



“Samothraki Biosphere Reserve Nomination form”

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BIOSPHERE RESERVE NOMINATION FORM

1

[January 2013]

INTRODUCTION

Biosphere reserves are areas of terrestrial and coastal/marine ecosystems, or a combination thereof, which are internationally recognized within the framework of UNESCO's Programme on Man and the Biosphere (MAB). They are established to promote and demonstrate a balanced relationship between humans and the biosphere. Biosphere reserves are designated by the International Coordinating Council of the MAB Programme at the request of the State concerned. Individual biosphere reserves remain under the sovereign jurisdiction of the State where they are situated. Collectively, all biosphere reserves form a World Network in which participation by States is voluntary.

The World Network is governed by the Statutory Framework adopted by the UNESCO General Conference in 1995 which presents the definition, objectives, criteria and the designation procedure for biosphere reserves. The actions recommended for the implementation of biosphere reserves are set out in the "Seville Strategy" and were further developed in the Madrid Action Plan (2008-2013). These documents should be used as basic references for the completion of this nomination form.

The information presented on this nomination form will be used in a number of ways by UNESCO:

- (a) for examination of the site by the International Advisory Committee for Biosphere Reserves and by the Bureau of the MAB International Coordinating Council;
- (b) for use in a world-wide accessible information system, notably the UNESCO-MABnet and publications, facilitating communications and interaction amongst persons interested in biosphere reserves throughout the world.

The nomination form consists of three parts:

Part one is a summary indicating how the nominated area responds to the functions and criteria for biosphere reserves set out in the Statutory Framework, and presents the signatures of endorsements for the nomination from the authorities concerned. Part two is more descriptive and detailed, referring to the human, physical and biological characteristics as well as to the institutional aspects. Part three consists of two annexes: the first annex will be used to update the Directory of Biosphere Reserves on the MABnet, once the site has been approved as a biosphere reserve. The second annex will be used to provide promotional and communication materials of the biosphere reserve. Tables, illustrations and maps as appropriate throughout the nomination form are welcomed.

The form should be completed in English, French or Spanish. Two copies should be sent to the Secretariat, as follows:

1. The original hard copy, with the original signatures, letters of endorsement, zonation map and supporting documents. This should be sent to the Secretariat through the Official UNESCO channels, i.e. via the National Commission for UNESCO and/or the Permanent Delegation to UNESCO;
2. An electronic version (on diskette, CD, etc.) of the nomination forms and of maps (especially the zonation map). This can be sent directly to the MAB Secretariat:

UNESCO
Division of Ecological and Earth Sciences
1, rue Miollis
F-75352 Paris Cedex 15, France
Tel: +33 (0)1 45 68 41 51
Fax: +33 (0)1 45 68 58 04
Email: mab@unesco.org
<http://www.unesco.org/mab>

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PART I: SUMMARY

1. PROPOSED NAME OF THE BIOSPHERE RESERVE:

[It is advisable to use a locally accepted geographic, descriptive or symbolic name which allows people to identify themselves with the site concerned (e.g. Rio Platano Biosphere Reserve, Bookmark Biosphere Reserve). Except in unusual circumstances, biosphere reserves should not be named after existing national parks or similar administrative areas.]

English (for international use): “Samothraki Biosphere Reserve”

Greek (for domestic use): “Απόθεμα Ανθρώπου και Βιόσφαιρας Σαμοθράκης”

2. NAME OF THE COUNTRY:

Greece

3. FULFILLMENT OF THE THREE FUNCTIONS OF BIOSPHERE RESERVES:

[Article 3 of the Statutory Framework presents the three functions of conservation, development and logistic support. Explain in general terms how the area fulfils these functions.]

3.1 "Conservation - contribute to the conservation of landscapes, ecosystems, species and genetic variation".

(Stress the importance of the site for conservation of biological and cultural diversity at the regional or global scales).

The island of Samothraki is among the rare examples of island natural beauty in the Greek Aegean archipelago. It has a relatively small surface and most of its territory is mountainous rising up to 1611m making it the second highest island in the Aegean Sea.

There are 364 recorded plant species, among them 62 tree and bush species, many of them rare and endangered (Alkimos 1988; IUCN - Threatened plants Committee 1982; Strid and Tan 1991; Strid and Tan 1998). Furthermore Samothraki is home to 8 endemic plant species. It is worth mentioning that two of them, *Anchusa samothracica*, found only at Pachia Ammos beach, (Bigazzi and Selvi 2000) and *Allium samothracicum*, found only in the castle of Chora village (Tzanoudakis and Tan 2000) only recently were discovered by science - a fact that indicates that further investigations are needed on the flora of the island. Indeed, according to preliminary results of an ongoing study, the number of native and naturalized vascular plants amounts to 1534 species, belonging to 558 genera and 107 families, including 15 endemic species (Biel and Tan 2013).

Furthermore Samothraki is known for its forests. On the north side of the island one of the last remaining old growth oak forests (*Quercus frainneto*) can be found in high altitudes, a remnant of lush oak forests that used to cover large parts of the territory. Another unique characteristic of Samothraki is the extensive riparian-alluvial forest of Oriental Plane (*Platanus orientalis*), which is one of the largest in Greece and extends even to the coastal areas. Many of those trees have a diameter of several meters and are hundreds of years old. Large areas of land, especially in the lower parts of the mountain, are covered by *Maquis sclerophyllus* scrub communities which are evergreen broad leaves of the European Mediterranean vegetation zone. Finally *Taxus bacata* individuals, one

of the rarest trees of Greece, can be found in high altitudes while above the tree line the ground cover vegetation consists of endemic and rare plant species grasslands.

Fauna

The island of Samothraki has a rich fauna. Until today 15 mammal species have been observed on Samothraki. Among them the Lesser Mole Rat (*Nannospalax leucodon*), which is one of the rarest mammals of the island, the Lesser Mouse-Eared Bat (*Myotis blythi*), which is listed as near threatened in the Red List of Endangered species in Europe and the Forest Dormouse (*Dryomys nitedula*), first observed in 2004 (Vohlarik and Sofianidou 1991; IUCN 2008). More research is needed in order to explore the number of small rodents and other mammals that exist on Samothraki.

Moreover, there are 27 reptile and amphibian species found on the island, including many snakes, lizards and fresh water turtles being rare and endemic in Greece (Broggi 1988; Buttle 1989; Clark 1991). Among them are the: European Legless Lizard (*Ophisaurus apodus*), Aesculapian Snake (*Elaphe longissima*), Cat Snake (*Tellescopus fallax*), European Pond Terrapin (*Emys orbicularis*) and the Greek Terrestrial Turtle (*Testudo graeca*).

In addition, 156 bird species have been recorded on Samothraki at various presence states. Many species use the island as a stopover during their migration. Among them the rare Eleonora's Falcon (*Falco eleonora*) with 80% of global population breeding in the Aegean Islands, other raptors like *Circaetus gallicus* and *Falco subbuteo*, wetland birds like the Black Stork (*Ciconia nigra*) and many sea birds. Many of the birds observed on Samothraki are listed in the Red book of endangered species. The Greek Ornithological Society is very active on the island implementing annual observations and monitoring of bird populations (Hellenic Ornithological Society 2007).

The insect fauna of the island is particularly species-rich, including many beetle species, butterflies, grasshoppers and hymenoptera of interest. However, more research is needed to estimate the exact species diversity on the island.

Marine environment

The seas surrounding the island keep within them large amounts of biodiversity. In the south side deep sea trenches reach depths of up to 1000m and are considered of high importance for present populations of rare and endangered marine mammals, namely *Phocaena phocaena*, *Ziphius cavirostris*, as well as several other species of dolphins (*Tursiops truncatus*, *Delphinus delphis*, *Stenella coeruleoalba*). Moreover the marine area of the site includes some extensive submarine meadows of the angiosperm *Posidonia oceanica* which is a priority marine habitat type, and to a lesser degree *Cymodocea nodosa*. Furthermore, the Mediterranean Monk Seal (*Monachus monachus*) and the Mediterranean Sea Turtle (*Caretta caretta*) are frequent visitors of the site even if they don't breed there. The rocky islet of Zourafa lies in the easternmost edge of the marine area while several reefs are also to be found offshore Aghia Paraskevi village, reaching down to a depth of 50m (Frantzis and Alexiadou 2003). The recent inclusion of a large marine area in the NATURA 2000 area opens a new era of marine research and protection.

The high ecological value of the island's natural ecosystems and landscapes is ranking to international standards and for that reason a large part of the terrestrial territory, most of it uninhabited by humans (almost 54% of the total surface, all the area above the 200m isoclines), has

been included in the European NATURA 2000 (Habitat Directive 92/43/EEC) network characterized as Site of Community Importance (SCIs) with the code GR1110004. In August 2009 the NATURA 2000 area was extended to 16438 ha, of which 5055 ha is marine area of territorial waters connecting the terrestrial with the marine element.

The designation of the island of Samothraki as a biosphere reserve within UNESCO's World Network of Biosphere Reserves would provide an ideal framework for all the ongoing conservation activities. The basic idea of biosphere reserves to link conservation with sustainable use may well be applied to the specific situation of Samothraki and its unique ecosystem.

3.2 "Development - foster economic and human development which is socio-culturally and ecologically sustainable".

(Indicate current activities and the potential of the proposed biosphere reserve in fulfilling the objective of fostering sustainable economic and socio-cultural development, including by securing flows of ecosystem services from the biosphere reserve).

The proposed Samothraki Biosphere Reserve will bring a new era of economic and human development to the resident and visiting population. Fortunately, the natural and cultural values that make Samothraki special were kept intact during the years. This capital if preserved and maintained can provide a baseline for the path of the island towards a sustainable future. Samothraki does not have a strong potential to become a typical Greek island destination for beach tourism: it lacks sandy beaches, has modest infrastructure, has a remote location and there is no easy access due to the absence of an airport. On the other hand, Samothraki has other attractions by being a hotspot of culture and nature that warrants it to be a UNESCO Biosphere Reserve. The majority of local stakeholders and tourists regard Samothraki's natural and cultural heritage as unique and want it to remain preserved.

Samothraki is still an island based on small scale agriculture and livestock breeding. The absence of open flat land and complex land ownership relations due to repeated historical shifts between belonging to Greece and Turkey has diminished the opportunities for industrial agriculture. On the other hand, small scale tourism has been developing over the past decades. The basic idea is to use the biosphere reserve concept as a tool for implementing sustainable development on the island with reference to both main areas of economic activity: agriculture and tourism.

The human resources available on the island include a growing and strong community of well-educated young people like scientists, artists and medical workers, often organized in social and environmental NGOs who are in search for interesting job opportunities on the island. Also the municipality of Samothraki has been implementing numerous projects and initiatives guided by sustainability objectives.

Sustainable tourism

Tourism based on the biosphere reserve concept can build upon a strong preference of the existing tourist population for the conservation of nature and the cultural heritage of the island, as has been proven by a recent survey. A more internationally oriented ecotourism and efforts to strengthen culturally motivated tourists can create new employment opportunities for the local young

generation while it will allow spreading the tourist season further into spring and autumn. Such an extension of the tourist season will utilize existing infrastructures, thus providing a better income for residents with no greater burden on the environment. The island has still to benefit from the optimal but sustainable use of available resources and attractions: uniqueness of landscape, unique culture, thermal springs, and combination of mountain, island and sea atmosphere. Such a plan is rather realistic.

Branding for organic products

A further development of the secondary processing sector that has had a rather modest profile could be beneficial for the island's sustainable development. In particular, Samothraki can develop sustainably in branding itself for organic products such as cheese, meat, leather and olive oil. The case of olive oil production is particularly promising, as there is the realistic possibility to produce 100% organic olive oil from the island. This could lead to a substantial increase in revenue through the improvement of the production/value chain, with a minimal effect on the environment. A prerequisite for such a shift would be an official certification that will allow selling Samothrakian olive oil as organic and the interest of a good number of young farmers willing to change practices, as well as an appropriate strategic marketing initiative.

Exporting of goat meat

An issue that warrants further exploration is that of a better utilization of goats on the island via an improved slaughtering/exporting chain. The present form of European CAP subsidy financing the keeping of goats irrespective of their effective utilization is to be reviewed from 2014 onwards – so there is a real window of opportunity to engage in different practices. A modern slaughtering house and butchering/packaging that will allow exporting goat meat, could be an incentive to bring down the number of goats causing erosion and other environmental problems, while bringing in more revenue for the farmers. The economic benefit of a smaller number of goats for the municipality could be further enhanced if one takes into account the (avoided) costs of rebuilding the roads destroyed or threatened by soil erosion.

Renewable energy self-reliance

Another interesting opportunity is the development of green, sustainable energy on Samothraki. Samothraki ranks among the windiest places of Greece. There is a great potential for Samothraki to becoming self-reliant, following the example of neighboring island Agios Efstratios, and this might be incentivized by steeply increasing prices for electricity. The establishment of a new wind park that respects the environmental conditions can change Samothraki into a renewable electricity producer with several benefits for the locals and for further employment perspectives.

3.3 "Logistic support - support for demonstration projects, environmental education and training, research and monitoring related to local, regional, national and global issues of conservation and sustainable development".

(Please indicate current or planned activities).

Samothraki holds a great potential to serve as a model site for promoting sustainable development. Its unique natural and cultural heritage is very much appreciated by the locals and is the main reason for attracting thousands of visitors every summer. Samothraki can use these unique assets and develop in an environmentally and socially sustainable way, and thus be an example of good practice for the wider Mediterranean region. The municipality of Samothraki has identified the inherent natural advantages of the island and has a long history of involvement in both national and international projects and networks in the direction of sustainable development. Examples include:

- Coastal Practice Network (CoPraNet) Project, (INTERREG IIIC Programme)
- Development of sustainable mountain sport tourism between Greece and Bulgaria (INTERREG IIIA/RHARE CBC)
- Interpr@ Project, part of South East Europe Program about laboratories of environmental interpretation for developing and implementing management plans for natural/semi-natural and protected areas
- Assessing sustainability and strengthening operational policy (SUSTAIN) Project, (INTERREG IVC Programme)
- Participation in the Network of Aegean Islands for Sustainability “DAPHNE” / Pact of Islands
- Participation in the Reference Framework for European Sustainable Cities

Infrastructure and action plans

In addition to being active in many research projects and thematic networks, the Municipality of Samothraki is also committed to facilitate research on the island, by utilising its owned land and infrastructure. Some examples of proposed actions are given below:

- A new and spacious secondary school has been built on the road connecting Capital Chora with the main port Kamariotissa. There is both the intention to host visiting scientists, as well as the space for new labs to be located in the premises of the school. The local environmental NGOs implement frequently environmental education actions for the school children of the island. The primary school of Chora plans to initiate an environmental education project on composting directly involving the students, aiming at both practical outcomes, and raising environmental awareness. The municipality has a new library with books aging from the 18th century.
- In the village of Therma on the north side of the island, the municipality of Samothraki owns a building that used to be an elementary school. It is built of stone and traditional tiles and has exceptional green surroundings within its big yard. The building is in the proximity of the village and could be easily transformed into an environmental education centre with only small-scale modifications. Existing collections of minerals, flora and fauna of the island that are currently not exhibited could be hosted there and be open to the general public and to visitors of the island.
- In the village of Therma on the north side of the island, the municipality of Samothraki owns a building that used to be an elementary school. It is built of stone and traditional tiles and has exceptional green surroundings within its big yard. The building is in the proximity of the village and could be easily transformed into an environmental education centre with only small-scale

modifications. Existing collections of minerals, flora and fauna of the island that are currently not exhibited could be hosted there and be open to the general public and to visitors of the island.

- The municipality of Samothraki owns one of the largest and most exceptional camping grounds of Greece. The area lies next to the sea and it is covered with huge Oriental plane trees along with other typical Mediterranean tree and bush species. The camping is a very attractive destination for tourists who want to experience a natural living. There are ongoing deliberations to redesign the municipal camping site into a sustainable tourism facility and biodiversity learning spot (eco-camping), in such a way that would provide the visitors with high sustainable tourism standards. Facilities such as composting, wastewater treatment and recycling, waste recycling and wise freshwater usage will be in place. Moreover information facilities like labels and information stands would provide the visitors with sufficient information and education on the camping's species diversity.

- The municipality of Samothraki owns one hectare of land on the north side of the Island. This land could be used for the creation of a Mediterranean plant botanic garden and a local plant species seed bank.

- Moreover, the municipality of Samothraki owns six wooden houses on a hill next to the sea with a capacity of 4 persons per house. They are situated in a beautiful forested and green plot of land and can host outdoor mini conferences or seminars.

- There are 3 conference halls on the island, one in the Cultural Center of Chora and two others in the biggest hotels of the island.

- Recently the National Meteorological service of Greece has established a permanent meteorological station near Kato Karyotes village on the sea side. However, there is a private automated meteorological station operating on the island since 2001.

- The forestry department has a 4WD vehicle on the island.

- Finally, on Samothraki there exists one permanent research station that belongs to the Archaeology Directorate and is situated near the village of Palaïopolis next to the archaeological museum. A temporary research station is created every summer inside the camping site by visiting scientists.

For past and current research on the island, see section 4.7(d), as well as supporting material

4. CRITERIA FOR DESIGNATION AS A BIOSPHERE RESERVE:

[Article 4 of the Statutory Framework presents 7 general criteria for an area to be qualified for designation as a biosphere reserve which are given in order below.]

4.1 "Encompass a mosaic of ecological systems representative of major biogeographic region(s), including a gradation of human interventions".

(The term "major biogeographic region" is not strictly defined but it would be useful to refer to the Udvardy classification system (http://www.unep-wcmc.org/udvardys-biogeographical-provinces-1975_745.html)).

Within a comparatively small territory the island of Samothraki includes a large number of diverse habitats, several of which are of European importance from a conservation point of view. According to the NATURA 2000 Habitats Directive, the map of the “World Network of Biosphere Reserves” and the Udvardy classification system, Samothraki clearly belongs to the Mediterranean biogeographic region. However, the geomorphology, the microclimatic conditions and the historical human presence created a diversity of natural habitats on the island that is not common in small Mediterranean islands. According to the NATURA 2000 catalogue there are 16 habitat types found within the constituted designated terrestrial area, including Endemic oro-Mediterranean heaths, Eastern Garrigues, *Sarcopoterium Spinosum* Aegean phrygana, Vegetated silicicolous inland cliffs with casmophytic vegetation, Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*, *Platanus orientalis* woods and Mediterranean *Taxus baccata* woods (Greek Biotope and Wetland Center 2001; Dimopoulos et al. 2005). Many of these habitats, especially the old growth oak forests in high altitudes and the Oriental plane forests, are absent from most of the Greek Aegean islands making Samothraki the last remaining island hosting such unique habitats in the Aegean.

Moreover the year-round availability of water creates special habitats absent on other islands. There is an extensive network of natural water courses that originate from the mountains and their course and vegetation has not been altered by humans. In addition, Samothraki hosts a number of coastal lagoons of various sizes with the biggest one being St. Andreas Lagoon situated on the west part of the island. These lagoons create favourable habitats for migratory bird species.

The marine environment around Samothraki and the marine part to be included in the Biosphere Reserve host a variety of rare endangered habitats like the extensive submarine meadows of the angiosperm *Posidonia oceanica* but also rocky islets like the islet Zourafa which lies on the easternmost edge of the marine part of the NATURA 2000 area. Moreover several reefs are also found offshore, the coastal zone reaching down to a depth of 50m. Furthermore, outside the marine NATURA 2000 limits and especially on the south marine side of Samothraki there are deep sea trenches like the North Aegean trench which reach a depth of 1000m. These habitats are largely unexplored and probably host unidentified marine species.

The agricultural land that is found mostly in the south and south west part of the island is a result of the human presence on the island and can be considered as “colonised habitat” or a cultural landscape that hosts several species of plants and animals. Since industrial agriculture is absent on Samothraki, agricultural land constitutes a high quality habitat. Terraced olive cultivations, vineyards and grain fields synthesize a typical untouched Mediterranean landscape in the south side which contrasts the wild forested north side of the island.

There are also several cultural conservation sites, such as the capital of the island, the small mountain town Chora (*a protected traditional settlement under Greek law*), and the magnificent *Sanctuary of the Great Gods*, a large temple area of pre-Greek origin that used to be a place of worship from the 3rd millennium BC onward, up into the 4th century AD when Christianity took over. This temple is the origin of the famous *Nike of Samothraki* exhibited in the Louvre. The Austrian archaeologist Lehmann was one of the scientists to start modern archaeological work there, a work that is still continued with support of the European Union and US funds by an American team of archaeologists. The abundance, significance and historical cultural importance of the structures uncovered at the temple city can be arguably matched to that of Crete. The village of

Chora with the stone houses but also the different types of gardens of varying utilisation intensity, farmlands with horticultural character adjacent to traditional farm buildings add considerably to the remarkable biodiversity of this region.

4.2 "Be of significance for biological diversity conservation".

(This should refer not only to the numbers of endemic or rare species, but may also refer to species on the IUCN Red List or CITES appendices, at the local, regional or global levels, and also to species of global importance, rare habitat types or habitats with unique land use practices (for example traditional grazing or artisanal fishing) favouring the conservation of biological diversity).

The Mediterranean basin that Samothraki is part of has been characterized as a global biodiversity hotspot by Conservation International. Such biodiversity hotspots hold especially high numbers of endemic species, yet their combined area of remaining habitat covers only 2.3 percent of the earth's land surface. On Samothraki, the formerly almost entirely wooded area has become a mosaic of diverse landscape units characterized by different kinds of land use. These circumstances have fostered the development of a particularly high biodiversity on Samothraki recognized by Conservation International.

According to the NATURA 2000 catalogue there are 16 habitat types found within the constituted designated terrestrial area and 3 habitat types within the marine constitute area. Among them there are priority habitats for conservation in European level. These include the alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* and the Mediterranean *Taxus baccata* woods for the terrestrial environment and the *Posidonia Oceanica* sea beds for the marine environment. In specific, *Posidonia oceanica* is an endemic species in the Mediterranean Sea that forms dense and extensive green meadows whose leaves can attain 1 meter in height. These underwater meadows provide important ecological functions and services and harbour a highly diverse community, including several species of economic interest (Diaz-Almela 2008).

Moreover, there are 8 endemic plant species on Samothraki (e.g. *Scrophularia spinulescens*, *Symphyandra samothracica*, *Potentilla halacsyana*, *Silene samothracica*) with two of them first discovered in 2000 (*Anchusa samothracica* and *Allium samothracicum*). In addition, there are other plant species found on Samothraki that are endemics in Greece and the Balkan Peninsula. Among them are: *Alyssum degenianum*, *Sideritis perfoliata subsp. athoa*, *Arabis verna*, *Cephalorrhynchus tuberosus*, *Leucojum aestivum*, *Saxifraga sibirica subsp. Mollis*, *Fritillaria drenovskii*. It is very probable that more plant species are to be found on Samothraki and more botanical expeditions are needed. According to preliminary results of an ongoing study, the number of native and naturalized vascular plants amounts to 1534 species, belonging to 558 genera and 107 families, including 15 endemic species (Biel and Tan 2013).

Concerning the fauna of the island there are several species that are of European importance. These are the Lesser Mouse-Eared Bat (*Myotis blythi*), which is classified as near threatened, the Forest Dormouse (*Dryomys nitedula*) classified in the Appendix III of Berne convention, the Mediterranean Monk Seal (*Monachus monachus*) which uses the south rocky inaccessible part of the island as hunting ground and is listed as critically endangered in Europe and the endangered marine mammals *Tursiops truncatus*, *Delphinus delphis*, *Stenella coeruleoalba*, *Phocaena phocaena* and *Ziphius cavirostris*.

Furthermore, several reptile and amphibian species of Samothraki are listed as rare and endangered in Europe. Among them are the Loggerhead Sea Turtle (*Caretta caretta*) which is critically endangered, the Cat Snake (*Tellesscopus fallax*) and the Dahl's Whip Snake (*Coluber najadum*) which both are endemic species in Greece, the European Pond Terrapin (*Emys orbicularis*) and Striped-Neck Terrapin (*Mauremys caspica*).

Numerous Samothraki insects have also been considered worthy of protection.

Finally there are 45 bird species included in the Annex I of the European Birds Directive as in need of protection. Priority is given to species that reproduce on the island like *Calonectris diomedea*, *Phalacrocorax aristotelis*, *Hieraaetus fasciatus*, *Falco peregrinus*, *Falco eleonora* and others.

4.3 "Provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale".

(Describe in general terms the potential of the area to serve as a site of excellence for promoting the sustainable development of its region (or "eco-region")).

Samothraki holds a great potential to serve as a model site for promoting and demonstrating approaches to sustainable development on a national and regional scale. Its unique natural and cultural heritage has been fortunately preserved over the years, is very much appreciated by locals and is the main reason for attracting thousands of tourists every summer. Samothraki can use these unique assets and develop in an environmentally and socially sustainable way, and thus be an example of good practice for the wider Mediterranean region. The municipality of Samothraki has identified the inherent advantages of the island and is already partner and participant to a great number of ongoing initiatives, projects and cooperation policies between communities, companies and organizations aimed at sustainable development and its active promotion. Examples include:

International projects and cooperation

1. The Municipality of Samothraki was a partner in CoPraNet Project that took place during 2004 – 2006 and was partly financed by the European Union (European Regional Development Fund) within the INTERREG IIIC Programme. The project had two primary objectives: First, to develop a network of coastal stakeholders to exchange information and examples of best practice which will support local and regional efforts for an integrated planning of coastal areas and will bridge the gap between planners, managers and the research community throughout Europe. Second, to support interregional exchange of best practice information on (a) sustainable tourism and (b) coastal erosion and beach management through an integrated approach.
2. Sustainable tourism development of Samothraki through the development of mountain sport tourism between Greece and Bulgaria (INTERREG IIIA/RHARE CBC 2008 – 2009). The project aimed to explore the potential of development of mountain sport tourism on Samothraki and how this would promote future sustainable perspectives.
3. Interpr@ Project which is part of South East Europe Program and is about Laboratories of Environmental Interpretation for developing and implementing management plans for

natural/semi-natural and protected areas. The program was launched in April 2010 and Municipality of Samothraki is a full partner in it.

4. SUSTAIN Project, funded through the INTERREG IVC programme, SUSTAIN has been a 3-year project part-funded by the European Regional Development Fund (2011-2013). It was a Regional Initiative addressing environment and risk prevention (Priority 2 of the programme) and the sub-theme water management. The objective of SUSTAIN was to create a fully implementable policy tool to help coastal authorities and communities throughout Europe to deliver sustainability on Europe's coast. This tool will be applicable to all 22 coastal states of the European Union. It is based on a set of easily measurable sustainability indicators that were developed and assessed during the lifetime of the project to enable Authorities to measure effectively the sustainability of our coasts
5. Participation in the Reference Framework for European Sustainable Cities.

National Projects and funds

6. Participation in the Network of Aegean Islands for Sustainability "DAPHNE" / Pact of Islands.
7. Implementation of the municipal spatial plan. The spatial plan of Samothraki has reached its final stage and in 2010 became a law in Greece. The plan has been a product of a three stage research and has been accepted by local and regional authorities. With the municipal spatial plan all land use and development perspectives are being translated into legal orders with a vision for the next 20 years.
8. Implementation of the municipal operational plan 2007 – 2010. The plan was made in order to set targets and priorities for the years to come and had four main targets: a) increase quality of life through the sustainable utilization of natural and cultural resources b) retain and attract permanent residents through the development of technical and social infrastructure c) new municipal governance d) restructuring economic activity.
9. Land restoration in all old waste disposal sites and implementation of recycling programs.
10. Construction of a municipal sewage treatment plan along with an artificial wetland.
11. Reconstruction and renewal of all drinking water supply systems.
12. Construction of bicycle routes all over the island connecting main villages.
13. Further development of the thermal springs on the island towards a sustainable use of this natural resource.
14. Restoration of overgrazed lands.
15. Establishment of a management committee for the NATURA 2000 site in coordination with the establishment of a biosphere reserve.

Besides, it is expected that with the future inclusion of Samothraki in the World Network of Biosphere Reserves, new initiatives and projects would be implemented that would ensure the island develops into a real model of sustainable development.

4.4 "Have an appropriate size to serve the three functions of biosphere reserves"

(This refers more particularly to (a) the surface area required to meet the long term conservation objectives of the core area(s) and the buffer zone(s) and (b) the availability of areas suitable for working with local communities in testing and demonstrating sustainable uses of natural resources).

The proposed Samothraki Biosphere Reserve would cover the entire island of Samothraki and a part of its marine area surrounding the island. Samothraki is located in the north of the Aegean Sea and belongs to the Eastern Macedonia and Thrace periphery which is part of the Macedonia-Thrace administrative division. The following Table 1 summarizes the area of the proposed reserve.

Surface distribution of Samothraki Biosphere Reserve	Area (ha)	% of total area
Samothraki Biosphere Reserve total area	22,853	100
of which: terrestrial	17,798	77.9
of which: marine	5,055	22.1
Core areas total	14,658	64.1
of which: terrestrial	9,603	42.0
of which: marine	5,055	22.1
Buffer zones total	5,755	25.2
of which: Archaeology A	1,019	4.5
of which: Archaeology B	2,681	11.7
of which: Wildlife Ref.	932	4.1
of which: SE Coast	1,123	4.9
Transition zones	2,440	10.7
of which: Settlements	332	1.5

Table 1: Area description of the proposed Samothraki Biosphere Reserve

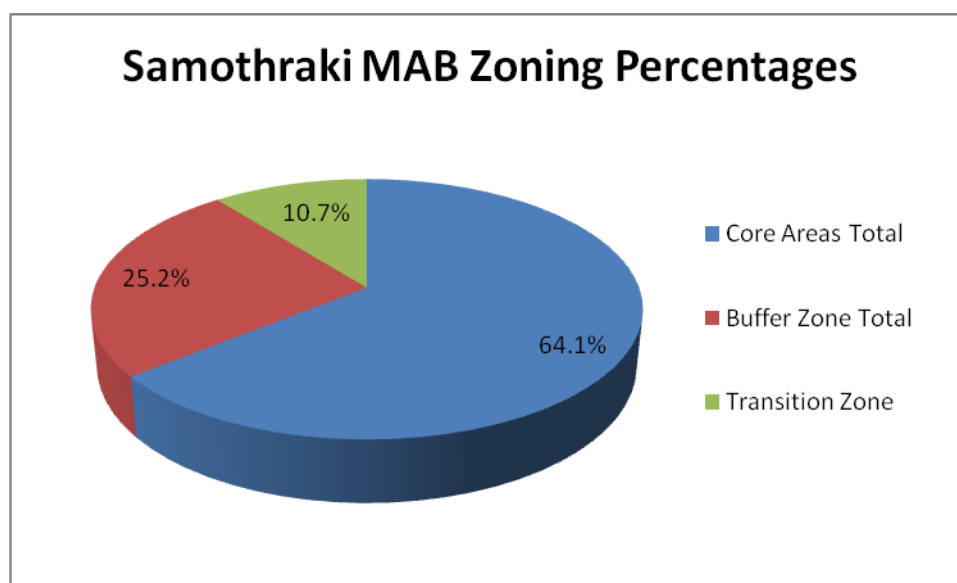


Figure 1: Zonation Percentages

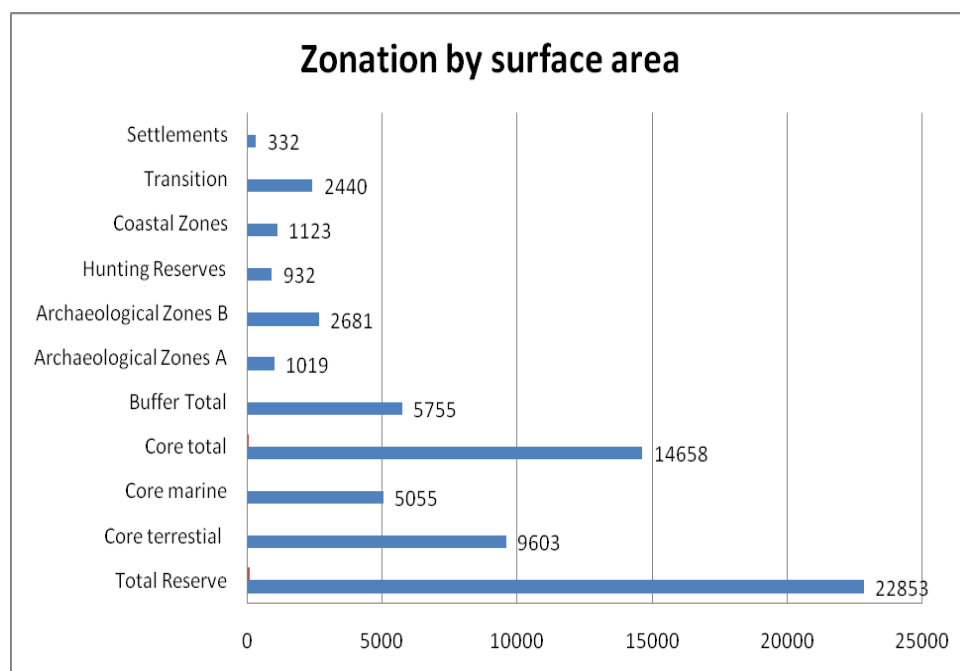


Figure 2: Zonation by surface area

4.5 Through appropriate zonation:

"(a) a legally constituted core area or areas devoted to long term protection, according to the conservation objectives of the biosphere reserve, and of sufficient size to meet these objectives".

(Describe the core area(s) briefly, indicating their legal status, their size, the main conservation objectives).

There are two proposed core areas on Samothraki Biosphere Reserve. One is terrestrial, it has a size of 9,603 ha and it accounts for 42% of the total reserve. The terrestrial core area includes all the mountain territory from 200m and above. It is home to a variety of habitats and rare species but also it is an area that important ecosystem services are taking place like the generation and purification of fresh drinking water. The marine area has a size of 5,055 ha and accounts for 22.1% of the total reserve. It includes diverse marine habitats and is home to rare marine species. Both of the core areas are included in the NATURA 2000 European network under the code SCI GR 1110004 "Feggari Samothrakis and marine area" and are protected by the European Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora. The municipality plans to integrate the two areas into a natural park under Greek law (Law 3937/2011 – For the protection of biodiversity) and is currently seeking the necessary funds to finance the required environmental study.

According to Greek Law 998/79, the Forestry Authority has under its responsibility the totality of Samothrakian forested areas. This includes forests, as well woodland scrub areas (silvopastoral, shrublands, brushwood and alpine pastures). The Forestry Authority manages all the above areas and strictly protects them from any land use change. It also strictly protects forested areas from illegal logging, poaching, illegal collection of plants etc. This is dictated by Article 24 of the Greek Constitution. A similar status is in place in Samaria Biosphere Reserve, in Crete, Greece.

For more detailed information see chapter 7.4., as well as Supporting Material

"(b) a buffer zone or zones clearly identified and surrounding or contiguous to the core area or areas, where only activities compatible with the conservation objectives can take place".

(Describe briefly the buffer zones(s), their legal status, their size, and the activities which are ongoing and planned there).

Buffer zones exist only on the terrestrial part of the proposed Biosphere Reserve. The size of all buffer zones is 5,755ha which is 25.2 % of the whole reserve. There are 4 types of buffer zones. The first one is Archaeological Zones A which are protected by national Archaeological law 3028/2002. The activities that are on-going there are archaeological research and exhibition of antiquities. The second type of buffer zone is Archaeological zones B which surround Archaeological zones A. They are also protected by national Archaeological law 3028/2002. The activities that take place there are archaeological research and extensive agriculture. The third type of buffer zone is the 2 hunting refuges protected by national law 2637/1998. There are no planned or on-going activities in the hunting refuge since they strictly serve nature protection. The final buffer zone type is the south inaccessible coastal zone which is not under a legal protection but it is mainly constituted by rocks and steep cliffs. There are no on-going or planned activities in the south coastal zone.

"(c) an outer transition area where sustainable resource management practices are promoted and developed".

(The Seville Strategy gave increased emphasis to the transition area since this is the area where the key issues on environment and development of a given region are to be addressed. Describe briefly the transition area(s), the types of questions to be addressed there in the near and the longer terms. The Madrid Action Plan states that the outer boundary should be defined through stakeholder consultation).

The transition area of Samothraki biosphere reserve includes all the terrestrial area that is not characterized as buffer or core zone. It mainly includes all the constituted limits of settlements of the island along with agricultural land and grazing lands. In the transition area, the focus will be on the implementation of an ecologically, economically and socio-culturally sustainable development. The size of the transition area is 2440 ha and it covers 10.7 % of the total reserve. The transition area will be the basis for most human activities within the proposed biosphere reserve (settlement, commercial and recreational activities). The needs of humans and nature have to be equally considered in all fields of action. Accompanying research and monitoring will document the impact of humans on the environment.

