate margins. Flowers in 2-6-flowered verticillasters. Calyx 8-15 mm long, with teeth shorter than tube. Corolla pinkish-purple, 25-40 mm long, with a long, straight tube abruptly expanded above; upper lip bifid, pubescent. It usually grows in relatively wet, rocky places. It is distributed in the Mediterranean region and SW Asia. In the Cyclades, it has been recorded only from Andros and Naxos.

Myrtus communis, Myrtaceae - 'Myrtle'

Much-branched shrub 1-3 m tall. Leaves opposite, 15-40 mm long, ovate to lanceolate, acute, aromatic. Flowers solitary, axillary, on slender pedicels 10-25 mm long. Petals 7-10 mm long, white. Stamens numerous, exceeding petals. Fruit a broadly ellipsoid berry, 8-10 mm long, blackish-blue. It is distributed in the Mediterranean region, eastwards to Central Asia. Sacred to Aphrodite in ancient Greece, it was a symbol of love and immortality.

Olea europaea subsp. *europaea*, Oleaceae - 'Olive'

Evergreen shrub or tree. Leaves opposite, simple, 2-8 cm long, narrowly elliptic, leathery. Flowers small, white, in axillary inflorescences. Fruit an ovoid to almost globose drupe, usually 10-35 mm, dull green at first, becoming greenish-brown and finally black. A common species almost throughout the Mediterranean. It has been domesticated from the Neolithic period. Wild plants are usually shrubby, with thorny twigs, short leaves and small fruits.

Paeonia mascula subsp. *hellenica*, Paeoniaceae - 'Paeonia'

Herb with an underground rhizome and pinkish stems 35-60 cm tall. Leaves large, with elliptical divisions. Flowers large, white, 9-13 cm in diameter. Fruit consisting of 3-5 follicles, white-tomentose. Seeds black, large. *Paeonia mascula* has a scattered distribution from Spain to Israel. Subsp. *hellenica* is endemic to Greece, mainly distributed in the Peloponnese and Central Greece; its largest populations, however, have been observed on Evvia, Andros and Ikaria.

Phillyrea latifolia, Oleaceae - 'Green olive tree' or ' mock privet'

Evergreen shrub or small tree. Leaves opposite, leathery, elliptic, usually with short teeth on the margins. Flowers minute, yellowish, with 4 petals. Fruit a dry, almost globose drupe 5-7 mm in diameter, finally bluish-black. Its general habit resembles *Quercus coccifera*. It is distributed almost throughout the Mediterranean region.

Pistacia lentiscus, Anacardiaceae - 'Mastic tree'

Dense, much-branched shrub, usually 1-2 m tall, sometimes small tree. Leaves opposite, compound, with usually 4 or 6 leaflets. Inflorescence scarlet, dense. Fruit a globose drupe, 4 mm in diameter, initially red, finally black. It is distributed in the Mediterranean and the Canary Islands. An aromatic resin is produced from the cultivated variety chia on Chios Island, known as "masticha" or "mastichi", used in a variety of culinary and cosmetic products.

Quercus coccifera, Fagaceae - 'Kermes oak'

Evergreen shrub, rarely a stout tree up to 15 m tall. Leaves leathery, 15-35 mm long, usually ovate with spiny margins. Fruit an acorn, matures at the second year, exserted for up to 2/3 from the 16-25 mm in diameter cupule, which is covered with short and rigid scales. A widespread and common species throughout the Mediterranean region, often dominant in the garrigue formations of eastern Mediterranean.

Quercus ilex, Fagaceae - 'Evergreen oak'

Large evergreen shrub or tree up to 20 m tall. Leaves ovate to lanceolate, leathery, 3-8 cm long. Fruit an acorn, matures at the first year, exserted for up to 2/3 from the 12-22 mm in diameter cupule, which is covered with small, appressed scales. A Mediterranean species; in the Aegean islands it usually grows in fertile soils within valleys and by streams.

Quercus pubescens, Fagaceae - 'Downy oak'

Deciduous shrub or tree up to 25 m tall. Leaves broadly oblong, 4-9 cm long, with 3-6 pairs of lateral lobes. Fruit an acorn, matures at the first year, exserted for up to 3/4 from the 12-20 mm in diameter cupule, which is covered with appressed, softly hairy scales. A European species distributed eastwards to Anatolia. A common oak species almost throughout Greece, but absent from several Aegean islands.

Rhamnus lycioides subsp. *graeca,* Rhamnaceae - 'Black hawthorn'

Deciduous shrub 0.5-1 m tall. Branches terminating in a sharp thorn. Leaves simple, 6-18 mm long. Flowers in axillary inflorescences, small, greenish-yellow. Fruit an almost globose drupe 4-6 mm, dark red. The species is widespread in the Mediterranean region, but subsp. *graeca* is restricted to the eastern Mediterranean, from Greece to Syria.

Spartium junceum, Fabaceae - 'Spanish broom'

Erect, much-branched shrub 1-3 m tall. Branches green, terete, with few small deciduous leaves. Flowers in terminal inflorescences, large, bright yellow, up to 3 cm long. Fruit an oblong legume, 5-8 cm long. A Mediterranean species, locally common. Often used in plantations as ornamental shrub in urban and suburban areas, as well as for slope stabilization.

Amanita phalloides - 'Death cap', "Skasomanitis"

This is the most dangerous/poisonous mushroom species in Greece (and throughout Europe), being responsible for the majority of the fatal mushroom poisonings. Characteristics of this species are the loose volva from which the stipe rises, the pendulous ring at the middle of the stipe length, the white gills and the olivaceous tinges on the cap surface. CAUTION! It can be easily confused with the edible *Volvopluteus gloiocephalus* (p. 36) which lacks a ring and its gills are progressively becoming pink.

Amanita pantherina - 'Panther cap', "Lolomanitis"

A poisonous species which can cause severe gastrointestinal disorders and loss of consciousness with intense hallucinations. Fatal incidents from the consumption of this mushroom have also been recorded, although rarely. Its cap usually presents various shades of brown colors with white/whitish flakes that can be easily whipped, white gills, white stem and ring and a tight (not loose) volva at the base of the stipe.

Boletus aureus - 'Dark cep' or 'Bronze bolete'

It produces robust mushrooms which bear pores under the cap; the pores are initially white, progressively becoming yellowish and finally olivaceous; the stipe is very thick and relatively short and its surface is partially covered by a characteristic network pattern; the flesh is white and remains unchanged when cut. It is one of the few choice edible boletes that are known with the commercial name "porcini". Local people on Andros never collect it, although it is not rare in oak tree stands.

Ganoderma lucidum - 'Glossy ganoderma'

Due to its woody texture it cannot be considered as edible; still it is world famous for its medicinal properties. For this purpose, mushrooms must be shirred for a long time until the valuable ingredients are diluted in a beverage. Mushrooms grow on the trunks of trees or on dead logs and show a very slow growth rate.

Infudibulicybe geotropa - 'Trooping funnel' or 'Monk's head'

As the common English name suggests, it is a mushroom species that often appears in troops, in rows or rings. Initially it has a stout stem and a relatively small cap which however becomes very large and funnel shaped. The color of the whole mushroom is beige to light brown and its flesh is firm and aromatic.

Lepiota subincarnata

Small sized mushroom with a cap that rarely reaches 8 cm in diameter and then it can be easily confused with edible *Macrolepiota* species, from which it differs by some characteristics of the stipe, i.e. the coarsely woolly surface devoid of a collar-like movable ring and its shape which is not abruptly enlarged to bulb at the base.

SHRUBLANDS WITH PHRYGANA

Nowadays, the greatest part of the surface of Andros is covered with shrublands of species resistant to drought, as a result of the island's forests degradation, due to wildfires and overgrazing. The dominant shrub species of those formations are kermes oaks (*Quercus coccifera*), *Genista acanthoclada*, Jerusalem sages (*Phlomis fruticosa*), topped lavenders (*Lavandula stoechas*), pink rock-roses (*Cistus creticus, C. salviifolius*) and spiny brooms (*Calicotome villosa*). The distribution of phrygana is relatively limited compared to the other Cyclades islands. Nevertheless, they occupy significant areas of the dry slopes close to the sea and are the dominant vegetation type at the abandoned fields and terraces. The thorny burnet (*Sarcopoterium spinosum*), savory (*Satureja thymbra*), thyme (*Thymbra capitata*), *Anthyllis hermanniae*, etc., are the dominant species. Numerous orchids and other geophytes, as well as several endemic species (e.g. *Fritillaria ehrhartii, Hymenonema graecum, Hypericum cycladicum, Silene pentelica*, etc.) also grow in the phrygana communities.

Anacamptis papilionacea subsp. *aegaea,* Orchidaceae - 'Butterfly orchid'

A stout geophyte 10-25 cm tall. Lower leaves 4-7, forming an indistinct rosette, while stem leaves sheath-like. Inflorescence with few, large flowers. Sepals and petals distinctly veined. Labellum 12-20 mm, with a suborbicular or broadly cordate limb, generally pale pink with pinkish-purple dots and streaks. Spur short, deflexed, cylindrical. Anacamptis papilionacea has a wide distribution range in the Mediterranean, while subsp. aegaea is restricted to the Balkan Peninsula and Anatolia.

Anthyllis hermanniae, Fabaceae - 'Yellow Kidney Vetch'

Small shrub up to 1 m tall. Leaves rather small, simple or sometimes 3-foliolate. Flowers in small axillary clusters, with simple bracts. Calyx 3-4 mm, narrowly campanulate, with short, triangular teeth. Corolla ca. 6 mm, yellow. Legume small, obovate, 1-seeded. It is distributed in the Mediterranean region, from Corsica and Sardinia, eastwards to Asia Minor; common in the Aegean Islands.

Cistus creticus, Cistaceae - 'Pink rock-rose'

Much-branched, rounded shrublet up to 1 m tall. Leaves 1-4 cm long, sparsely to densely covered with glandular stellate hairs. Flowers large, pale to deep purplish-pink, in 1-6-flowered cymes. Fruit an almost globose capsule, 6-10 mm in diameter. A common Mediterranean species distributed almost throughout Greece, from sea level up to about 1,000 m.

Crocus laevigatus, Iridaceae - 'Crocus'

Geophyte with ovoid corm, 8-15 mm in diameter. Leaves 3-6, present during flowering, 1-2.5 mm wide, dark green with conspicuous white middle stripe. Flowers 1-3, appearing in October-February. Perianth segments lilac or white, the outer usually with violet stripes externally; throat yellow, glabrous. Anthers white. Style divided into several slender, orange or yellow branches. Endemic to southern Greece, and locally common.

Erica manipuliflora, Ericaceae - 'Whorled heath'

Small shrub usually 40-80 cm tall. Leaves small, linear, dark green, leathery, usually in whorls of 4. Flowers small, numerous, at the top of the branches. Corolla 3 mm long, pinkish-purple. Anthers exserted from corolla. A common Mediterranean species, distributed from Italy eastwards to the Middle East.

Fritillaria ehrhartii, Liliaceae

Small geophyte with bulb 1-2 cm in diameter. Stem 6-18 cm long, smooth and glabrous. Leaves 5-8, 4-10 cm long, elliptical. Flowers 1 or 2. Perianth conical-campanulate, dark brownish-purple to almost black outside, with yellow tinge inside. Outer segments about 20 mm long, broadly elliptic, somewhat apiculate. Capsule broadly obovoid, erect, without wings. Endemic to the Aegean islands, locally common, distributed on Andros, Tinos, Syros, Evvia, Skyros, Yioura and Kyra Panagia.