(d) Please provide some additional information about the interaction between the three areas.

Samothraki is a highly mountainous island and remains largely untouched and inaccessible to humans. The only existing impact on terrestrial ecosystems is grazing from wild goats. The numbers of tourists is calculated to approximate 40.000 annually, a number that can be possibly reduced to 28.000 after recent more accurate estimates based on boat passenger data (see Fischer-Kowalski et al. 2011). It should be noted here that, due to short duration of stay, the ratio of locals to visitors never exceeds 1:2, not even in the high season. Tourists mainly stay in one of the two major settlements (Chora, Kamariotissa) as well as in the area around Therma village, utilizing the coastal areas (transition areas). An insignificant percent of the visitors access the core mountain areas, since

this requires special climbing equipment. Most of the tourists visit the few accessible gorges of the island that have water even during the dry summer season, which constitute the main easily accessible natural attraction of the island. The extensive archaeological sites on the island that form most of the buffer zones of the proposed Biosphere Reserve, are strictly monitored and managed by the archaeological division, a fact that ensures minimal impact as the protection of archaeological sites leads also to protection of environmental assets.

4.6 "Organizational arrangements should be provided for the involvement and participation of a suitable range of inter alia public authorities, local communities and private interests in the design and the carrying out of the functions of a biosphere reserve".

4.6.1 Describe arrangements in place or foreseen.

(Describe involvement of public and/or private stakeholders in support of the activities of the biosphere reserve in core, buffer and transition areas (such as agreements, protocols, letters of intent, protected area(s) plans)).

Due to the small number of communities and total inhabitants living within the proposed biosphere reserve the implementation of participatory processes will be based on existing social structures and practices. There are several committees dealing with major issues of the island. Examples of these are the 'farmers committee' and the 'tourist operators committee'. Enhanced citizen involvement has to be achieved via representatives of the numerous interest and stakeholder groups. Furthermore the municipality of Samothraki has skilled personnel to deal with any issue arising between different group interests. For further advice on special issues several expert advisory boards will be set up to provide the special information needed.

There is a wide range of associations on Samothraki, dealing with the primary sector (farmers and beekeepers association, winemakers association, olive oil makers association, fishermen association), service sector (association of tourism entrepreneurs, association of working professionals, agro-ecotouristic women's cooperative "Aksiokersa"), action adventure tourism (diving association, mountaineering club), as well as the Sports club "SAOS" and the music association "Armonia Genesis".

Special mention should be made to the local environmental NGO Samothraki in Action, comprised almost exclusively by young females. The NGO is active in environmental education and raising public awareness of locals of all ages, as well as visitors. Its members had been major drivers for achieving a better waste management on the island. They visit schools and help the teachers in environmental education.

Representatives of the aforementioned associations have been involved in the designing of the biosphere reserve in a number of ways (public deliberations, focus group interviews, direct interaction, community meetings) and will continue to be involved in the future. Many of those are younger people that are pushing for a different development model, e.g. towards branding and exporting of quality organic products, such as goat meat and by-products, olive oil, honey and wine, towards ecotourism etc.

Regarding the participation of other authorities in the management of the biosphere reserve, the following authorities will take a shared responsibility: the Ministry of Environment, Energy and

Climate Change, the Alexandroupoli Forestry Authority, the 19th Directorate of Prehistoric and Classical Antiquities, the Chamber of Evros, the Greek National MAB Committee and the Municipality of Samothraki. New bodies include the local association Sustainable Samothraki, as well as an International Science advisory board. For specific arrangements look at section 4.7.(c)

4.6.2 Have any cultural and social impact assessments been conducted, or similar tools and guidelines been used?

(e.g. Convention on Biological Diversity (CBD)'s Akwé: Kon guidelines; Free, Prior, and Informed Consent guidelines, Biocultural Community Protocols, etc.). *(UNESCO's Programme on Man and the Biosphere (MAB) encourages biosphere reserves to consider and respect indigenous and customary rights through programmes or tools, in accordance with the United Nations Declaration on the Rights of Indigenous Peoples (http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf when relevant and appropriate)).*

As part of the feasibility study performed during the years 2008-2010 in order to assess the possibility of Samothraki joining the World Network of Biosphere Reserves, an extensive stakeholder consultation has taken place, including a survey and semi-structured interviews. As a result, a stakeholder matrix was produced in order to evaluate resources, interests, competencies, attitudes and potential conflicts.

On top, during the autumn of 2012 a series of focus group interviews have been performed with various local stakeholder groups. Efforts were made to solicit members for focus groups according to the following stakeholder interests: elderly people; parents of small and school children; craftsmen; farmers and livestock herders; small-scale fishermen; tourism related professionals; and finally professionals in the tourism accommodation sector. Issues discussed revolved, amongst others, around the following general themes:

- Diagnosis of the situation/key interests
- Resources and (possibly joint) action opportunities
- Observed changes in the island's ecosystem patterns and biodiversity
- Preferences and visions for the future, in relation to the future as a Biosphere Reserve
- Ecological and demographic "tipping points"

4.7 Mechanisms for implementation:

Does the proposed biosphere reserve have:

"(a) mechanisms to manage human use and activities in the buffer zone or zones"?

If yes, describe. If not, describe what is planned.

Human use and activities in buffer zones are strictly regulated by national archaeological law and the national law for forest and wildlife reserves. The archaeological authorities and forestry department are present on the island and responsible for the control and the presence of humans in the designated buffer zones.

"(b) a management policy or plan for the area as a biosphere reserve"?

If yes, describe. If not, state how such a plan or policy will be developed, and the timeframe. (If the proposed area coincides with one or more existing protected natural area(s), describe how the management plan of the proposed biosphere reserve will be complementary to the management plan of the protected area(s)).

The managerial objective is quite clearly to establish in a systematic way the potential of Samothraki as a show case of a successful Biosphere Reserve in line with sustainable development goals. This is closely linked to the ongoing MAB-BRIM process (*Biosphere reserve integrated monitoring*) and even more so to the MAB-BRIA process (*Biosphere reserve integrated assessment*). Samothraki provides an excellent test case for applying the BRIA approach from the very start of the potential development of a Biosphere Reserve, with equally well developed observations and indicators on the nature conservation aspects, and on the socio-economic uses of the area, their impact on conservation goals, and opportunities for improvement. Moreover, a participatory process can be co-initiated and systematically observed throughout this initiation phase. This should provide an excellent case study and model tools that the international MAB community might use for other cases as well.

Over the last years there has been a great progress in the process of establishing a management policy for the proposed Biosphere Reserve and many steps have been taken into this direction. These included comprehensive consultations with diverse stakeholders, extensive socio-economic analyses performed by the Vienna Institute of Social Ecology, several meetings between the Mayor, the municipal council, independent researchers and representatives of a series of local and regional associations during the years 2007-2013, a series of public presentations, as well as a comprehensive round of focus group interviews with diverse parts of the local community. Moreover, the municipality of Samothraki has recently implemented a "Municipal Operational Plan" which is an integrated program of local development. The main targets of the operational plan are a) increase quality of life through the sustainable utilization of natural and cultural resources b) retain and attract permanent residents through the development of technical and social infrastructure c) new municipal governance d) restructuring economic activity.

"(c) a designated authority or mechanism to implement this policy or plan"?

At present, the municipality of Samothraki and the municipal council are responsible for implementing the above mentioned Municipal Operational Plan. The Mayor has endorsed the establishment of a Biosphere Reserve on Samothraki, and is committed to establishing necessary management structures for its administration. The municipality of Samothraki currently employs 29 people on a permanent basis and has been the single managing authority on the island. However it does not have sufficient funds to support the creation of a separate body, in charge of the Biosphere Reserve management. Given the minimal financial support they receive from the central Greek government, but also in the face of the Greek economic crisis an alternative coordination structure had to be proposed.

The outcome of past and ongoing intense deliberations was a decision to follow an integrated approach, since this ensures that the management and development of the Biosphere Reserve is not only the responsibility of one actor/organization, and also minimises the vulnerability of the Biosphere Reserve as long as there is a good coordination. For a second effort at having Samothraki included in UNESCO's World Network of Biosphere Reserves, as with the first candidature in 2011, the following signatories will take a shared responsibility. Samothraki's development perspective as Biosphere Reserve is viewed to be in support of their goals and responsibilities:

- The Ministry of Environment, Energy and Climate Change (Natura 2000)
- The Alexandroupoli Forestry Authority
- The 19th Directorate of Prehistoric and Classical Antiquities
- The Chamber of Evros
- The Municipality of Samothraki
- The Greek National MAB Committee

These institutions will jointly take the responsibility for the development and management by constituting a Supervisory Board that will guide and oversee the activities of the local association “*Sustainable Samothraki*” concerning the appropriate operational management of the Biosphere Reserve in territorial and functional interlinkage with the established Natura 2000 areas. After a series of intense deliberations, it was concluded that the best scheme for the association, is that of a *non-profit civil partnership*, a popular civil society scheme in Greece. The association can provide low cost professional support well adapted to the local context, especially in the topics of overgrazing (erosion), renewable energy systems, water management and waste management, the inefficient management of all of which cost thousands of euros every year. Establishing a Biosphere Reserve on Samothraki and installing an active management there would be a wise and cost saving policy from the part of the commune and the regional authorities. A first draft of the statutes of association “*Sustainable Samothraki*” has been produced (*See supporting material*).

The association “*Sustainable Samothraki*”, in collaboration with the Scientific Board (see below), will propose to this supervisory board annual action plans to be agreed upon, and report periodically to the supervisory board to document compliance with these plans. By its statutes, the aims of the association are:

- nature conservation in accordance with the existing protection standards (in particular reinforcing already existing NATURA 2000 areas)
- support of sustainability innovations and income raising measures for sustainable local business, such as optimizing the supply chain management of local products
- logistic support for scientific monitoring and research
- support for the sustainability of Samothraki through public communication and educational measures and
- monitoring long-term sustainable use of economically relevant natural resources.

Both the Supervisory Board and the Association will receive advice by a Scientific Board for which a number of internationally renowned scientists have already committed, such as Atholl Anderson, Professor of Prehistory, Archaeology and Natural History Australian National University, School of Culture, History and Language (Australia), Marian Chertow, Professor of Environmental Management Chairperson for Yale University’s Sustainable Island Program (USA); Marina Fischer-Kowalski, Professor of Social Ecology, Alpen Adria University (Austria); Stefan Goessling, Professor of Tourism, Linnäus University Kolmar (Sweden); Michael Scoulllos, Professor of Environmental and Marine Chemistry, University of Athens (Greece), President of the Greek National Committee of UNESCO MAB; Simron J. Singh, Assistant Professor at the Alpen Adria University (Austria); Nikolaos Skoulikidis, Research Director and Head of the Dept. of “Inland Waters”, Institute of Marine Biological Resources & Inland Waters, Hellenic Centre for Marine Research (Greece). On their own initiative, members of the Scientific Board will seek to raise

funding for research on the island, help building networks of interested researchers, organize scientific excursions and workshops, support Samothraki Biosphere Reserve in linking into existing networks of sustainable island initiatives and help with reviewing research proposals and publications.

“(d) programmes for research, monitoring, education and training”?

If yes, describe. If not, describe what is planned.

Archaeological research

There is a well-established archaeological research tradition on Samothraki, that continues more or less uninterrupted from 1854 with the excavation by Ernst Otto Blau and Konstantin Schlottmann (1855: 601-636, Erhardt 1985), concentrating on the topography and description of the buildings and sculptures of the Sanctuary of the great Gods (Matsas and Bakirtzis 2001). In 1863 the French consul Charles François Noël Champoiseau discovered the Nike of Samothraki (Lehman 1998). A French expedition led by Gustave Deville and Ernest George Conquart (Deville 1867, Conquart 1867), mapping the visible ruins and excavating in several places (Lehmann 1998, Ehrhardt 1985) was followed by two expeditions in 1873 and 1875, run by the Austrian Alexander Conze, who directed the first extensive excavations with a big team. He was joined also by the architects Alois Hauser and Georg Niemann to reconstruct the ancient buildings (Conze 1860, 1875, 1880), as well as geologist Rudolf Hoernes (Hoernes 1874). Charles Champoiseau excavated again in 1879 and 1891 when he discovered the Theatre (Matsas and Bakirtzis 2001). The Samothracian physician N.V. Fardis also excavated at the same time on several locations on the island (Matsas and Bakirtzis 2001).

In 1923 and 1927 a French-Czechoslovak group under Antonin Salač, Fernand Champouthier, François Salviat and Jan Nepomucký worked on the Sanctuary (Matsas and Bakirtzis 2001, Champouthier et al. 1956), followed by the systematic excavations by the Institute of Fine Arts of the New York University in collaboration with the University of Atlanta starting in 1938 and especially in the 1950s under Karl Lehmann-Hartleben. After his death, his ex-wife Phyllis Williams Lehmann took over the direction of the excavations at the Sanctuary together with James R. McCredie and since 2012 Bonna Daix Wescoat is the new project manager. The result of these still ongoing excavations are 11 volumes of excavation reports (Samothrace Vols 1-11, Bollingen Series), each of them comprising two to four volumes, as well as a series of preliminary reports published in *AJA* and *Hesperia*, as well as one excavation report published in 1976 (Ehrhardt 1985). The first studies on the religion and cult practised at the Sanctuary were already performed in ancient times, but within the modern archaeological research, Otto Kern and Carl Friedrich were among the first to dedicate several complete articles on this topic (Friedrich 1909; 1919). The newest research on the gods of Samothraki was done by Zlatozara Gočeva (2002) and Nora M. Dimitrova.

Besides the focus on the excavation of the Sanctuary of the Great Gods, a large amount of work concentrates on the first settlements on the island. Here the main area of investigation is the, so far, oldest settlement, Mikro Vouni, located in the southwest of the island. Dimitris Matsas' studies on the site show human presence starting in the Late Neolithic (late 6th first quarter of 4th millennium BC), that continued during the Middle and Late Bronze Age until around 1700 BC (Matsas 2009). One of the few studies regarding the paleogeography of Samothraki was also carried out at Mikro

Vouni, reconstructing the ancient sea level and coastal zone a bit south of the site, called the Lambi marsh (Matsas 2009). Even today the main grain fields are located in this area, and the antique temple of Demeter, the goddess of fertility, was built close to the old settlement (Ehrhardt 1985). There has been a lot of investigation on the origin as well as the timing of arrival of the first inhabitants on Samothraki (e.g. Graham 2002; Tsetschladze 2008) but the subject is still under dispute. By the time of the Early Bronze Age (Tsetschladze 2008) the local population of Samothraki were descendants from the Thracian mainland (Graham 2002). A.J. Graham and P. Ilieva have made comprehensive studies on the first settlers (Graham 2002, Samothrace 5: 270).

Socioecological research

Another important and more recent research tradition has to do with socioecological studies. Since 2007, the Institute of Social Ecology in Vienna (SEC), Alpen-Adria University of Klagenfurt, has coordinated research on the island of Samothraki, and in collaboration with the Commune and local stakeholders, provides scientific support in order to develop a strategy to transform the island into a UNESCO Biosphere Reserve. In a participatory process the initiative was gradually transferred into a broader base of local stakeholders. This is a dynamic and ongoing process that has been initiated by the Austrian MAB committee and was highly acknowledged, including the Sustainability Award 2010 it received by the Austrian Ministry of Science and Research.

Past achievements were the realization of a feasibility study for the proposed Biosphere Reserve on the island of Samothraki, realized by SEC, Vienna, in collaboration with UNESCO Venice (Fischer-Kowalski et al. 2011). This included an extensive survey of visitors, their behavior and preferences, the outline of economic models for tourism, a comprehensive consultation with stakeholders and several meetings during the summers of 2009-2012, all of which led to the first official application unanimously supported by the municipal council and submitted by the Greek National MAB committee in 2011, as well as the current resubmission.

Moreover, in October 2012 a 1-week student course/excursion was organized by SEC to the island of Samothraki. The objectives of the course were manifold: (a) expose students to sustainability and development challenges in a local setting seen from the perspective of social ecology, (b) reflect and engage in the design of a management plan to include first project ideas for the new biosphere reserve such as for sustainable tourism, land use, water, waste and energy systems, and (c) allow the experience of a transdisciplinary research process by learning to interact with stakeholders and conduct interviews in a culturally challenging environment. Methodologically, during the excursion two main approaches were pursued: (a) focus group interviews with local stakeholders (such as fishermen, farmers, local professionals, elderly people in need of care etc.) in order to explore alternative visions for the future of the island and (b) distance sampling methods in order to estimate livestock densities in different area types. This was performed in order to assess the pressing problem of erosion and biodiversity loss due to overgrazing. An extensive report from the course has been produced (Petridis et al. 2013) and is available as a working paper online: http://www.uni-klu.ac.at/socec/downloads/WP142_WEB.pdf

Following-up on the previous excursion, funds have been secured from an Erasmus Intensive Programme (IP) in order to perform another student excursion in Spring 2014. The course entitled “*Achieving sustainable development on Samothraki island: Social ecology concepts and methods in*

a real world context” will be coordinated by the Institute of Social Ecology Vienna (SEC), University of Klagenfurt, in partnership with the following cooperating institutions: Lund University, National University of Ireland, Aegean University and Autonomous University of Barcelona. The innovative character of the described IP is that it will provide an opportunity for the students to engage in a real-life project, thus allowing them to make use of their different scientific backgrounds and their respective knowledge within the context of sustainable development and nature conservation. On the one hand the students will be confronted with the challenges and possibilities of working in small interdisciplinary and multicultural problem-oriented teams. On the other hand students will engage in active field-work. The project aims to provide participating students training in socio-ecological methods within a local setting. Moreover, the ongoing process of bottom-up transformation and the challenging new European environment will give the students the opportunity to engage in a real-life project and utilise their scientific training within the field of sustainability studies, in order to analyse and accompany this process further.

Results from these activities have appeared in both peer-reviewed publications (Fischer-Kowalski et al. 2011, 2013, Petridis 2012), as well as presented in numerous internationally renowned conferences (International Conference on Human Ecology, Manchester, UK, 2009; 15th International Symposium on Society and Resource Management, Vienna, Austria, 2009; 12th Biennial Conference of the International Society for Ecological Economics”, Rio de Janeiro, Brazil, 2012), and thematic workshops (workshop on “Island Industrial Ecology and Sustainability” in Hawaii, organized by Yale University, USA, 2011; International Workshop “Best Practices for Sustainable Use and Biodiversity Conservation in Protected Areas in Regards of the Biosphere Reserve Concept”, Strandja Nature Park, Bulgaria, organised by the Bulgarian Biodiversity Foundation with the support of the UNESCO Venice Office and the Bulgarian National MAB Committee, 2011; INTERREG IVC programme SUSTAIN Workshop on “The Needs of Small Islands” on Samothraki, Greece, 2011). There are currently two PhD students and one master student working on issues related to Samothraki, ranging from an analysis of the goat life-cycle on the island, to an archaeological reconstruction of demographic and ecological tipping points.

Other research activities

On top of the ones mentioned above, there are strong connections with many national universities and other institutions doing research on the island (Agricultural University of Athens, Aristotle University of Thessaloniki, University of Thrace, University of Thessaloniki, Hellenic Centre for Marine Research, Greek Fisheries Research Institute). The annual three-week “Summer ecological university”, organised by the Interdisciplinary Institute for Environmental Research in 2010 was just one of the various workshops having taken place on the island. Moreover, the Hellenic Centre for Marine Research is currently performing an environmental assessment of inland waters on Samothraki (Skoulidakis et al. 2013). Another ongoing research activity is the annual monitoring of bird populations especially during migration period done by the staff of the Hellenic Ornithological Society. On top, botanologists Burkhard Biel and Kit Tan have just published an extensive Report on Studies on the flora and vegetation of Samothraki (Biel and Tan 2013). The inclusion of Samothraki in the World Network of Biosphere Reserves, within the Man and Biosphere Program of UNESCO, would be an opportunity to place all these and further efforts into a broader framework by promoting cooperation and information transfer and strengthening the direction of Samothraki towards sustainable development.

Scientific Networks

While long-term ecological research (LTER) deals with patterns and processes in ecosystems over long temporal scales, the newly established field of long-term socio-ecological research (LTSER) attempts to include a socio-economic dimension, investigating not only changes in ecosystems, but also societal pressures, their underlying driving forces, as well as impacts of changing ecosystems on society and the economy (Haberl et al., 2006). Within Europe there are 23 LTSER platforms coordinated by the LTER-Europe network comprising of multi-level infrastructure for investigating interactions between social and ecological systems on the regional or sub-regional scales. The scope of this project would be to initiate an LTSER station in Samothraki, addressing the social metabolism and land use in historical times (such as the time period around the construction of the Sanctuary of the Great Gods sanctuary, or the turbulent 19th century) and its development over the centuries in a close collaboration between archaeologists (of which a substantial number is working on the island already), social ecologists and land use scientists. The goal of this study is to outline a medium-term research plan and bring together the potentially interested parties. This will draw on international approaches to LTSER development as outlined in the recently published state-of-the-art compendium on LTSER (Singh et al. 2013), explore local opportunities and facilities through stakeholder interviews, and seek to design plans for engaging external scientists and students in providing scientific labour power in addition to local experts to move ahead.

Furthermore, Samothraki has been invited to join the newly founded consortium of islands that now pioneer to apply industrial ecology concepts, tools and methods to address the sustainability of island systems. For ecological science, islands are particularly useful model systems because they are isolated systems in many regards, with clear physical boundaries, often relatively small geographic areas, and comprehensible driving forces that can be disaggregated and experimentally controlled. Yet, in the modern, interdependent world, these same properties present island populations with the challenges of limited resource availability, tenuous resource security, and limited natural carrying capacity. Thus, populated islands typically have fragile ecosystems and economies, are heavily dependent on imports for a broad range of goods, and suffer from size constraints in the development of resilient water, sanitation, energy, and waste management systems. This makes islands excellent focal points for studies of industrial ecology, a new field that systematically analyzes the interactions between human/industrial activities and the environment, in an attempt to move toward systems and practices that are sustainable in the long-term. Industrial ecology studies explicitly model flows of materials and energy at the island system level, using the analytical results to offer recommendations for sustainable practices. Under the premise that “you can’t manage what you can’t measure”, industrial ecology provides planners and managers with specific information about the physical basis of island economies: what and how much material and energy is domestically produced, imported, transformed, demanded, used, and discarded. Based on accurate data, effective policy can then be crafted to move island societies towards more sustainable modes of production and consumption. The first workshop on island industrial ecology and sustainability was held in Hawaii, 5-8 January 2011, where Samothraki was represented and raised expectations of a sound science plan and research station on Samothraki.

For participation in sustainable development projects, infrastructure and act. plans see section 3.3

5. ENDORSEMENTS:

(If a large number of Authorities are involved, please enclose the additional endorsement letters as a separate Annex).

5.1 Signed by the authority/authorities in charge of the management of the core area(s):

Full name and title: κ.Γεώργιος Μ. Χανός / Mr. Georgios M. Chanos
ΔΗΜΑΡΧΟΣ ΣΑΜΟΘΡΑΚΗΣ / Mayor of the municipality of Samothraki

Date: _____

Address, email, phone number: _____

5.2 Signed by the authority/authorities in charge of the management of the buffer zone(s):

Full name and title: κ.Γεώργιος Μ. Χανός / Mr. Georgios M. Chanos
ΔΗΜΑΡΧΟΣ ΣΑΜΟΘΡΑΚΗΣ / Mayor of the municipality of Samothraki

Date: _____

Address, email, phone number: _____

5.3 Signed as appropriate by the National (or State or Provincial) administration responsible for the management of the core area(s) and the buffer zone(s):

Full name and title: _____

Date: _____

Address, email, phone number: _____

Full name and title: _____

Date: _____

Address, email, phone number: _____

Full name and title: _____

Date: _____

Address, email, phone number: _____

5.4 Signed by the authority/authorities, elected local government recognized authority or spokesperson representative of the communities located in the transition area(s).

Full name and title: κ.Γεώργιος Μ. Χανός / Mr. Georgios M. Chanos
ΔΗΜΑΡΧΟΣ ΣΑΜΟΘΡΑΚΗΣ / Mayor of the municipality of Samothraki

Date: _____

Address, email, phone number: _____

5.5 Signed on behalf of the MAB National Committee or focal point:

Full name and title: Δρ. Μιχαήλ Ι. Σκούλλος / Univ.Prof.Dr Michael Scoullous
ΠΡΟΕΔΡΟΣ ΕΛΛΗΝΙΚΗΣ ΕΠΙΤΡΟΠΗΣ ΜΑΒ / Chair of Greek National MAB Committee

Date: _____

Address, email, phone number: _____

PART II: DESCRIPTION

6. LOCATION (COORDINATES AND MAP(S)):

6.1 Provide the biosphere reserve's standard geographical coordinates (all projected under WGS 84):

Cardinal points:	Latitude	Longitude
Most central point:	40°28'35.55"N	25°34'16.63"E
Northernmost point:	40°30'37.19"N	25°33'53.76"E
Southernmost point:	40°23'31.42"N	25°35'3.40"E
Westernmost point:	40°28'34.77"N	25°26'35.86"E
Easternmost point:	40°28'39.25"N	25°50'19.13"E

6.2 Provide a map(s) on a topographic layer of the precise location and delimitation of the three zones of the biosphere reserve (Map(s) shall be provided in both paper and electronic copies). Shapefiles (also in WGS 84 projection system) used to produce the map must be attached to the electronic copy of the form.

If possible, also provide a link to access this map on the internet (e.g. Google map, website...).

See annex

7. AREA (see map):

Total: 22,853 ha

	Terrestrial	Marine (if applicable)	Total
7.1 Area of Core Area(s):	9,603 ha	5,055 ha	14,658 ha
7.2 Area of Buffer Zone(s):	5,755 ha	0 ha	5,755 ha
7.3 Area of Transition Area(s):	2,440 ha	0 ha	2,440 ha
TOTAL:	17,798 ha	5,055 ha	22,853 ha

7.4 Brief rationale of this zonation in terms of the respective functions of the biosphere reserve. If a different type of zonation also exists indicate how it can coexist with the requirements of the biosphere reserve zonation.

(e.g., if national criteria exist for the definition of the area or zones, please provide brief information about these).

The zonation of the proposed Samothraki biosphere reserve is entirely based on the newly finalized and approved spatial plan of the Municipality of Samothraki. The spatial plan has been implemented by an experienced urban planner, with the aim to create conditions under which sustainable development is promoted, social coherence and development and to protect the natural environment and resources. Furthermore the spatial plan sets up regulations on land use for the whole island, creates new spatial units and finally the most important aspect is that it bans house construction outside the constituted limits of settlements. This last regulation is especially important because it warrants the quality of Samothrakian landscapes for the years to come.

Moreover, for the creation of the three biosphere reserve zones (core, buffer, transition), specific zones from the spatial plan have been selected that serve the same or similar functions as needed from the Seville Strategy. In specific:

Core Areas

In principle all core areas must be under a legal protection such as a national park and it must be safeguarding the goal of long term protection of natural ecosystems having also an appropriate size. Samothraki has one NATURA 2000 area which is protected by Habitats Directive 92/43/EEC and by the Greek law. The Habitats Directive (together with the Birds Directive) forms the cornerstone of Europe's nature conservation policy. It is built around two pillars: the NATURA 2000 network of protected sites and the strict system of species protection. All in all, the directive protects over 1,000 animals and plant species and over 200 "habitat types". On Samothraki, the designated NATURA 2000 site has one marine part and one terrestrial and both of them have a reasonable size as compared to the total island. In specific the terrestrial core area totals to 9603 ha (54% of total terrestrial area) while the marine area is 5055 ha. The two areas can perfectly serve as core areas for the proposed biosphere reserve.

Buffer Zones

The role of buffer zones is to minimize the effects of human activities towards the core areas. In this zone, only activities compatible with the conservation objectives can take place. For that reason four types of spatial elements were unified in order to create the buffer zone for Samothraki, namely the wildlife reserves, the archaeological zones A, archaeological zones B and the south coastal zone along with the two coastal lagoons in the west side.

a) There are two wildlife reserves on Samothraki. One exists on the north side in Katsabas and the second is on the south side near Xiropotamos river. Both of the areas have bush vegetation (phrygana) and they host a number of species. Wildlife refuges are managed by Greek law 2637/1998 which declares that, "Within wildlife refuges hunting of any type of animal, destruction of vegetation, soil removal, pollution and urbanization are forbidden. Any other activity that would be planned there needs to have a type A Environmental Impact Assessment Study implemented beforehand".

b) There are 66 sites on Samothraki that are characterized as Archaeological zones A, some of which cover big areas, while others being single monuments. Archaeological zones A are protected by Archeological Law and no urbanization can take place there. Usually these zones include large amounts of vegetated lands. Also, once a site has been excavated it is left untouched, opened to the

public or fenced. For that reason, zones A host a great number of species and can be considered to simultaneously promote culture and nature protection.

c) Archaeological zones B are areas where archaeological research hasn't started yet, which are also protected by the same law that applies to zones A. Agriculture can still be practiced within Archaeological Zones B but the depth of soil tilling is controlled so that minimum damage is done to underlying antiquities. No other activity can take place in zone B before an archaeological excavation takes place.

d) The final spatial element that is included in the buffer zone is the south coastal zone that connects the two major and most visited beaches of the island: Pachia Ammos and Kipos beaches. The area's main characteristic is its vegetation, and steep rocks that reach down to the sea. The area is accessible only by boat and can be considered the hidden jewel of Samothraki. National laws that protect the coastline apply to the area.

Transition Area

The size of the transition area is 2440 ha and accounts for 10.7 % of the total reserve. The purpose of the zone is the promotion and development of sustainable resource and management practices. However, it will host all human activities that took place in the past and will happen in the future. The transition area firstly includes all the urban – residential areas of the island. It has to be mentioned that the area that is marked as urban on the spatial plan does not mean that the area is already built. At the moment only 40% of it is built; the rest is land near the existing settlements that is going to be designed to be used only for house construction. This is a positive fact since no great infrastructure extensions will be needed as all the amenities like electricity and drinking water networks are already in place. Also valuable agricultural land or natural land will not be used for urbanization. Furthermore, there will be building restrictions on the size, type, and height of each new building.

Finally the transition area includes the majority of agricultural land with grains, olive trees and vines. Also within the transition area are private forests and grazing lands which are used mainly for livestock breeding and keeping. Even in the transition zones the control of grazing activity allows the development of new forest vegetation and the production of aromatic plants and herbs.

8. BIOGEOGRAPHICAL REGION:

[Indicate the generally accepted name of the biogeographical region in which the proposed biosphere reserve is located.] (The term "major biogeographic region" is not strictly defined but you may wish to refer to the Udvardy classification system (http://www.unep-wcmc.org/udvardys-biogeographical-provinces-1975_745.html)).

Samothraki biosphere reserve belongs clearly to the Mediterranean biogeographic region. However the orientation of the mountain chain has created two distinct microclimates on the island, the north side being more wet and vegetated and the south side being drier and of typical Mediterranean.

9. LAND USE:

9.1 Historical:

(If known, give a brief summary of past/historical land use(s), resource uses and landscape dynamics of each zone of the proposed biosphere reserve).

Samothraki in the ancient times was called “Iliessa” meaning covered with forests. Since it was a holy place in antiquity probably these forest were kept intact until the coming of Christianity and the seizure of the ancient mysteries. In the middle ages the island was subject to logging and clearing for agriculture. The same practice continued until modern times. Today extensive grazing is taking place in large parts of the island while some areas have been used for building houses.

9.2 Who are the main users of the biosphere reserve? (for each zone, and main resources used).

If applicable, describe the level of involvement of indigenous people taking into account the “United Nations Declaration on the Rights of Indigenous Peoples”. (http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf).

The only use of the terrestrial part of core area is of extensive grazing by semi-wild goats and hiking of small groups of people for educational purposes. In the marine part the only activity is amateur sport fishing and scuba diving.

The majority of the buffer zone is protected by archaeological law especially in the zones A of archaeological interest. The rest of the buffer zone is used for agriculture and for livestock breeding.

The main land uses in the transition area are agriculture, settlements and trade. The analysis of economic sectors on Samothraki shows the dominance of the primary sector among the residents of the island. Main categories within the sector are agriculture, livestock keeping and fisheries. Agricultural land occupies 2,792 ha (around 15.7% of the total island territory) and the main products are grains, olives, grapes and horticultural products. Of the total agricultural land 470 ha are being irrigated by groundwater wells. Moreover, the livestock capital of the island numbers some 60,000 goats and sheep used for milk and meat production, most of them grazing free on the island, around 1,000 pigs, 9,000 poultry and 1,550 beehives for honey production. The annual honey production is around 15 tons. Fisheries are an existent economic activity and in 2007 2.200 tonnes of fish were caught. The price of the 2007 fish catch was estimated at around 9.3 million Euros (National Statistical Service of Greece 2005; Greek Ministry of Agriculture 2008).

The secondary sector represents a small fraction of the economic activity on the island. There is one olive press, a municipal wheat mill, a small winery, a municipal slaughter house and some construction/mining activity by private entrepreneurs. There are also several bakeries and one cheese factory. One of the most interesting production facilities is the one of the Women’s Cooperative of Samothraki. They have established a small production unit producing traditional local sweet drinks only from products of the island in order to supplement their income.

Finally, the tertiary sector which includes tourism and services has grown substantially the last decade on Samothraki. There are 14 small to medium size hotels with 620 beds and 74 private houses for rent with 982 beds. Moreover there are two municipal camping sites on the north side of the island with a capacity of 1,700 people. The total capacity of all existing touristic accommodation

is estimated at around 4,000 people. In term of services there is an archaeological museum, a diving center, a thermal spring-spa center in Therma village, a municipal health center in Chora, two banks and several shops and restaurants (Evros Prefecture directorate of tourism 2008).

A recent study has identified the main stakeholder groups among permanent residents (important categories among them are farmers/livestock owners, local entrepreneurs, local orthodox church, civil society organisations, and politicians/administrators).

	Decision Makers - Municipality	NGO Members	Local Entrepreneurs	Local Orthodox Church	Livestock Owners
Interactions with ecosystems	Ability to regulate interactions	Promote conservation / sustainability	Receive services and benefits	Major land owner	High-Uncontrolled grazing
Interests and preferences	Willing to “develop” the island	Specific goals / campaigns	Profitable business	Promote religion and religious tourism	Income generation, secure living
Resources and competencies	Have financial and legal tools	Communication skills, fund raising, education	Business skills / pool for development ideas	Ability to persuade locals, fund availability	Knowledge of the land
Attitude towards future Biosphere Reserve	Positive	Positive	Positive under the condition of better tourist image	Positive if their scopes promoted	Skeptical – fear to have fewer rights on land
Problems	Absence of central government, feeling of forgotten border land, connection with the mainland	Little support from decision makers, more funds, connection with the mainland	Short tourist season, bad connection with the mainland	Reduction of church tourists	Low prices of their products, absence of marketing and quality measures

Table 2: Main stakeholder groups: interests, competencies and attitudes

9.3 What are the rules (including customary or traditional) of land use in and access to each zone of the biosphere reserve?

The largest part of the island’s surface, including the core zones of the proposed Biosphere Reserve are part of the NATURA 2000 network. There are two, largely overlapping NATURA 2000 areas, GR1110004 - Type: SCI and GR1110012 - Type: SPA. The municipality plans to integrate the two areas into a natural park under Greek law (Law 3937/2011 – For the protection of biodiversity).

According to Greek Law 998/79, the Forestry Authority has under its responsibility the totality of Samothrakian forested areas. This includes forests, as well woodland scrub areas (silvopastoral, shrublands, brushwood and alpine pastures). The Forestry Authority manages all the above areas and strictly protects them from any land use change. It also strictly protects forested areas from illegal logging, poaching, illegal collection of plants etc. This is dictated by Article 24 of the Greek Constitution. A similar status is in place in Samaria Biosphere Reserve, in Crete, Greece.

Samothraki is a highly mountainous island and remains largely untouched and inaccessible to humans. The only existing impact on terrestrial ecosystems is grazing from wild goats. Tourists

mainly stay in one of the two major settlements (Chora, Kamariotissa) as well as the area around Therma village, utilizing the coastal areas (all included in the transition area). An insignificant percent of the visitors access the core mountain areas, since this requires special climbing equipment. Most of the tourists visit few of the accessible gorges of the island that have water even during the dry summer season, which constitute the main easily accessible natural attraction of the island. The extensive archaeological sites on the island, that form most of the buffer zones of the proposed Biosphere Reserve, are strictly monitored and managed by the archaeological division, a fact that ensures minimal impact as the protection of archaeological sites leads to protection of environmental assets.

There are 4 types of buffer zones. The first one is Archaeological Zones A which are protected by national Archaeological law 3028/2002. The activities that are on-going there are archaeological research and exhibition of antiquities. The second type of buffer zone is Archaeological zones B which surround Archaeological zones A. They are also protected by national Archaeological law 3028/2002. The activities that take place there are archaeological research and agriculture. The third type of buffer zone is the 2 hunting refuges protected by national law 2637/1998. There are no planned or on-going activities in the hunting refuge since they serve strictly nature protection. The final buffer zone type is the south inaccessible coastal zone which is not under a legal protection but it is mainly constituted by rocks and steep cliffs. There are no on-going or planned activities in the south coastal zone.

Land tenure on Samothraki follows the general rule observed in the rest of the country. Like in most of Greece, land ownership on Samothraki is to a certain extent unclear as there is no official national cadaster. There is an ongoing effort in all of Greece to start producing a national cadaster but this initiative has not yet reached the island of Samothraki. The largest amount of land on the island is owned by the municipality of Samothraki, but there are some private claims on certain municipal lands. There are no foreseen changes in land tenure since it is regulated by the municipal spatial plan.

9.4 Describe women's and men's different levels of access to and control over resources.

(Do men and women use the same resources differently (e.g., for subsistence, market, religious/ritual purposes), or use different resources?).

There is no significant differentiation between women's and men's level of access to and control over resources. What is observed is a functional differentiation: farming is a predominantly male activity, but extensive interviews have revealed that the role of women in farming is unacknowledged. Heritage customs often lead to the daughters inheriting the house and part of the land, while sons inherit the livestock.

10. HUMAN POPULATION OF PROPOSED BIOSPHERE RESERVE:

[Approximate number of people living within the proposed biosphere reserve]

	Permanently	Seasonally
10.1 Core Area(s)	___0___	___0___
10.2 Buffer Zone(s)	___0___	___0___
10.3 Transition Area(s)	___2,860___	___2,000-3,500___
Total:	___2,860___	___2,000-3,500___

10.4 Brief description of local communities living within or near the proposed biosphere reserve.

(Indicate ethnic origin and composition, minorities etc., main economic activities (e.g. pastoralism, tourism) and the location of their main areas of concentration, with reference to the map (section 6.2)).

The island of Samothraki is a self-governing municipality which belongs to the Macedonia–Thrace, administrative division. The population on Samothraki is dominated by local Greek Samothrakians, while there are few immigrants established with their families on the island. According to the census of the National Statistical Service of Greece the permanent resident population was 2,712 inhabitants in 2001, having been decreased 12% in relation to the 3,080 inhabitants in 1991. The largest ever population size recorded on the island was in 1951 reaching 4,258 inhabitants. However, during the 1960's a wave of emigration began mainly to Central European countries, especially to the region around Stuttgart in Germany, in search of a better future (Kolodny 1982). Even nowadays there is a vibrant Samothrakian community in Stuttgart who visit their relatives on the island mainly during the summer months. According to the 2001 census there are 16 legally constituted settlements on the island. The biggest ones are Kamariotissa (940 inhabitants) which is the passenger and commercial port of the island, Chora (698 inhabitants) which is the traditional capital of the island, and Lakkoma (329 inhabitants) in the south which is an agricultural farmers village. The demographic data of the municipality show that in ages below 50 years, there are significantly more men than women, while above 50 there are more women than men. Moreover, ages ranging 15 – 64 represent almost 68% of the population. There has been a decrease in child population ages 6 – 11 years, which reached 30% in the decade 1991 – 2001 (National Statistical Service of Greece 2005). Tables 3 – 5 summarize the current population characteristics like composition according to sex and age group, education level and household composition according to the 2001 National Statistical Service of Greece population census.

	Total		0 – 14 years		15 – 64 years		65 and above	
	Males	Females	Males	Females	Males	Females	Males	Females
Municipality of Samothraki	1519	1193	184	157	1077	766	258	270
Percentage (%)	56	44	12	13	71	64	17	23

Table 3: Population composition according to sex and age groups, 2001

	Total	University degree and above	High school	Primary school	Illiterate
Municipality of Samothraki	2513	230	727	1428	128
Percentage (%)	100	9.15	28.93	56.82	5.10

Table 4: Population Education level, 2001

	Total households	Persons per Household					
		1	2	3	4	5	6+
Municipality of Samothraki	1017	294	348	173	149	32	21
Percentage %	100	28.91	34.22	17.01	14.65	3.15	2.06

Table 5: Household composition according to family members, 2001

According to Table 3, males dominate the local population. Apparently, females have a stronger tendency to leave the island (for education and employment). Already among the children (0-14), there is a male majority of 54%; among adults, it is 58%. Only among the elderly, females slightly dominate. Finally, another important fact is that more than half of the population has only a very basic education level.

Economic activity

According to 2001 official statistical data, the economically active population, meaning individuals above 10 years old declared that they are working or seeking for a job, represent 37 % of the total. Unemployment affects 8% of the active population. Economic activity is dominated by the primary sector (45% of the active population), followed by the service sector with 40% of the active population.

	Economically active (Total 1008)		Economically active per sector				Economically inactive
	Active	Unemployed	Primary Sector	Secondary Sector	Tertiary Sector	Not in a sector	
Municipality of Samothraki	930	78	416	123	376	15	1704
Percentage	92%	8%	45%	13%	40%	2%	

Table 6: Economically active population per sector

The main activities within the primary sector are agriculture, livestock keeping, and fishing. Agricultural land occupies 2,792 ha (around 15.7% of the total island territory), and the main products are grains, olives, grapes and horticultural products. Of the total agricultural land 470 ha are being irrigated by groundwater wells. The livestock on the island numbers some 60,000 goats and sheep used for milk and meat production, most of them grazing free. This constitutes a major challenge in terms of overgrazing and consecutive erosion. In addition, there are around 1,000 pigs, 9,000 poultry and 1,550 beehives for honey production. The annual honey production is around 15 tons. Fisheries are an important economic activity, and in 2007 2.200 tonnes of fish were caught worth an estimated price of 9.3 million Euros (National Statistical Service of Greece 2005; Greek Ministry of Agriculture 2008).

The secondary sector represents a small fraction of the economic activity on the island. There is one olive press, a municipal wheat mill, a small winery, a municipal slaughter house and some construction and mining activity by private entrepreneurs. There are also several bakeries and one cheese factory (which proudly sells its local produce also on the mainland). One of the most interesting production facilities is the Women's Cooperative of Samothraki. They have established a small production unit producing traditional local sweets and drinks only from products of the island to supplement their income.

Finally the tertiary sector is focussed on tourism and services and has grown substantially in the last decade on Samothraki. There are 14 small to medium sized hotels with 620 beds and 74 private houses for rent with 982 beds. In addition, there are two municipal camping sites on the north side of the island with a capacity of 1,700 people. The total capacity of all existing tourist accommodation is estimated to be 4000 people. In the light of more recent research, this number seems too low an estimate: during the high season, some 30000 people arrive monthly per boat and stay for a week on average – this points at tourist numbers of about 7000-9000 per night in the peak season. In terms of services, there is an archaeological museum, a diving center, a thermal bath - spa center in Therma village, a municipal health center in Chora, two banks and several shops and restaurants (Evros Prefecture directorate of tourism 2008).

10.5 Name(s) of the major settlement(s) within and near the proposed biosphere reserve with reference to the map (section 6.2):

Alexandroupoli (Capital of the –now abolished– Evros prefecture, on the mainland, not included in the reserve)

Chora (Capital of Samothaki Island)

Kamariotissa (main port)

Lakkoma village

10.6 Cultural significance:

(Briefly describe the proposed biosphere reserve's importance in terms of past and current cultural values (religious, historical, political, social, ethnological) and others, if possible with distinction between material and intangible heritage (c.f. UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage 1972 and UNESCO Convention for the Safeguard of the Intangible Cultural Heritage 2003 (http://portal.unesco.org/en/ev.php-URL_ID=13055&URL_DO=DO_TOPIC&URL_SECTION=201.html and http://portal.unesco.org/en/ev.php-URL_ID=17716&URL_DO=DO_TOPIC&URL_SECTION=201.html)).

From Neolithic time to Roman times

As indicated from recent excavations in Mikro Vouni and Vrihos sites, the island of Samothraki must have been inhabited from Prehistoric times and definitely during Neolithic times. The first inhabitants of the island were of Thracian origin and they were the ones who introduced a mystic

cult that developed during the years and established Samothraki as one of the biggest religious centers in ancient times.

At the end of the 8th century BC the island was colonized by Greeks from Aiolia (Asia Minor) especially from the island of Samos, from which it appears to have received the name Samos of Thrace, that later became Samothrace. The archaeological evidence suggests that Greek settlement dates at least from the 6th century BC. Samothraki since ancient times was also known as: Σαόννησος (Saonissos), Λευκανία (Lefkania), Ηλεκτρής (Elektris) and during the Middle ages as Mandrachi, Sanctus Mandrachi, Samathrachi, Samotratia.

The North Part of the Island and especially the area near Palaiaopolis village was the home of the Sanctuary of the Great Gods, a center of the ancient world and site of important Hellenic and pre-Hellenic mystic religious ceremonies. The famous winged Nike statue exposed today in Louvre Museum was found inside the Sanctuary area. Moreover, considerable remains still exist within the ancient walls, which were built in massive Cyclopean style, as well as of the Sanctuary of the Great Gods, where mysterious rites took place open to both slaves and free people (in contrast to the Eleusinian Mysteries). The mystic religion practiced there had its roots in the pre-Greek tribes that were living on the island. The religion included the so called “Mysteries” and the initiated ones were classified into two groups, the “mystes” and the “epoptes”. Among those who visited this shrine to be initiated into the island cult were King Lysander of Sparta, Philip II of Macedon, Alexander the Great and Cornelius Piso, father-in-law of Julius Caesar.

The Persians occupied Samothrace in 508 BC, it later passed under Athenian control, and was a member of the Delian League in the 5th century BC. It was then subjected by Philip II and, until 168 BC, was under Macedonian control. With the battle of Pydna, Samothraki became independent, a condition that ended when Vespasian absorbed the island in the Roman Empire in 70 AD.

The Book of Acts in the Christian Bible records that the Apostle Paul, on his first missionary journey outside of Palestine, sailed from Troas to Samothraki and spent one night there on his way to Macedonia.

From Byzantine times to Present

Very little information exists for Samothraki during the middle ages and Ottoman times. Main historical sources for this period are some byzantine historians and several foreign travelers who were stopping over during their trips from East to West and vice versa. On 768 AD Slavs occupied the island and during that time it was used as an exile place for Byzantine officials. During the 9th century the island was heavily attacked by pirates. The Byzantines ruled until 1204, when Venetians took over, only to be dislodged by a Genoan family in 1430, the Gattilusi. The Ottoman Empire conquered it in 1479 and during the 17th century it numbered 800 inhabitants.

In the late 18th century Samothraki was prospering. The population was estimated at around 4,000 residents. The prosperity was interrupted in 1821 with the total destruction of the island and the massacre of most of the population by the Ottomans when the locals stood up against the Ottoman regime. In 1835 there were only 500 inhabitants left that increased to 3,500 in the early 20th

century. The island returned under Greek rule on 19th October, 1912 following the Balkan War. It was briefly occupied by Bulgaria during the Second World War.

In 1951 the population of the island reached 4258 residents but during the next years the population decreased due to emigration mainly to the region of Stuttgart in Germany. The long history of Samothraki has left many monuments on the island. At the moment there are 66 places and monuments of historical interest ranging from prehistory till present.

10.7 Specify the number of spoken and written languages (including ethnic, minority and endangered languages) in the biosphere reserve.

(Refer, for instance, to the UNESCO Atlas of Endangered languages (<http://www.unesco.org/culture/languages-atlas/index.php>)).

The official and main spoken and written language on Samothraki is Greek. Due to the relative isolation of the island, both spatially and over the years, a distinct Samothrakian dialect can be identified. Efforts have been made to list, categorise and preserve many local phrases, localities names, proverbs and sayings.

11. BIOPHYSICAL CHARACTERISTICS:

11.1 General description of site characteristics and topography of area:

(Briefly describe the major topographic features (wetlands, marshes, mountain ranges, dunes etc.) which most typically characterize the landscape of the area).

Samothraki is by far a mountainous island with a large part of its total surface area of about 178 km² covered by high mountains. The highest peak, Feggari, meaning 'moon' in Greek, rises up to 1611m. Due to the orientation of the mountain range a wet microclimate exists on the north side that makes it more vegetated with numerous water streams coming down the mountain forming water pools and waterfalls. While the north side is more forested and wet, the south side is more typical Mediterranean. On the south-west side is where most of the settlements are found, along with the olive tree, vine and grain cultivations. In the west there is a peninsula with two coastal lagoons. The coast of the island is generally rocky and there is one sandy beach in the south side.

11.2 Altitudinal range:

11.2.1 Highest elevation above sea level: 1,611 metres

11.2.2 Lowest elevation above sea level: 0 metres

11.2.3 For coastal/marine areas, maximum depth below mean sea level: 50 metres

11.3 Climate:

(Briefly describe the climate of the area, you may wish to use the regional climate classification by Köppen as suggested by WMO (http://www.wmo.int/pages/themes/climate/understanding_climate.php)).

Until recently there was no meteorological station on Samothraki and climatic data were derived from the nearby stations of the airport of Alexandroupoli and the island of Thasos. As mentioned previously, there are two climatic types occurring on the island which differ from north to south. The north side receives larger amounts of rainfall, it is largely affected by Northeast winds, is more vegetated and has an abundance of surface water while the south side has higher temperatures and generally has a Mediterranean climate. The mean annual temperature on the whole island is 16.1°C while the mean annual rainfall is 737.8mm. The coldest month of the year is February with mean temperature 3.3 °C while the hottest month is July with 27.1 °C.

11.3.1 Average temperature of the warmest month: 27.1 °C (In July)

11.3.2 Average temperature of the coldest month: 3.3°C (In February)

11.3.3 Mean annual precipitation: 737.8 mm, recorded at an elevation of 2.5 metres

11.3.4 Is there a meteorological station in or near the proposed biosphere reserve? If so, what is its name and location and how long has it been operating?

a) Alexandroupoli Airport Meteorological Station (Alexandroupoli)

- manually: operating since 1951
- automatically: operating since 1991

b) Kato Karyotes Meteorological Station (Samothraki)

- automatically: operating since 2001

11.4 Geology, geomorphology, soils:

(Briefly describe important formations and conditions, including bedrock geology, sedimentary deposits, and important soil types).

The geomorphology of the island is dominated by the mountain Saos or Feggari which occupies a large amount of the total surface of the 178km² while the highest peak is 1611m above sea level. On the west side of the island there is a small plain used mainly for agriculture. The total length of the coastline is 58.3km, most of it is rocky or pebble with no natural gulfs while there is only one sandy beach at the south side of the island. From a geological point of view the region belongs to the Mass of Rodope. The geology of the island is mainly dominated by granite, ophiolites, schist and other rock of volcanic origin while the plains are formed by eroded sediments (Christofides 2000). The hydrographic network is extensive and has a radial formation. There are numerous rivers, streams and springs coming down the mountain and most of them have water all year round due to the above mentioned geological features. Among the biggest ones are Xiropotamos, Vatos and Fonias. However, water discharge increases during rainy season and much damage can be caused to existing infrastructure. There are two tectonic trenches one on the north and one on the south side of the

island that cause the existence of thermal water springs in the area of Therma village in the north side.

11.5 Bioclimatic zone:

(Indicate the bioclimatic region in which the proposed biosphere reserve is located, refer to the table below and tick the appropriate box for each area of the biosphere reserve).

Areas	Average annual rainfall/mm	Aridity index		Core area(s)	Buffer zone(s)	Transition area(s)
		Penman	(UNEP index)			
Hyper-arid	P<100	<0.05	<0.05			
Arid	100-400	0.05-0.28	0.05-0.20			
Semi-arid	400-600	0.28-0.43	0.21-0.50			
Dry Sub-humid	600-800	0.43-0.60	0.51-0.65	x	x	x
Moist Sub-humid	800-1200	0.60-0.90	>0.65			
Per-humid	P>1200	>0.90				

Table 7: Aridity index resulting from the use of P/ETP

Mean annual precipitation (P)/mean annual potential evapotranspiration (ETP)

11.6 Biological characteristics:

List main habitat types (e.g. tropical evergreen forest, savanna woodland, alpine tundra, coral reef, kelp beds) and land cover types (e.g. residential areas, agricultural land, pastoral land, cultivated areas, rangeland).

For each type, indicate:

- REGIONAL if the habitat or land cover type is widely distributed within the biogeographical region within which the proposed biosphere reserve is located, to assess the habitat's or land cover type's representativeness;

- LOCAL if the habitat or land cover type is of limited distribution within the proposed biosphere reserve, to assess the habitat's or land cover type's uniqueness.

For each habitat or land cover type, list characteristic species and describe important natural processes (e.g. tides, sedimentation, glacial retreat, natural fire) or human impacts (e.g. grazing, selective cutting, agricultural practices) affecting the system. As appropriate, refer to the vegetation or land cover map provided as supporting documentation.

DISTRIBUTION

Regional

11.6.1. First type of habitat:

Intermittently flowing Mediterranean rivers

NATURA 2000 4 digit code: 3290

11.6.1.1. Characteristic species:

Plantanus orientalis

11.6.1.2. Important natural processes:

This habitat type includes all the stream rivers of Samothraki that flow periodically year round or during dry years especially in the north side of the island. Plant species that occur in this habitat type are included in the *Plantanus orientalis* tufts. Rivers and streams occur in areas with various slopes ranging from gentle in low altitudes to extreme (>100%) in elevations ranging from 1,000 to 1,400m. This habitat type is of very special value for Samothraki because it creates numerous locations with small waterfalls and ponds of very high scenic beauty. It also contributes to water purification and holding of the river banks.

11.6.1.3. Main human impacts:

Illegal logging, grazing which minimize the habitats regeneration capacity, sand removal

11.6.1.4. Relevant management practices:

Lopping branches for tree revival, reshaping of river course, small scale canalization.

DISTRIBUTION

Local

11.6.2. Second type of habitat:

Endemic oro-Mediterranean heaths with gorse

NATURA 2000 4 digit code: 4090

11.6.2.1. Characteristic species:

This plant community hosts few plant species and it is dominated by *Genista acanthoclada*. Other characteristic species are *Berberis cretica* and *Prunus prostata*. Occasionally *Juniperous oxycedrus* and *Festuca valesiaca* species occur in abundance.

11.6.2.2. Important natural processes:

This habitat type occurs mainly in areas with medium or extreme slopes (50 – 100%) in high elevations 1140 – 1450m and in mainly East and North East exposures. The geological substrate is porphyry. It constitutes the only habitat type above tree line with the important role of holding the soil.

11.6.2.3. Main human impacts:

In some areas there is a severe degradation due to overgrazing.

11.6.2.4. Relevant management practices: None**DISTRIBUTION**

Local

11.6.3. Third type of habitat

Bracken fields

NATURA 2000 4 digit code: 5150

11.6.3.1. Characteristic species:

Pteridium aquilium dominates this plant community. Accompanying plant species are a mixture of *Juniperus oxycedrus* shrubs and some species of the ecotope Satureja-Garrigues. Very high presence of *Juniperus oxycedrus*, *Thymus sibthorpii*, *Hypericum cerastoides*, *Erica arborea*, *Origanum vulgare* και *Satureja montana*.

11.6.3.2. Important natural processes:

This habitat type occurs mainly in areas exposed to the northern part spread along various elevations (220 – 1250m.). It occupies areas with medium to extreme slopes (30 – 100%) and lies upon basalt and porhyry. A habitat type with limited distribution which occupies burned areas or locations of suitable humidity above the tree line in the North side of the island.

11.6.3.3. Main human impacts:

Grazing

11.6.3.4. Relevant management practices:

None

DISTRIBUTION

Local

11.6.4. Fourth type of habitat:

Juniperus oxycedrus arborescent matorral

NATURA 2000 4 digit code: 5211

11.6.4.1. Characteristic species:

The only characteristic plant species of this habitat type is *Juniperus oxycedrus ssp. Oxycedrus*. Other species found in relative abundance are *Galium samothracicum*, *Thymus sibthorpii*, *Pteridium aquilinum* and in some positions *Erica arborea*.

11.6.4.2. Important natural processes:

This habitat type occurs in a wide range of elevations (0 – 1400m.) lying upon basalt, porphyry and rarely granite substrate. This habitat type occurs mainly on the South – SouthEast slopes of the island which are exposed to strong sea winds.

11.6.4.3. Main human impacts:

None

11.6.4.4. Relevant management practices:

None

DISTRIBUTION

Local

11.6.5. Fifth type of habitat:*Eastern Garrigues / Carrigues with Labiatae*

NATURA 2000 4 digit code: 5340

11.6.5.1. Characteristic species:

This habitat type belongs to the class of Cisto-Micromerietetea. Garrigues are dominated by *Saturela montana* while in lower elevation *Ballota acetabulosa*, *Euphorbia characias* and *Picnemon acarna* are also found in abundance. In higher elevation *Origanum vulgare* can be found along with species that are also dominant in *Juniperus oxycedrus* matorrals (*Thymus sibthorpii*, *Galium samothracicum* and *Pteridium aquilium*).

11.6.5.2. Important natural processes:

Garrigues are found in medium to extreme slopes with all types of exposures in elevations varying from 500 – 1140m. The geological substrate is basalt and porphyry. The existence of this habitat type in these areas is very essential because it holds the soil in extremely steep slopes which are susceptible to erosion from water and wind.

11.6.5.3. Main human impacts:

Grazing

11.6.5.4. Relevant management practices:

None

DISTRIBUTION

Local

11.6.6. Sixth type of habitat:*Pseudomaquis*

NATURA 2000 4 digit code: 5350

11.6.6.1. Characteristic species:

This habitat type belongs to the plant community of Coccifero-Capinetum. The most characteristic species are *Quercus coccifera*, *Pistacia terebinthus*, *Phillyrea latifolia*. Another species that is common in the bush level is *Pyrus amygdaliformis*. Turf level is dominated by *Quercus coccifera*, *Ballota acetabulosa* and *Origanum vulgare* while the presence of *Euphorbia characias*, *Picnemon arcana* and *Carlina coymbosa* are signs of overgrazing.

11.6.6.2. Important natural processes:

This habitat type can be found in areas with gentle to medium slopes (10 – 50%) and rarely in extreme slopes, in North and NorthWest exposures where humidity levels are better in dry months while it can be rarely found in south exposures. It can be found in elevations ranging 240 – 550m over a substrate of basalt.

11.6.6.3. Main human impacts:

Threatened by overgrazing

11.6.6.4. Relevant management practices:

None

DISTRIBUTION

Regional

11.6.7. Seventh type of habitat:

Aegean phrygana (Sarcopoterium spinosum)

NATURA 2000 4 digit code: 5420

11.6.7.1. Characteristic species:

This habitat type belongs to the Astragalo-Sarcopoterietum spinosi plant community with characteristic species *Sarcopoterium spinosum*, *Ballota acetabulosa* while other species that can be found are *Hordeum murinum*, *Desmazeria rigida*, *Cerastium brachypetalum*, *Capsella bursa-pastoris*, *Polycarpon tetraphyllum*, *Cynodon dactylon* and *Origanum vulgare*. All of them can be considered as indicators of overgrazed, marginal and degraded soils.

11.6.7.2. Important natural processes:

This habitat type is mainly found in south and south west exposures in medium to extreme slopes (10 – 70%) in elevation that ranges from 10 – 600m over a substrate of porphyry and basalt. The habitat is the last to hold the soil most degraded from grazing. This habitat mainly occupies marginal and degraded sites in the south side of the island.

11.6.7.3. Main human impacts:

Threatened by overgrazing

11.6.7.4. Relevant management practices:

None

DISTRIBUTION

Regional

11.6.8. Eighth type of habitat:

Balkan screes

NATURA 2000 4 digit code: 8140

11.6.8.1. Characteristic species:

Vegetation is scarce and it is reduced to some lichen species.

11.6.8.2. Important natural processes:

Balkan screes are formed by the weathering of the rocks of mount Feggari. Because of the nature of the bedrock of the mountain, Balkan screes are contributing in storing large amounts of freshwater and in the creation of numerous water springs.

11.6.8.3. Main human impacts:

None

11.6.8.4. Relevant management practices:

None

DISTRIBUTION**11.6.9. Ninth type of habitat:**

Local

Vegetated silicicolous inland cliffs with casmophytic vegetation

NATURA 2000 4 digit code: 8220

11.6.9.1. Characteristic species:

This habitat type belongs to the class of *Asplenieta trichomanis*. There are no characteristic species although there is a significant presence of *Symphyandra samothracica*, *Polygonum icaricum* and *Festuca valesica*.

11.6.9.2. Important natural processes:

It occurs mainly in north west rocky areas with extreme slopes (45 – 100%) in elevations ranging from 400 – 1670m while the geological substrate is porphyry. Even if this habitat is occupying the most inaccessible parts of the island, there are signs of overgrazing. However, it is a very important habitat for the rare and endemic plant species of the island.

11.6.9.3. Main human impacts:

Overgrazing

11.6.9.4. Relevant management practices:

None

DISTRIBUTION**11.6.10. Tenth type of habitat:**

Local

*Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* – Residual alluvial forest*

NATURA 2000 4 digit code: 91E0

11.6.10.1. Characteristic species:

This habitat type belongs to the class of Alnion-Ulmion with characteristic species *Alnus glutinosa* in the tree level while bushes are absent. In the turf level the species *Rumex conglomeratus*, *Juncus bufonis*, *Ranunculus ophioglossifolius* και *Agrostis stolonifera* are characteristic of this wet area. *Juncus maritimus* presence indicates the vicinity of the habitat to the sea.

11.6.10.2. Important natural processes:

This habitat type is next to the sea in elevation 2 – 3m and it is established around a seasonal wetland which is formed in the estuary of Fonias river. The geological substrate is basalt and porphyry while the soil is wet and rich in nutrients and organic material brought by the river. This is the only *Alnus glutinosa* forest stand on Samothraki and it is one of the few that are found on any

Aegean island. This rare forest has been formed next to the sea by the alluvial depositions of Fonias river. It is an important wetland for migratory birds.

11.6.10.3. Main human impacts:

None

11.6.10.4. Relevant management practices:

Removal of fallen branches and trees

DISTRIBUTION

11.6.11. Eleventh type of habitat:

Local

Eastern white oak woods and balkanic thermophilous oak woods

NATURA 2000 4 digit code: 924A

11.6.11.1. Characteristic species:

This habitat type is divided into two unions Quercion frainetto and Ostryo-Capinion. Quercion frainetto forest is dominated by *Quercus dalechampii* oak species mainly in the north side but also in the south east side of mount Feggari in elevation above 540 – 1160m in medium to extreme slopes (60 – 90%) and in north and south exposures. Bush level vegetation is absent here. Characteristic turf level species are *Doronicum orientale*, *Viola reichenbachiana* and *Galium rotundifolium* although *Pteridium aquilinum* is showing the higher abundance. Between 200 and 500 meters *Quercus pubescens* dominates the union of Ostryo-Capinion with other characteristic species of the bush vegetation level *Carpinus orientalis* and with the turf vegetation species *Aremonia argrimoides*, *Phzsopermum cornubiense*, *Cardamine hirsuta* and *Cyclamen hederifolium*.

11.6.11.2. Important natural processes:

The geological substrate of this oak forest habitat is basalt and porphyry. The mature oak forests of Samothraki are the only remnant of their kind in the whole Aegean archipelago. Most of the trees are in mature age but regeneration is absent due to overgrazing.

11.6.11.3. Main human impacts:

Illegal logging, overgrazing

11.6.11.4. Relevant management practices:

None

DISTRIBUTION

11.6.11.6. Twelfth type of habitat:

Local

Hop-hornbeam, oriental hornbeam and mixed thermophilous forests

NATURA 2000 4 digit code: 925A

11.6.11.6.1. Characteristic species:

Hop-hornbeam, oriental hornbeam

11.6.11.6.2. Important natural processes:

This habitat type is lying upon basalt and porphyry, in areas of medium to extreme slopes that sometimes become smoother (20 – 50%). Exposure is mainly towards north and north west, elevation varying 500 – 800m. This habitat type is coming in succession in higher elevation after the garrigues in the south west side of the island. It is occurring mainly between rocks where more humidity is concentrated.

11.6.11.6.3. Main human impacts:

Unknown

11.6.11.6.4. Relevant management practices:

None

DISTRIBUTION

Regional

11.6.13. Thirteenth type of habitat:

Oriental plane woods (Platanion orientalis)

NATURA 2000 4 digit code: 92C0

11.6.13.1. Characteristic species:

This habitat type is classified to the union of *Platanion orientalis* with characteristic species the *Platanus orientalis* at the tree level and *Nerium oleander* at the bush level. Turf species are rare and only *Adiantum capillus-venus*, *Rubus ulmifolius* και *Brachypodium sylvaticum* are typical. *Platanus orientalis* can be found in a variety of configurations next to small mountainous streams with extreme slopes up to 100% and in altitudes up to 980 m., near bigger rivers or streams in flat regions (altitude 0 - 100 m.).

11.6.13.2. Important natural processes:

The geological substrate is mainly basalts and porphyry. This ecotope together with the numerous streams of Samothraki constitute a landscape of particular aesthetical interest and beauty.

11.6.13.3. Main human impacts:

Illegal logging, free camping, grazing

11.6.13.4. Relevant management practices:

None

DISTRIBUTION

Regional

11.6.14. Fourteenth type of habitat:

Quercus ilex forests

NATURA 2000 4 digit code: 9340

11.6.14.1. Characteristic species:

This habitat type belongs in the union *Arbuto andrachne* - *Quercetum ilicis*. The characteristic species of ecotope are the bushes *Arbutus andrachne*, *Arbutus unedo*, *Phillyrea latifolia* and *Pistacia terebinthus* which dominate in the bush floor. The turf floor is non-homogeneous and includes only accompanying species as the *Poa bulbosa*, *Cerastium brachypetalum*, *Capsella Bursa-pastoris*, *Origanum vulgare* and *Bromus madritensis*.

11.6.14.2. Important natural processes:

The clumps of this habitat type are present in mountain sites with north and north-western exposures in medium slopes (30 - 50%) and in altitudes between 200 and 500 m. The geological substrate is basalts and porphyry. The ecotope occupies the lower area (200 - 500 m.) of the northern flanks of Mount Feggari. It has very dense and impenetrable structure, except of certain regions that have been burned in the past. In this habitat type, coppices or small teams, or even individual trees are found usually in the grounds of chapels and churches.

11.6.14.3. Main human impacts:

Illegal logging, wildfires, grazing

11.6.14.4. Relevant management practices:

Thinning of forest, traditional forest management

DISTRIBUTION

Local

11.6.15. Fifteenth type of habitat:

Taxus baccata woods

NATURA 2000 4 digit code: 9580

11.6.15.1. Characteristic species:

The habitat type is represented by old individuals *Taxus baccata* species, remnants of an extinct forest. The flora that surrounds these individuals is typical in the region constituted by thorny bushes or by *Platanus orientalis* forests.

11.6.15.2. Important natural processes:

It constitutes a residual habitat type with a very rare appearance in the Aegean islands. The trees are of very big age and efforts are needed for their rebirth and maintenance.

11.6.15.3. Main human impacts:

Historical logging

11.6.15.4. Relevant management practices:

None

DISTRIBUTION

Regional

11.6.16. Sixteenth type of habitat:*Posidonia beds (Posidonion oceanicae)*

NATURA 2000 4 digit code: 1120

11.6.16.1. Characteristic species:

This marine habitat includes some extensive submarine meadows of the angiosperms *Posidonia oceanica* and –to a lesser degree– *Cymodocea nodosa*.

11.6.16.2. Important natural processes:

Posidonia oceanica meadows are key ecosystems within the Mediterranean Sea. The high rate of plant production ($0.25 \pm 3 \text{ kg dry weight m}^{-2} \text{ year}^{-1}$), mainly due to annual leaf growth, and the abundance of epiphytes (which can reach up to 20–30% of the biomass of leaves), support a high secondary production *in situ* and in detritivore compartments of other communities (around 80% of total production), thereby sustaining complex food webs from beaches to bathyal areas.

A moderately wide (1 km) belt of *P. oceanica* meadow may produce litter in excess of 125 kg of dry seagrass material per meter of coastline each year (mostly during autumn). This material accumulates on the beach, developing cushions up to 4 meters high, which can in turn sustain a complex invertebrate food web, protect the shoreline from erosion, deliver sand in the form of carbonate and silica shells and, when transported further inland by the wind, act as seed material for dune formation.

In daylight, *P. oceanica* meadows oxygenate coastal waters, producing net oxygen releases to the atmosphere above the meadows. Due to the slow decomposition of lignified rhizomes and roots, the reef structure or “matte” acts as a long-term carbon sink. The leaves and rhizomes increase the surface available to sessile species and offer shelter to mobile species, thereby sustaining a diverse community. *P. oceanica* beds are especially valuable as nursery grounds for several commercial species.

The leaf canopy increases particle retention, so enhancing water transparency. This function, combined with the active formation of calcareous and silica sand from shelled organisms and cushions of seagrass litter, all contribute to reducing shoreline erosion. Finally, *P. oceanica* meadows are excellent indicators of environmental quality as they can only grow in clean unpolluted waters. Moreover, their rhizomes concentrate radioactive, synthetic chemicals and heavy metals, recording the environmental levels of such persistent contaminants (Diaz-Almela, 2008 97 /id).

11.6.16.3. Main human impacts:

Direct erosion by boat-trawling and boat anchoring

11.6.16.4. Relevant management practices:

None

DISTRIBUTION

Regional

11.6.17. Seventeenth type of habitat:*Coastal Lagoons*

NATURA 2000 4 digit code: 1150

11.6.17.1. Characteristic species:

There are reed species surrounding the coast of the lagoons of Samothraki. Several fish species are present there like *Mugil cephalus*, *Liza ramada*, *Liza saliens*, *Sparus aurata*, *Platichthys flesus*, *Dicentrarchus labrax*, *Atherina boyeri*. Moreover several bird species like the Black stork (*Ciconia nigra*), the Grey Heron (*Ardea cinerea*), the Great Egret (*Ardea alba*) and many sea birds are present in the area like the Aegean Sea Gull (*Larus audouinii*).

11.6.17.2. Important natural processes:

The continuous enrichments of coastal lagoons with nutrients, the mixture of fresh with saline waters and the favorable physicochemical conditions enhance the attraction and fast development of fish populations. Coastal lagoons are also important for migratory bird populations which use them as stopping points. In Mediterranean coastal lagoons where tide and wave influences are minimal, environmental parameters like bathymetry, water circulation and salinity determine the size and productivity of fish populations.

11.6.17.3. Main human impacts:

The water exchange between the lagoon and the sea is rather limited because of the narrow channel and therefore the wind forced water circulation prevails. The lagoon was abandoned for at least three years before the present tenancy (by the local fishermen in 1997) resulting in the accumulation of dead organic material on the seabed. Despite the problems the fishermen are facing, the recovery of the ecosystem is still feasible.

11.6.17.4. Relevant management practices:

A number of actions must be taken for the recovery of the ecosystem and the potential for the development of a fish farm. The removal of the accumulated dead organic material and the deepening of this part of the lagoon are of top priority. The building of a breakwater outside the lagoon is also important and for this purpose the movement of the wind-induced waves was examined from three different wind directions and for a hypothetical breakwater 5 m long. The water circulation and flushing inside the lagoon should be ensured in order to avoid toxic conditions in the future and to allow for the attraction of fish populations and their exploitation. The enrichment of the lagoon, which will enhance fish production, should also be considered because of the limited size of the lagoon and the low production anticipated (3-5 tons per year). In case of intensive aquaculture in the lagoon, the possibility of opening another channel to the sea should be examined (Koutrakis, 2001).

DISTRIBUTION

Regional

11.6.18. First type of land cover:*Agricultural land*

11.6.18.1. Characteristic species:

Olive (*Olea europaea*), grains like wheat, barley, fruit trees, aromatic plants, edible annual weeds

11.6.18.2. Important natural processes:

Agricultural land is home for many plant and animal species. It is important for supporting meta-populations of many wild species which use the agricultural land as hunting or foraging ground but live and reproduce in the core area (many raptor species).

11.6.18.3. Main human impacts:

Agricultural land is used also for grazing. There are also cases of fertilizer and pesticide use.

11.6.18.4. Relevant management practices:

The municipal spatial plan reorganized the functions of the islands agricultural land. A large amount of the agricultural land has been characterized as land for the production of high quality organic agricultural products which symbolizes the turn towards new types and methods of cultivation. Grazing on these lands will be regulated and controlled.

DISTRIBUTION**11.6.19. Second type of land cover:**

Regional

*Settlements***11.6.19.1. Characteristic species:**

It is very difficult to determine the amount of species that live or use settlements. It is known that old houses are home to owls and other bird species like swifts (*Apus apus*).