Genista acanthoclada, Fabaceae

Dense, rigid, much-branched shrub 40-100 cm tall. Branches terete, striped, ending in a sharp, straight spine. Leaves small, 3-foliolate. Calyx ca. 3 mm long, campanulate, 2-lipped. Corolla bright yellow, 8-10 mm long. A common species of the phrygana communities almost throughout the Aegean. Also distributed in Anatolia and Libya.

Helichrysum stoechas subsp. *barrelieri*, Asteraceae - 'Shrubby everlasting'

Small shrub, woody at base only. Stems covered with dense white trichomes, densely leafy below, sparsely so above. Leaves linear-oblanceolate, greyish-green above, densely white hairy beneath, with revolute margins. Heads in dense, terminal corymbs, broadly campanulate at anthesis, 4-8 mm long. Phyllaries dry and membranous, yellow, shiny. Florets deep yellow, equaling phyllaries. Widely distributed in the eastern Mediterranean.

Hypericum cycladicum, Hypericaceae

Perennial herb with a slender woody base. Stems few, usually prostrate, 12-25 cm long. Leaves 8-18 mm long, ovate, opposite. Inflorescence 1-9-flowered. Petals 5, yellow, spatulate, 9-15 mm long, with black dots in the lower surface. Capsule reddish-brown. Endemic to the Cyclades. It is closely related to the widespread *H. perfoliatum* and was recently described from Vori stream in the eastern coast of Andros. It was discovered during forays performed in the frame of LIFE Andros Park.

Lavandula stoechas subsp. *stoechas,* Lamiaceae - 'Topped lavender'

Small shrub 30-80 cm tall. Leaves in fascicles on short shoots, more scattered on long shoots, entire, with somewhat revolute margins. Flowers in terminal, short-pedunculate, very dense, ovoid to oblong spikes 2-5 cm, crowned by large, purple sterile bracts. Flowers in vertical rows, subtended by imbricate, broadly ovate, dark bracts. Upper calyx tooth with an entire appendage. Corolla 5-8 mm, shallowly 2-lipped, dark purple to almost black. A common species throughout the Mediterranean.

Muscari weissii, Hyacinthaceae

Geophyte with bulbs up to 3.5 cm long. Leaves 2-5, 5-15 mm wide, at the base of the scape, as long as to shorter than scape. Scape 15-40 cm long. Fertile flowers on rather long, patent pedicels, dull yellowish in lower 2/3 and brownish above, with bright to dull yellow teeth; sterile flowers few, with pedicels 1-8 mm long, forming an inconspicuous tassel. Its distribution range is restricted to the Aegean Islands and the neighbouring mainland areas of Greece and Anatolia.

Phlomis fruticosa, Lamiaceae - 'Jerusalem sage'

Bushy shrub up to 130 cm tall. Young shoots greyish-stellate-tomentose. Leaves short-petiolate, with blade 3-9 cm long, broadly lanceolate, greenish above, densely white-stellate-tomentose and distinctly reticulate-veined beneath. Flowers in 1-3 dense, well separated, 12-30-flowered verticillasters. Calyx 15-20 mm, broadly tubular with short teeth. Corolla 25-35 mm long, golden yellow, stellate-tomentose. A Mediterranean species, common in mainland Greece and several Aegean Islands.

Sarcopoterium spinosum, Rosaceae - 'Thorny burnet'

Dense, much-branched shrublet with thin leafless thorns, up to 60 cm tall. Leaves small, with 4-6 pairs of leaflets. Inflorescence a globose head or short spike up to 30 mm. Upper flowers female, the lower male. Sepals 4, greenish. Petals lacking. Fruit red and fleshy, enclosing 2 achenes. A Mediterranean species, common in coastal areas.

Teucrium capitatum subsp. *capitatum*, Lamiaceae - 'Cat-thyme germander'

Small shrub, grey-tomentose throughout, with stems 10-30 cm long. Leaves narrow, linear-oblong, shallowly crenate. Inflorescence a simple or usually compound head at least as wide as long. Calyx 3-5 mm. Corolla consisting only of the lower lip, cream or pinkish, with lateral lobes rounded or triangular. Widely distributed in the Mediterranean region.

Amanita muscaria - 'Fly agaric', "Lolomanitis"

It is the most recognizable mushroom species with its bright red cap with white flakes and the most iconic one since it is widely referred to as "magic" in Eurasian cultures. Although it is a very common species in the mainland Greece growing in association with many forest trees, on Andros (as well as in other Aegean islands) it is rare and grows in symbiosis with rockrose (*Cistus* spp.).

Colus hirudinosus - A 'stinkhorn' species

This is a species with Mediterranean distribution producing small and weird in shape mushrooms; in the beginning they are like white eggs from which a red spongy stipe progressively rises being divided to several columns united at the top where they are covered by a dark olive-brown slime with a strongly disagreeable fetid smell.

Lactarius cistophilus - A 'milkcap' species

This species has a strict Mediterranean distribution, and grows exclusively in association with rockrose (*Cistus* spp.). It produces small to medium sized mushrooms which are characterized by a milk-like exudation when their gills are bruised. Although the milk is white, the gills are stained violet. It has a bitter taste and thus it is considered as inedible; however, in some regions of Greece, it is consumed after boiling and discarding the water.

Leccinellum corsicum

A Mediterranean bolete species, medium-sized, with yellow pores beneath the cap, whitish flesh that turns reddish when cut and tardily blackening. It grows in symbiosis with rockrose (*Cistus* spp.). Although it is considered edible, its consumption is not recommended. It might resemble "porcini" mushrooms but it has significantly lower culinary value and turns black during cooking.

Macrolepiota phaeodisca - A 'parasol mushroom' species

A mushroom parasol species with Mediterranean distribution; it produces small to medium sized mushrooms with beige scales on the cap and a dark brown centre. The stipe bears a collar-like movable ring and it is abruptly enlarged like a bulb at the base. The caps are the edible part of the mushroom but caution must be taken not to be confused with the deadly poisonous small *Lepiota* species.