11.6.19.2. Important natural processes:

Building density and the degree of soil sealing are quite high in settlement areas.

11.6.19.3. Main human impacts:

Settlement areas are generally characterized by a high degree of soil sealing, soil compaction and thus also surface run off. Large, densely built-up areas might have a lasting effect on the local climate.

11.6.19.4. Relevant management practices:

With the new municipal spatial plan the construction of new settlement areas is strictly regulated. New houses are going to be built only within the constituted limits of development areas making use of existing infrastructure and minimizing the effects on the landscape.

12. ECOSYSTEM SERVICES:

12.1 If possible, identify the ecosystem services provided by each ecosystem of the biosphere reserve and the beneficiaries of these services.

(Please refer to the Millennium Ecosystem Assessment Framework and The Economics of Ecosystems and Biodiversity (TEEB) Framework (<http://millenniumassessment.org/en/Framework.html> and <http://www.teebweb.org/publications/teeb-study-reports/foundations/>)).

Ecosystem Services	Ecosystem/Species/Type	Beneficiaries
Provisioning Services		
Food and fiber	Forests	Farmers, Herders, Fishermen
Fuel (wood)	Forests	Most stakeholders
Fresh water	Freshwater streams	All stakeholders
Regulating Services		
Air quality maintenance	Forests	All stakeholders
Climate regulation	Forests	All stakeholders
Water regulation	Freshwater streams	All stakeholders
Erosion control	Forests	All stakeholders
Pollination	Bees	Bee-keepers
Cultural Services		
Spiritual and religious values	Sanctuary of the Great Gods	Visitors, students, archaeologists
Inspiration	Multiple locations	Visitors
Aesthetic values	mountain, forests, rivers, waterfalls, coastline	All stakeholders, Visitors
Cultural heritage values	Archaeological sites, traditional settlements	Visitors
Recreation and ecotourism	Scenic routes, mountain, waterfalls, coast	Visitors

Table 8: List of main ecosystem services provided by each ecosystem of the biosphere reserve and the main beneficiaries of these services.

12.2 Specify whether indicators of ecosystem services are used to evaluate the three functions (conservation, development and logistic) of biosphere reserves. If yes, which ones and give details.

The zonation of the proposed Biosphere Reserve and consequent evaluation of their three functions was developed after extensive consultation processes with many local stakeholder groups. In order to evaluate resources and potential conflicts between stakeholders, an extensive study that identified the main stakeholder groups among permanent residents was undertaken (important categories among them are farmers/livestock owners, local entrepreneurs, local orthodox church, civil society organizations, and politicians/administrators), including their interests, competencies and attitudes (See section 9.2).

Moreover, the Hellenic Centre for Marine Research is currently performing an environmental assessment of inland waters on Samothraki (Skoulidakis et al. 2013).

On top, during the autumn of 2012 a series of focus group interviews have been launched with various local stakeholder groups. Efforts were made to solicit members for focus groups according to the following stakeholder interests: elderly people; parents of small and school children; craftsmen; farmers and livestock herders; small-scale fishermen; tourism related professionals; and finally professionals in the tourism accommodation sector. Issues discussed revolved, amongst others, around the following general themes:

- Diagnosis of the situation/key interests
- Resources and (possibly joint) action opportunities.
- Observed changes in the island's ecosystem patterns and biodiversity.
- Preferences and visions for the future, in relation to the future as a Biosphere Reserve
- Ecological and demographic "tipping points"

12.3 Describe biodiversity involved in the provision of ecosystems services in the biosphere reserve (e.g. species or groups of species involved).

Provisioning services:

- Food: Olive (*Olea europaea*), grain species (wheat, barley), various fruit trees, aromatic plants, edible annual weeds, Goat species (*Capra aegagrus*)
- Fish: Posidonia beds (*Posidonia oceanica*), providing a habitat for diverse fish species populations
- Fuel (wood): oak woods (*Quercus* sp.), Oriental plane woods (*Plantanus orientalis*)

Regulating services:

- Oriental plane woods (*Plantanus orientalis*), Alluvial forests, Flowering plant species, bees, coastal lagoon species

Cultural Services:

- Oriental plane woods (*Plantanus orientalis*), Intermittently flowing Mediterranean rivers

12.4 Specify whether any ecosystem services assessment has been done for the proposed biosphere reserve. If yes, is this assessment used to develop the management plan?

Based on the survey and consultation processes described in section 12.2, a series of qualitative assessments were made in order to develop the Municipal Operational Plan and future biosphere reserve management plan.

Forests have been identified as a critical resource, of multiple provisional, regulatory as well as cultural ecosystem services, including one of pressing economic importance, namely erosion control. The extensive number of free roaming goats was identified as the single most important factor causing deterioration of the forested areas. As a result a process was initiated in order to come up with innovative ways of reducing the number of goats, while achieving a better utilization of goat products, i.e. reaching the same productivity with a substantially reduced number of animals.

Another example is pollination services provided by bees. Partly due to the aforementioned issues with goat keeping, a growing number of farmers are turning to bee-keeping which is considered by many young farmers as a very promising occupation, able to produce increased economic benefits with little environmental impact, and provide an extra income. A direct conflict exists between goat herders and bee-keepers, as overgrazing is causing a reduction in flowering plant abundance, and leads to reduced volumes of honey produced. Our extensive deliberations over the past years have helped unearth such conflicts, facilitated in clarifying the “ecosystem” behind the “services” and ease-up potential tensions. Such assessments will provide the basis for future negotiations, developing an operational management plan and suggesting alternatives, based on the Biosphere Reserve concept and vision.

Moreover, recreation and ecotourism ecosystem services have been identified by all stakeholder groups to be of unique importance and a very strong comparative advantage of the island, to be protected and preserved for the future. Indeed, the realisation of the “uniqueness” of the island is almost universal between both local stakeholders and visitors. The commune is also well aware of the very important resource all the dedicated ecotourists represent for the island, and is committed to develop alternative forms of tourism that respect and build upon the island’s natural and cultural heritage.

Consultations with representatives from the small scale fishermen association has also identified the direct provisioning services provided by fish, and the gradual reduction in fish-catch over the years. Realisation of marine provisioning services in the long term has led to fruitful discussions about the stricter monitoring of the marine NATURA 2000 area, as well as the creation of a Marine Protected Area, including a no-take zone.

13. MAIN OBJECTIVES FOR THE BIOSPHERE RESERVE’S DESIGNATION:

13.1 Describe the main objectives of the proposed biosphere reserve, integrating the three functions (conservation, development and logistic), presented below (sections 14 to 16), including components of biological and cultural diversity. Please specify the indirect pressures and/or organizational issues.

The island of Samothraki is a place endowed with high cultural and unique natural assets and is in a crucial phase of development towards a more sustainable future path. At present there is a fragile situation of slow decline of population and ecological challenges that might possibly be brought to a tipping point by impacts of the Greek economic and governance crisis and climate change. After several years of research and communication efforts, the island community in cooperation with several scientists, regional partners and local civil society groups have decided to make an effort at turning the whole island into a Biosphere Reserve.

The basic idea is to use the Biosphere Reserve concept as a tool for implementing sustainable development on the island with reference to both main areas of economic activity: agriculture and tourism. For this to be achieved, the research community needs to support the future Biosphere Reserve management by preparing detailed plans of key areas of intervention towards sustainable development, namely the economy, natural resource management and infrastructure, essentially

carving out future activities, preparing the ground with structured information and convincing arguments for finding acceptance from local authorities and gaining cooperation from local stakeholders. This follows closely the recently emerged concept of Biosphere Reserves as “Learning Laboratories” as outlined by Ishwaran and Persic (2008).

13.2 Describe the sustainable development objectives of the biosphere reserve.

(If appropriate, please refer to Agenda 21, Rio+20 and SDG post 2015).

The main objective of the proposed biosphere reserve would be to seek more sustainable solutions for the community of Samothraki serving the same interests. In other words, the key challenge is to produce the same service / benefit / income at lower cost in terms of resources and ecosystem impact (ecosystem services use). An open question that should be always revisited and deliberated upon, is “who is a legitimate recipient of benefits, and who is not?”.

The way to do that would be to initially identify environmental challenges, then scrutinise favourable and unfavourable framework condition, and finally coming up with a goal/proposed solution. Core areas of intervention include the economy, energy self-reliance, natural resource management and sustainable infrastructure.

A key concept behind this is the idea that an environmental goal can bring about collateral socio-economic benefits, in the form of green jobs (esp. for the young educated local people), improvement of the production/value chains of agriculture, income security, natural resource security and community savings. Main challenges that need to be tackled are social obstacles and local hostilities.

Following SDG post 2015, our challenge and intention is to propose and experiment with innovative multi-stakeholder decision-making processes, in order to tackle socioecological challenges in a systemic way and aim at long term resilience.

13.3 Indicate the main stakeholders involved in the management of the biosphere reserve.

The main stakeholders that would be involved in the management of the biosphere reserve would be:

- A Supervisory Board, consisted of representatives from the following
 - o The Ministry of Environment, Energy and Climate Change (Natura 2000)
 - o The Alexandroupoli Forestry Authority
 - o The 19th Directorate of Prehistoric and Classical Antiquities
 - o The Chamber of Evros
 - o The Municipality of Samothraki
 - o The Greek National MAB Committee
- The local association (non-profit civil partnership) “*Sustainable Samothraki*”
- An international science board, consisting of renowned scientists

For more info: See Section 4.7 (c), also Supporting material

13.4 What consultation procedure was used for designing the biosphere reserve?

The idea of transforming Samothraki into a Biosphere Reserve started as a bottom-up process, initiated by a regular visitor of the island. The idea was then gradually transmitted to local stakeholders. This was followed by several years of research, investigating the socio-economic feasibility as well as the opinions of the different stakeholders towards the potential future development of the island.

Over the last years there has been a series of consultation procedures, aiming at designing the biosphere reserve and establish a management policy with the greatest possible participation. Indeed, the process of establishing Samothraki Biosphere Reserve has been successfully described as “an experience in transdisciplinarity” (Fischer- Kowalski et al. 2011).

Steps so far included comprehensive consultations with diverse stakeholders, extensive socio-economic analyses performed by the Vienna Institute of Social Ecology, several meetings between the Mayor, the municipal council, independent researchers and representatives of a series of local and regional associations during the years 2007-2013, a series of public presentations, as well as a comprehensive round of focus group interviews with diverse parts of the local community (see also section 17.3.1)

13.5 How will stakeholder involvement in implementing and managing the biosphere reserve be fostered?

The intention by all parties involved is to continue with a bottom-up process. This is also reflected in the proposed development plan regarding the biosphere reserve management. The association responsible for the operational management will for their own sake continuously involve various stakeholders.

13.6 What are the expected main sources of resources (financial, material and human) to implement the objectives of the biosphere reserve and projects within it?

(Please provide formal commitments and engagements.)

The association “*Sustainable Samothraki*” can provide low cost professional support well adapted to the local context, especially in the topics of overgrazing (erosion), renewable energy systems, water management and waste management, the inefficient management of all of which cost thousands of euros every year. Establishing a Biosphere Reserve on Samothraki and installing an active management there is considered a wise and cost saving policy from the part of the commune and the regional authorities.

The resources required for these activities will be supplied by the supervisory institutions, membership fees, sponsoring and projects funded by third parties. With an established Biosphere Reserve management, there will be enhanced chances to find outside donors for initial investment costs for example regarding sustainable energy generation systems. With continuously stagnating

energy prices, this will be an issue for the years to come. An association could help the commune exit the cost spiral by creating alternative opportunities in advance. The organizational effort will be taken away from the Mayor and the council by a professional body.

The Biosphere Reserve should be able to largely pay for itself. According to first estimates, the cost of an independent efficient management of the Biosphere Reserve could be financed if every adult visitor to the island was willing to pay €2,- as an extra fee for this visit. This would allow to coordinate the activities and to have the manpower to raise additional funds for specific projects to be launched in the future. A very small sum (1-2€) per visitor of the island would raise an annual sum of about 50,000€. According to a willingness to pay survey performed by the Vienna Institute of Social Ecology on Samothraki in the summer of 2011, 88% of respondents were willing to contribute 2€ or more per visit.

After Biosphere Reserve designation one can hopefully expect an increased off-season tourist visitation due to enhanced international reputation, improving the rate of return from existing infrastructures and contributing to enlarging the season. Moreover, with an established Biosphere Reserve and an active management it should be easier to access Regional Development Funds and other external funds.

14. CONSERVATION FUNCTION:

14.1. At the level of landscapes and ecosystems (including soils, water and climate):

14.1.1 Describe and give the location of ecosystems and/or land cover types of the biosphere reserve.

Within a comparatively small territory the island of Samothraki includes a large number of diverse habitats, several of which are of European importance from a conservation point of view. According to the NATURA 2000 Habitats Directive and the map of the “World Network of Biosphere Reserves” Samothraki belongs clearly to the Mediterranean biogeographic region. However, the geomorphology, the microclimatic conditions and the historical human presence created a diversity of natural habitats on the island that is not common in small Mediterranean islands. According to the NATURA 2000 catalogue there are 16 habitat types found within the constituted designated terrestrial area, including Endemic oro-Mediterranean heaths, Eastern Garrigues, *Sarcopoterium Spinosum* Aegean phrygana, Vegetated silicicolous inland cliffs with casmophytic vegetation, Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*, *Platanus orientalis* woods and Mediterranean *Taxus baccata* woods (Greek Biotope and Wetland Center 2001; Dimopoulos et al. 2005). Many of these habitats, especially the old growth oak forests in high altitudes and the Oriental plane ones, are absent from most of the Greek Aegean islands making Samothraki the last remaining island hosting such unique habitats in the Aegean.

Moreover the year-round availability of water creates special habitats absent from other islands. There is an extensive network of water courses that originate from the mountains which are all natural and their course and vegetation has not been altered by humans. In addition to that,

Samothraki hosts a number of coastal lagoons of various sizes with the biggest one being St. Andreas Lagoon situated on the west part of the island. These lagoons create favourable habitats for migratory bird species.

The marine environment around Samothraki and the marine part to be included in the biosphere reserve host a variety of rare endangered habitats like the extensive submarine meadows of the angiosperm *Posidonia oceanica* but also rocky islets like the islet Zourafa which lies on the easternmost edge of the marine part of the NATURA 2000 area. Moreover several reefs are also found offshore, the coastal zone reaching down to a depth of 50m. Furthermore, outside the marine NATURA 2000 limits and especially on the south marine side of Samothraki there are deep sea trenches like the North Aegean trench which reach a depth of 1000m. These habitats are largely unexplored and probably host unidentified marine species.

The agricultural land that is found mostly in the south and south west part of the island is a result of the human presence on the island and can be considered as “colonised habitat” or a cultural landscape that hosts several species of plants and animals. Since industrial agriculture is absent on Samothraki, agricultural land constitutes a high quality habitat. Terraced olive cultivations, vineyards and grain fields synthesize a typical untouched Mediterranean landscape in the south side which contrasts the wild forested north side of the island.

14.1.2 Describe the state and trends of the ecosystems and/or land cover types described above and the natural and human drivers of the trends.

Samothraki in the ancient times was reported being covered with forests. In the middle ages the island was subject to logging and clearing for agriculture. The same practice continued until modern times. Today extensive grazing is taking place in large parts of the island while some areas have been used for building houses.

The mountainous terrain which kept large parts of the island inaccessible along with the relative isolation from the mainland (around 40km) created a variety of habitats that host a large number of species. Moreover the very early human presence on the island since prehistory created cultural landscapes in the lowland accessible areas, especially in the alluvial plain in the south west side, with traditional settlements, olive tree and grain cultivations that diffuse within the natural landscapes.

Still a number of ecosystems of unique value can be recorded on the island of Samothraki, amongst them: intermittently flowing Mediterranean rivers, endemic oro-Mediterranean heaths, bracken fields, Aegean phrygana, alluvial forests, oak woods and oriental plane woods, as well as extensive *Posidonia* beds in the marine area of the proposed biosphere reserve (see section 11.6)

Today, the main pressure endangering the state of the island’s ecosystems is overgrazing, which minimizes the habitats regeneration capacity. Of secondary importance are illegal logging, occasional wild fires, and sand removal.

Current management practices include: lopping branches for tree revival, reshaping of river course, small scale canalization, thinning of forest, traditional forest management.

14.1.3 What kind of protection regimes (including customary and traditional) exist for the core area(s) and the buffer zone(s)?

The largest part of the island's surface, including the core zones of the proposed Biosphere Reserve are part of the NATURA 2000 network. There are two, largely overlapping NATURA 2000 areas, GR1110004 - Type: SCI and GR1110012 - Type: SPA. The municipality plans to integrate the two areas into a natural park under Greek law (Law 3937/2011 – For the protection of biodiversity).

According to Greek Law 998/79, the Forestry Authority has under its responsibility the totality of Samothrakian forested areas. This includes forests, as well woodland scrub areas (silvopastoral, shrublands, brushwood and alpine pastures). The Forestry Authority manages all the above areas and strictly protects them from any land use change. It also strictly protects forested areas from illegal logging, poaching, illegal collection of plants etc. This is dictated by Article 24 of the Greek Constitution. A similar status is in place in Samaria Biosphere Reserve, in Crete, Greece.

Buffer zones on Samothraki Biosphere Reserve exist only in the terrestrial part of the island. The size of all buffer zones is 5,755ha which is 25.2 % of the whole reserve. There are 4 types of buffer zones. The first one is Archaeological Zones A which are protected by national Archaeological law 3028/2002. The activities that are ongoing there is archaeological research and exhibition of antiquities. The second type of buffer zone is Archaeological zones B which surround Archaeological zones A. They are also protected by national Archaeological law 3028/2002. The activities that take place there are archaeological research and agriculture. The third type of buffer zone is the 2 hunting refuges protected by national law 2637/1998. There are no planned or ongoing activities in the hunting refuge since they serve strictly nature protection. The final buffer zone type is the south inaccessible coastal zone which is not under a legal protection but it is mainly constituted by rocks and steep cliffs. There are no ongoing or planned activities in the south coastal zone.

14.1.4 Which indicators or data are used to assess the efficiency of the actions/strategy used?

This needs to be determined in due time, and will be oriented at UNESO's standard procedures.

14.2 At the level of species and ecosystem diversity:

14.2.1 Identify main groups of species or species of particular interest for the conservation objectives, especially those that are endemic to this biosphere reserve, and provide a brief description of the communities in which they occur.

According to the NATURA 2000 catalogue there are 16 habitat types found within the constituted designated terrestrial area and 3 habitat types within the marine constitute area. Among them are

priority habitats for conservation in European level. These are the alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* and the Mediterranean *Taxus baccata* woods for the terrestrial environment and the *Posidonia Oceanica* sea beds for the marine environment. In specific, *Posidonia oceanica* is an endemic species to the Mediterranean Sea that forms dense and extensive green meadows whose leaves can attain 1 meter in height. These underwater meadows provide important ecological functions and services and harbour a highly diverse community, with some species of economic interest (Dvaz-Almela 2008).

Moreover, there are 8 endemic plant species on Samothraki (e.g. *Scrophularia spinulescens*, *Symphandra samothracica*, *Potentilla halacsyana*, *Silene samothracica*) with two of them first discovered in 2000 (*Anchusa samothracica* and *Allium samothracicum*). In addition, there are other plant species found on Samothraki that are endemics of Greece and the Balkan Peninsula. Among them are: *Alyssum degenianum*, *Sideritis perfoliata* subsp. *athoa*, *Arabis verna*, *Cephalorrhynchus tuberosus*, *Leucojum aestivum*, *Saxifraga sibirica* subsp. *Mollis*, *Fritillaria drenovskii*. It is very probable that more plant species are to be found on Samothraki and more botanical expeditions are needed since many of these plants are rare and threatened by the extensive grazing occurring on the island. Indeed, according to preliminary results of an ongoing study, the number of native and naturalized vascular plants amounts to 1534 species, belonging to 558 genera and 107 families, including 15 endemic species (Biel and Tan 2013).

Concerning the fauna of the island there are several species that are of European importance. These are the Lesser Mouse-Eared Bat (*Myotis blythi*), which is classified as near threatened, the Forest Dormouse (*Dryomys nitedula*) classified in the Appendix III of Berne convention, the Mediterranean Monk Seal (*Monachus monachus*) which uses the south rocky inaccessible part of the island as hunting ground and is listed as critically endangered in Europe and the endangered marine mammals *Tursiops truncatus*, *Delphinus delphis*, *Stenella coeruleoalba*, *Phocaena phocaena* and *Ziphius cavirostris*.

Furthermore, several reptile and amphibian species of Samothraki are listed as rare and endangered in Europe. Among them are the Loggerhead Sea Turtle (*Caretta caretta*) which is critically endangered, the Cat Snake (*Tellescopus fallax*) and the Dahl's Whip Snake (*Coluber najadum*) which both are endemic species of Greece, the European Pond Terrapin (*Emys orbicularis*) and Striped-Neck Terrapin (*Mauremys caspica*).

14.2.2 What are the pressures on key species? In other words: what are the threats (example unsustainable management of forest), their immediate causes (drivers of change like forest change or habitat change), their underlying causes (example overgrazing, fire, pollution), and the main driving forces (example: economic, political, social, external, etc.) and the area(s) concerned?

Main threat is identified in the management of the forested land areas of the proposed biosphere reserve. As immediate threat we can identify reduced forest regrowth, as well as the reduction of species abundance. Key species affected are, among others, *Juniperus* sp., oak woods, *Arbutus* scrub. Main underlying cause is overgrazing by free roaming goats. The main driving force is external/political and has to do with European subsidies, as in its present form the European CAP

subsidy finances the keeping of goats irrespective of their effective utilization. A better utilisation of goats, via an improved slaughtering/exporting chain is top priority in the management plan.

The marine component of the core zone is sensitive to marine pollution that can be transferred from other parts of the Thracian sea, or even an oil spill. Overfishing is another issue of concern. The seas surrounding the island of Samothraki keep within them large amounts of biodiversity, including several endangered marine mammals as well as fish species of commercial interest, and include extensive submarine meadows of the angiosperms *Posidonia oceanica* which is a priority marine habitat type. However, uncontrolled fishing and competition with large Greek and Turkish trawlers, especially during the summer months, put considerable pressure on marine ecosystems, with problems relating mostly to resource depletion and resource degradation. For example, catch in the coastal waters around the island (a traditionally abundant fishing ground) is sinking, while the seasonal demand for fish and seafood keeps rising.

14.2.3 What kind of measures and indicators are currently used, or planned to be used to assess both species groups and the pressures on them? Who undertakes this work, or will do so in the future?

The Hellenic Centre for Marine Research is currently performing an environmental assessment of inland water ecosystems on Samothraki (Skoulikidis et al. 2013), planning to continue doing so in the future. Another on-going research activity is the annual monitoring of bird populations especially during migration period done by the staff of the Hellenic Ornithological Society. On top, Burkhard Biel and Kit Tan have just published an extensive Report on Studies on the flora and vegetation of Samothraki (Biel and Tan 2013). They also will continue research in the future. The inclusion of Samothraki in the World Network of Biosphere Reserves, within the Man and Biosphere Program of UNESCO, would be an opportunity to place all these and further efforts into a broader framework by promoting cooperation and information transfer and strengthening the direction of Samothraki towards sustainable development.

14.2.4 What actions are currently undertaken to reduce these pressures?

The factor with the greatest potential in reducing pressures from overgrazing is a change of CAP. The present form of European CAP subsidy financing the keeping of goats irrespective of their effective utilization is to be reviewed from 2014 onwards – so there is a real window of opportunity to engage in different practices. Exploring possibilities of exporting goat meat, could be an incentive to bring down the number of goats causing erosion and other environmental problems, while bringing in more revenue for the farmers. The economic benefit of a smaller number of goats for the municipality could be further enhanced if one takes into account the (avoided) costs of rebuilding the roads destroyed or threatened by soil erosion.

14.2.5 What actions do you intend to take to reduce these pressures?

The intention is to prepare detailed annual plans of key areas of intervention towards sustainable development, and in doing so tackle pressures on biodiversity in a systemic way, while at the same time provide development opportunities for the local population. Each of these key areas comprise of a set of projects through which interventions are made possible keeping in mind the opportunities and constraints in the framework conditions. These projects will be developed via an interdisciplinary and integrated approach with the help of a scientific committee already established to address the overall sustainability of the island system and are conceptualised as such.

On top of strategies to deal with overgrazing, mentioned above, there are plans to deal with the issue of overfishing. The diverse group of environmental and social issues urges for a long-term management plan that would secure the protection and sustainable development of marine and coastal areas. The recent inclusion of a large marine area in the NATURA 2000 network area opens a new era of marine research and protection. The designation of a marine protected area with clear zones and fishing restrictions can help the recovery of the fish stocks, while attracting alternative adventure tourism (e.g. diving, eco-sailing) which in the long run would increase local income and can provide the incentive to maintain the pristine character of the island.

14.3. At the level of genetic diversity:

14.3.1 Indicate species or varieties that are of importance (e.g. for conservation, medicine, food production, agrobiodiversity, cultural practices etc).

There is one endemic species of plum tree that locals call “Praousti” that local women gather in order to make traditional sweets and liqueurs. There are also several herb species that are gathered like *Hypericum perforatum* which if put in olive oil create a very powerful medicine for curing cuts and scars on the skin. There are also several herbs that are used for making tea to cure colds and asthma but also herbs used for cooking like Oregano.

Recently there have been recent efforts by the Department of Animal Science of the Agricultural University of Athens to evaluate if there are animals of a local breed of sheep in order to get subsidised as a rare breed and the possibilities of improvement of farming system as well. As the main sources of income for the inhabitants are agro-tourism and small ruminant farming (sheep and goats) this is quite important for the island.

According to the study, most of the sheep population is crossbred animals of the local sheep with breeds from the mainland and nearby islands while there are also some flocks with pure breed animals of the Samothrace breed. The goats are more or less the same as the local autochthonous breed of Greece. However, in many flocks there is a small percentage (1-5%) of a special type of goat, with the same phenotypic characteristics as the wild *Capra aegagrus*. This specie is reported since the ancient times on Samothraki, while at modern times there were significant numbers which were made more or less extinct during the '60s. The same type of wild animal also exists on another small island, named Youra, south west of Samothraki. According to some authors (e.g. Marco Masseti, Atlas of terrestrial mammals of the Ionian and Aegean islands) these are the remains of the extinct wild Bezoar goat, which used to be spread throughout the Mediterranean Sea Basin.

14.3.2 What ecological, economic or social pressures or changes may threaten these species or varieties?

There is a direct pressure put upon all herb species, including economically important ones and those of conservation interest, by free roaming goats, and this is in turn a direct outcome of rising EU subsidies.

14.3.3 What indicators, at the level of the species, are used, or will be used, to assess the evolution of population status and associated use?

Botanologists Burkhard Biel, Kit Tan and colleagues that have just published an extensive Report on Studies on the flora and vegetation of Samothraki (Biel and Tan 2013) will continue to perform regular monitoring assessing the evolution of population status.

14.3.4 What measures will be used to conserve genetic diversity and practices associated with their conservation?

As far as the conservation of the typical Samothraki breed of sheep is concerned, there are private efforts (by the main cheese producer of the island) to maintain this breed and enlarge its numbers. A recent report produced by the Department of Animal Science of the Agricultural University of Athens, suggested an action plan regarding the sustainable management of animal and natural resources of the island. Main actions comprise of: a) the continuing of the development of the livestock sector of the island, b) the preservation and revival of the wild *Capra aegagrus*, which is crucial for biodiversity reasons and c) the preservation of the landscape and the protection of the natural environment.

15. DEVELOPMENT FUNCTION:

15.1. Potential for fostering economic and human development which is socio-culturally and ecologically sustainable:

15.1.1 Describe how and why the area has potential to serve as a site of excellence/model region for promoting sustainable development.

Samothraki holds a great potential to serve as a pilot site for promoting sustainable development. It has several attractions that make the island a hotspot of culture and nature that warrants it to be a biosphere reserve. On the island there is an abundance of natural resources and beauties along with a rich historical past. The human capital is willing to keep all these values and through innovative perspectives the island can be an example of sustainable development in the whole Mediterranean Sea. Besides its attraction for nature and culture tourism, the island can develop sustainably in branding itself for organic products such as cheese, meat, leather and olive oil. Explorations into the

secondary processing sector that so far has a rather modest profile could be beneficial for the island's sustainable development.

Its unique natural and cultural heritage is very much appreciated by the locals and is the main reason for attracting thousands of visitors every summer. Samothraki can use these unique assets and develop in an environmentally and socially sustainable way, and thus be an example of good practice for the wider Mediterranean region. The municipality of Samothraki has identified the inherent natural advantages of the island and has a long history of involvement in both national and international projects and networks in the direction of sustainable development.

15.1.2 How do you assess changes and successes (which objectives and by which indicator)?

The Institute of Social Ecology of Vienna has been, and will continue to be very active in assessing the island's progress towards a more sustainable future, using indicators and methodological tools from the field of social ecology. Extensive qualitative analyses have been performed, including surveys, individual and focus group interviews as well as professional consultations.

15.2. If tourism is a major activity:

15.2.1 Describe the type(s) of tourism and the touristic facilities available. Summarize the main touristic attractions in the proposed biosphere reserve and their location(s).

The most common attraction for people to come to Samothraki is its nature and culture attributes. Nearly half of the visitors come to experience one of the most famous camping sites of Greece, situated in a forest next to the sea. Also hiking on the mountain and doing nature walks is very popular since most of the natural beauties like waterfalls can be easily reached by foot. There are people who come to study the flora and fauna of the island or to be close to it. Moreover, tourists come to swim in the clean river waters and the sea. Fishing is a popular activity done by tourists. Others come to visit the antiquities and archaeological sites to witness the ancient culture and history of the island, and to some extent experience the local traditions. There is also a large amount of people who consider Samothraki as sacred so they visit the island for spiritual healing. In addition, patients seeking cure from various ailments visit the island's thermal springs. Finally there is a group of people who come to the island in order to taste the famous wild goat meat available in the local taverns.

Main tourist attractions are:

- The waterfalls, most of them located in the north part of the island (Fonias, Gria Vathra); also the "hanging" (kremasto) a spectacular waterfall and rare geological formations on the south side of the island (only accessible by boat)
- The mountain Saos, with its peak feggari (the moon) at 1,611 metres and the mountain paths
- The spectacular municipal camping in the region of Therma
- The thermal springs in the village of Therma (hot sulfur springs)
- The archaeological site of The Sanctuary of the Great Gods in Palaeopolis, (location of the ancient famous Kaveiria mysteries) including an Archaeological Museum with a reconstruction of the Nike of Samothraki exhibited in the Louvre

- The protected traditional settlement of Chora (including its castle, the church of the Assumption of the virgin, the Folklore Museum as well as the private Maria Ververi Folklore Museum)
- The monastery of Panagia (Maria) Kremniotissa on the way to Pahia Ammos
- Alevantza in Paleopolis: the stopping place of the Apostle Paul, a contemporary monument with impressive mosaics which depicts the visit of the Apostle Paul to Samothraki
- The Towers of Samothraki: The Gateluzi Towers in Palaeopolis as well as the tower of Fonias
- The sandy beach of Pachia ammos. The pebble beaches of Kipoi and Vatos
- The local delicacies in Profitis Ilias, and elsewhere

Tourism is the second basic economic activity that takes place on the island and it is the main occupation of 40.7% of the economically active population. Around tourism other activities like commerce and transports are also being developed. There are 14 small to medium size hotels with 620 beds and 74 private houses for rent with 982 beds. Moreover there are two municipal camping sites on the north side of the island with a capacity of 1,700 people. The total capacity of all existing tourist accommodation is estimated to be 4,000 people.

The following table summarizes the accommodation facilities on Samothraki. All hotels are in the transition zone with most of them being situated in the villages Kamariotissa and Therma.

Category	Units	Rooms	Beds
Hotels 3*	5	203	401
Hotels 2*	7	100	193
Hotels 1*	2	12	26
Total	14	315	620
Furnished Houses	2	14	30
Rooms for Rent	72	462	952
Total	74	476	982

Table 9: Tourist facilities on Samothraki

15.2.2 How many visitors come to the proposed biosphere reserve each year? (Distinguish between single-day visitors and overnight guests, visitors only visiting the proposed biosphere reserve or only passing on the way to another place). Is there an upward or downward trend, or a particular target?

The island is estimated to have about 40 000 visitors annually. Of these, about 27,000 are in fact tourists. The remaining are family visitors (3,500), second home owners (2,700), and seasonal workers (7,500). Almost 40 percent of all visits to the island happen in the months July and August. In relation to 2,800 permanent inhabitants, visitors appear to be a large number, but on average they stay only for about ten days. On an average day across the year, there are twice as many residents present than visitors, while in the high season, there are twice as many visitors than residents. Still, even in the high season, tourists in the narrow sense amount to a daily average of no more than 3,300. The population density remains very moderate at an estimated 13 persons per square kilometer in the off-season and 45 persons per square kilometer in the high season.

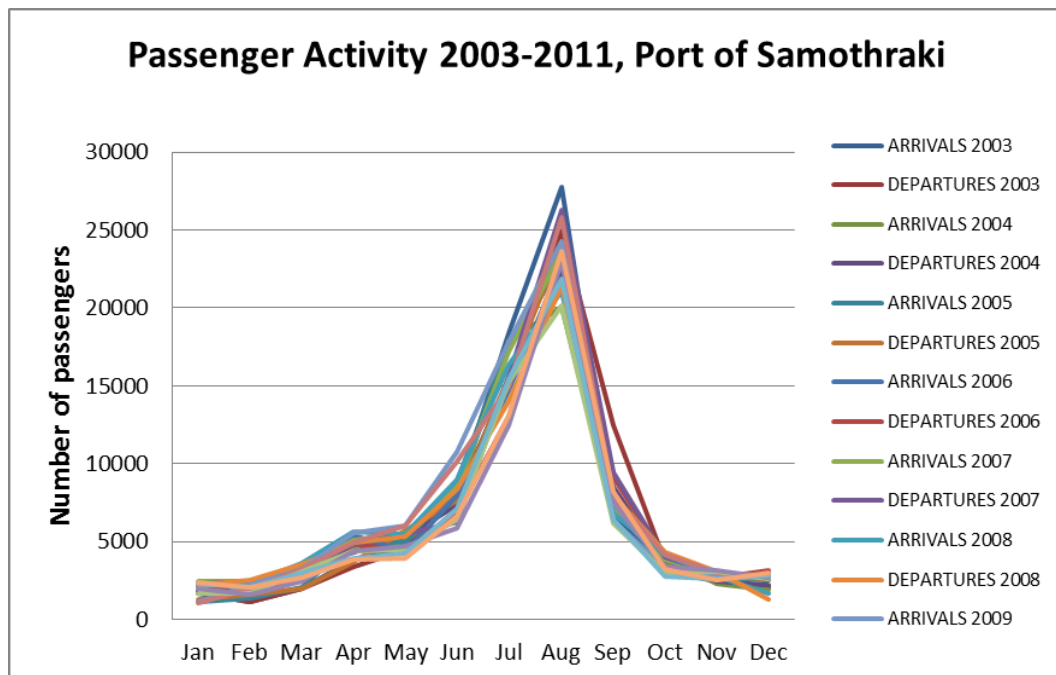


Figure 3: Passenger Activity at the Port of Samothraki between the years 2003-2011

Owners of second homes: According to results from a study undertaken by the Institute of Social Ecology, Vienna, in 2009, during the summer season about 1,200 owners of second homes and their families spend an average of 20 days on Samothraki. The survey shows that they are usually well-educated, with two-thirds of them having university degrees. Almost a quarter of them come from abroad. They have chosen Samothraki as a secluded location close to nature, away from mass tourism. This group might have most to gain from an efficient biosphere reserve management, as this would probably result in improving infrastructures for energy, water supply, waste removal, and sewage.

Seasonal workers: During the summer months, there are some 4,000 seasonal workers in tourist establishments. They are mainly young males, of whom more than half have university degrees. About a quarter comes from the neighbouring town of Alexandroupoli and the rest from other locations in Greece. A large number of these workers are students and teachers earning an extra income during the summer break while enjoying cheap holidays as food and accommodation usually is provided by their employers. They spend an average of 23 days for each continuous stay on the island.

Family visitors: About 3,500 visits across the year were classified as “family visits”. A third of them occur in the high season, lasting for about three weeks. During the rest of the year, we assume the family visits to be much shorter (mainly participation in weddings, birthday ceremonies, and funerals).