Melanoleuca excissa - "Aftakia"

Small to medium sized and thin-fleshed mushrooms with a slender stipe which is often short in relation to the cap diameter. The cap is silky smooth and its color ranges from cream to beige to more often grayish. The rather sweetish odor of these mushrooms sometimes resembles iris flowers. Although all *Melanoleuca* species are edible, they are not easily identified and may be confused with other toxic species.

Pleurotus eryngii var. *ferulae* - 'King oyster mushroom', "Karonitis" or "Artikitis"

An oyster mushroom species characterized by its association with giant fennel, i.e. annual plants of the genus *Ferula* producing high stems, known on Andros as "karones" or "artikes". The mushrooms are developing on the residues of plant stems and they can grow very big in size. They are easy to identify and they are among the most popular wild edible mushrooms in the area of Korthi in Andros as well as in many Aegean islands.

GRASSLANDS, PASTURES AND UNCULTIVATED FIELDS

Agaricus spp. - Agarics, species like 'button mushroom', 'field mushroom' etc.

Many *Agaricus* species exist and it is rather difficult to discriminate one from another. Their common features are the dense gills that initially have a rose color which progressively turns to dark chocolate brown. Species that are intensively yellowing when bruised are toxic and should not be consumed.

Omphalotus olearius - 'Jack-o'-lantern mushroom'

It forms impressive mushrooms which appear early in autumn among the base of oak or olive trees. Its overall appearance resembles oyster mushrooms but the orange to terracotta colors makes their discrimination easy. An amazing feature of this mushroom is its bioluminescence, i.e. glowing in the dark. It is highly toxic and deaths were reported following its consumption.

Volvopluteus gloiocephalus - 'Big sheath mushroom' or 'stubble rosegill', "Glystritis"

It is the most popular edible mushroom in Andros among the locals who traditionally collect and eat it after frying. Although it is considered safe, it resembles the deadly poisonous death-cap (*Amanita phalloides*), which always appears among oak trees. Severe poisonings, fortunately not fatal, have been recorded in Andros due to such misidentifications.

RIPARIAN FORESTS & COASTAL WETLANDS

Humid habitats and water, even during the dry summer months, are often present on Andros. The numerous flowing streams are covered by riparian forests with dominant species being the oriental plane (*Platanus orientalis*) and the alder (*Alnus glutinosa*), while the white willow (*Salix alba*), the ash (*Fraxinus ornus*) and rarely the bay laurel (*Laurus nobilis*) are also present. The undergrowth of the riparian forests includes numerous plant species, such as the ivy (*Hedera helix*) and herbaceous plants, e.g. *Pteridium aquilinum, Mycelis muralis, Doronicum orientale,* etc., as well as the endemic species *Galanthus ikariae* and *Scilla andria*. At the mountainous areas of Arni and Vourkoti some interesting species occur, such as *Paeonia mascula* subsp. *hellenica*, *Corydalis thasia, Asplenium scolopendrium, Blechnum spicant,* etc. Towards the stream mouths the riparian forests are often replaced by formations with oleander (*Nerium oleander*). At the coastal wetlands towards the stream mouth, aquatic plants grow, such as the southern cattail (*Typha domingensis*), reed (*Phragmites australis*), watercress (*Nasturtium officinale*), as well as *Helosciadium nodiflorum, Veronica anagallis-aquatica, Potamogeton nodosus,* etc. At wet and shaded rocks the species *Primula vulgaris, Samolus valerandi* and *Campanula spatulata* subsp. *spruneriana* can be found, while the endemic *Hypericum delphicum* grows at higher altitudes.

Alnus glutinosa, Betulaceae - 'Alder'

Deciduous tree up to 25 m tall. Leaf blade 4-9 cm, obovate to almost orbicular, with 6-8 pairs of lateral veins, shallowly toothed, obtuse to emarginate, sticky when young. Flowers in catkins appearing before or with the leaves. Male catkins elongated, 2-6 cm long. Female catkins short. Infructescence pedunculate, 10-20 × 7-10 mm, ellipsoid, with persistent woody bracts. Widely distributed almost throughout Europe, but with scattered distribution in the Aegean Islands.

Corydalis thasia, Fumariaceae

Perennial herb with a tuber. Stem slender, 10-25 cm tall. Leaves variously divided, green or slightly glaucous, thin. Inflorescence a lax raceme, 3-12-flowered. Flowers light purple with a long spur. Fruit a narrow capsule (5-7 times as long as broad), with up to 7 seeds. A rare endemic species known from two distant populations on Thasos and Andros Islands. The single known population of Andros is located in the north slopes of Mt Kouvara, above Arni village.

Fraxinus ornus, Oleaceae - 'Manna ash'

Deciduous shrub or small tree. Bark smooth, grey. Leaves compound, with lanceolate leaflets 3-8 cm long. Flowers in large and conspicuous panicles appearing with the leaves. Petals 4, 5-6 mm long, linear, white or cream. Fruit 25-35 mm long, with a large wing. A Mediterranean species, common in mainland Greece, but distributed in only few large Aegean Islands. On Andros it is usually distributed along streams, but often grows in small valleys together with other tree species.

Hedera helix, Araliaceae - 'Ivy'

Evergreen woody climber with stems up to 30 m long. Leaves ovate to cordate, glossy, dark green at the upper surface and pale green at the lower. Flowers in subglobose umbels, yellowish-green. Fruit a globose berry, bluish-black when maturing in spring. A widespread species in Europe and Asia. It is distributed almost throughout Greece.