Tourists: Tourists, estimated at about 27,000 people annually, are predominantly Greek (87 percent), well-educated (two-thirds having university education), relatively young (three-quarters are below the age of 40), and more than half of them camp. Half of them have travelled to Samothraki

repeatedly, and more than 90 percent declared an intention to come back in the future. Such an attached tourist population is an important asset for the island. However, almost half of the tourists come in the peak season (July/August), staying there for little more than a week (8.7 days on average). According to port statistics, there has been no tendency to extend tourism into spring or autumn, and the overall number of tourists has remained fairly stable in the last decade (but was somewhat declining since the onset of the crisis).

15.2.3 How are tourism activities currently managed?

A tourism operators association has been active on the island since years, and there are currently efforts to coordinate tourism activities based on a small scale ecotourism model, in order to better promote Samothraki as an alternative nature/culture destination. Representatives from the hotelier's association, and other tourism-related entrepreneurs have been consistently consulted over the years, and are in full support of the biosphere reserve concept.

15.2.4 Indicate possible positive and/or negative impacts of tourism at present or foreseen and how they will be assessed (linked to section 14)?

Tourism has revitalised most Greek islands since the 60s and saved them from population collapse. Yet, for many of those, tourism has been both problem solving (provide opportunities) and problem creating (environmental degradation). Also on Samothraki, tourism is an activity with positive and negative impacts. The positive aspect of it is that it supplements the income of locals, it gives employment to local young people and it brings attention to the island. However tourist activities are concentrated in a short period of time between June and August with a peak during mid-August. This creates a substantial challenge for all infrastructures that have to cope with a very high demand in a short time, while remaining underutilized for the rest of the year. Under the new biosphere reserve model, it is planned to research and recommend to the municipality projects and schemes on how the inflow of tourists could be spread across the year to reduce peaks and related ecological burdens, and thus optimize use of existing infrastructure throughout the year. In other words, the goal is not to increase the number of summer tourists in the peak season (thereby discouraging the growth of new infrastructure), but to identify attractions, activities, information channels and target groups to populate Samothraki with visitors at other times of the year.

15.2.5 How will these impacts be managed, and by whom?

The challenge of a development towards a more sustainable form of tourism should be met by efforts to reduce the environmental burden associated with tourism while seeking to increase the local income derived from it, including the generation of more highly qualified jobs that would allow young, educated people to stay on the island and sustain their lives there. We propose to outline a sustainable tourism management plan that would give credit to the unique natural environment (hiking, diving, thermalism, etc), but would also put emphasis on the rich cultural heritage of the island, promoting sites of significant cultural importance. This should be managed by the tourism operators association in strong collaboration with the management of the biosphere

reserve and the Municipality of Samothraki. The key idea here is that tourism management cannot exist without (at least some degree of) ecosystem management. Moreover, sustainable tourism based on the biosphere reserve concept can help to spread tourist season into spring and autumn and utilize the same infrastructure for a longer period thus providing a better income for residents with lesser burden on the environment. This can be achieved by targeting specific groups of tourists, driven by a distinct interest such as research and education, wellness and healing, adventure, culture, attractions for old people etc. For this purpose, we identify specific specialised types of sustainable tourism opportunities for Samothraki and evaluate their feasibility:

- Traditional “holistic” ecotourism

This refers to the more traditional sort of ‘romantic’ tourists, looking for a more holistic experience with their interaction with nature. Special emphasis is given to well-preserved landscapes, of which Samothraki has in abundance. In fact, Samothraki’s pristine nature, with lush platanus forests and freshwater springs, is one of the main attractions for current tourists. This type of ecotourism is already quite developed on the island. Many of those kind of tourists prefer to camp, and even though their total expenditure may be lower than tourists choosing to stay in a hotel, their overall contribution to the total income generated on the island is significant. A management plan should utilize this special ‘capital’ by improving mountain paths, providing cleaner facilities and information stands on the flora and fauna of the island.

- Specialised “fragmented” ecotourism

In this category we can include tourists with a specialised interest, for example nature lovers with a specific research/scientific interest, such as photography, bird watching, studying flowers etc. An advantage of attracting such tourists is that they are often well-educated middle class people with a higher willingness to pay. Of further importance is also the fact that such specialized tourism could occur off-season, spreading the tourist season, balancing the pressure on facilities and infrastructure. Moreover, the tranquil environment of Samothraki also encourages the organizing of specialized courses and workshops. The annual three-week “summer ecological university”, organized by the Interdisciplinary Institute for Environmental Research in 2010 was just one of the various workshops having taken place on the island. Such a trend should be highly encouraged and supported by the municipality, and if possible extended into spring and autumn.

- Cultural and archaeological tourism

The island of Samothraki, on top of its exceptional natural resources, hosts a plethora of sights with a unique cultural significance. Most prominent among these is perhaps the magnificent Sanctuary of the Great Gods, place of the ancient Kaveirian mysteries and origin of the famous Nike of Samothraki. Other attractions include the capital of the island, the small picturesque mountain town Chora (a cultural heritage site), the Palaeopolis and the medieval Genoese towers. Specific actions that can be taken in this direction would be the integration of the main sights in a “Samothraki cultural route”, including providing further information and guidance, as well as redesigning and highlighting the archaeological and folklore museums. On top of this, there seems to be a strong support for cultural activities, especially by the young and educated tourists, as well as the secondary home owners. The organising of such events would certainly provide more incentives to visit the island.

- Adventure tourism

Even though this type of tourism is slightly controversial since it often conflicts with other more peaceful uses of nature, if practised sustainably following well-defined rules and regulations, it has an important unrealised potential on Samothraki. In particular activities such as climbing, trekking, canyoning and mountain biking, already performed on the mountainous part of the island, can be further developed. An attraction of sports lovers can also help revive diving tourism that, after a promising start, seems to have recently stagnated.

- Thermalism

The presence of natural hot-water springs on Samothraki is another special asset that can be further utilised. The better maintenance of the public bath in the region of Therma should be another priority for the municipality, to be paid back through increased visitation.

- Family tourism

As identified by our survey, most visitors of Samothraki come either as singles or in a couple. While this visitor population should be by all means maintained, the potential of attracting more family-oriented tourism should not be overlooked. This can be facilitated by making some of the public infrastructure (e.g. the municipal camping site) more “family-friendly”. In these lines, small investments can have a large return benefit.

- Culinary tourism

Although not officially developed, Samothraki has a great potential of producing high quality local organic products that would provide an added value, while being more environmentally sustainable. However, as in many small scale islands, the use of imported goods is often preferred purely on economic grounds. In this respect, a further analysis of the cost of using local vs imported products in gastronomy should be performed, also taking into consideration the non-monetary costs and benefits, as well as possible cascade effects of such decisions. For example, an increased and more efficient use of local products could significantly reduce imports and as a result decrease waste on the island, and cost for the Commune to remove it.

The imminent designation of Samothraki as a Biosphere Reserve will certainly contribute in adding value and international reputation to the island as a destination. This will attract additional international tourists of various kinds, thus improving the rate of return from existing infrastructures and contributing to an enlarged season, but would also raise the visitors’ expectations. Yet despite the pressure to assign an economic value to tourist activities, it should be kept in mind that it is exactly those non-market values that make Samothraki special in the first place. A good management should be based on mutual understanding, wise planning and good governance, with wide civil society involvement (Borges et al. 2011). Links between tourism management and the other pressing sustainability concerns the island faces, such as overgrazing and inefficient water and waste management, should be taken into consideration in order to tackle all issues in a cost-effective way. The future of tourism is likely to change together with environmental changes (Amelung and Viner 2006), socio-political conditions, new legislation, as well as shifting environmental perceptions. Efforts to manage tourism should be met with efforts of reversing the direction of degrading environmental baselines. This could be partly achieved through finding ways to return to traditional, simpler and often more sustainable practices, inverting the notion of traditional as being backward-looking and restrictive.

15.3. Agricultural (including grazing) and other activities (including traditional and customary):

15.3.1 Describe the type of agricultural (including grazing) and other activities, area concerned and people involved (including men and women).

The primary sector – consisting of agriculture, animal husbandry, and fishery – still employs 45 percent of the about 1,000 permanent residents that are economically active. Agricultural land occupies around 17 percent of the total island territory. 54,61% of the agricultural units that represent 82,75% of the land belong in an agricultural cooperative while 83,39% of the units are secured in the Organization of Agricultural. Main products are grains, olives, grapes, and horticultural products. All areas are part of the proposed biosphere reserve transition zone.

Agricultural production strongly depends on subsidies according to the *European Common Agricultural Policy (CAP)*, most of which are expended on the livestock sector (mainly sheep and goats, representing 1.7 million Euro of subsidies annually). These subsidies have contributed to a sharp rise in the number of livestock in the past decade. The *CAP* policy is due to change substantially by 2014 with major cuts to be expected. At present, the goats and sheep on the island number 60,000 to 80,000, mostly freely grazing, and are used for milk and meat production. In addition, there are around 1,000 pigs, 9,000 poultry, and 1,550 beehives.

Local fisheries recorded a catch of 2,186 tonnes (in 2007), estimated to be worth 9.27 million Euro (National Statistical Service of Greece 2005, Greek Ministry of Agriculture 2008). On the island there is a local cooperative of fishermen called “Agios Nikolaos (Saint Nicolas)” with 40 members.

The secondary sector, employing twelve percent of the active population, is relatively small. There is one olive press, a municipal wheat mill, a small winery, and some construction and mining activity. There are also several bakeries as well as one cheese factory.

15.3.2 Indicate the possible positive and/or negative impacts of these activities on biosphere reserve objectives (section 14).

Within the past 20 years, there has been an exponential growth in the number of sheep and semi-wild goats roaming on the island, strongly enhanced by the agricultural policies of the European Union. Overgrazing, coupled with the steepness of the terrain has led to quite dramatic levels of soil erosion, also partly within the Natura 2000 area, posing a major threat to its conservation goals. One direction that requires further investigation is the overall effect of overgrazing on the land of Samothraki. For example, the economic damage caused by erosion can be calculated from the costs of rebuilding the roads destroyed or threatened by soil erosion. Moreover, there should be a stronger focus on the economics of goats. Currently, the livestock herders suffer from price increases for animal feed and thus gradually lose interest in their livestock. On the island, there is currently an estimated population of 60-80.000 goats, a number that lies way beyond the sustainable limit. The challenge here is to find drastic ways to achieve a better utilization of the goats but reduce their numbers. A change in CAP could provide a window of opportunity.

15.3.3 Which indicators are, or will be used to assess the state and its trends?

The issue of goats on Samothraki is currently being investigated by the Institute of Social Ecology in Vienna. A series of focus groups and qualitative interviews have been performed over the years, in order to assess the current state and propose alternative management policies. The intention is, through a model, to find systemic imbalances, and using socioecological thinking to address challenges in a holistic way. The Municipality of Samothraki, as well as the farmer's association, work closely with visiting scientists in order to come up with solutions that are sustainable in the long run.

15.3.4 What actions are currently undertaken, and which measures will be applied to strengthen positive impacts or reduce negative impacts on the biosphere reserve objectives?

Some initial interventions in the direction of sustainable development, following the Biosphere Reserve vision, include the following:

Branding for organic products

A further development of the secondary processing sector that has had a rather modest profile, could be beneficial for the island's sustainable development. In particular, Samothraki can develop sustainably in branding itself for organic products such as cheese, meat, leather and olive oil. The case of olive oil production is particularly promising, as there is the realistic possibility to produce 100% organic olive oil from the island. This could lead to a substantial increase in revenue through the improvement of the production/value chain, with a minimal effect on the environment. A prerequisite for such a shift would be an official certification that will allow selling Samothrakian olive oil as organic, and the interest of a good number of young farmers willing to change practices, as well as an appropriate strategic marketing initiative.

Exporting of goat meat

An issue that warrants further exploration is that of a better utilization of (the extremely high number of) goats on the island via an improved slaughtering/exporting chain. The present form of European CAP subsidy financing the keeping of goats irrespective of their effective utilization might cease by 2014 – so there is a real window of opportunity to engage in different practices. A functional slaughtering house and butchering/packaging that will allow exporting goat meat, could be an incentive to bring down the number of goats causing erosion and other environmental problems, while bringing in more revenue for the farmers. The economic benefit of a smaller number of goats for the municipality could be further enhanced if one takes into account the (avoided) costs of rebuilding the roads destroyed or threatened by soil erosion.

15.4 Other types of activities positively or negatively contributing to local sustainable development, including impact/influence of the biosphere reserve outside its boundaries.

There are currently no other major relevant activities, and no plans in this direction.

15.4.1 Describe the type of activities, area concerned and people involved (including men and women).

n/a

15.4.2 Indicate the possible positive and/or negative impacts of these activities on biosphere reserve objectives (section 14). Have some results already been achieved?

n/a

15.4.3 What indicators are, or will be used to assess the state and its trends?

n/a

15.4.4 What actions are currently undertaken, and which measures will be applied to strengthen positive impacts or reducing negative ones on the biosphere reserve objectives?

n/a

15.5 Benefits of economic activities to local people:

15.5.1 For the activities described above, what income or benefits do local communities (including men and women) derive directly from the site proposed as a biosphere reserve and how?

The locals who are directly engaged with tourism have direct economic benefits from this activity. Hotel and restaurant owners benefit directly. However other groups like livestock owners benefit indirectly from tourism by selling their animal for meat in the restaurants of the island at a higher price than they get if they export live animals.

The financial turnover from tourism is significant. Based on a visitor survey and interviews (data on daily spending habits with respect to food, accommodation, vehicle rent/parking fees, and shopping), we estimate the average daily expenditures per visitor at 37 to 46 Euro. Annually, visitors spend 16 to 20 million Euro on the island. Although the campers spend half as much per day as those who stay in hotels, the overall contribution of both groups is nearly the same, mainly because campers on average stay longer. In this sense, campers are highly relevant for the local economy while exerting the least environmental pressure in terms of infrastructure demands. Annual spending by those who stay with their relatives, as well as seasonal workers and second home owners, also amounts to 30 percent of the income the island acquires from its visitors (results from the study undertaken by the Institute of Social Ecology, Vienna, 2009).

Moreover, the actions plans described above (Branding for organic products, exporting of goat meat) are aimed so that they do not make only ecological sense, but also have direct economic benefits to the local community (see section 15.3.4.).

15.5.2 What indicators are used to measure such income or other benefits?

The Institute of Social Ecology of Vienna has been, and will continue to be very active in assessing the socioeconomic conditions on the island of Samothraki, using indicators and methodological tools from the field of social ecology. Extensive qualitative analyses have been performed, including surveys, individual and focus group interviews as well as professional consultations.

15.6 Spiritual and cultural values and customary practices:

(Provide an overview of values and practices, including cultural diversity).

15.6.1 Describe any cultural and spiritual values and customary practices including languages, rituals, and traditional livelihoods. Are any of these endangered or declining?

Spiritual values: Sanctuary of the Great Gods, Kaveirian Mysteries. The island of Samothraki was host to the magnificent *City of the Great Gods*, a large temple area of pre-Greek origin that used to be a place of worship (the Kaveirian Mysteries) from the 3rd millennium BC onward, up into the 4th century AD when Christianity took over. The area is now a major attraction, and attracts many visitors seeking spiritual healing.

Cultural values: Sanctuary of the Great Gods archaeological place, home to famous Nike of Samothraki, protected traditional settlement (Chora), Samothrakian dialect, traditional dresses.

Customary practices: traditional dances (platanisios, stavrotos, year-yiar, zeimbekikos vrakadikos, amolartos, hasaposervikos, mandalena, kiachagias), goat-meat delicacies, traditional recipes/sweets.

15.6.2 Indicate activities aimed at identifying, safeguarding, promoting and/or revitalising such values and practices.

The Municipal library, the Municipal Folklore Museum, the private Maria Ververi Folklore Museum, as well as many private archives are dedicated in safeguarding and promoting traditional cultural and customary practices, such as the local dialect, traditional dresses and dances, through collections of artefacts, audio and video material.

15.6.3 How should cultural values be integrated in the development process: elements of identity, traditional knowledge, social organizations, etc.?

There is a high level of traditional and non-traditional cultural activities on the island (festivities, music and dance performances, exhibitions, open air cinema, church ceremonies...) that also draw in

tourists without becoming fully commercialized. They give job opportunities to locals, but they also offer opportunities to experience communality, spiritual elevation and fun. They demonstrate cultural diversity, ranging from orthodox rituals across “heathen” ceremonies linked to the antique Sanctuary of the Great Gods, to traditional and modern music and dancing. The level of these activities, particularly also in the off-season, is very important for maintaining communication and a feeling of coherence. There is much a biosphere reserve can build upon.

The agro-ecotouristic women’s cooperative “Aksiokersa” produce local traditional sweets and has established a small production unit producing traditional local sweets drinks only from products of the island in order to supplement their income.

15.6.4 Specify whether any indicators are used to evaluate these activities. If yes, which ones and give details.

(Examples of indicators: presence and number of formal and non-formal education programmes that transmit these values and practices, number of revitalisation programmes in place, number of speakers of an endangered or minority language).

No indicators have been used so far.

16. LOGISTIC SUPPORT FUNCTION:

16.1 Research and monitoring:

16.1.1 Describe existing and planned research programmes and projects as well as monitoring activities and the area(s) in which they are (will be) undertaken in order to address specific questions related to biosphere reserve management and for the implementation of the management plan (please refer to variables in Annex I).

The municipality of Samothraki has identified the inherent natural advantages of the island and has a long history of involvement in both national and international projects and networks in the direction of sustainable development.

Since 2007, the Institute of Social Ecology in Vienna (SEC), Alpen-Adria University of Klagenfurt, has coordinated research on the island of Samothraki, and in collaboration with the Commune and local stakeholders, as well as the Greek and Austrian MAB Committees and UNESCO-Venice provides scientific support in order to develop a strategy to transform the island into a UNESCO Biosphere Reserve. In a participatory process the initiative was gradually transferred into a broader base of local stakeholders. This is a dynamic and ongoing process that has been initiated by the Austrian MAB committee and was highly acknowledged, including the Sustainability Award 2010 it received by the Austrian Ministry of Science and Research.

This research is driven by the ambition to design a sustainable model for the island, in which the concept of a biosphere reserve should play an important role (this application is a result of these efforts). To this end, relevant socio-economic research was undertaken which is presented below. The research also included collation of secondary data concerning the socioeconomic and natural features of the island. The Institute of Social Ecology is presently supporting the Mayor in

developing first new project ideas that could be implemented by the new management once the biosphere reserve is constituted.

16.1.2 Summarize past research and monitoring activities related to biosphere reserve management (please refer to variables in Annex I).

• Abiotic research and monitoring [climatology, hydrology, geomorphology, etc.]

Some examples of abiotic research on the island are concern the geology and the surface waters. There is also a study on the management and physicochemistry of the St. Andreas Lagoon (Koutrakis 2001). Moreover, the Hellenic Centre for Marine Research is currently performing an environmental assessment of inland waters on Samothraki (Skoulidakis et al. 2013).

• Biotic research and monitoring [flora, fauna]:

The following bibliographic references indicate the biotic research and monitoring that has been done on Samothraki in the past (Bigazzi 2000; Broggi 1988; Buttle 1989; Cattaneo 2001; Clark 1991; Crucitti 1988; Dimitriadis 1937; Greek Biotope and Wetland Center; Gruber 1979; Hellenic Ornithological Society 2007; Strid 1998; Tzanoudakis 2000; Vohlarik 1991; Watson, 1962; Zapparoli 1993). Another on-going research activity is the annual monitoring of bird populations especially during migration period done by the staff of the Hellenic Ornithological Society. On top, Burkhard Biel and Kit Tan have just published an extensive Report on Studies on the flora and vegetation of Samothraki (Biel and Tan 2013).

• Socio-economic research [demography, economics, traditional knowledge, etc.]:

Archaeological research

There is a well-established archaeological research tradition on Samothraki, that continues more or less uninterrupted from 1854 with the excavation by Ernst Otto Blau and Konstantin Schlottmann (1855: 601-636, Erhardt 1985), concentrating on the topography and description of the buildings and sculptures of the Sanctuary of the great Gods (Matsas and Bakirtzis 2001). In 1863 the French consul Charles François Noël Champoiseau discovered the Nike of Samothraki (Lehman 1998). A French expedition led by Gustave Deville and Ernest George Conquart (Deville 1867, Conquart 1867), mapping the visible ruins and excavating in several places (Lehmann 1998, Ehrhardt 1985) was followed by two expeditions in 1873 and 1875, run by the Austrian Alexander Conze, who directed the first extensive excavations with a big team. He was joined also by the architects Alois Hauser and Georg Niemann to reconstruct the ancient buildings (Conze 1860, 1875, 1880), as well as geologist Rudolf Hoernes (Hoernes 1874). Charles Champoiseau excavated again in 1879 and 1891 when he discovered the Theatre (Matsas and Bakirtzis 2001). The Samothracian physician N.V. Fardis also excavated at the same time on several locations on the island (Matsas and Bakirtzis 2001).

In 1923 and 1927 a French-Czechoslovak group under Antonin Salač, Fernand Champouthier, François Salviat and Jan Nepomucký worked on the Sanctuary (Matsas and Bakirtzis 2001,

Champouthier et al. 1956), followed by the systematic excavations by the Institute of Fine Arts of the New York University in collaboration with the University of Atlanta starting in 1938 and especially in the 1950s under Karl Lehmann-Hartleben. After his death, his ex-wife Phyllis Williams Lehmann took over the direction of the excavations at the Sanctuary together with James R. McCredie and since 2012 Bonna Daix Wescoat is the new project manager. The result of these still ongoing excavations are 11 volumes of excavation reports (Samothrace Vols 1-11, Bollingen Series), each of them comprising two to four volumes, as well as a series of preliminary reports published in *AJA* and *Hesperia*, as well as one excavation report published in 1976 (Ehrhardt 1985). The first studies on the religion and cult practised at the Sanctuary were already performed in ancient times, but within the modern archaeological research, Otto Kern and Carl Friedrich were among the first to dedicate several complete articles on this topic (Friedrich 1909; 1919). The newest research on the gods of Samothraki was done by Zlatozara Gočeva (2002) and Nora M. Dimitrova.

Besides the focus on the excavation of the Sanctuary of the Great Gods, a large amount of work concentrates on the first settlements on the island. Here the main area of investigation is the, so far, oldest settlement, Mikro Vouni, located in the southwest of the island. Dimitris Matsas' studies on the site show human presence starting in the Late Neolithic (late 6th first quarter of 4th millennium BC), that continued during the Middle and Late Bronze Age until around 1700 BC (Matsas 2009). One of the few studies regarding the paleogeography of Samothraki was also carried out at Mikro Vouni, reconstructing the ancient sea level and coastal zone a bit south of the site, called the Lambi marsh (Matsas 2009). Even today the main grain fields are located in this area, and the antique temple of Demeter, the goddess of fertility, was built close to the old settlement (Ehrhardt 1985). There has been a lot of investigation on the origin as well as the timing of arrival of the first inhabitants on Samothraki (e.g. Graham 2002) but the subject is still under dispute. By the time of the Early Bronze Age the local population of Samothraki were descendants from the Thracian mainland (Graham 2002). A.J. Graham and P. Ilieva have made comprehensive studies on the first settlers (Graham 2002, Samothrace 5: 270).

Socioecological research

As already mentioned, there is an already long and growing tradition of has to do with socioecological studies, coordinated by the Vienna Institute of Social Ecology. Past achievements were the realization of a feasibility study for the proposed Biosphere Reserve on the island of Samothraki, realized by SEC, Vienna, in collaboration with UNESCO Venice (Fischer-Kowalski et al. 2011). This included an extensive survey of visitors, their behavior and preferences, the outline of economic models for tourism, a comprehensive consultation with stakeholders and several meetings during the summers of 2009-2012, all of which led to the first official application unanimously supported by the municipal council and submitted by the Greek National MAB committee in 2011, as well as the current resubmission.

Results from these activities have appeared in both peer-reviewed publications (Fischer-Kowalski et al. 2011, 2013, Petridis 2012), as well as presented in numerous internationally renowned conferences (International Conference on Human Ecology, Manchester, UK, 2009; 15th International Symposium on Society and Resource Management, Vienna, Austria, 2009; 12th Biennial Conference of the International Society for Ecological Economics, Rio de Janeiro, Brazil, 2012), and thematic workshops (workshop on "Island Industrial Ecology and Sustainability" in Hawaii, organized by

Yale University, USA, 2011; International Workshop “Best Practices for Sustainable Use and Biodiversity Conservation in Protected Areas in Regards of the Biosphere Reserve Concept”, Strandja Nature Park, Bulgaria, organized by the Bulgarian Biodiversity Foundation with the support of the UNESCO Venice Office and the Bulgarian National MAB Committee, 2011; INTERREG IVC programme SUSTAIN Workshop on “The Needs of Small Islands” on Samothraki, Greece, 2011).

There are currently two PhD students and one master student working on issues related to Samothraki, ranging from an analysis of the goat life-cycle on the island, to an archaeological reconstruction of demographic and ecological tipping points.

16.1.3 Indicate what research infrastructure is available in the proposed biosphere reserve, and what role the biosphere reserve will play in supporting such infrastructure.

In addition to being active in many research projects and thematic networks, the Municipality of Samothraki is also committed to facilitate research on the island, by utilising its owned land and infrastructure. Some examples of proposed actions are given below:

- A new and spacious secondary school has been built on the road connecting Capital Chora and main port Kamariotissa. There both the intention to host visiting scientists, as well as the space for new labs to be located in the premises of the school. On top, the municipality has a new library with books aging from the 18th century.
- The municipality of Samothraki owns one hectare of land on the north side of the Island. This land could be used for the creation of a Mediterranean plant botanic garden and a local plant species seed bank.
- Moreover, the municipality of Samothraki owns six wooden houses on a hill next to the sea with a capacity of 4 persons per house. They are situated in a beautiful forested and green plot of land and can host outdoor mini conferences or seminars.
- There are 3 conference halls on the island, one in the Cultural Center of Chora and two others in the biggest hotels of the island.
- Recently the National Meteorological service of Greece has established a permanent meteorological station near Kato Karyotes village on the sea side. However, there is a private automated meteorological station operating on the island since 2001.
- The forestry department has a 4WD vehicle on the island.
- Finally, on Samothraki there exists one permanent research station that belongs to the Archaeology Directorate and is situated near the village of Palaiopolis next to the archaeological museum. A temporary research station is created every summer inside the camping site by visiting scientists.

16.2 Education for sustainable development and public awareness:

16.2.1 Describe existing and planned activities, indicating the target group(s) and numbers of people involved (as “teachers” and “students”) and the area concerned.

In October 2012 a 1-week student course/excursion was organized by the Vienna Institute of Social Ecology to the island of Samothraki, where 12 Master’s students and 4 staff members participated. The objectives of the course were manifold: (a) expose students to sustainability and development challenges in a local setting seen from the perspective of social ecology, (b) reflect and engage in the design of a management plan to include first project ideas for the new biosphere reserve such as for sustainable tourism, land use, water, waste and energy systems, and (c) allow the experience of a transdisciplinary research process by learning to interact with stakeholders and conduct interviews in a culturally challenging environment. Methodologically, during the excursion two main approaches were pursued: (a) focus group interviews with local stakeholders (such as fishermen, farmers, local professionals, elderly people in need of care etc.) in order to explore alternative visions for the future of the island and (b) distance sampling methods in order to estimate livestock densities in different area types. This was performed in order to assess the pressing problem of erosion and biodiversity loss due to overgrazing. An extensive report from the course has been produced (Petridis et al. 2013) and is available as a working paper online:

http://www.uni-klu.ac.at/socec/downloads/WP142_WEB.pdf

Following-up on the previous excursion, funds have been secured from an Erasmus Intensive Programme (IP) in order to perform another student excursion in Spring 2014. The course entitled “*Achieving sustainable development on Samothraki island: Social ecology concepts and methods in a real world context*” will be coordinated by the Institute of Social Ecology Vienna (SEC), University of Klagenfurt, in partnership with the following cooperating institutions: Lund University, National University of Ireland, Aegean University and Autonomous University of Barcelona. In total 20 students and at least 8 staff members from all partner Universities are expected to participate. The innovative character of the described IP is that it will provide an opportunity for the students to engage in a real-life project, thus allowing them to make use of their different scientific backgrounds and their respective knowledge within the context of sustainable development and nature conservation. On the one hand the students will be confronted with the challenges and possibilities of working in small interdisciplinary and multicultural problem-oriented teams. On the other hand students will engage in active field-work. The project aims to provide participating students training in socio-ecological methods within a local setting. Moreover, the ongoing process of bottom-up transformation and the challenging new European environment will give the students the opportunity to engage in a real-life project and utilise their scientific training within the field of sustainability studies, in order to analyse and accompany this process further.

Moreover, the local environmental NGO “Samothraki in Action” is rather active in environmental education and raising public awareness of locals of all ages, as well as visitors. They visit schools and help the teachers in environmental education. The local mountaineering club organizes free excursions every summer for tourist to get to know the island better. The primary school of Chora plans to initiate an environmental education project on composting directly involving the students, aiming to both practical outcomes, and raising environmental awareness.

In the village of Therma on the north side of the island, the municipality of Samothraki owns a building that used to be an elementary school. It is built of stone and traditional tiles and has exceptional green surroundings within its big yard. The building is in the proximity of the village and there are plans to transform it into an environmental education centre with only small-scale modifications. Existing collections of minerals, flora and fauna of the island that are currently not exhibited could be hosted there and be open to the general public and to visitors of the island.

Moreover, the municipality of Samothraki owns one of the largest and most exceptional camping grounds of Greece. The area lies next to the sea and it is covered with huge Oriental plane trees along with other typical Mediterranean tree and bush species. The camping is a very attractive destination for tourists who want to experience a natural living. There are ongoing deliberations to redesign the municipal camping site into a sustainable tourism facility and biodiversity learning spot (eco-camping), in such a way that would provide the visitors with high sustainable tourism standards. Facilities such as composting, wastewater treatment and recycling, waste recycling and wise freshwater usage will be in place. Moreover information facilities like labels and information stands would provide the visitors with sufficient information and education on the camping's species diversity.

16.2.2 What facilities and financial resources are (or will be) available for these activities?

The planned student excursion is fully funded via an Erasmus Intensive Programme.

For the rest of the proposed actions, the Municipality will facilitate these activities by providing human resources and infrastructural support, as described in section 16.1.3

16.3 Contribution to the World Network of Biosphere Reserves:

16.3.1 How will the proposed biosphere reserve contribute to the World Network of Biosphere Reserves, its Regional and Thematic Networks?

As yet, there is no official collaboration at the international level with other biosphere reserves. However, great help has been received from Wienerwald Biosphere reserve (Austria), as well as UNESCO Venice in supporting the effort of filling the nomination form. There is a plan by the Austrian Academy of Science to organise a regional workshop of Biosphere Reserve managers of several European countries such as Austria, Poland, Slovakia, Czech Republic, Germany, Switzerland, etc. This could be a starting point for the new Samothraki reserve to integrate into more international collaborations.

Samothraki has a lot to offer to the World Network of Biosphere Reserves. The hospitality of the locals and their will to share their knowledge with others but also learn from them will be a major contribution. In addition, the island is open to all kinds of collaborations and hosting of events or organizing joint seminars and training of personnel. Samothraki intends and is looking forward to be part of the thematic network Mediterranean Coastal and Marine Biosphere Reserves, as well as other relevant Regional or Thematic Networks that may arise.

Representatives from Samothraki have been actively participating in the EuroMAB meetings in Antalya, Turkey and Stara Lesna, Slovakia, and will also be represented in the forthcoming EuroMAB meeting in Canada.

16.3.2 What are the expected benefits of international cooperation for the biosphere reserve?

The imminent designation of Samothraki as a Biosphere Reserve will certainly contribute in adding value and international reputation to the island as a destination. This is going to attract additional, international tourists of various kinds, thus improving the rate of return from existing infrastructures and contributing to an enlarged season, but would also raise the visitors' expectations.

Perhaps more importantly, inclusion in the World Network of Biosphere Reserves would facilitate knowledge transfer and stimulate a new era of innovative research and management in the direction of sustainable development, as described in previous sections.

16.4 Internal and external communication channels and media used by the biosphere reserve:

16.4.1 Is (will) there (be) a biosphere reserve website? If yes, what is its URL?

There is the intention to use already existing websites:

www.samothraki.com,
www.samothraki.gr

as well as other informal blogs, and merge them into a core portal, that will provide comprehensive information about the island, and be an entry point for visitor requests.

16.4.2 Is (will) there (be) an electronic newsletter? If yes, how often will it be published?

An electronic newsletter, along with other printed dissemination material, are among the plans of the future management. The frequency of the publication will be decided in due time.

16.4.3 Does (will) the biosphere reserve belong to a social network (Facebook, Twitter, etc.)?

The biosphere reserve intends to use and benefit from social networks. The plan is again to use and enrich already existing pages, e.g. the Municipality of Samothraki facebook page.

17. GOVERNANCE, BIOSPHERE RESERVE MANAGEMENT AND COORDINATION:

[Describe the following characteristics in the prospective that the site is being designated.]

17.1 Management and coordination structure:

17.1.1 What is the legal status of the biosphere reserve?

Administrative divisions of proposed Biosphere Reserve

Country: Greece

Administrative division: Macedonia-Thrace

Periphery: East Macedonia and Thrace

Municipality: Municipality of Samothraki

The biosphere reserve has no legal status yet. The development plan of setting up a biosphere reserve management coordination are discussed in detail in the Supporting Material.

17.1.2 What is the legal status of the core area(s) and the buffer zone(s)?

The largest part of the island's surface, including the core zones of the proposed Biosphere Reserve are part of the NATURA 2000 network. There are two, largely overlapping NATURA 2000 areas, GR1110004 - Type: SCI and GR1110012 - Type: SPA. The municipality plans to integrate the two areas into a natural park under Greek law (Law 3937/2011 – For the protection of biodiversity).

According to Greek Law 998/79, the Forestry Authority has under its responsibility the totality of Samothrakian forested areas. This includes forests, as well woodland scrub areas (silvopastoral, shrublands, brushwood and alpine pastures). The Forestry Authority manages all the above areas and strictly protects them from any land use change. It also strictly protects forested areas from illegal logging, poaching, illegal collection of plants etc. This is dictated by Article 24 of the Greek Constitution. A similar status is in place in Samaria Biosphere Reserve, in Crete, Greece.

Buffer zones on Samothraki Biosphere Reserve exist only in the terrestrial part of the island. The size of all buffer zones is 5,755ha which is 25.2 % of the whole reserve. There are 4 types of buffer zones. The first one is Archaeological Zones A which are protected by national Archaeological law 3028/2002. The activities that are ongoing there is archaeological research and exhibition of antiquities. The second type of buffer zone is Archaeological zones B which surround Archaeological zones A. They are also protected by national Archaeological law 3028/2002. The activities that take place there are archaeological research and extensive agriculture. The third type of buffer zone is the 2 hunting refuges protected by national law 2637/1998. There are no planned or ongoing activities in the hunting refuge since they serve strictly nature protection. The final buffer zone type is the south inaccessible coastal zone which is not under a legal protection but it is mainly constituted by rocks and steep cliffs. There are no ongoing or planned activities in the south coastal zone.

17.1.3 Which administrative authorities have competence for each zone of the biosphere reserve (core area(s), buffer zone(s), transition area(s))?

Administrative authorities with competence for the core area: the Municipality of Samothraki. Insofar as it overlaps with the existing Natura 2000 areas, there is an obligation of the Ministry of Environment vis a vis the European Union.

Administrative authorities with competence for the buffer area: the Municipality of Samothraki, the forestry Authority and the Directorate of Prehistoric and Classical Antiquities.

Administrative authorities with competence for the transition area: the Municipality of Samothraki

17.1.4. Clarify the respective competence of each of these authorities. Make a distinction between each zone if necessary and mention any decentralized authority.

After the new Greek spatial plan has reached its final stage and in 2010 became a law in Greece, increased competency has been provided to Municipal Authorities. As a result, the Municipality of Samothraki has increased responsibility and competency for the whole island, including the core, buffer and transition zones, on top of other authorities, namely the forestry Authority and the Directorate of Prehistoric and Classical Antiquities.

17.1.5 Indicate the main land tenure (ownership) for each zone.

Core Zone: National and private ownership.

Buffer Zone: National and private ownership.

Transition Areas: Private ownership.

Land tenure on Samothraki follows the general rule observed in the rest of the country. Like in most of Greece, land ownership on Samothraki is to a certain extent unclear as there is no official national cadaster. There has been an ongoing effort all over Greece to start producing a national cadaster, but this initiative has not yet reached the island of Samothraki. The largest amount of land on the island is owned by the municipality of Samothraki but there are some private claims on certain municipal lands.

During the period 1917-1927 a series of court decisions categorized most of the forests on the island as follows:

- Private forests
- Forests belonging to the church.
- Municipal forests (owned by the municipality of Samothraki).
- Claimed forests (These are forests whose property rights titles have been presented to court but are disputed. Until a further court decision these forests are considered public but the owners who claim the rights have restricted rights so that they can use these forests for grazing and fuel wood collecting).
- Public forests (One single forested area is included in this category – Martini forest in the vicinity of Therma village. It belongs to the Greek state, it is preserved in its natural condition, it is not logged and there is no access road to it.

The following table depicts the property rights on Samothrakian forest land.

Forest Name	Characterisation of property	Size (in ha)
1. Volakas	Private – Municipal	150
2. Platys Dromos	Claimed	100
3. Milia	Claimed	20
4. Sykia	Private	70
5. Isioma	Private	7
6. Avgerinos	Claimed	300
7. Paliosfendamos	Private	100
8. Gaitani	Claimed	30
9. Desi	Private	200
10. Malakon	Claimed	50
11. Isidoros	Private	50
12. Lagada	Private	15
13. Houstos Vatos	Claimed	80
14. Therma	Private	80
15. Koukoudia	Claimed	80
16. Alonitsa Vasilikos	Claimed	60
17. Kladeri Ag. Eleni	Private	350
18. Karyotes	Claimed	220
19. Arapi	Claimed	150
20. Kerasia	Private	250
21. Giali	Claimed	250
22. Steni	Private	12
23. Striveros – Aggistros	Private – Municipal	85
24. Trahilato	Private – Municipal	40
25. Xristos – Varades	Private – Municipal	100
26. Pyrganti	Private – Municipal	7
27. Seli Panagia	Private – Municipal	7
28. Martini	Public	300

Table 10: Property rights of forests on Samothraki according to the categorization made by court decisions (Source: Alexandroupoli Forestry Department)

There are no foreseen changes in land tenure since it is regulated by the municipal spatial plan.

17.1.6 Is there a single manager/coordinator of the biosphere reserve or are several people in charge of managing it? If one manager/coordinator, who designates and employs him/her (national authorities, environmental administrative agency, local authorities)?

The following institutions will take a shared responsibility. Samothraki's development perspective as Biosphere Reserve is viewed to be in support of their goals and responsibilities:

- The Ministry of Environment, Energy and Climate Change (Natura 2000)
- The Alexandroupoli Forestry Authority
- The 19th Directorate of Prehistoric and Classical Antiquities
- The Chamber of Evros
- The Municipality of Samothraki
- The Greek National MAB Committee

These institutions will jointly take the responsibility for the development and management by constituting a Supervisory Board that will guide and oversee the activities of the local association (*non-profit civil partnership*) "*Sustainable Samothraki*" concerning the appropriate operational management of the Biosphere Reserve in territorial and functional interlinkage with the established Natura 2000 areas. The association "*Sustainable Samothraki*", in collaboration with a Scientific Board, will propose to this supervisory board annual action plans to be agreed upon, and report periodically to the supervisory board to document compliance with these plans. They will employ a management for the biosphere reserve.

17.1.7 Are there consultative advisory or decision-making bodies (e.g., scientific council, general assembly of inhabitants of the reserve) for each zone or for the whole biosphere reserve?

If yes, describe their composition, role and competence, and the frequency of their meetings.

Both the Supervisory Board and the Association will receive advice by a Scientific Board for which a number of internationally renowned scientists have already committed, such as Atholl Anderson, Professor of Prehistory, Archaeology and Natural History Australian National University, School of Culture, History and Language (Australia), Marian Chertow, Professor of Environmental Management Chairperson for Yale University's Sustainable Island Program (USA); Marina Fischer-Kowalski, Professor of Social Ecology, Alpen Adria University (Austria); Stefan Goessling, Professor of Tourism, Linnäus University Kolmar (Sweden); Michael Scoullou, Professor of Environmental and Marine Chemistry, University of Athens (Greece), President of the Greek National Committee of UNESCO MAB; Simron J. Singh, Assistant Professor at the Alpen Adria University (Austria); Nikolaos Skoulikidis, Research Director and Head of the Dept. of "Inland Waters", Institute of Marine Biological Resources & Inland Waters, Hellenic Centre for Marine Research (Greece).

On their own initiative, members of the Scientific Board will seek to raise funding for research on the island, help building networks of interested researchers, organize scientific excursions and workshops, support Samothraki Biosphere Reserve in linking into existing networks of sustainable island initiatives and help with reviewing research proposals and publications

The Scientific Board will from among its members elect a chair for a period of three years. The chair is responsible to call a (at least virtual) board meeting once a year, process and communicate the board's decisions to the respective bodies.

17.1.8 Has a coordination structure been established specifically for the biosphere reserve?

- If yes, describe in detail its functioning, composition and the relative proportion of each group in this structure, its role and competence.
- Is this coordination structure autonomous or is it under the authority of local or central government, or of the manager/coordinator of the biosphere reserve?

The association “*Sustainable Samothraki*” will be specifically established for the management of the biosphere reserve. In collaboration with a Scientific Board, it will propose to supervisory board annual action plans to be agreed upon, and report periodically to the supervisory board to document compliance with these plans. By its statutes, the aims of the Association are:

- nature conservation in accordance with the existing protection standards (in particular reinforcing already existing NATURA 2000 areas)
- support of sustainability innovations and income raising measures for sustainable local business, such as optimizing the supply chain management of local products
- logistic support for scientific monitoring and research
- support for the sustainability of Samothraki through public communication and educational measures and
- monitoring long-term sustainable use of economically relevant natural resources.

See also Section 17.1.6.

17.1.9 How is the management/coordination adapted to the local situation?

The proposed management/coordination structure is a result of intense deliberations with local and regional partners, and presents an effort to tackle the current unfavourable framework conditions in Greece. Considering the present political situation in Greece where no public funding is available whatsoever, the only realistic option was to set up an independent association “*Sustainable Samothraki*” and elaborate its management structure according to Greek bylaws.

Given the situation in Greece now, the central state will not be able, for many years, to finance and employ a full position of manager - so the “outsourcing” of this task to a civil organization might be welcome, and help the NGO “*Sustainable Samothraki*” to at least some resources. This is an innovative proposal, as there is no strong tradition of “public-private partnerships” as the one proposed in Greece. But sometimes in crisis situations new solutions are found acceptable. The charm of the proposed solution is that on the one hand, there is an association committed to certain goals by its statutes and its members, and on the other hand there are public bodies that have to take care of certain responsibilities (See Section 17.1.6).

Justification for establishing an association to manage Samothraki Biosphere Reserve

- The association can provide low cost professional support well adapted to the local context, especially in the topics of overgrazing (erosion), renewable energy systems, water management and waste management, the inefficient management of all of which cost thousands of euros every year.
- With an established Biosphere Reserve management, there will be enhanced chances to find outside donors for initial investment costs for example regarding sustainable energy generation systems. With continuously stagnating energy prices, this will be an issue for the years to come. An association could help the commune exit the cost spiral by creating alternative opportunities in advance. The organizational effort will be taken away from the Mayor and the council by a professional body.
- Establishing a Biosphere Reserve on Samothraki and installing an active management there would be a wise and cost saving policy from the part of the commune and the regional authorities.

17.1.10 Is there a procedure for evaluating and monitoring the effectiveness of the management?

Evaluation and monitoring of the biosphere reserve management will be based on a set of agreements between the partners involved, once the proposed management structure is put into place. Such an agreement will clarify where the goals and the responsibilities of the partners overlap. This will be part of the “rules of procedure” for the supervisory board, on the one hand, and part of a contractual agreement between the NGO and this supervisory board, on the other. The science board will help to develop monitoring and evaluation procedures and receive annual reports for its approval.

17.2 Conflicts within the biosphere reserve:

17.2.1 Describe any important conflicts regarding the access or the use of natural resources in the area considered (and precise period if accurate). If the biosphere reserve has contributed to preventing or resolving some of these conflicts, explain what has been resolved or prevented, and how this was achieved for each zone.

The main current conflict regarding natural resource use has to do with grazing by free roaming goats. A direct conflict exists between goat herders and other users, more prominently bee-keepers, as overgrazing is causing a reduction in flowering plant abundance, and reduced volumes of honey produced. Our extensive deliberations over the past years have helped unearth such conflicts, facilitated in clarifying the “ecosystem” behind the “services” and ease-up potential tensions. Such assessments will provide the basis for future negotiations, developing an operational management plan and suggesting alternatives, based on the Biosphere Reserve concept and vision. Following the biosphere reserve vision, the challenge of a development towards a more sustainable future should be met by efforts to reduce the environmental burden associated with main activities on the island, of which goat keeping is one, while seeking to increase the local income derived from it.

For the specific example, there are negotiations for the creation and application of a complete plan regarding the sustainable management of animal and natural resources of the island. Main actions must comprise of: a) the continuing of the development of the livestock sector of the island, b) the preservation and revival of the wild *Capra aegagrus*, which is crucial for biodiversity reasons and c) the preservation of the landscape and the protection of the natural environment. This will be complemented with efforts to certify Samotrakian goat meat as organic, utilise goat products, such as milk and cheese and promote butchering/packaging facilities in order to promote exporting of meat. This could lead to a substantial increase in revenue through the improvement of the production/value chain, with a minimal effect on the environment and conflicts generated by an increased number of free roaming goats.

17.2.2 If there are any conflicts in competence among the different administrative authorities in the management of the biosphere reserve, describe these.

The main current administrative authority on the island is the Municipality of Samothraki. The forestry Authority and the Directorate of Prehistoric and Classical Antiquities have competence for specific areas in the buffer zone of the proposed biosphere reserve, namely the archaeological sites and the wildlife reserve. However, after the new Greek spatial plan has reached its final stage and in 2010 became a law in Greece, increased competency has been provided to Municipal Authorities. As a result, the Municipality of Samothraki has increased responsibility and competency for the whole island, including the core, buffer and transition zones, on top of other authorities, namely the forestry Authority and the Directorate of Prehistoric and Classical Antiquities.

17.2.3 Explain the means used to resolve these conflicts, and their effectiveness.

The proposed biosphere reserve aims at minimising potential conflicts of management competence, by proposing to provide a functional interlinkage between the biosphere reserve and with the established Natura 2000 areas. A detailed plan is outlined in section 4.7.(c).

17.3 Representation, participation and consultation of local communities:

17.3.1 At what stages in the existence of a biosphere reserve have local people been involved: design of the biosphere reserve, drawing up of the management/cooperation plan, implementation of the plan, day to day management of the biosphere reserve? Give some specific examples.

Since the beginning of deliberations for the establishment of a biosphere reserve in 2007, the intention has been to follow a bottom up process, and have the largest possible, and continuous involvement and participation of local people. Over the last years there has been a series of consultation procedures, aiming at designing the biosphere reserve and establish a management policy with the greatest possible participation. Indeed the process of establishing Samothraki Biosphere Reserve has been successfully described as “an experience in transdisciplinarity” (Fischer- Kowalski et al. 2011).

The present application to UNESCO is an outcome of a long stakeholder process that was undertaken as part of a feasibility study by the Institute of Social Ecology, Austria between 2008 and 2009. The process included in depth interviews with twenty-four relevant stakeholders of the island using a semi structured interview methodology. These interview partners were selected from a variety of sectors (government, business, NGO, agriculture, church) with relevant representatives and by their importance weighed in the context of biosphere reserve. The main aim was to extract the opinion of each stakeholder towards a possible biosphere reserve, his/her views on what a suitable future of the island might be. Between July and September 2008, a survey of 1,511 visitors to the island was undertaken and this generated valuable data on the various island dynamics such as population flows, activities, economic behaviour, future preferences on the island, etc. In the summer of 2009, consultation with civil society and media was undertaken on the outcomes of the feasibility study, including presentations at the camping facility of Samothraki organised by the young Green party of Greece, Iliosporoi. See also following section.

17.3.2 Describe how the local people (including women and indigenous communities) have been, and/or are represented in the planning and management of the biosphere reserve (e.g., assembly of representatives, consultative groups).

Several rounds of in-depth talks and negotiations on how to establish an appropriate management for the further process, based on a previous draft of preliminary statutes of an association (“Sustainable Samothraki”) to serve as a management body, in strong collaboration with the commune, were performed during the years 2010-2013. Such discussions took place in two levels. First, with a number of people who have given long-term support to this project, and second with a broader circle of stakeholders. In October 2012 during a student course/excursion organized by the Institute of Social Ecology, a series of focus group interviews were performed with local stakeholders (such as fishermen, farmers, local professionals, elderly people in need of care etc., in order to explore alternative visions for the future of the island. A main focus of the excursion was to reflect and engage in the design of a management plan to include first project ideas for the new biosphere reserve as well as allow the experience of a transdisciplinary research process by learning to interact with stakeholders.

The focus groups were a unique opportunity to be informed about and reflect on the obstacles and challenges to be overcome in order to come up with an operational management structure. Specific issues discussed included different visions for future tourism developments, in line with the biosphere reserve concept, as well as different alternatives of financing the future biosphere reserve management, via introducing a voluntary or compulsory contribution by visitors of the island. This discussion was based on the results of a willingness to pay survey performed the previous year.

Moreover, a series of public events and presentations were hosted at the cultural centre of the capital village Chora of Samothraki over the last years, all of them were very well attended.

17.3.3 Describe the specific situation of young people in the proposed biosphere reserve (e.g., potential impacts of the biosphere reserve on youth, consideration of their interests and needs,

incentives to encourage them to participate actively in the governance system of the biosphere reserve).

Like in most marginalised areas, especially on islands that are far away from regional centres, young people face problems of unemployment. On the island of Samothraki, there exists an important part of the population, relatively young, educated persons working mostly in the tertiary sector, with more contact to the outside world (they have often travelled to or lived in other countries), who sometimes perceive the “specialness” of the island as backwardness and an obstacle to better income, but for the most part as a precious feature that has to be preserved and improved upon. The human resources available on the island include a growing and strong community of well-educated young people like scientists, artists and medical workers, often organized in social and environmental NGOs who are in search for interesting ways to make a modest living on the island.

A key concept behind the current effort to include Samothraki in the World Network of Biosphere Reserves is the idea that an environmental goal can bring about collateral socio-economic benefits, in the form of green jobs (esp. for the young educated local people), improvement of the production/value chains of agriculture, income security, natural resource security and community savings. For example a more internationally oriented ecotourism and efforts to strengthen culturally motivated tourists can create new employment opportunities for the local young generation while it will allow to spread the tourist season further into spring and autumn.

17.3.4 What form does this representation take (e.g., companies, associations, environmental associations, trade unions)?

There is a wide range of associations on Samothraki, in most of which young people are very well represented. This is especially true for the associations dealing with the tertiary sector (association of tourism entrepreneurs, association of working professionals), the action adventure tourism oriented (diving association, mountaineering club), as well as the Sports club “SAOS” and the music association “Armonia Genesis”.

The farmers’ associations (farmers and beekeepers association, winemakers association, olive oil makers association, fishermen association) are also comprised of many younger people, that are pushing for a different development model, towards branding and exporting of quality organic products, such as goat meat and by-products, olive oil, honey and wine.

Special mention should be made to the local environmental NGO Samothraki in action, comprised almost exclusively by young females. The NGO is rather active in environmental education and raising public awareness of locals of all ages, as well as visitors. They visit schools and help the teachers in environmental education.

Finally, the agro-ecotouristic women’s cooperative “Aksiokersa” has several young women among its members, that are interested to pass-on the local traditions to the next generations.

17.3.5 Are there procedures for integrating the representative body of local communities (e.g., financial, election of representatives, traditional authorities)?

First and foremost, the intention is to directly integrate representatives from the above mentioned local communities into the local association “Sustainable Samothraki”, that will be primarily responsible for deciding on and implementing the management plan. According to the statutes of the association presented at the supporting material, the General Assembly of members is the supreme body of the Association, providing an open democratic platform where all voices will be heard. Many members of local associations, such as representatives from the tourism and farmers association have already agreed to be part of it, and fully support its goals.

Moreover, the association, in collaboration with the municipality, is committed to continue organising open events, such as community meetings and deliberative visioning workshops providing the opportunity not only for all voices to be heard, but also for future creative plans to be co-created and decided upon by all stakeholders.

17.3.6 How long-lived are consultation mechanisms (permanent assembly, consultation on specific projects)? Make a complete description of this consultation. What are the roles of involved stakeholders compared to the role of the biosphere reserve?

The General Assembly of the association is convened annually. The ordinary General Assembly judges the accountability of the outgoing Governing Board, approves the balance sheet and accounting report of the previous year, and decides whether or not to discharge the Governing Board from any liability based on the report of the Audit Committee. A non-ordinary General Assembly is convened whenever deemed necessary by the Governing Board.

The science committee will (probably virtually) convene annually, advise on the annual action plans and evaluate previous achievements.

Additional consultations will take place in part periodically and in part as a response to a certain decision or future plan to be decided upon, either of regional or of thematic interest.

17.3.7 What consultation mechanisms have been used, and who has been involved? Are they for specific purposes or long-term? What impacts have they had on decision-making processes (decisional, consultative or merely to inform the population)?

Over the last years there have been comprehensive consultations with diverse stakeholders, extensive socio-economic analyses performed by the Vienna Institute of Social Ecology, several meetings between the Mayor, the municipal council, independent researchers and representatives of a series of local and regional associations during the years 2007-2013, a series of public presentations, as well as a comprehensive round of focus group interviews with diverse parts of the local community. The purpose was on the one hand to inform the relevant stakeholders about the biosphere reserve concept and vision, and on the other hand to open-up the discussion and

incorporate as many local voices and concerns as possible, in order to effectively design a management plan towards a truly more sustainable future for the island.

On top of the above, a series of focus group interviews have taken place in 2012, and a series of further focus groups are planned for 2014. This approach was used to determine initial viewpoints from local inhabitants on their livelihoods, ways of life and the environment surrounding them. There were seven focus groups distinguished by their socioeconomic status to get an array of perspectives. The focus group approach was applied because it allows to obtain information not just from individual interviewees, but utilize the interaction between the members of the group and what evolves from their discussion, while opening an opportunity for people who share certain interests to jointly search for solutions for problems they see.

17.3.8 Do women participate in community organizations and decision-making processes? Are their interests and needs given equal consideration? What incentives or programmes are in place to encourage their representation and participation (e.g.: was(were) a “gender impact assessment(s)” carried out)?

Since the beginning of the process, great importance has been given to give equal consideration to the needs of women and men, a fact that is visible in the following examples: The founding members of the association “Sustainable Samothraki” are predominantly young females. Moreover, the most active local environmental NGO “Samothraki in action” is also comprised almost exclusively by young females. Many of the innovative proposals regarding the management of the future biosphere reserve have come out of members of the aforementioned groups.

The agro-ecotouristic women’s cooperative “Aksiokersa” is very active on the island, and an important stakeholder in communal and tourist oriented meetings.

Moreover, women are consistently represented in deliberative procedures. For example, during the focus group consultations performed last year, there was a specific group addressing young parents (mostly mothers) and their needs and expectations from the biosphere reserve.

17.4. The management/cooperation plan/policy:

17.4.1 Is there a management/cooperation plan/policy for the biosphere reserve as a whole?

The managerial objective is quite clearly to establish in a systematic way the potential of Samothraki as a show case of a successful Biosphere Reserve in line with sustainable development goals. This is closely linked to the ongoing MAB-BRIM process (*Biosphere reserve integrated monitoring*) and even more so to the MAB-BRIA process (*Biosphere reserve integrated assessment*). Samothraki provides an excellent test case for applying the BRIA approach from the very start of the potential development of a Biosphere Reserve, with equally well developed observations and indicators on the nature conservation aspects, and on the socio-economic uses of the area, their impact on conservation goals, and opportunities for improvement. Moreover, a participatory process can be co-initiated and systematically observed throughout this initiation phase. This should provide an

excellent case study and model tools that the international MAB community might use for other cases as well.

The municipality of Samothraki has recently implemented a “Municipal Operational Plan” which is an integrated program of local development. The main targets of the operational plan are a) increase quality of life through the sustainable utilization of natural and cultural resources b) retain and attract permanent residents through the development of technical and social infrastructure c) new municipal governance d) restructuring economic activity.

17.4.2 Which actors are involved in preparing the management/cooperation plan? How are they involved?

Over the last years there has been a great progress in the process of establishing a management policy for the proposed Biosphere Reserve and many steps have been taken into this direction. These included comprehensive consultations with diverse stakeholders, extensive socio-economic analyses performed by the Vienna Institute of Social Ecology, several meetings between the Mayor, the municipal council, independent researchers and representatives of a series of local and regional associations during the years 2007-2013, a series of public presentations, as well as a comprehensive round of focus group interviews with diverse parts of the local community. Actors involved include the following bodies: the Ministry of Environment, Energy and Climate Change, the Alexandroupoli Forestry Authority, the 19th Directorate of Prehistoric and Classical Antiquities, the Chamber of Evros, the Greek National MAB Committee and the Municipality of Samothraki. Moreover, many local actors representing all active NGOs and associations on the island, as well as regionally have been consistently consulted.

17.4.3 Do local authorities formally adopt the management/cooperation plan? Are local authorities making reference to it in other policies and/or plans? If so, please provide details.

The municipality of Samothraki has taken a unanimous decision to go ahead with the effort of gaining the status as a biosphere reserve for Samothraki, and the Mayor is one of the signatories of this application. In due time, also depending on the further course of the Greek financial crisis, more detailed negotiations will be initiated.

17.4.4 What is the duration of the management/cooperation plan? How often is it revised or renegotiated?

It is planned to elaborate annual action plans to be agreed upon by the partners. See section 4.7.(c), as well as supporting material.

17.4.5 Describe the contents of the management/cooperation plan. Does it consist of detailed measures or detailed guidelines? Give some examples of measures or guidelines advocated by the plan? (Enclose a copy)

See sections 3.2, as well as 4.7.(c) where this is elaborated.

17.4.6 Indicate how this management/cooperation addresses the objectives of the proposed biosphere reserve (as described in section 13.1)

The main objective of the proposed biosphere reserve would be to seek more sustainable solutions for the community Samothraki serving the same interests. In other words, the key challenge is to produce the same service / benefit / income at lower cost in terms of resources and ecosystem impact (ecosystem services use). An open question that should be always revisited and deliberated upon, is “who is a legitimate recipient of benefits, and who is not?”.

The way to do that would be to initially identify environmental challenges, then scrutinise favourable and unfavourable framework condition, and finally coming up with a goal/proposed solution. Core areas of intervention include the economy, energy self-reliance, natural resource management and sustainable infrastructure.

A key concept behind this is the idea that an environmental goal can bring about collateral socio-economic benefits, in the form of green jobs (esp. for the young educated local people), improvement of the production/value chains of agriculture, income security, natural resource security and community savings. Main challenges that need to be tackled are social obstacles and local hostilities.

Following SDG post 2015, our challenge and intention is to propose and experiment with innovative multi-stakeholder decision-making processes, in order to tackle socioecological challenges in a systemic way and aim at long term resilience.

See also section 3.2.

17.4.7 Is the plan binding? Is it based on a consensus?

This is a matter of ongoing and future negotiations.

17.4.8 Which authorities are in charge of the implementation of the plan, especially in the buffer zone(s) and the transition area(s)? Please provide evidence of the role of these authorities.

Authorities in charge of the implementation of the plan are the following: the Ministry of Environment, Energy and Climate Change, the Alexandroupoli Forestry Authority, the 19th Directorate of Prehistoric and Classical Antiquities, the Chamber of Evros, the Greek National MAB Committee and the Municipality of Samothraki. New bodies include the local association Sustainable Samothraki, as well as an International Science advisory board.

For specific arrangements look at section 4.7.(c)

17.4.9 Which factors impede or help its implementation (e.g.: reluctance of local people, conflicts between different levels of decision-making).

Future European CAP may help or impede the effective reduction of livestock on the island, which must be one of the core objectives of implementation. Rising prices of animal feed (as on-going) will help the implementation. One cannot expect from people to refrain from activities for which they are regularly paid by a higher authority, and where this payment constitutes a very relevant share of their income altogether, for nature conservation reasons.

17.4.10 Is the biosphere reserve integrated in regional/national strategies? Vice versa, how are the local/municipal plans integrated in the planning of the biosphere reserve?

The mutual commitment and a smooth collaboration between the authorities involved has to evolve by practice and experience. The local/municipal plans are in strong accordance with the biosphere reserve goals.

17.4.11 Indicate the main source of the funding and the estimated yearly budget.

The resources required for these activities will be supplied by the supervisory institutions, membership fees, sponsoring and projects funded by third parties. With an established Biosphere Reserve management, there will be enhanced chances to find outside donors for initial investment costs for example regarding sustainable energy generation systems. With continuously rising energy prices, this will be an issue for the years to come. An association could help the commune exit the cost spiral by creating alternative opportunities in advance. The organizational effort will be taken away from the Mayor and the council by a professional body.

The Biosphere Reserve should be able to largely pay for itself. According to our first estimates, the cost of an independent efficient management of the Biosphere Reserve could be financed if every adult visitor to the island was willing to pay €2,- as an extra fee for this visit. This would allow to coordinate the activities and to have the manpower to raise additional funds for specific projects to be launched in the future. A very small sum (1-2€) per visitor of the island, would raise an annual sum of about 50,000€. According to a willingness to pay survey performed by the Vienna Institute of Social Ecology on Samothraki in the summer of 2011, 88% of respondents were willing to contribute 2€ or more per visit.

After Biosphere Reserve designation one can hopefully expect an increased off-season tourist visitation due to enhanced international reputation, improving the rate of return from existing infrastructures and contributing to enlarging the season. Moreover, with an established Biosphere Reserve and an active management it should be easier to access Regional Development Funds and other external funds.

17.5 Conclusions:

17.5.1 In your opinion, what will ensure that both the functioning of the biosphere reserve and the structures in place will be satisfactory? Explain why and how, especially regarding the fulfilment of the three functions of biosphere reserves (conservation, development, logistic) and the participation of local communities.

The island of Samothraki is attractive as a hotspot of culture and nature and deserves becoming a UNESCO biosphere reserve. A majority of local stakeholders and tourists regard Samothraki's natural and cultural heritage as unique and worth preserving and see a biosphere reserve perspective as adequate.

Within the local population, two main tendencies can be identified. On the one hand, there is a large group of rather young and educated people, working directly or indirectly in the tourism sector, that wish to protect the natural and cultural heritage of the island and are motivated to look into innovative collaborative ways of doing so. They are very supportive of the idea of establishing a Biosphere Reserve on Samothraki, and consider that they could individually and collectively benefit from such a scenario. On the other hand, there is a more conservative group of middle-aged males with low levels of education who are mainly occupied with farming and livestock herding. They were more indifferent or even slightly sceptical to the idea of a Biosphere Reserve, seen as an external enforcement that would limit their ability to keep large subsidised herds of free roaming goats. Nevertheless, the current financial crisis seems to be forcing them as well to look into more collaborative ways out, and a new generation of farmers with a fresher attitude towards utilisation of agricultural produce seems to be in disagreement with the more traditional views. In any case, in order to gain further support from all stakeholders and create a biosphere reserve vision that is universal and equally supported by the majority of the local population, it is important to develop a future management scenario which also incorporates the needs of those people not directly engaged in the service sector.

Currently, the existing protected areas on Samothraki are overexploited agriculturally and marked by loss of biodiversity and significant erosion. Tourism generates waste unmanageable by the present infrastructure, the rich freshwater resources are used lavishly, renewable energy opportunities remain underutilized, and employment opportunities for young, well-educated people are rare. On the other hand, there are a number of strong assets, such as a continuous flow of many highly educated tourists faithful to the island, and a motivated local administrative management.

We think the best and most appropriate possibility of development for the island of Samothraki is towards a pathway of environmental friendly, "eco"- tourism and not toward adoption of mainstream tourism with necessarily excessive high-class infrastructure and comfort. Due to the quite remote location of the island and the environmental setting as a rather unique place with rich areas of habitat, it is even more important, even prescient, to preserve its natural areas. Thus, for us, creating a biosphere reserve on the island and promoting it would make the utmost sense.

We believe a well-managed biosphere reserve holds large potential for Samothraki to conserve natural resources while improving local income and quality of life, draw a broader variety of tourists

across a longer season, and make island life attractive in terms of meaningful engagement and employment for present and future generations. There are some concrete ideas how this could work, specifying for each economic sector and each stakeholder group how to maintain or increase their benefits at a lower resource and environmental cost.

18. SPECIAL DESIGNATIONS:

[Special designations recognize the importance of particular sites in carrying out the functions important in a biosphere reserve, such as conservation, monitoring, experimental research, and environmental education. These designations can help strengthen these functions where they exist or provide opportunities for developing them. Special designations may apply to an entire proposed biosphere reserve or to a site included within. They are therefore complementary and reinforcing of the designation as a biosphere reserve. Check each designation that applies to the proposed biosphere reserve and indicate its name]

Name:

- ☐ UNESCO World Heritage Site
- ☐ RAMSAR Wetland Convention Site
- ☒ Other international/regional conservation conventions/directives (specify)
 - European Protected Areas: Natura 2000-Sites according to the Fauna-Flora-Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora)
 - European Protected Areas: Natura 2000 sites according to the Wild Birds Directive (Council Directive 79/409/EEC on the conservation of wild birds)
- ☐ Long term monitoring site (specify)
- ☐ Long Term Ecological Research (LTER site)
- ☒ Other (specify)
 - Archaeological Zones which are protected by national Archaeological law 3028/2002
 - Hunting refuges protected by national law 2637/1998
 - The village of Chora is nominated by Greek law (Gazette 594/13-11-1978) as a protected traditional settlement

19. SUPPORTING DOCUMENTS (to be submitted with nomination form):

See Annexes

(1) Location and zonation map with coordinates

[Provide the biosphere reserve's standard geographical coordinates (all projected under WGS 84).

Provide a map on a topographic layer of the precise location and delimitation of the three zones of the biosphere reserve (Map(s) shall be provided in both paper and electronic copies). Shapefiles (also in WGS 84 projection system) used to produce the map must also be attached to the electronic copy of the form. If applicable, also provide a link to access this map on the internet (e.g. Google map, website).]

(2) Vegetation map or land cover map

[A vegetation map or land cover map showing the principal habitats and land cover types of the proposed biosphere reserve should be provided, if available].

(3) List of legal documents (if possible with English, French or Spanish synthesis of its contents and a translation of its most relevant provisions)

[List the principal legal documents authorizing the establishment and governing use and management of the proposed biosphere reserve and any administrative area(s) they contain. Provide a copy of these documents.

(4) List of land use and management/cooperation plans

[List existing land use and management/cooperation plans (with dates and reference numbers) for the administrative area(s) included within the proposed biosphere reserve. Provide a copy of these documents. It is recommended to produce English, French or Spanish synthesis of its contents and a translation of its most relevant provisions]

(5) Species list (to be annexed)

[Provide a list of important species occurring within the proposed biosphere reserve, including common names, wherever possible.]

(6) List of main bibliographic references (to be annexed)

[Provide a list of the main publications and articles of relevance to the proposed biosphere reserve over the past 5-10 years].

(7) Original Endorsement letters according to paragraph 5

(8) Further supporting documents.

20. ADDRESSES:

20.1 Contact address of the proposed biosphere reserve:

[Government agency, organization, or other entity (entities) to serve as the main contact and to whom all correspondence within the World Network of Biosphere Reserves should be addressed.]

Name: Municipality of Samothraki

Street or P.O. Box: Samothraki

City with postal code: Chora, 68002

Country: Greece

Telephone: (0030) 2551350800, (0030) 2551041218

E-mail: dim@samothraki.gr, samothrakimab@gmail.com

Web site: www.samothraki.gr

20.2. Administering entity of the core area(s):

Name: Municipality of Samothraki

Street or P.O. Box: Samothraki

City with postal code: Chora, 68002

Country: Greece

Telephone: (0030) 2551350800, (0030) 2551041218

E-mail: dim@samothraki.gr, samothrakimab@gmail.com

Web site: www.samothraki.gr

20.3. Administering entity of the buffer zone(s):

Name: Municipality of Samothraki

Street or P.O. Box: Samothraki

City with postal code: Chora, 68002

Country: Greece

Telephone: (0030) 2551350800, (0030) 2551041218

E-mail: dim@samothraki.gr, samothrakimab@gmail.com

Web site: www.samothraki.gr

20.4. Administering entity of the transition area(s):

Name: Municipality of Samothraki

Street or P.O. Box: Samothraki

City with postal code: Chora, 68002

Country: Greece

Telephone: (0030) 2551350800, (0030) 2551041218

E-mail: dim@samothraki.gr, samothrakimab@gmail.com

Web site: www.samothraki.gr

Annex I to the Biosphere Reserve Nomination Form, January 2013

MABnet Directory of Biosphere Reserves

Biosphere Reserve Description¹

Administrative details

Country: Greece

Name of BR: Samothraki Biosphere reserve

Year designated: *(to be completed by MAB Secretariat)*

Administrative authorities: Municipality of Samothraki

Name Contact: Municipality of Samothraki

Contact address: Samothraki, Chora, 68002, Greece. Tel: (0030) 2551350800 E-mail: dim@samothraki.gr, samothrakimab@gmail.com

Related links: www.samothraki.gr , www.samothraki.com

Social networks: (16.4.3)

Description

General description: *(Site characteristics in 11.1; human population in 10)*

The island of Samothraki is among the rare examples of island natural beauty in the Greek Aegean archipelago. Its total surface area of about 178 km² is mostly mountainous rising up to 1611m, making it the second highest island in the Aegean Sea. The mountainous terrain which kept large parts of the island inaccessible along with the relative isolation from the mainland (around 40km) created a variety of habitats that host a large number of species. Moreover the very early human presence on the island since prehistory created cultural landscapes in the lowland accessible areas, especially in the alluvial plain in the south west side, with traditional settlements, olive tree and grain cultivations that diffuse within the natural landscapes. Another unique characteristic of Samothraki is the abundance of water due to a winter cover of snow in high altitudes, cool freshwater flows year round in the numerous streams and rivers of the island across hundreds of waterfalls. This is a rare physical characteristic that is mostly absent from the rest of the Greek islands. The coast of the island is generally rocky and there is one sandy beach on the south side. The island of Samothraki is a self-governing municipality which belongs to the administrative division of Macedonia-Thrace. The Greek resident population numbers 2800 individuals who are mainly occupied with agriculture, livestock keeping, fisheries, tourism and other services. Samothraki was a very important and sacred place in the ancient Greek world due to the existence of the Sanctuary of the Great Gods where holy rituals were performed. The island's history has left its marks with monuments of international interest. The basic land management units of the Biosphere Reserve consist of two core areas, one marine and one terrestrial, which are designated as NATURA 2000 sites, a buffer zone which is constituted from existing Archaeological zones, Wildlife Reserves and coastal protected zones. The transition zone is formed by the settlements and agricultural land.

Major ecosystem type: Mediterranean biogeographic region

¹ To be posted on the MABnet once the nomination has been approved. The numbers refer to the relevant sections of the nomination form.

Major habitats & land cover types: Intermittently flowing Mediterranean rivers, Endemic oro-Mediterranean heaths with gorse, Bracken fields, Juniperus oxycedrus arborescent matorral, Eastern Garrigues / Carrigues with Labiatae, Pseudomaquis, Aegean phrygana (*Sarcopoterium spinosum*), Balkan screes, Vegetated silicicolous inland cliffs with casmophytic vegetation, Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* –Residual alluvial forest, Eastern white oak woods and balkanic thermophilous oak woods, Hop-hornbeam, oriental hornbeam and mixed thermophilous forests, Oriental plane woods (*Platanion orientalis*), *Quercus ilex* forests, *Taxus baccata* woods, *Posidonia* beds (*Posidonium oceanicae*), Coastal Lagoons, Agricultural land (Olive trees, vines, serials), Settlements

Bioclimatic zone (11.5): Semi-arid, dry sub-humid

Location (latitude & longitude): 40°28'35.55"N & 25°34'16.63"E

Total Area (ha): 22,853 ha

Core area(s): Terrestrial: 9,603 ha, Marine: 5,055 ha

Buffer zone(s): 5,755 ha

Transition area(s): 2,440 ha

Different existing zonation: Municipal Spatial Plan

Altitudinal range (metres above sea level): 1,611 m

Zonation map(s): (6.2)

Main objectives of the biosphere reserve

Brief description (13.1)

The island of Samothraki is a place endowed with high cultural and unique natural assets and is in a crucial phase of development towards a more sustainable future path. The basic idea is to use the biosphere reserve concept as a tool for implementing sustainable development on the island with reference to both main areas of economic activity: agriculture and tourism. For this to be achieved, the biosphere reserve management intends to prepare detailed plans of key areas of intervention, namely the economy, natural resource management and sustainable infrastructure.