Helosciadium nodiflorum, Apiaceae - 'Fool's-water-cress'

Herbaceous hydrophyte growing in flowing water. Stem usually 30-80 cm long, rooting at lower nodes. Leaves 1-pinnate with ovate-lanceolate, toothed segments. Umbels leaf-opposed, with 3-15 rays. Bracts usually lacking. Bractlets 4-7, with membranous margins. Petals white. Fruit almost as wide as long. Widely distributed in Europe and the Mediterranean region. Almost throughout Greece, but absent from several small and dry Aegean Islands.

Ilex aquifolium, Aquifoliaceae - 'Common holly'

Dioecious evergreen shrub or small tree up to 10 m tall. Young twigs bright green. Leaves 5-12 cm long, ovate, leathery and shiny, usually with coarsely spiny-dentate margins, occasionally entire. Flowers white with 4 petals. Fruit a red, globose drupe. A mainly European species distributed eastwards to the Balkan Peninsula. It is scattered in the the northern and central parts of the Greek mainland, southwards to the mountains of Sterea Ellas. The population on Andros was discovered during the LIFE project, and is the southernmost population in the Balkans.

Isolepis cernua, Cyperaceae - 'Low bulrush'

Small, densely caespitose, glabrous annual. Stems slender, 5-15 cm tall. Leaves basal, filiform, shorter than stem, with pale reddish-brown sheaths. Inflorescence pseudo-lateral, consisting of 1-2(-3) ovoid spikelets 3-4 mm long. Bract shorter than or equaling spikelet. Glumes spirally arranged, ovate, reddish-brown with green keel. Nut broadly obovoid-trigonous, almost smooth. A species of muddy flats by the sea, also growing inland by the margins of lakes and streams. It is distributed in warm -areas of both hemispheres.

Laurus nobilis, Lauraceae - 'Bay laurel'

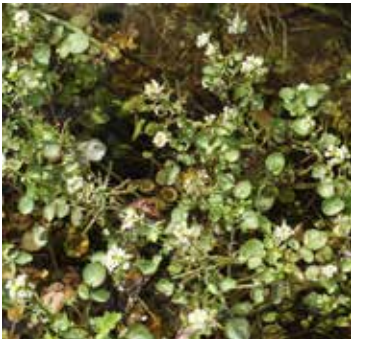
Evergreen shrub or small tree, usually up to 8 m tall. Leaves alternate, 3-10 cm, ovate-lanceolate, coriaceous, often with somewhat undulate margins, very aromatic. Flowers in axillary clusters, pale yellow or greenish-yellow. Perianth 4-6-lobed. Anthers opening by valves. Fruit a black, ellipsoid, 1-seeded berry. It is distributed in the Mediterranean region and SW Asia. It has a scattered distribution in the Aegean Islands. In the Cyclades it has been recorded only on Andros and Tinos.

Lythrum junceum, Lythraceae - 'Loosestrife'

Perennial herb with stems 20-60 cm long. Leaves alternate, oblong, 6-16 mm long. Flowers 1 or 2 at the axils of leaves. Petals purple, 5-6 mm long. Stamens usually 12. A widely distributed species in wet habitats almost throughout in the Mediterranean region. It is distributed in most of the large Aegean Islands, but it is absent in the smaller and dry islands.

Nasturtium officinale, Brassicaceae - 'Watercress'

Perennial herb growing in slow-running or seeping water. Stems prostrate and rooting below, ascending to erect above and usually up to 50 cm long. Leaves pinnately compound with 2-8 pairs of elliptical, entire or slightly dentate leaflets. Flowers in racemes elongating in fruit. Petals white. Fruits 10-18 mm long, cylindrical, often somewhat curved. A common species of wet habitats almost throughout Europe.



Nerium oleander, Apocynaceae - 'Oleander'

Evergreen shrub up to 5 m tall. Leaves 6-30 cm long, narrowly elliptical, coriaceous, with prominent midrib and parallel lateral veins. Flowers large and showy. Corolla 25-45 mm in diameter, bright rose-pink, with large appendages in throat. Fruit with 1 or 2 cylindrical follicles, 10-16 cm long. Seeds pubescent, with an apical appendage of brownish hairs. Widespread in the Mediterranean region. It blooms almost throughout the summer and is widely used as an ornamental plant.

Ornithogalum nutans, Hyacinthaceae - 'Drooping star-of-Bethlehem'

Bulbous herb with bulb about 3 × 2 cm, with numerous offsets. Leaves 4-6, linear, equalling or exceeding scape. Scape 15-60 cm long with 5-15 flowers in a rather lax raceme, nodding in fruit. Perianth segments large, 20-30 mm long, white or greenish-white, with a broad green stripe on back. Ovary broadly ovoid, shorter than the slender style. Native in the Balkan Peninsula and Asia Minor.

Platanus orientalis, Platanaceae - 'Oriental plane'

Large deciduous tree up to 30 m tall, with a massive trunk up to 2 m in diameter. Bark on lower trunk thick, dark grey, rough, on upper trunk and branches thin, smooth, ash-grey, flaking to leave large yellowish patches. Leaf blade 8-18 × 8-20 cm, divided halfway into usually 5 acute, irregularly gross-dentate lobes; the middle lobe 2-3 times as long as broad. Female inflorescence of 3-6 pendent, globose heads about 3 cm in diameter. A common species along streams and riverbeds from the Balkan Peninsula eastwards to central Asia.

Potamogeton nodosus, Potamogetonaceae - 'Long-leaf pondweed'

Rhizomatous perennial often growing in rather deep water. Stem up to 3 m long, slender. Floating leaves long-petiolate, with elliptic blade usually 7-15 cm, rounded to cuneate at base, subobtuse at apex. Spike long-pedunculate, emerging from the water, 3-5 cm long, cylindrical. Fruits 3-3.5 mm long. A species with an almost cosmopolitan distribution, but with a scattered distribution in Greece.