Research

Brief description (16.1.1)

Ongoing abiotic research activities include climatology, geothermal energy and inland waters. Ongoing biotic research mainly deals with the island's migratory and resident bird population. Moreover research is carried out upon the island's rare endemic plant species. There is a long tradition of archaeological research and a more recent but dynamic strand of socioecological research

Monitoring

Brief description (16.1.1)

Main monitoring activities include: an environmental assessment of inland waters on Samothraki, the annual monitoring of bird populations especially during migration period, extensive studies on the flora and vegetation of Samothraki, as well as qualitative socioeconomic assessment activities

Specific variables (fill in the table below and tick the relevant parameters)

Abiotic		Biodiversity	
Abiotic factors		Afforestation/Reforestation	x
Acidic deposition/Atmospheric factors		Algae	
Air quality		Alien and/or invasive species	
Air temperature	x	Amphibians	x
Climate, climatology		Arid and semi-arid systems	
Contaminants		Autoecology	
Drought		Beach/soft bottom systems	
Erosion	x	Benthos	
Geology	x	Biodiversity aspects	
Geomorphology		Biogeography	
Geophysics		Biology	
Glaciology		Biotechnology	
Global change		Birds	
Groundwater	x	Boreal forest systems	
Habitat issues		Breeding	
Heavy metals		Coastal/marine systems	
Hydrology	x	Community studies	
Indicators		Conservation	
Meteorology	x	Coral reefs	
Modeling		Degraded areas	x
Monitoring/methodologies		Desertification	
Nutrients		Dune systems	
Physical oceanography		Ecology	x
Pollution, pollutants		Ecosystem assessment	x
Siltation/sedimentation		Ecosystem functioning/structure	
Soil	x	Ecosystem services	
Speleology		Ecotones	
Topography		Endemic species	x
Toxicology		Ethology	
UV radiation		Evapotranspiration	
		Evolutionary studies/Palaeoecology	
		Fauna	
		Fires/fire ecology	x
		Fishes	
		Flora	x
		Forest systems	x
		Freshwater systems	x
		Fungi	
		Genetic resources	
		Genetically modified organisms	
		Home gardens	
		Indicators	
		Invertebrates	
		Island systems/studies	
		Lagoon systems	x
		Lichens	x

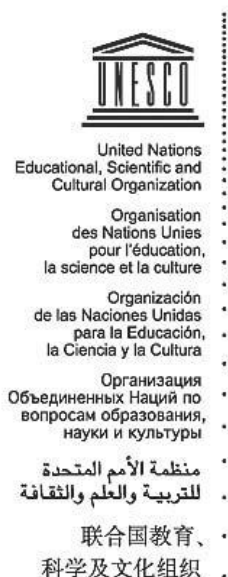
	Mammals	
	Mangrove systems	
	Mediterranean type systems	
	Microorganisms	
	Migrating populations	
	Modeling	
	Monitoring/methodologies	
	Mountain and highland systems	x
	Natural and other resources	
	Natural medicinal products	x
	Perturbations and resilience	
	Pests/Diseases	
	Phenology	
	Phytosociology/Succession	
	Plankton	x
	Plants	x
	Polar systems	
	Pollination	
	Population genetics/dynamics	
	Productivity	
	Rare/Endangered species	x
	Reptiles	x
	Restoration/Rehabilitation	
	Species (re) introduction	
	Species inventorying	
	Sub-tropical and temperate rainforest	
	Taxonomy	
	Temperate forest systems	
	Temperate grassland systems	
	Tropical dry forest systems	
	Tropical grassland and savannah systems	
	Tropical humid forest systems	
	Tundra systems	
	Vegetation studies	x
	Volcanic/Geothermal systems	
	Wetland systems	x
	Wildlife	

Socio-economic		Integrated monitoring	
Agriculture/Other production systems	x	Biogeochemical studies	
Agroforestry		Carrying capacity	
Anthropological studies		Climate change	
Aquaculture		Conflict analysis/resolution	
Archaeology	x	Ecosystem approach	
Bioprospecting		Education and public awareness	
Capacity building		Environmental changes	
Cottage (home-based) industry		Geographic Information System (GIS)	x
Cultural aspects		Impact and risk studies	
Demography		Indicators	
Economic studies		Indicators of environmental quality	
Economically important species		Infrastructure development	
Energy production systems		Institutional and legal aspects	
Ethnology/traditional practices/knowledge		Integrated studies	
Firewood cutting	x	Interdisciplinary studies	
Fishery		Land tenure	
Forestry		Land use/Land cover	
Human health		Landscape inventorying/monitoring	
Human migration		Management issues	x
Hunting		Mapping	
Indicators		Modelling	
Indicators of sustainability		Monitoring/methodologies	
Indigenous people's issues		Planning and zoning measures	
Industry		Policy issues	
Livelihood measures		Remote sensing	
Livestock and related impacts		Rural systems	
Local participation		Sustainable development/use	x
Micro-credits		Transboundary issues/measures	
Mining		Urban systems	
Modelling		Watershed studies/monitoring	
Monitoring/methodologies			
Natural hazards			
Non-timber forest products			
Pastoralism			
People-Nature relations			
Poverty			
Quality economies/marketing			
Recreation	x		
Resource use	x		
Role of women	x		
Sacred sites			
Small business initiatives			
Social/Socio-economic aspects	x		
Stakeholders' interests			
Tourism	x		
Transports			

<p>Annex II to the Biosphere Reserve Nomination Form, January 2013</p> <p>Promotion and Communication Materials</p> <p>For the Proposed Biosphere Reserve</p>
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Provide some promotional material regarding the proposed site, notably high quality photos, and/or short videos on the site so as to allow the Secretariat to prepare appropriate files for press events. To this end, a selection of photographs in high resolution (300 dpi), with photo credits and captions and video footage (rushes), without any comments or sub-titles, of professional quality – DV CAM or BETA only, will be needed.

In addition, return a signed copy of the following Agreement on Non-Exclusive Rights. A maximum of ten (10) minutes on each biosphere reserve will then be assembled in the audiovisual section of UNESCO and the final product, called a B-roll, will be sent to the press.



**UNESCO Photo Library
Bureau of Public Information**

**Photothèque de l'UNESCO
Bureau de l'Information du Public**

AGREEMENT GRANTING NON-EXCLUSIVE RIGHTS

Reference:

1. a) I the undersigned, copyright-holder of the above mentioned photo(s) hereby grant to UNESCO free of charge the non-exclusive right to exploit, publish, reproduce, diffuse, communicate to the public in any form and on any support, including digital, all or part of the photograph(s) and to licence these rights to third parties on the basis of the rights herein vested in UNESCO

b) These rights are granted to UNESCO for the legal term of copyright throughout the world.

c) The name of the photographer will be cited alongside UNESCO's whenever his/her work is used in any form.

2. I certify that:

a) I am the sole copyright holder of the photo(s) and am the owner of the rights granted by virtue of this agreement and other rights conferred to me by national legislation and pertinent international conventions on copyright and that I have full rights to enter into this agreement.

b) The photo(s) is/are in no way whatever a violation or an infringement of any existing copyright or licence, and contain(s) nothing obscene, libellous or defamatory.

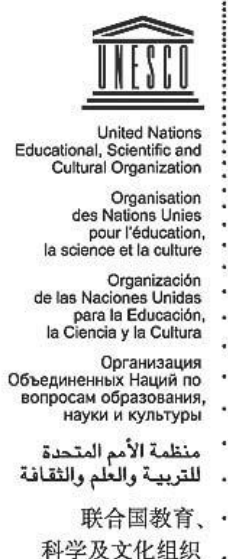
Name and Address :

Date :

Signature :

(sign, return to UNESCO two copies of the Agreement and retain the original for yourself)

Mailing address: 7 Place Fontenoy, 75352 Paris 07 SP, Direct Telephone: 00331 – 45681687



Direct Fax: 00331 – 45685655; e-mail: photobank@unesco.org;
m.ravassard@unesco.org

**UNESCO Photo Library
 Bureau of Public Information**

**Photothèque de l'UNESCO
 Bureau de l'Information du Public**

AGREEMENT GRANTING NON-EXCLUSIVE RIGHTS

Reference:

1.
 - a) I the undersigned, copyright-holder of the above mentioned video(s) hereby grant to UNESCO free of charge the non-exclusive right to exploit, publish, reproduce, diffuse, communicate to the public in any form and on any support, including digital, all or part of the video(s) and to licence these rights to third parties on the basis of the rights herein vested in UNESCO
 - b) These rights are granted to UNESCO for the legal term of copyright throughout the world.
 - c) The name of the author/copyright holder will be cited alongside UNESCO's whenever his/her work is used in any form.
2. I certify that:
 - a) I am the sole copyright holder of the video(s) and am the owner of the rights granted by virtue of this agreement and other rights conferred to me by national legislation and pertinent international conventions on copyright and that I have full rights to enter into this agreement.
 - b) The video(s) is/are in no way whatever a violation or an infringement of any existing copyright or licence, and contain(s) nothing obscene, libellous or defamatory.

Name and Address :
 Date :

Signature :

(sign, return to UNESCO two copies of the Agreement and retain the original for yourself)

Mailing address: 7 Place Fontenoy, 75352 Paris 07 SP, Direct Telephone: 00331 – 45681687
 Direct Fax: 00331 – 45685655; e-mail: photobank@unesco.org; m.ravassard@unesco.org

“Samothraki Biosphere Reserve Nomination form”

ANNEXES





ΔΗΜΟΣ ΣΑΜΟΘΡΑΚΗΣ
MUNICIPALITY OF SAMOTHRAKI

ANNEX 1: Additional supporting material regarding the Biosphere Reserve Nomination Form submitted by the municipality of Samothraki to UNESCO in March 2011

Weak points in the nomination form according to Advisory Committee

- The conservation function was not satisfactory as the core area is only protected through Natura 2000 status; the impact of tourism was not well documented especially with regards to the planned development of mountainous tourism in the core area;
- Lack of a detailed management plan and information on the land tenure system;
- The lack of a clear coordination structure for the management of the proposed biosphere reserve;
- The need for more information on the World Heritage site located in the village of Chora;
- The weakness of the research and logistic function.

Reply to the report of the Advisory Committee

1. Conservation function of the proposed Biosphere Reserve, and tourism impact

The largest part of the island's surface, including the core zones of the proposed Biosphere Reserve are part of the NATURA 2000 network. There are two, largely overlapping NATURA 2000 areas, GR1110004 - Type: SCI and GR1110012 - Type: SPA. The municipality plans to integrate the two areas into a natural park under Greek Law (Law 3937/2011 – For the protection of biodiversity) and is currently seeking the necessary funds to finance the required environmental study.

A fact that safeguards both the current and future conservation function of the proposed Biosphere Reserve is the abundance of forests and forested areas on Samothraki. According to Greek Law 998/79, the Forestry Authority has under its responsibility the totality of Samothrakian forested areas. This includes forests, as well woodland scrub areas (silvopastoral, shrublands, brushwood and alpine pastures). The Forestry Authority manages all the above areas and strictly protects them from any land use change. It also strictly protects forested areas from illegal logging, poaching, illegal collection of plants etc. This is dictated by Article 24 of the Greek Constitution. A similar status is in place in Samaria Biosphere Reserve, in Crete, Greece. The forestry authority is fully

endorsing the effort of Samothraki to be included in the World Network of Biosphere Reserves, as seen in the original support letter that accompanies the current nomination form.

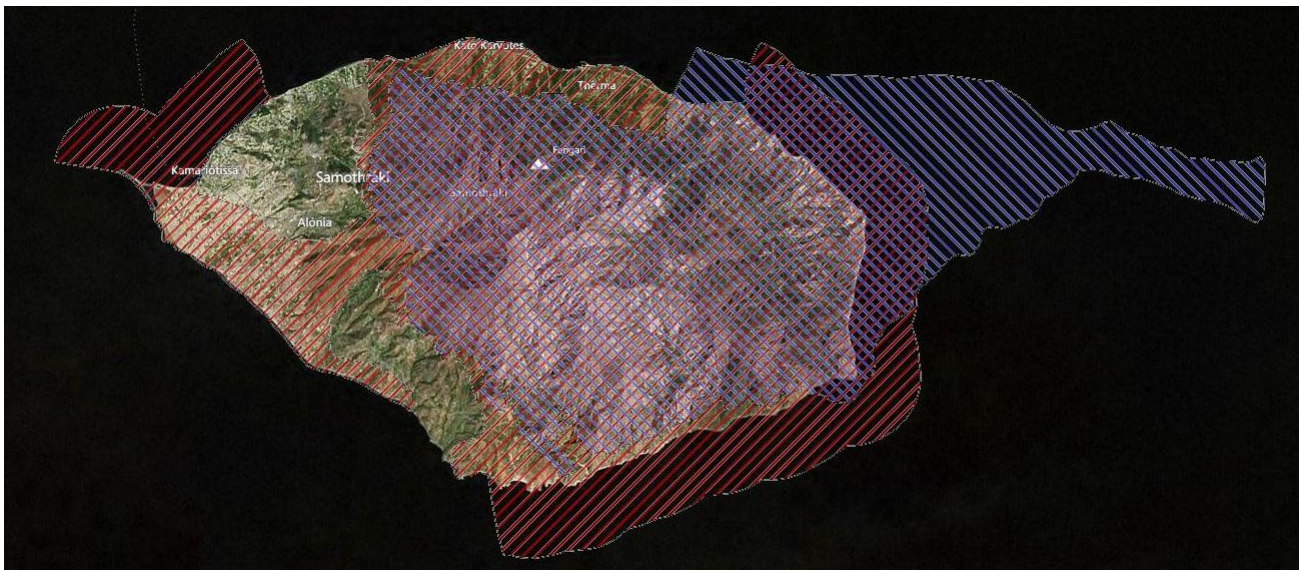


Figure 1: Map of Samothraki indicating the two NATURA 2000 areas, covering most of the island, including a large marine part. The red zone indicates the Birds Directive Site (SPA), code: GR1110012, while the blue area indicates the Habitats Directive Site (SCI), code: GR1110004 (source: Natura 2000 viewer – natura2000.eea.europa.eu/).

Samothraki is a highly mountainous island and remains largely untouched and inaccessible to humans. The only existing impact on terrestrial ecosystems is grazing from wild goats. The numbers of tourists was calculated to approximate 40.000 annually, a number that can be possibly reduced to 28.000 after recent more accurate estimates based on boat passenger data (see Fischer-Kowalski et al. 2011). It should be noted here that, due to short duration of stay, the ratio of locals to visitors never exceeds 1:2, not even in the high season. Tourists mainly stay in one of the two major settlements (Chora, Kamariotissa) as well as the area around Therma village, utilizing the coastal areas. An insignificant percent of the visitors access the core mountain areas, since this requires special climbing equipment. Most of the tourists visit few of the accessible gorges of the island that have water even during the dry summer season, which constitute the main easily accessible natural attraction of the island. The extensive archaeological sites on the island, that form most of the buffer zones of the proposed Biosphere Reserve, are strictly monitored and managed by the archaeological division, a fact that ensures minimal impact as the protection of archaeological sites leads to protection of environmental assets.

Human use and activities in buffer zones are strictly regulated by national archaeological law and the national law for forest and wildlife reserves. The archaeological authorities and forestry department are present on the island and responsible for the control and the presence of humans in the designated buffer zones. The size of all buffer zones is 5,755ha which is 25.2 % of the whole reserve. There are 4 types of buffer zones. The first one is Archaeological Zones A which are protected by national Archaeological law 3028/2002. The activities that are ongoing there is archaeological research and exhibition of antiquities. The second type of buffer zone is Archaeological zones B (areas where archaeological research hasn't started yet) which surround Archaeological zones A. They are also protected by national Archaeological law 3028/2002. The activities that take place there are archaeological research and extensive agriculture. The third type of buffer zone is the 2 hunting refuges protected by national law 2637/1998 which declares that, "within wildlife refuges hunting of any type of animal, destruction of vegetation, soil removal, pollution and urbanization are forbidden. Any other activity that would be planned there needs to have a type A Environmental Impact Assessment Study implemented beforehand". There are no

planned or ongoing activities in the hunting refuge since they serve strictly nature protection. The final buffer zone type is the south inaccessible coastal zone which is not under a legal protection but it is mainly constituted by rocks and steep cliffs. There are no ongoing or planned activities in the south coastal zone.

Tourists who choose to visit Samothraki have a high environmental profile (Fischer-Kowalski 2011). According to this study, tourists on Samothraki are relatively young (three-quarters are below the age of 40) and make do with a low level of infrastructure: more than half of them camp. The tourists on Samothraki are unusually well educated (two-thirds having university education), and apparently strongly tied to the island: half of them had been there before and were returning for another holiday, and more than 90% of them declared an intention to visit the island again in the future. The visitors expressed an overwhelming preference for a “conservationist” scenario, as opposed to a “modernist” one, when asked about their preferred vision for Samothraki’s future. Having such an attached tourist population should be considered an important asset for the island.

Finally, a new waste management plan has been in place on Samothraki since 2011. All waste generated on the island is separated and sent by boat to the mainland. Tourist waste impact is therefore largely minimized.

On top of established protection structures and in line with the biosphere reserve vision, the biosphere reserve management intends to be a guardian of forests and other unexploited areas. Thus, it will engage in further monitoring and would be ready to take necessary actions if any destructive tourism practices are being observed. The biosphere reserve management will then act as a contact for people/actors who potentially make observations. Moreover, establishing a biosphere reserve would enable all local actors to work proactively together with ecotourism entrepreneurs and increase knowledge about the impact of tourism, especially in sensitive areas.

2. Land Tenure

Land tenure on Samothraki follows the general rule observed in the rest of the country. Like in most of Greece, land ownership on Samothraki is to a certain extent unclear as there is no official national cadaster. There has been an ongoing effort in other areas in Greece to start producing a national cadaster but this initiative has not yet reached the island of Samothraki. The largest amount of land on the island is owned by the municipality of Samothraki but there are some private claims on certain municipal lands.

As already mentioned, there is no official cadaster on Samothraki. However, during the period 1917-1927 a series of court decisions categorized most of the forests on the island as follows:

- Private forests
- Forests belonging to the church.
- Municipal forests (owned by the municipality of Samothraki).
- Claimed forests (These are forests whose property rights titles have been presented to court but are disputed. Until a further court decision these forests are considered public but the owners who claim the rights have restricted rights so that they can use these forests for grazing and fuel wood collecting).
- Public forests (One single forested area is included in this category – Martini forest in the vicinity of Therma village. It belongs to the Greek state, it is preserved in its natural condition, it is not logged and there is no access road to it.

The following table (Table 1) depicts the property rights on Samothrakian forest land.

Forest Name	Characterisation of property	Size (in ha)
1. Volakas	Private – Municipal	150
2. Platys Dromos	Claimed	100
3. Milia	Claimed	20
4. Sykia	Private	70
5. Isioma	Private	7
6. Avgerinos	Claimed	300
7. Paliosfendamos	Private	100
8. Gaitani	Claimed	30
9. Desi	Private	200
10. Malakon	Claimed	50
11. Isidoros	Private	50
12. Lagada	Private	15
13. Houstos Vatos	Claimed	80
14. Therma	Private	80
15. Koukoudia	Claimed	80
16. Alonitsa Vasilikos	Claimed	60
17. Kladeri Ag. Eleni	Private	350
18. Karyotes	Claimed	220
19. Arapi	Claimed	150
20. Kerasia	Private	250
21. Giali	Claimed	250
22. Steni	Private	12
23. Striveros – Aggistros	Private – Municipal	85
24. Trahilato	Private – Municipal	40
25. Xristos – Varades	Private – Municipal	100
26. Pyrganti	Private – Municipal	7
27. Seli Panagia	Private – Municipal	7
28. Martini	Public	300

Table 1: Property rights of forests on Samothraki according to the categorization made by court decisions (Source: Alexandroupoli Forestry Department)

There are no foreseen changes in land tenure since it is regulated by the municipal spatial plan.

3. Biosphere Reserve Management Plan and Coordination Structure

Outlining the steps of a Biosphere Reserve development plan

The municipality of Samothraki currently employs 29 people on a permanent basis and has been the single managing authority on the island. However it does not have sufficient funds to support the creation of a separate body, in charge of the Biosphere Reserve management. Given the minimal financial support given from the central Greek government but also the Greek economic crisis, an alternative coordination structure had to be proposed.

Over the last years there has been great progress in the process of establishing a management policy for the proposed Biosphere Reserve and many steps have been taken into this direction. These included comprehensive consultations with diverse stakeholders, extensive socio-economic analyses performed by the Vienna Institute of Social Ecology, several meetings between the Mayor, the municipal council, independent researchers and representatives of a series of local and regional associations during the years 2007-2013, a series of public presentations, as well as a comprehensive round of focus group interviews with diverse parts of the local community. Moreover, the municipality of Samothraki has recently implemented a “Municipal Operational Plan” which is an integrated program of local development. The main targets of the operational plan are: a) increase quality of life through the sustainable utilization of natural and cultural resources, b) retain and attract permanent residents through the development of technical and social infrastructure, c) new municipal governance, and d) restructuring economic activity.

The outcome of all these past intense deliberations was a decision to follow an integrated approach, since this ensures that the management and development of the Biosphere Reserve is not only the responsibility of one actor/organization, and also minimises the vulnerability of the Biosphere Reserve as long as there is a good coordination. For a second effort at having Samothraki included in UNESCO’s World Network of Biosphere Reserves, as with the first candidature in 2011, the following signatories will take a shared responsibility. Samothraki’s development perspective as Biosphere Reserve is viewed to be in support of their goals and responsibilities:

- The Ministry of Environment, Energy and Climate Change (Natura 2000)
- The Alexandroupoli Forestry Authority
- The 19th Directorate of Prehistoric and Classical Antiquities
- The Chamber of Evros
- The Municipality of Samothraki
- The Greek National MAB Committee

These institutions will jointly take the responsibility for the development and management by constituting a Supervisory Board that will guide and oversee the activities of the local association “*Sustainable Samothraki*” concerning the appropriate operational management of the Biosphere Reserve in territorial and functional interlinkage with the established Natura 2000 areas. After a series of intense deliberations, it was concluded that the best scheme for the association, is that of a *non-profit civil partnership*, a popular civil society scheme in Greece. The association can provide low cost professional support well adapted to the local context, especially in the topics of overgrazing (erosion), renewable energy systems, water management and waste management, the inefficient management of all of which cost thousands of euros every year. Establishing a Biosphere Reserve on Samothraki and installing an active management there would be a wise and cost saving policy from the part of the commune and the regional authorities. A first draft of the statutes of association “*Sustainable Samothraki*” has been produced (see ANNEX 2).

The association “*Sustainable Samothraki*” in collaboration with the Scientific Board (see below), will propose to this supervisory board annual action plans to be agreed upon, and report periodically to the supervisory board to document compliance with these plans. By its statutes, the aims of the association are:

- nature conservation in accordance with the existing protection standards (in particular reinforcing already existing NATURA 2000 areas)
- support of sustainability innovations and income raising measures for sustainable local business, such as optimising the supply chain management of local products
- logistic support for scientific monitoring and research
- support for the sustainability of Samothraki through public communication and educational measures and
- monitoring long-term sustainable use of economically relevant natural resources.

Both the Supervisory Board and the Association will receive advice by a Scientific Board for which a number of internationally renowned scientists have already committed, such as Atholl Anderson, Professor of Prehistory, Archaeology and Natural History Australian National University, School of Culture, History and Language (Australia), Marian Chertow, Professor of Environmental Management Chairperson for Yale University’s Sustainable Island Program (USA); Marina Fischer-Kowalski, Professor of Social Ecology, Alpen Adria University (Austria); Stefan Goessling, Professor of Tourism, Linnäus University Kolmar (Sweden); Michael Scoullou, Professor of Environmental and Marine Chemistry, University of Athens (Greece), President of the Greek National Committee of UNESCO MAB; Simron J. Singh, Assistant Professor at the Alpen Adria University (Austria); Nikolaos Skoulikidis, Research Director and Head of the Dept. of “Inland Waters”, Institute of Marine Biological Resources & Inland Waters, Hellenic Centre for Marine Research (Greece) (See ANNEX 3).

On their own initiative, members of the Scientific Board will seek to raise funding for research on the island, help building networks of interested researchers, organize scientific excursions and workshops, support Samothraki Biosphere Reserve in linking into existing networks of sustainable island initiatives and help with reviewing research proposals and publications.

Resource Generation

The resources required for these activities will be supplied by the supervisory institutions, membership fees, sponsoring and projects funded by third parties. With an established Biosphere Reserve management, there will be enhanced chances to find outside donors for initial investment costs for example regarding sustainable energy generation systems. With continuously stagnating energy prices, this will be an issue for the years to come. An association could help the commune exit the cost spiral by creating alternative opportunities in advance. The organizational effort will be taken away from the Mayor and the council by a professional body.

The Biosphere Reserve should be able to largely pay for itself. According to our first estimates, the cost of an independent efficient management of the Biosphere Reserve could be financed if every adult visitor to the island was willing to pay €2,- as an extra fee for this visit. This would allow to coordinate the activities and to have the manpower to raise additional funds for specific projects to be launched in the future. A very small sum (1-2€) per visitor of the island, would raise an annual sum of about 50,000€. According to a willingness to pay survey performed by the Vienna Institute of Social Ecology on Samothraki in the summer of 2011, 88% of respondents were willing to contribute 2€ or more per visit.

After Biosphere Reserve designation one can hopefully expect an increased off-season tourist visitation due to enhanced international reputation, improving the rate of return from existing infrastructures and contributing to enlarging the season. Moreover, with an established Biosphere Reserve and an active management it should be easier to access Regional Development Funds and other external funds

4. Correction: The capital village of Chora

In the original submitted nomination form, the capital village of Chora is erroneously described as a World Cultural Heritage site. This is incorrect. The village of Chora is nominated by Greek law (Gazette 594/13-11-1978) as a *protected traditional settlement*. Therefore there are certain regulations and restrictions on the construction of new houses, the renovation of old houses, the height of buildings and the architectural design. Nevertheless, it has to be noted that Chora village is among the rare examples of island traditional architecture which is influenced by architecture of mainland Greece. All houses are built using local stone and have two floors.

5. Research and logistic function of the proposed Biosphere Reserve

Participation in sustainable development projects

Samothraki holds a great potential to serve as a model site for promoting sustainable development. Its unique natural and cultural heritage is very much appreciated by the locals and is the main reason for attracting thousands of visitors every summer. Samothraki can use these unique assets and develop in an environmentally and socially sustainable way, and thus be an example of good practice for the wider Mediterranean region. The municipality of Samothraki has identified the inherent natural advantages of the island and has a long history of involvement in both national and international projects and networks in the direction of sustainable development. Examples include:

- Coastal Practice Network (CoPraNet) Project, (INTERREG IIIC Programme)
- Development of sustainable mountain sport tourism between Greece and Bulgaria (INTERREG IIIA/RHARE CBC)
- Interpr@ Project, part of South East Europe Program about laboratories of environmental interpretation for developing and implementing management plans for natural/semi-natural and protected areas
- Assessing sustainability and strengthening operational policy (SUSTAIN) Project, (INTERREG IVC Programme)
- Participation in the Network of Aegean Islands for Sustainability “DAPHNE” / Pact of Islands
- Participation in the Reference Framework for European Sustainable Cities

Infrastructure and action plans

In addition to being active in many research projects and thematic networks, the Municipality of Samothraki is also committed to facilitate research on the island, by utilising its owned land and infrastructure. Some examples of proposed actions are given below:

- A new and spacious secondary school has been built on the road connecting Capital Chora with

the main port Kamariotissa. There is both the intention to host visiting scientists, as well as the space for new labs to be located in the premises of the school. The local environmental NGOs implement frequently environmental education actions for the school children of the island. The primary school of Chora plans to initiate an environmental education project on composting directly involving the students, aiming at both practical outcomes, and raising environmental awareness. The municipality has a new library with books aging from the 18th century.

- In the village of Therma on the north side of the island, the municipality of Samothraki owns a building that used to be an elementary school. It is built of stone and traditional tiles and has exceptional green surroundings within its big yard. The building is in the proximity of the village and could be easily transformed into an environmental education centre with only small-scale modifications. Existing collections of minerals, flora and fauna of the island that are currently not exhibited could be hosted there and be open to the general public and to visitors of the island.

- The municipality of Samothraki owns one of the largest and most exceptional camping grounds of Greece. The area lies next to the sea and it is covered with huge Oriental plane trees along with other typical Mediterranean tree and bush species. The camping is a very attractive destination for tourists who want to experience a natural living. There are ongoing deliberations to redesign the municipal camping site into a sustainable tourism facility and biodiversity learning spot (eco-camping), in such a way that would provide the visitors with high sustainable tourism standards. Facilities such as composting, wastewater treatment and recycling, waste recycling and wise freshwater usage will be in place. Moreover information facilities like labels and information stands would provide the visitors with sufficient information and education on the camping's species diversity.

- The municipality of Samothraki owns one hectare of land on the north side of the island. This land could be used for the creation of a Mediterranean plant botanic garden and a local plant species seed bank.

- Moreover, the municipality of Samothraki owns six wooden houses on a hill next to the sea with a capacity of 4 persons per house. They are situated in a beautiful forested and green plot of land and can host outdoor mini conferences or seminars.

- There are 3 conference halls on the island, one in the Cultural Center of Chora and two others in the biggest hotels of the island.

- Recently the National Meteorological service of Greece has established a permanent meteorological station near Kato Karyotes village on the sea side. However, there is a private automated meteorological station operating on the island since 2001.

- The forestry department has a 4WD vehicle on the island.

- Finally, on Samothraki there exists one permanent research station that belongs to the Archaeology Directorate and is situated near the village of Palaiopolis next to the archaeological museum. A temporary research station is created every summer inside the camping site by visiting scientists.

Archaeological research

There is a well-established archaeological research tradition on Samothraki, that continues more or less uninterrupted from 1854 with the excavation by Ernst Otto Blau and Konstantin Schlottmann (1855: 601-636, Erhardt 1985), concentrating on the topography and description of the buildings

and sculptures of the Sanctuary of the great Gods (Matsas and Bakirtzis 2001). In 1863 the French consul Charles François Noël Champoiseau discovered the Nike of Samothraki (Lehman 1998). A French expedition led by Gustave Deville and Ernest George Conquart (Deville 1867, Conquart 1867), mapping the visible ruins and excavating in several places (Lehmann 1998, Ehrhardt 1985) was followed by two expeditions in 1873 and 1875, run by the Austrian Alexander Conze, who directed the first extensive excavations with a big team. He was joined also by the architects Alois Hauser and Georg Niemann to reconstruct the ancient buildings (Conze 1860, 1875, 1880), as well as geologist Rudolf Hoernes (Hoernes 1874). Charles Champoiseau excavated again in 1879 and 1891 when he discovered the Theatre (Matsas and Bakirtzis 2001). The Samothracian physician N.V. Fardis also excavated at the same time on several locations on the island (Matsas and Bakirtzis 2001).

In 1923 and 1927 a French-Czechoslovak group under Antonin Salač, Fernand Champouthier, François Salviat and Jan Nepomucký worked on the Sanctuary (Matsas and Bakirtzis 2001, Champouthier et al. 1956), followed by the systematic excavations by the Institute of Fine Arts of the New York University in collaboration with the University of Atlanta starting in 1938 and especially in the 1950s under Karl Lehmann-Hartleben. After his death, his ex-wife Phyllis Williams Lehmann took over the direction of the excavations at the Sanctuary together with James R. McCredie and since 2012 Bonna Daix Wescoat is the new project manager. The result of these still ongoing excavations are 11 volumes of excavation reports (Samothrace Vols 1-11, Bollingen Series), each of them comprising two to four volumes, as well as a series of preliminary reports published in *AJA* and *Hesperia*, as well as one excavation report published in 1976 (Ehrhardt 1985). The first studies on the religion and cult practised at the Sanctuary were already performed in ancient times, but within the modern archaeological research, Otto Kern and Carl Friedrich were among the first to dedicate several complete articles on this topic (Friedrich 1909; 1919). The newest research on the gods of Samothraki was done by Zlatozara Gočeva (2002) and Nora M. Dimitrova.

Besides the focus on the excavation of the Sanctuary of the Great Gods, a large amount of work concentrates on the first settlements on the island. Here the main area of investigation is the, so far, oldest settlement, Mikro Vouni, located in the southwest of the island. Dimitris Matsas' studies on the site show human presence starting in the Late Neolithic (late 6th first quarter of 4th millennium BC), that continued during the Middle and Late Bronze Age until around 1700 BC (Matsas 2009). One of the few studies regarding the paleogeography of Samothraki was also carried out at Mikro Vouni, reconstructing the ancient sea level and coastal zone a bit south of the site, called the Lambi marsh (Matsas 2009). Even today the main grain fields are located in this area, and the antique temple of Demeter, the goddess of fertility, was built close to the old settlement (Ehrhardt 1985). There has been a lot of investigation on the origin as well as the timing of arrival of the first inhabitants on Samothraki (e.g. Graham 2002) but the subject is still under dispute. By the time of the Early Bronze Age the local population of Samothraki were descendants from the Thracian mainland (Graham 2002). A.J. Graham and Peter Ilieva have made comprehensive studies on the first settlers (Graham 2002, Samothrace 5: 270).

Socioecological research

Another important and more recent research tradition has to do with socioecological studies. Since 2007, the Institute of Social Ecology in Vienna (SEC), Alpen-Adria University of Klagenfurt, has coordinated research on the island of Samothraki, and in collaboration with the Commune and local stakeholders, provides scientific support in order to develop a strategy to transform the island into a UNESCO Biosphere Reserve. In a participatory process the initiative was gradually transferred into a broader base of local stakeholders. This is a dynamic and ongoing process that has been initiated

by the Austrian MAB committee and was highly acknowledged, including the Sustainability Award 2010 it received by the Austrian Ministry of Science and Research.

Past achievements were the realization of a feasibility study for the proposed Biosphere Reserve on the island of Samothraki, realised by SEC, Vienna, in collaboration with UNESCO Venice (Fischer-Kowalski et al. 2011). This included an extensive survey of visitors, their behaviour and preferences, the outline of economic models for tourism, a comprehensive consultation with stakeholders and several meetings during the summers of 2009-2012, all of which led to the first official application unanimously supported by the municipal council and submitted by the Greek National MAB committee in 2011, as well as the current resubmission.

Moreover, in October 2012 a 1-week student course/excursion was organized by SEC to the island of Samothraki. The objectives of the course were manifold: (a) expose students to sustainability and development challenges in a local setting seen from the perspective of social ecology, (b) reflect and engage in the design of a management plan to include first project ideas for the new biosphere reserve such as for sustainable tourism, land use, water, waste and energy systems, and (c) allow the experience of a transdisciplinary research process by learning to interact with stakeholders and conduct interviews in a culturally challenging environment. Methodologically, during the excursion two main approaches were pursued: (a) focus group interviews with local stakeholders (such as fishermen, farmers, local professionals, elderly people in need of care etc.) in order to explore alternative visions for the future of the island and (b) distance sampling methods in order to estimate livestock densities in different area types. This was performed in order to assess the pressing problem of erosion and biodiversity loss due to overgrazing. An extensive report from the course has been produced (Petridis et al. 2013) and is available as a working paper online: http://www.uni-klu.ac.at/socec/downloads/WP142_WEB.pdf

Following-up on the previous excursion, funds have been secured from an Erasmus Intensive Programme (IP) in order to perform another student excursion in Spring 2014. The course entitled “*Achieving sustainable development on Samothraki island: Social ecology concepts and methods in a real world context*” will be coordinated by the Institute of Social Ecology Vienna (SEC), University of Klagenfurt, in partnership with the following cooperating institutions: Lund University, National University of Ireland, Aegean University and Autonomous University of Barcelona. The innovative character of the described IP is that it will provide an opportunity for the students to engage in a real-life project, thus allowing them to make use of their different scientific backgrounds and their respective knowledge within the context of sustainable development and nature conservation. On the one hand the students will be confronted with the challenges and possibilities of working in small interdisciplinary and multicultural problem-oriented teams. On the other hand students will engage in active field-work. The project aims to provide participating students training in socio-ecological methods within a local setting. Moreover, the ongoing process of bottom-up transformation and the challenging new European environment will give the students the opportunity to engage in a real-life project and utilise their scientific training within the field of sustainability studies, in order to analyse and accompany this process further.

Results from these activities have appeared in both peer-reviewed publications (Fischer-Kowalski et al. 2011, 2013, Petridis 2012), as well as presented in numerous internationally renowned conferences (International Conference on Human Ecology, Manchester, UK, 2009; 15th International Symposium on Society and Resource Management, Vienna, Austria, 2009; 12th Biennial Conference of the International Society for Ecological Economics”, Rio de Janeiro, Brazil, 2012), and thematic workshops (workshop on “Island Industrial Ecology and Sustainability” in Hawaii, organized by Yale University, USA, 2011; International Workshop “Best Practices for Sustainable Use and Biodiversity Conservation in Protected Areas in Regards of the Biosphere Reserve Concept”, Strandja Nature Park, Bulgaria, organised by the Bulgarian Biodiversity

Foundation with the support of the UNESCO Venice Office and the Bulgarian National MAB Committee, 2011; INTERREG IVC programme SUSTAIN Workshop on “The Needs of Small Islands” in Samothraki, Greece, 2011).