Primula vulgaris, Primulaceae - 'Primrose'

Perennial herb with a short rhizome. Flowers appearing directly from a leaf rosette on long pedicels (scape lacking). Calyx teeth acuminate. Petals pale yellow (in subsp. *vulgaris*) or pinkish (in subsp. *rubra*). Both subspecies are present on Andros. They are common in wet and somehow shaded habitats, usually along streams. A widespread species distributed in Europe and the Mediterranean region.

Salix alba, Salicaceae - 'White willow'

Tree up to 30 m or frequently a large shrub. Leaves alternate, short-petiolate, 3-12 cm long, lanceolate, long-acuminate, sericeous to glabrescent above, densely and persistently hairy beneath. Female catkins oblong, dense, 4-5 cm long. Capsule 3-5 mm, glabrous, on very short pedicel. A common species in riparian forests almost throughout Europe. It is distributed from NW Africa and Spain eastwards to W Asia.

Scilla andria, Hyacinthaceae

Geophyte with ovoid bulb about 2 mm long. Leaves usually 2, broadly linear to lanceolate. Scape 5-20 cm, slender. Inflorescence terminal, with 4-12 blue (rarely white) flowers. Anthers dark blue. Seeds subglobose, about 2 mm. Endemic to the Cyclades island group, distributed to Andros, Tinos, Naxos and Kimolos.

Scirpoides holoschoenus, Cyperaceae - 'Bulrush'

Densely tufted rhizomatous perennial with rigid stems 30-80 cm long. Inflorescence terminal, usually consisting of 1 or 2 subsessile, dense, globose heads and 1-3 similar heads on slender peduncles. Bracts usually 2, slender, at least the longer much exceeding inflorescence. It is distributed in Europe and SW Asia. A common species of wet and coastal habitats almost throughout Greece.

Veronica anagallis-aquatica, Veronicaceae - 'Water speedwell'

Perennial herb with erect stems 20-40 cm tall. Leaves simple, opposite, lanceolate, shallowly toothed in upper half. Flowers in axillary racemes, pale blue to pinkish with darker veins. Capsule 3-4 mm, broadly ovoid, usually glabrous. A common species of wet habitats distributed in Europe and Siberia, now naturalized in temperate areas almost worldwide.

MUSHROOMS

Armillaria mellea - 'Honey fungus'

This species produces mushrooms in tufts around the base of trunks of living and dead trees. The gills are white to yellowish at first, becoming yellow-olivaceous with age, while a well-formed ring appears on the stem. The flesh is very firm and it is considered tasty; however, prolonged cooking is needed before eating it, otherwise it is toxic.

Cyclocybe cylindracea - 'Poplar mushroom' or 'Velvet pioppini'

This species produces mushrooms in tufts around the base of dead trees, preferably poplars. Its gills are initially cream and become brown with age, a well-formed ring appears on the stem and the flesh is firm. It is a very tasty mushroom species that is easily cultivated.

Gymnopus amygdalisporus

This species was collected once in the alluvial valley of Vori in 2004 and it was then described as a new species to science. Since then it has never been reported elsewhere and it is therefore considered an endemic species of Andros island. Moreover, it has not been detected again at the original locality, which means that it is a very rare and emblematic species of Vori's wetland.

Gymnopilus junonius - 'Laughing cap' or 'Spectacular rustgill'

This species produces spectacular mushrooms, big in size and intensively colored, with an orange cap, yellow young gills and a prominent ring on its stipe. It is one of most characteristic species in alder stands of Andros. The mushrooms are fleshy and attractive but they are inedible due to their extremely bitter taste, while it is also reported as hallucinogenic.

Gyrodon lividus - 'Alder bolete'

This is one of the symbiotic species which are exclusively associated with alders. It was only found in Vori's wetland. Its mushrooms are bolete-like with yellowish to olive-brown pores beneath the cap, which are decurrently extending to the apex of the slender and often eccentric stem.

Naucoria spp. - Various species of *Naucoria*

The genus *Naucoria* is also referred as *Alnicola* which means "alder-loving" since Alnus is the latin name of the plant's genus. There are several species classified as *Naucoria*, all exclusively associated (symbionts) with alder trees. They all produce minute mushrooms and their identification to species is very difficult. It is estimated that at least four to five *Naucoria* species exist in the alder stands of Andros.

Paxillus olivellus - 'Alder roll-rim'

This is the most common symbiotic species in Andros being exclusively associated with alders. Mushrooms are grown in clusters rising from a common base under the trees, their gills are characteristically detachable from the cap's flesh, their color is olivaceous but turns brown when bruised. Mushrooms are poisonous and their toxins are known to have hemolytic action.

Phallus hadrianii - A 'stinkhorn' species

Species of the genus *Phallus* produce mushrooms that initially look like eggs with a covering which is membranous on the outside and gelatinous inside. When they mature, a phallus-like spongy stipe is emerging through the "egg" and on the top of it there is a cellular head covered by a slimy matrix with a disgusting smell. These mushrooms are not poisonous, still they are considered inedible.

CLIFFS

The rocky formations of Andros are usually small and scattered at the mountain slopes and peaks and in several occasions, along coasts. Extensive cliff systems, which are present on other Cyclades islands, are almost absent from Andros. As a result, the chasmophytic flora of the island is limited and most cliffs have been colonized by species of the neighbouring plant communities. The real chasmophytic species are few, among which the endemic *Campanula reiseri*, *C. sartorii, Dianthus fruticosus* subsp. *fruticosus* and *Erysimum senoneri*. Other chasmophytes usually found on the island are *Bubon macedonicum*, *Brassica cretica* subsp. *aegaea*, *Carum multiflorum* and *Scrophularia heterophylla*. Characteristic species of the rocky coasts of Andros are the caper (*Capparis spinosa*) and the sea fennel (*Crithmum maritimum*).

Brassica cretica subsp. *aegaea,* Brassicaceae - 'Mustard'

Small shrub with a woody base producing stems 50-150 cm long. Leaves thick and somewhat fleshy, simple or lobed at the lower part. Flowers on long, simple or branched racemes, with 4 sepals and 4 petals. Fruit an oblong siliqua 4-10 cm long, containing numerous seeds arranged in two rows. Its distribution is restricted to Greece and SE Anatolia.

Caroxylon aegaeum, Chenopodiaceae

Dense, much-branched shrub 20-60 cm tall. Leaves small, almost terete, oblong or triangular. Flowers small, in dense spikes. Perianth segments becoming broadly winged in fruit. Endemic in the islands of central and southern Aegean, commonly inhabiting small islets. It has been recorded only on Gavrionisia islets and not on the main island.

Centaurea laconica subsp. *lineariloba,* Asteraceae

Perennial herb with erect stem. Leaves pinnatisect, with unequal lobes. Inflorescence a globose head surrounded by bracts with long spines. Florets purplish. Endemic to the Cyclades island group, mainly distributed on the islands of W Cyclades. It usually grows in dry phrygana communities, but often inhabits small cliff systems on Andros.

Dianthus fruticosus subsp. *fruticosus,* Caryophyllaceae

Robust small shrub forming cushions. Vegetative shoots usually numerous, densely leafy. Flowering stems 5-30 cm long. Leaves linear-lanceolate, somewhat succulent. Inflorescence 3-8-flowered. Calyx 12-25 mm long, cylindrical. Petals 7-14 mm broad, obovate, dentate, pale pink to purplish, with darker markings at base. *Dianthus fruticosus* is endemic to Greece and subsp. *fruticosus* is endemic to the Cyclades.

Erysimum senoneri subsp. *senoneri,* Brassicaceae

Small shrub 25-50 cm tall. Leaves entire, elliptic, 20-120 mm long. Inflorescence a raceme with 5-25 flowers. Flowers yellow, with 4 sepals and petals. Fruit an oblong, flat silique, 25-65 mm long. Seeds dark brown, winged. *Erysimum senoneri* is an Aegean endemic initially collected in Andros in 1856. It has been divided into 3 subspecies. Subsp. *senoneri* is endemic to the Cyclades and the West Aegean Islands.

Frankenia hirsuta, Frankeniaceae - 'Alkali heath'

Perennial herb, woody at base. Stems procumbent, much-branched, up to 40 cm long. Leaves small, opposite, narrowly oblong. Flowers in terminal clusters. Petals 6-7 mm long, white or pink. A typical species of coastal rocks throughout the Mediterranean.

SANDY BEACHES

The majority of the sandy beaches of Andros are small and located at stream mouths. The sand dune vegetation has usually limited extent, occupying a small zone starting a few tens of meters from the sea and ending at the phryganic or wetland formations that are usually found further inland. The largest plant species that grow at the island's beaches are *Centaurea spinosa, Elytrigia juncea* and *Ammophila arenaria*, while the trees *Tamarix tetrandra* and *Elaeagnus angustifolia* have only sporadic presence. Many beaches are adorned with sea daffodils (*Pancratium maritimum*), while several specialized plants of sand dunes can be found there, e.g. *Achillea maritima, Calystegia soldanella, Medicago marina, M. littoralis, Euphorbia paralias, Polygonum maritimum, Sedum eriocarpum*, etc.

Achillea maritima, Asteraceae - 'Yarrow'

Much-branched perennial 15-40 cm tall, woody at base, densely covered with white hairs. Leaves numerous, entire, elliptic, without petiole. Flowers in globose heads 9-12 mm in diameter. Florets yellow, tubular. Achenes 4-5 mm long, straw-coloured. A typical species of sandy beaches and dunes. It is widely distributed in Greece and the Mediterranean region, reaching the Atlantic coasts of Europe northwards to Ireland.

Centaurea spinosa, Asteraceae

Small dense shrub forming hemispherical cushions up to 100 cm in diameter, with twigs transformed into sharp spines. Whole plant usually densely grey- or white-tomentose. Inflorescence a small ovoid head. Florets white, cream or occasionally pinkish. Achenes 2-3 mm long. It usually grows in coastal habitats, often expanding further inland into phrygana and garigue communities. It is distributed in the Aegean islands and the neighbouring mainland areas of Greece and Asia Minor.

Eryngium maritimum, Apiaceae - 'Sea holly'

Perennial, rigid and glaucous herb. Stems branched, 20-50 cm long. Leaves tough and leathery, with triangular spines. Inflorescence a head 12-25 mm in diameter. Bracts 5, similar to leaves, ovate, exceeding head, forming a spiny involucre. A common species in sandy beaches throughout the Mediterannean, the Black Sea and the Atlantic coasts of Europe.

Euphorbia paralias, Euphorbiaceae - 'Sea spurge'

Perennial, usually with several short non-flowering and longer flowering shoots 30-60 cm long. Leaves glaucous, somewhat fleshy, densely arranged. Inflorescence with 3-6 rays, short, 2 or 3 times forked. Fruit a capsule 4-5 mm long and somewhat broader, usually smooth, glabrous. Seeds c. 3.5 mm long, ovoid, smooth, pale grey with darker spots. A Mediterranean species reaching westwards the Atlantic coasts. It typically grows on sand dunes and is widely distributed almost throughout Greece.

Medicago marina, Fabaceae

Perennial, densely whitish-hairy herb, with a long, tough taproot. Stems procumbent, 10-30 cm long. Leaves with three leaflets 4-10 × 3-6 mm, obovate, dentate at the apex. Flowers yellow, 5-12 in short racemes. Legume with 3-5 coils, subglobose to shortly cylindrical, 6-8 mm in diameter. A common species in coastal areas of the Mediterranean, the Black Sea and Western Europe.

Pancratium maritimum, Amaryllidaceae - 'Sea daffodil'

Geophyte with large ovoid bulb with a long neck. Leaves linear, glaucous, somewhat fleshy, appearing after flowering. Stem 10-30 cm long, with 3-8 large white flowers in a lax umbel. Fruit a broadly ellipsoid capsule and seeds large, black and spongy. A well known impressive species of sandy beaches throughout the Mediterranean coasts and the Black Sea. The shape of the flowers has probably inspired the Minoan painted murals of "lilies" found at Knossos and Santorini.

Polygonum maritimum, Polygonaceae - 'Sea knotgrass'

Perennial herb with a tough, woody taproot. Stems procumbent, 20-50 cm long. Leaves without petiole, elliptical, glaucous-green, with revolute margins. Flowers small, white, in axillary clusters, subtended by bracts longer than flowers. Nutlets triangular, dark brown, shiny. It is a typical species of sandy beaches, distributed in coastal areas in the Mediterranean, the Black Sea and Western Europe.

Sedum eriocarpum, Crassulaceae

Small annual herb densely covered with glandular hairs. Leaves oblong to narrowly elliptical, cylindrical, fleshy, green, glaucous or reddish. Inflorescence a terminal cyme with usually 2 or 3 branches. Flowers 5-merous, with 10 stamens and dark red anthers. A polymorphic species subdivided into several subspecies. Plants from Andros cannot be classified with certainty to any of the known subspecies. The species is distributed from Greece eastwards to Iran.

Agaricus aridicola

This is one of the very few species which inhabit sandy beaches, and mushrooms grow just a few meters far from the sea. Mushrooms often appear after spring rains and as they emerge on the sand they are quickly desiccated, so they remain visible during the whole summer. Due to their unique morphology and habitat they are easy to identify.

CODE OF CONDUCT AND FURTHER GUIDANCE

Suitable periods for excursion and plant and mushroom observation

The end of autumn, which combines rainfalls with suitable for the development of mushrooms temperatures, is the best period for seeking, observation and collection of mushrooms. On the other hand, spring is an ideal period for seeking and observation of most plants, as this is the period when they grow again leafs and flower. As a result, apart from the beautiful sight they offer, their identification becomes easier. As in every rule, exceptions exist, with mushroom species fruiting and plants flowering during other periods of the year.

It should be mentioned that spring and autumn provide also the best hiking conditions.

Code of conduct

During every excursion, respect the natural world and your fellow human beings.

- Stay on the streets and paths.
- Avoid entering properties, especially during the ripening of the fruit.
- If you need to open a gate leave it exactly as you found it.
- Do not cut plants or wildflowers. Do not remove and destroy mushrooms.
- Avoid disturbance of bird nests and move away quickly if you are near one.
- If you have pets, it is better not to take them with you. Alternatively keep them close to you.
- Speak softly.

• Do not light fires or throw away lit cigarettes. There is a high risk of fire.

• Leave only your footprints and take only memories and photos.

In case you are interested in collecting herbs, wild fruit or mushrooms during your excursion, keep in mind the following:

• In Cyclades, the collection of herbs, wild fruits and mushrooms is allowed only under certain conditions. For the collection of edible mushrooms remove the whole mushroom (without disturbing its substrate) to ensure correct identification, while for herbs cut the stem and do not uproot them. The herbs, of which the collection is permitted, are: mint, thyme, winter savary, lemon balm, peppermint, oregano, mountain tee, St John's wort, sage, sea fennel and caper. The collection of orchids and sea daffodils is forbidden.

• The collection of mushrooms for consumption is carried out under the absolute and sole responsibility of the collector. Never harvest a mushroom if you are not sure, beyond any doubt, that it is edible-safe. This Guide cannot be used as an edible mushroom identification tool.

In case you find an injured wild animal, contact the LIFE Information Center, which operates a wildlife first aid station at Korthi.

Andros hosts vipers, a poisonous snake species.

USEFUL INFORMATION

LIFE Information Center, Korthi +30 22820 62319

Port Authority +30 22820 22250 (Chora) +30 22820 71213 (Gavrio)

Police +30 22820 22300 (Chora) +30 22820 71120 (Gavrio)

Forest service +30 22820 42292

Fire station +30 22820 42199

Health Center +30 22823 60001

Taxi +30 22820 71561 (Gavrio) +30 22820 22171 (Chora)
+30 22820 41081 (Batsi) +30 22820 62171 (Korthi)

Public Bus +30 22820 22316

Andros Routes Project: walking for heritage on a Greek island!

What is Andros Routes? It is a grass-roots, voluntary initiative to revive the old walkways of Andros. The 40 volunteers of Andros Routes maintain a network of 32 fully way marked hiking routes of 180km, providing the opportunity for residents and visitors to explore the unbelievable natural and cultural heritage of Andros. They also support the local economy via the development of hiking tourism. The continuous 100km "Andros Route", has received and holds the European quality certification "Leading Quality Trails-Best of Europe" from the European Ramblers Association ever since 2015. The "Andros Route" crosses Andros from north to south and passes by the most important monuments and beautiful landscapes of Andros and many of its settlements. Get to know the real and well hidden Andros by picking up your own route! www.androsroutes.gr

ANDROS
ROUTES

LIFE Andros Park

The LIFE Andros Park project aims to implement conservation and restoration actions to significantly restore and improve the conservation status of the alder forests of Andros (habitat type: 91E0*), as well as of the marine species Mediterranean monk seal, Mediterranean shag and Audouin's gull within the Natura 2000 sites of Andros island. The ultimate vision of these efforts is to establish a holistic management of Andros Natura 2000 sites with the support and active involvement of the local community and key stakeholders.

The project entitled "Conservation of priority species and habitats of Andros Island protected area integrating socio-economic considerations" is implemented by the Agricultural University of Athens, in collaboration with the Municipality of Andros, the Hellenic Agricultural Organization "Demeter", the Kaireios Library, the CBD-Habitat Foundation, the Hellenic Society for the Study and Protection of the Monk Seal MOm and the environmental consulting company NCC, with the contribution of the LIFE financial instrument of the European Union and the Green Fund.

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