There are currently two PhD students and one master student working on issues related to Samothraki, ranging from an analysis of the goat life-cycle on the island, to an archaeological reconstruction of demographic and ecological tipping points.

Other research activities

On top of the ones mentioned above, there are strong connections with many national universities and other institutions doing research on the island (Agricultural University of Athens, Aristotle University of Thessaloniki, University of Thrace, University of Thessaloniki, Hellenic Centre for Marine Research, Greek Fisheries Research Institute). The annual three-week “Summer ecological university”, organised by the Interdisciplinary Institute for Environmental Research in 2010 was just one of the various workshops having taken place on the island. Moreover, the Hellenic Centre for Marine Research is currently performing an environmental assessment of inland waters on Samothraki (Skoulikidis et al. 2013). Another ongoing research activity is the annual monitoring of bird populations especially during migration period done by the staff of the Hellenic Ornithological Society. On top, botanologists Burkhard Biel and Kit Tan have just published an extensive Report on Studies on the flora and vegetation of Samothraki (Biel and Tan 2013). The inclusion of Samothraki in the World Network of Biosphere Reserves, within the Man and Biosphere Program of UNESCO, would be an opportunity to place all these and further efforts into a broader framework by promoting cooperation and information transfer and strengthening the direction of Samothraki towards sustainable development.

Scientific Networks

While long-term ecological research (LTER) deals with patterns and processes in ecosystems over long temporal scales, the newly established field of long-term socio-ecological research (LTSER) attempts to include a socio-economic dimension, investigating not only changes in ecosystems, but also societal pressures, their underlying driving forces, as well as impacts of changing ecosystems on society and the economy (Haberl et al., 2006). Within Europe there are 23 LTSER platforms coordinated by the LTER-Europe network comprising of multi-level infrastructure for investigating interactions between social and ecological systems on the regional or sub-regional scales. The scope of this project would be to initiate an LTSER station in Samothraki, addressing the social metabolism and land use in historical times (such as the time period around the construction of the Sanctuary of the Great Gods sanctuary, or the turbulent 19th century) and its development over the centuries in a close collaboration between archaeologists (of which a substantial number is working on the island already), social ecologists and land use scientists. The goal of this study is to outline a medium-term research plan and bring together the potentially interested parties. This will draw on international approaches to LTSER development as outlined in the recently published state-of-the-art compendium on LTSER (Singh et al. 2013), explore local opportunities and facilities through stakeholder interviews, and seek to design plans for engaging external scientists and students in providing scientific labour power in addition to local experts to move ahead.

Furthermore, Samothraki has been invited to join the newly founded consortium of islands that now pioneer to apply industrial ecology concepts, tools and methods to address the sustainability of island systems. For ecological science, islands are particularly useful model systems because they are isolated systems in many regards, with clear physical boundaries, relatively small geographic areas, and comprehensible driving forces that can be disaggregated and experimentally controlled.

Yet, in the modern, interdependent world, these same properties present island populations with the challenges of limited resource availability, tenuous resource security, and limited natural carrying capacity. Thus, populated islands typically have fragile ecosystems and economies, are heavily dependent on imports for a broad range of goods, and suffer from size constraints in the development of resilient water, sanitation, energy, and waste management systems. This makes islands excellent focal points for studies of industrial ecology, a new field that systematically analyzes the interactions between human/industrial activities and the environment, in an attempt to move toward systems and practices that are sustainable in the long-term. Industrial ecology studies explicitly model flows of materials and energy at the island system level, using the analytical results to offer recommendations for sustainable practices. Under the premise that “you can’t manage what you can’t measure”, industrial ecology provides planners and managers with specific information about the physical basis of island economies: what and how much material and energy is domestically produced, imported, transformed, demanded, used, and discarded. Based on accurate data, effective policy can then be crafted to move island societies towards more sustainable modes of production and consumption. The first workshop on island industrial ecology and sustainability was held in Hawaii, 5-8 January 2011, where Samothraki was represented and raised expectations of a sound science plan and research station on Samothraki.

ANNEX 2:

Draft Statutes of the Association “Sustainable Samothraki: Association for the support of Samothraki Biosphere Reserve”

Article 1: Establishment of the Association

An Association is established under the provisions of Articles 741-784 of the Civil Code which is governed by the following terms and agreements:

Article 2: Name / Distinctive title / Logo

2.1 The name of the Association is "**Sustainable Samothraki: Association for the support of Samothraki Biosphere Reserve**" and the distinctive title is "**Sustainable Samothraki**".

2.2 In foreign affairs, wherever required, the Association will use as a name and distinctive title the faithful translation of the name and distinctive title of paragraph 2.1 of the present Article in the respective foreign language. As an illustration, in English the Association name should read: "**Sustainable Samothraki: Association for the support of Samothraki Biosphere Reserve**" and the distinctive title "**Sustainable Samothraki**".

2.3 The logo of the Association depicts an open circle in green colour, containing the words “Sustainable” in orange colour and the word “Samothraki” in green colour.

Article 3: Duration

3.1 The duration of the Association is defined as open-end, starting from the publication of the statutes on the Association books from the Court of Alexandroupolis.

3.2. The Association is established with a view to last for as much time as necessary in order to carry out its aims, as described in detail in article 5, or if it becomes clear that those aims have become unattainable. This is decided only by the General Assembly, with absolute majority.

Article 4: Main office

4.1 The Association is located in the Municipality of Samothraki, of Evros Regional Unity. The offices of the Association will be in a place leased or granted within the borders of the municipality. The Association may change its office location, within the borders of the municipality it is located, without the need for a statute amendment.

Article 5: Aims

5.1 The aims of the Association are:

- a. nature conservation in accordance with the existing protection standards (in particular reinforcing already existing NATURA 2000 areas)
- b. support of sustainability innovations and income raising measures for sustainable local business, such as optimising the supply chain management of local products
- c. logistic support for scientific monitoring and research
- d. support for the sustainability of Samothraki through public communication and educational measures
- e. monitoring long-term sustainable use of economically relevant natural resources.

Article 6: Means

6.1 The activity of the Association is not subject to any public agency or for-profit organisation. The Association seeks to promote and achieve its statutory aims with activities and means such as the following. The list of means quoted below is indicative and not exclusive:

- a. collecting best practice examples and making them accessible for local actors
- b. networking between local, regional and superregional actors to create synergies
- c. fundraising for research & development projects
- d. application for and coordination of scientific projects
- e. engaging in public communication in support of the Association's goals
- f. providing scientific advice to the community council and to local NGOs
- g. organisation of scientific and cultural events
- h. executing any other legal and related activity that promotes the aims of the Association.

Article 7: Membership

7.1 Member of the Association can become any natural entity from Greece or abroad upon request. The inscription of new members is approved by the Governing Board of the Association.

7.2 Each member is entitled to take part in the activities of the Association, to participate in the General Assemblies, to vote, to elect and be elected in the bodies of the Association. It also has the right to submit proposals in written form to the Governing Board and speak to the General Assembly.

7.3 Members must contribute to fulfilling the aims of the Association to comply with the statute, implement the resolutions of the General Assembly and the Governing Board and to fulfil their financial obligations on time, as defined by the Governing Board.

7.4 The Governing Board, by a written and justified decision taken by a majority of 4/5 of its members, has the right to expel members who do not pay the annual fee, violate the statutes or decisions of the General Assembly or consistently act in a manner detrimental to the aim or interests of the Association, after hearing any objections from the member in question. The members who are expelled in this way have the right to appeal to the General Assembly, which shall decide by simple majority of present members.

7.5 The General Assembly or the Governing Board can nominate as honorary members of the Association any personalities that have a significant contribution to the academic or cultural fields or have provided outstanding services to the Association. Honorary members are free of financial requirements and have no right to vote and take office.

Article 8: Resources

8.1 Financial resources of the Association may be obtained from:

- a. registration fees, annual subscriptions and non-ordinary contributions of members, the amount of which is determined by the Governing Board
- b. donations, sponsorships and contributions of members and third parties
- c. international and national grants and subsidies from public and/or private entities for services the Association provides
- d. income from legal or natural entities for services the Association provides
- e. proceeds from the utilisation of the Association's property
- f. revenue from the organisation of cultural events, publications, or other activities under this

- statute, as well as any other legal resource
- g. any income, whose acceptance does not contradict the aims of the Association, the Law and morality.

8.2 The Association is a not-for-profit legal entity and its operation is governed by the provisions of the Civil Code. Consequently, its revenues will be distributed for the fulfilment of its aims and will under no circumstances be distributed to its members, both during the existence and possible dissolution of the Association. In the case of a dissolution, all revenues will be granted to the Municipality of Samothraki.

Article 9: Bodies of the Association

9.1 Bodies of the Association are the General Assembly, the Governing Board, the Audit Committee, the International Science Council and the Operational Management.

Article 10: The General Assembly

10.1 The General Assembly of members is the supreme body of the Association. It accommodates new members upon proposal from the Governing Board. It decides on any matter not belonging, by law or statute, to the exclusive jurisdiction of another body. It exercises control and supervision to the other bodies of the Association. It sets the policy and planning of the Association.

10.2 The General Assembly is convened annually. The ordinary General Assembly judges the accountability of the outgoing Governing Board, approves the balance sheet and accounting report of the previous year, and decides whether or not to discharge the Governing Board from any liability based on the report of the Audit Committee.

10.3 A non-ordinary General Assembly is convened whenever deemed necessary by the Governing Board. It is also convened if requested with a written request to the Governing Board by 1/5 of the Association members who have fulfilled their financial obligations, or by the Audit Committee. The request lists the agenda items. In this case the Governing Board shall convene the General Assembly within one month of receiving the request.

Article 11: Structure of the General Assembly

11.1 The General Assembly is comprised by all Association members who have fulfilled their financial obligations. Honorary members are entitled to attend and speak, but not to vote.

11.2 The General Assembly is convened by the Governing Board and its commencement requires a quorum of 1/2 of the members of the Association. If such a quorum is not achieved, the General Assembly is postponed for one hour. If the quorum is still not achieved the General Assembly is convened after one week, the same day and time, at the same place and with the same issues agenda. The General Assembly then proceeds regardless of the number of members present.

11.3 The General Assembly is proclaimed by the Governing Board at least 20 days before it takes place. Members are notified by a written personal invitation, stating the agenda issues.

11.4 The opening of the General Assembly, after having verified the existence of a quorum, is declared by the President of the Governing Board. If the President is absent, it is declared by the Vice President or another Governing Board member. Immediately after, the General Assembly elects by raising of hands and a relative majority, a presidium of the meeting. Governing Board members may not be elected to the General Assembly presidium.

11.5 All decisions of the General Assembly, with the exception of the election of the Governing Board, is taken by an open vote. Unless the law or the statutes state otherwise, the absolute majority of those present suffices. Addition of an item on the agenda of the General Assembly can be decided upon only if the absolute majority of those present who adopt it exceeds 1/5 of the Association members who have fulfilled their financial obligations.

Article 12: The Governing Board

12.1 The Association is governed by a 7-9 member Governing Board whose term is 3 years. Membership in the Governing Board is limited to 2 election periods. The chair of the International Science Council has a non-voting seat on the governing board.

12.2 The Governing Board is responsible for strategic decision making, employment and supervision of the Operational Management. In particular, it decides on the annual activity plans and budget presented by the Operational Management, and controls the finances, supported by the Audit Committee.

12.3 The Governing Board oversees the monitoring reports of the Biosphere Reserve to UNESCO.

12.4 The Governing Board nominates a chair for the International Science Council and receives its biannual reports.

12.5 The Governing Board administers and manages all the affairs of the Association in accordance with the statute and within the guidelines set by the General Assembly. It takes appropriate measures to address the issues faced by the Association. It manages the assets of the Association. It establishes working groups and committees, and coordinates their activity.

12.6 The Governing Board meets regularly when the President deems appropriate or when 2 members request it from the President. A quorum is achieved when at least 3 members are present. The decisions are taken by a majority vote of the members present. In case of a tie, the vote of the President prevails.

Article 13: Obligations of the Governing Board

13.1 The President of the Governing Board represents the Association in court and out of court. He/She convenes and chairs the meetings of the Governing Board. He/She signs, together with the Secretary, any document emanating from the Association and together with the Treasurer all payment orders.

13.2 The Vice President cooperates with the President in the execution of decisions of the Governing Board. He/She substitutes the President in all his/her activities when he/she is absent or unavailable.

13.3 The General Secretary keeps the minutes of the Governing Board meetings, which are also signed by all members attending the meeting, is responsible for the record and book-keeping of the Association, apart from the books of the Treasurer, takes care of all correspondence, keeps the seal the Association and signs, together with the President, all the documents of the Association.

13.4 The Treasurer is responsible for the Funds of the Association. He/she executes receipts and payments, with receipts or invoices also signed by the President, and are accountable to the Governing Board. He/she maintains and keeps the management books and records of the

Association. He/she prepares the annual financial budget and presents it at the annual General Assembly. He/she opens accounts in banks.

Article 14: The Audit Committee

14.1 The Audit Committee is comprised of 2 members. The term of office is two years.

14.2 The Audit Committee monitors the financial management of the Association, as well as the actions of the Governing Board as to their legality. It prepares a report for submission to the annual General Assembly.

14.3 The Governing Board is required to provide to the Audit Committee the management books of the Association and to provide any documentation or evidence requested by the Audit Committee to exercise its control.

Article 15: Election procedures

15.1 The procedures to elect members of the Governing Board and the Audit Committee are carried out by the annual General Assembly. They are also carried out by a non-ordinary General Assembly if, for whatever reason, the Governing Board or the Audit Committee are dismantled.

15.2 The election procedures are supervised by a tripartite Electoral Committee, which is elected by raising of hands and a relative majority.

15.3 Any Association member who has fulfilled its financial obligations has the right to be a candidate at the election procedures. The list of candidates is formed by the Electoral Committee, to which the submitted nominations are addressed.

15.4 The voting is secret and is performed by the marking of crosses on a single ballot paper which lists alphabetically the names of all candidates for three respective positions: President of the Governing Board, Member of the Governing Board, and member of the Audit Committee. Any member who votes has the right to select up to 1 candidate for President of the Governing Board, up to 3 candidates for the Governing Board and up to 2 candidates for the Audit Committee. Ballot papers with more crosses are considered invalid.

15.5 The Electoral Committee is conducting the sorting of ballots and declares as President of the Governing Board the candidate who received most crosses for this office, as members of the Governing Board the 5 candidates who received most crosses, and as members of the audit committee the 2 candidates with the most crosses in their respective categories. In the event of a tie a draw takes place. The runner-ups are considered alternate members of the Governing Board and asked, in order of number of crosses, to undertake the position that, for whatever reason, will be vacant during the term of the Governing Board.

15.6 The newly elected Governing Board is convened by the President of the Governing Board within 8 days of conducting the election procedure and forms a body by electing from among its members the Vice President, General Secretary and Treasurer.

15.7 Any protest during the voting or sorting is submitted to the Audit Committee and judged by it. The electoral material is kept in the offices of the Association under the responsibility of the Electoral Committee for a period of 15 days.

Article 16: The International Science Council

16.1 The International Science Council is chaired by a renowned scientist nominated by the Governing Board, who is responsible to recruit 5-7 members from international science and conservation communities who are capable and willing on their own expenses to advise and guide a sustainable development process on Samothraki.

16.2 The International Science Council receives annual reports from the Operational Management, and communicates its advice to the Operational Management, to the Governing Board, and to the Greek National MAB Committee.

Article 17: The Operational Management

17.1 The Operational Management consists of a manager and deputy employed by the Governing Board for a defined period.

17.2 The Operational Management presents an annual plan of activities and a budget, and an annual financial and activity report to be accepted by the Governing Board.

17.3 Within the activity plan and budget accepted by the Governing Board, the Operational Management is free to pursue its goals and responsible for goal attainment.

Article 18: Amendments to the statute

18.1 Amendments to the statutes can only be done by the General Assembly, with at least ½ of the Association members who have fulfilled their financial obligations present and decisions are taken by a majority of 2/3 of those present. The item of amending the statute must be included in the agenda sent to the members of the Association and cannot be added during the General Assembly.

Article 19: Dissolution of the Association

19.1 The Association is dismantled if there has not been a General Assembly for more than two years. It can also be dismantled after a decision of the General Assembly, with the quorum and the majority of the preceding article.

Article 20: Final layout

20.1 Each subject provided by this statute is governed by the provisions of Articles 741-784 of the Civil Code. These have been agreed and mutually decided upon by the people concerned who signed this agreement which acts as the statutes of the Association to be established.

ANNEX 3

Scientific Advisory Board for Samothraki Biosphere Reserve

Functions and Procedures

The Scientific Advisory Board has an advisory function vis a vis the management of the Biosphere reserve, the Commune of Samothraki and the Greek National MAB Committee. As a body, it should be consulted at least annually with respect to the following tasks:

- The development of a science plan, both medium term strategically and for each year
- Job announcements for the management, in particular regarding criteria of qualification
- The development of a monitoring scheme, and the annual evaluation of progress
- It should be consulted ahead of the delivery of reports to UNESCO.

On their own initiative, members of the SAB will seek to raise funding for research on the island, help building networks of interested researchers, organize scientific excursions and workshops, support Samothraki Biosphere Reserve in linking into existing networks of sustainable island initiatives and help with reviewing research proposals and publications.

The Scientific Advisory Board will from among its members elect a chair for a period of three years. The chair is responsible to call a (at least virtual) board meeting once a year, process and communicate the board's decisions to the respective bodies.

Members

Anderson, Atholl

Professor of Prehistory, Archaeology and Natural History

Australian National University, School of Culture, History and Language (Australia)

Research interests: oceanic prehistory and ethnohistory, island colonization, palaeoenvironments, zooarchaeology, maritime adaptations

Chertow, Marian

Professor of Environmental Management

Chairperson for Yale University's Sustainable Island Program

Yale University, New Haven (USA), School for Environment

Research interests: industrial ecology, industrial symbiosis, sustainable islands

Fischer-Kowalski, Marina

Professor of Social Ecology

Alpen Adria University Klagenfurt, Vienna, Graz (Austria)

Faculty of Interdisciplinary Studies

Research interests: social metabolism and land use, long-term socioecological research, sustainability transitions. President of the International Society of Ecological Economics.

Goessling, Stefan

Professor of Tourism

Linnäus University Kolmar (Sweden), School of Business and Economics

Research interests: island tourism, sustainable tourism. Member of the Advisory Committee of UNEP for sustainable tourism.

Matsas, Dimitris

Director of the 19th Ephorate of Prehistoric and Classical Antiquities

Director of the archaeological site and archaeological museum in Samothraki (Greece)

Scoullou, Michael

Professor of Environmental and Marine Chemistry

University of Athens (Greece)

President of the Greek National Committee of UNESCO MAB; member of the board and executive bureau of the European Environmental Agency (EEA)

Singh, Simron J.

Assistant Professor at the Alpen Adria University Klagenfurt, Vienna, Graz (Austria)

Faculty of Interdisciplinary Studies.

Research interests: human ecology, cultural anthropology, island studies, managing sustainability transitions

Skoulikidis, Nikolaos

Research Director and Head of the Dept. of “Inland Waters”, Institute of Marine Biological Resources & Inland Waters, Hellenic Centre for Marine Research (Greece).

Annex IV – List of Legal Documents

Τα αποθέματα ανθρώπου και βιόσφαιρας είναι περιοχές που περιλαμβάνουν προστατευόμενα, ιδιαίτερα οικοσυστήματα και ανθρώπινες κοινωνίες μέσα στις οποίες διασφαλίζεται η διατήρηση και προστασία της βιοποικιλότητας μέσω της βιώσιμης χρήσης της. Τα αποθέματα ανθρώπου και βιόσφαιρας συνιστούν ένα παγκόσμιο δίκτυο υπό την προστασία και υποστήριξη της UNESCO. Το δίκτυο αυτό προωθεί την ανταλλαγή γνώσης, εμπειρίας και ανθρώπινου δυναμικού ενώ υπάρχουν πάνω από 550 αποθέματα βιόσφαιρας σε 100 χώρες.

Η απόκτηση του τίτλου αυτού μπορεί να αποτελέσει πλατφόρμα ανάπτυξης της περιοχής με τη δημιουργία και ενδυνάμωση προγραμμάτων για την βελτίωση της ποιότητας ζωής της τοπικής κοινωνίας και την διασφάλιση της διατήρησης της βιοποικιλότητας. Επίσης στην ευαισθητοποίηση της τοπικής κοινωνίας και τοπικής διοίκησης σε περιβαλλοντικά και αναπτυξιακά ζητήματα ενώ θα προσφέρει ευκολότερη πρόσβαση σε διάφορες χρηματοδοτήσεις. Σε εθνικό και υπερεθνικό επίπεδο η απόκτηση του τίτλου μπορεί να αποτελέσει παράδειγμα καλής πρακτικής και να προσφέρει παγκόσμια φήμη και προβολή. Τέλος επισημαίνουμε ότι η απόκτηση του τίτλου δεν δημιουργεί καμία νομική, οικονομική ή άλλη υποχρέωση στους υπογράφοντες προς τον παγκόσμιο αυτό οργανισμό.

Στην συνέχεια κάλεσε το Δημοτικό Συμβούλιο να αποφασίσει για την ένταξη της αίτησης συμμετοχής της Σαμοθράκης στην παγκόσμια λίστα αποθεμάτων ανθρώπου και βιόσφαιρας, η οποία συντάχθηκε από το Ινστιτούτο Κοινωνικής Οικολογίας της Βιέννης και πρόκειται να κατατεθεί τον Απρίλιο του έτους 2011 στην UNESCO. Το Δημοτικό Συμβούλιο αφού έλαβε υπόψη τα παραπάνω και κατόπιν διαλογικής συζήτησης,

Αποφασίζει Ομόφωνα

- Εγκρίνει την υποβολή αίτησης υποψηφιότητας του Δήμου Σαμοθράκης στο πρόγραμμα "Άνθρωπος και Βιόσφαιρα MAB" της UNESCO, όπως έχει συνταχθεί και συμπληρωθεί από το Ινστιτούτο Κοινωνικής Οικολογίας της Βιέννης.
- Εκφράζει τις ευχαριστίες του προς την καθηγήτρια Marina Fischer- Kowalski και τον Ξενίδη Λάζαρο που αποτελούν τους πρωτεργάτες αυτής της πρωτοβουλίας, καθώς και το Ινστιτούτο "Institute of Social Ecology, Faculty for Interdisci- plenary Studies, (Klagenfurt- Vienna- Graz), Klagenfurt University.

Αφού συντάχθηκε και αναγνώστηκε το πρακτικό αυτό υπογράφεται όπως παρακάτω:

Ο Πρόεδρος του Δημοτικού Συμβουλίου

Σκαρλατίδης Αθανάσιος

Τα Μέλη

(Υπογραφές)

Ο Γραμματέας

Ακριβές Απόσπασμα

Ο Δήμαρχος

Χανός Γεώργιος

Α.α.

Ο Αντιδήμαρχος

Βίτσας Αθανάσιος



Translation from Greek into English

Biosphere reserves are areas that encompass protected, special ecosystems and human societies in which the protection and conservation of biodiversity is secured with its sustainable use. Biosphere reserves form a global network under the protection and support of UNESCO. This network promotes knowledge exchange, along with experience and experts while there are over 550 biosphere reserves in 100 countries. The acquisition of the title of a biosphere reserve can be a platform of development of the area with the creation and enforcement of programs for the improvement of quality of life of local society and for the security of biodiversity conservation. Also it can contribute to the awareness of the local society and local authorities of environmental and development issues while it can provide better access to different funding resources. In national and international level a biosphere reserve can be an example of good practice and can provide global reputation and promotion. Finally we mention that the inclusion within the network does not create any legal, economic or other obligation of local authorities towards the global organization. The local authorities invited the municipal council to decide for the process of nominating Samothraki Island as a member of the world network of biosphere reserves, with the application that was completed by the Institute of Social Ecology, Vienna and will be submitted within April 2011 to UNESCO. The municipal council taking into account the above mentioned information and after collective discussion

Decides with one voice

- To approve the submission of the nomination form of the Municipality of Samothraki to the Man and Biosphere Program of UNESCO as it has been compiled by the Institute of Social Ecology Vienna.
- To acknowledge Prof.Dr. Marina Fischer-Kowalski and Mr. Lazaros Xenidis who were the driving force of this initiative, and the Institute of Social Ecology, Faculty of Interdisciplinary Studies, Klagenfurt – Vienna – Graz), Klagenfurt University.

After its compilation and reading, this record is signed as follows.

Head of Municipal Council
Skarlatidis Athanasios

The members
(signatures)

Secretary

The Major
Chanos Georgios
The vice Major
Vitsas Athanasios

Annex 5: Species List - The mammals of Samothraki

Scientific name: *Apodemus flavicollis*
English common name: Yellow-necked field mouse
Berne Convention:-
Bonn Convention:-
Habitats directive:-
IUCN:-
Red List Category (Europe): Least Concern (LC)
Red List Category (EU 25): LC



Class: Mammalia, **Order:** Rodentia, **Family:** Muridae, **Genus:** Apodemus

The yellow-necked mouse has a large range extending from Great Britain across much of continental Europe to the Urals (Russian Federation). It is present on some east Mediterranean islands. Occurs from sea level up to 1,850 m. It is a common species throughout much of its range. Populations appear generally stable (natural fluctuations occur). This is a common and widespread species with no major threats affecting the population at a global or regional level. It inhabits a variety of woodland habitats. It tends to be a forest edge species, but in the Alps it lives within forests. Its spatial distribution in large forest areas is related to the productivity and spatial distribution of forest trees with heavy seeds, mainly oak and hazel. Globally there are no major threats however affected by the conversion of ancient woodland to agricultural land. It occurs in protected areas across its range. No specific conservation measures are recommended.

Scientific name: *Rattus rattus*
English common name: Black rat
Berne Convention:-
Bonn Convention:-
Habitats directive:-
IUCN:-
Red List Category (Europe): Least Concern (LC)
Red List Category (EU 25): LC



Class: Mammalia, **Order:** Rodentia, **Family:** Muridae, **Genus:** Rattus

A widespread and abundant species, often regarded as a pest. Although there have been population declines in parts of the European range, these are not believed to approach the threshold for the population decline criterion of the IUCN Red List (30% over 10 years or 3 generations, whichever is longer). Classed as Least Concern. A widespread and abundant species, often regarded as a pest. It is very common in the Mediterranean, where it is found in a variety of man-made habitats. Also lives outdoors in natural and semi-natural habitats in the Mediterranean (especially on Mediterranean islands). No major threats. Not protected under international legislation; commonly regarded as a pest. Present in many protected areas.

Scientific name: *Mus domesticus*

Western domestic mouse

Berne Convention:-

Bonn Convention:-

Habitats directive:-

IUCN:-

Red List Category (Europe): Least Concern (LC)

Red List Category (EU 25): LC



Class: Mammalia, **Order:** Rodentia, **Family:** Muridae, **Genus:** Mus

A widespread and extremely abundant species that thrives in anthropogenic habitats. Classed as Least Concern. A widespread and abundant species; common except in some extreme habitats (e.g. at high altitude). House mice are typically commensal, and are found in a very wide range of man-made habitats including houses, farm outbuildings, other types of buildings, and even coal mines and frozen meat stores. Sometimes it is feral in areas where it has been introduced, and in some parts of its native range it maintains wild populations in outdoor habitats such as arable land, pastures, coastal sand dunes, salt marshes, and scrubby road verges. House mice tend not to be found in forests and deserts. This species faces no major threats. Not protected under international legislation; commonly regarded as a pest. Present in many protected areas. A highly successful colonist of artificial environments; no conservation measures are required.

Scientific name: *Mus macedonicus*

English common name: Balkan short-tailed mouse

Berne Convention:-

Bonn Convention:-

Habitats directive:-

IUCN:-

Red List Category (Europe): Least Concern (LC)

Red List Category (EU 25): LC



Class: Mammalia, **Order:** Rodentia, **Family:** Muridae, **Genus:** Mus

This species has a wide range. It is common with no major threats at present, and the population trend is believed to be stable. Consequently it is classed as Least Concern. It is common throughout its range. It occurs in a wide range of habitats including cultivated farmland, orchards, olive groves, road verges, sand dunes, arid Mediterranean shrubland, wadis, and densely-vegetated riverbanks. It is absent from dense forests, and avoids areas of human habitation. No major threats. It occurs in some protected areas within its range. No specific conservation measures are recommended.

Scientific name: *Dryomys nitedula*
English common name: Forest dormouse
Berne Convention: Appendix III
Bonn Convention: -
Habitats directive: IV
Red List Category (Europe): Least Concern (LC)
Red List Category (EU 25): LC
IUCN: Lower risk-near threatened
Red Book: Rare



Class: Mammalia, **Order:** Rodentia, **Family:** Gliridae, **Genus:** Dryomys

A widespread species with a large global population. Population trends appear stable in most parts of its range, it has a broad habitat tolerance, and is found in many protected areas. Consequently it is classed as Least Concern. It occurs in a broad variety of habitats in Europe, including broad-leaved, mixed, and coniferous woodland (mainly at higher altitudes), dwarf pine *Pinus mugo* and rocky areas, evergreen Mediterranean shrubland, and wood-steppe. In the west, the species is found in moist areas next to streams (Austria, Switzerland, and Germany). Its vertical range is from sea level to 2,300 m. The species is not found in human dominated habitats such as agricultural areas. There are no major threats in most parts of its range (EMA Workshop 2006). Declines at the western edge of its range have been attributed to deforestation. It is protected by international law under the Bern Convention (Appendix III) and the EU Habitats and Species Directive (Annex IV). The species is found in protected areas.

Scientific name: *Crocidura suaveolens*
English common name: Lesser white-toothed shrew
Berne Convention: Appendix III
Bonn Convention: -
Habitats directive: -
Red List Category (Europe): Least Concern (LC)
Red List Category (EU 25): LC



Class Mammalia **Order** Soricomorpha **Family** Soricidae **Genus** Crocidura

It is very common in straw ricks. In western and southern Europe and it inhabits a wide range of habitats including vineyards, olive groves, terraced farmland on hillsides, dry Mediterranean shrubland, sand dunes, rocky areas in the mountains, and damp densely-vegetated patches near to water. It tends to avoid dense forests. Its main requirement is enough vegetation and moisture to support its insect prey, and in arid areas it tends to be more common near springs and oases; however it is more tolerant of dry conditions than many of its congeners. Small, soft-bodied insects form a major part of its diet. Pesticides and herbicides may have a negative impact on the species in agricultural habitats.

Scientific name: *Martes foina*
English common name: Beech marten (stone marten)
Berne Convention: Appendix III
Bonn Convention:-
Habitats directive:-
IUCN:-
Red List Category (Europe): Least Concern (LC)
Red List Category (EU 25): LC



Class: Mammalia, **Order:** Carnivora, **Family:** Mustelidae, **Genus:** Martes

This species is listed as Least Concern in view of its wide distribution, its large population, its occurrence in a number of protected areas, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category. The stone marten is widespread, occurring throughout much of Europe and central Asia. It is common in at least parts of its range. Populations in western and central Europe have increased since the 1960s and 1970s. This species has no major threats. It is sometimes persecuted as a pest. The stone marten prefers more open areas than other martens. Its habitat preferences vary in different parts of its range. It is typically found in deciduous forest, forest edge, and open rocky hillsides (sometimes above the tree line). However, in Switzerland, Austria, north-east France, and southern Germany, it is very common in suburban and urban areas, often building its nest in house attics, outhouses, barns, garages, or even car engine spaces. In some areas they are common in towns and rare in woods. Commensal beech martens may cause damage to roofs, insulation, and electrical wiring and pipes in houses and cars

Scientific name: *Nannospalax leucodon*
English common name: Lesser mole rat
Berne Convention: -
Bonn Convention:-
Habitats directive:-
IUCN: Vulnerable
Red List Category (Europe): Least Concern (LC)
Red List Category (EU 25): LC
Red Book: Vulnerable



Class: Mammalia **Order:** Rodentia **Family:** Spalacidae **Genus:** Spalax

It is found from sea level to 2,400 m (Kryštufek 1999). It has undergone range contractions and population declines in Europe. However, there are still areas where it is locally quite abundant. Population densities typically fall in the range of 1-13 individuals per hectare, but values of up to 23 individuals per hectare have been reported. *Spalax leucodon* is regarded as a superspecies that contains a number of forms that are well-differentiated at both a genotypic and phenotypic level, although their taxonomy remains unresolved. Some of these forms have very restricted ranges, and presumably small populations. The mole rat inhabits steppe grassland, meadows and pastures, in areas with

a deep layer of loose, freely-draining soil in which it digs its extensive burrows. It is absent from ploughed land and arable monocultures, although it may be found in agricultural landscapes where there is a mixture of pastures, small crop-fields and orchards. It has a slow reproductive rate, raising litters of only 2-4 young. Mole-rats of the genus *Spalax* can be distinguished from all other rodents by the lack of any external openings for the eyes, although small eyes are present under the skin. The mole-rat is threatened by habitat loss and land-use changes related to agricultural intensification and increased urbanisation and infrastructure development. It disappears when natural grasslands or pastures are ploughed up. When it was more common, it was an agricultural pest, and it is still persecuted as such in some areas

Scientific name: *Erinaceus roumanicus*

English common name: Northern white-Breasted Hedgehog

Berne Convention: Appendix III

Bonn Convention:-

Habitats directive:-

IUCN: -

Red List Category (Europe): Least Concern (LC)

Red List Category (EU 25): LC

Red Book: Lower Risk Least Concern

Class: Mammalia **Order:** Erinaceomorpha **Family:** Erinaceidae **Genus:** Erinaceus



It is recorded from sea level to at least 1,400 m. It inhabits farmland, parks and gardens in rural and urban areas, and scrubby habitats at the edge of forests. Like its congener *E. europaeus*, it is more abundant in artificial than in natural habitats. Many are killed by collision with cars, but this is unlikely to cause widespread population decline.

Scientific name: *Lepus europaeus*

English common name: Brown hare

Berne Convention: Appendix III

Bonn Convention:-

Habitats directive:-

IUCN: -

Red List Category (Europe): Least Concern (LC)

Red List Category (EU 25): LC

Red Book: Lower Risk Least Concern

Class: Mammalia **Order:** Lagomorpha **Family:** Leporidae **Genus:** Lepus



A highly adaptable species, it occupies a wide variety of habitats, including grassland, steppes, open temperate woodland, arable farmland, and pastures. It tends to be particularly abundant in open, flat areas where cereal cultivation predominate. Dense old-growth forests are avoided. Woodland, scrub, hedges and shelterbelts are used as cover when the species is resting. It feeds mainly on grasses and herbaceous plants. When available, weeds and wild grasses are preferred, but where intensive agricultural practices

have reduced the availability of these food sources crop species are selected. Unlike *Lepus timidus*, it does not feed on shrubs.

Scientific name: *Myotis blythi*

English common name: Lesser mouse-eared bat

Berne Convention: II

Bonn Convention: II

Habitats directive: II & IV

Red List Category (Europe): Near Threatened (NT)

Red List Category (EU 25): NT

Red Book:



Class Mammalia Order Chiroptera Family Vespertilionidae Genus Myotis

A gregarious species, it congregates in nursery and/or hibernating colonies of up to 500 individuals. There have been large population reductions since the 1950s in several areas, including central Europe, Israel, and central Asia, and there is evidence of ongoing decline in some parts of the range, although in other areas populations appear stable. In Romania, one well-known colony has declined by 95% as a result of disturbance by speleological tourism (Z. Nagy pers. comm. 2006). It often occurs in mixed colonies with *Myotis myotis* and identification is sometimes problematic. It forages in scrub and grassland habitats, including farmland and gardens. Maternity colonies are usually found in underground habitats such as caves and mines, and sometimes in attics of buildings (particularly in central Europe). It hibernates in winter in underground sites with a relatively constant temperature of 6-12°C. The species is an occasional migrant, with movements of up to 488 km recorded. Changes in land management, especially agricultural pollution and other agricultural activities, can affect populations of this species. Disturbance to roosts in caves and buildings may also be a problem. It is protected by national legislation in most range states. There are also international legal obligations for its protection through the Bonn Convention (Eurobats) and Bern Convention. It is included in Annex II (and IV) of the EU Habitats and Species Directive, and hence requires special measures for conservation including designation of Special Areas for Conservation. There is some habitat protection through Natura 2000. In some countries (including Spain, Portugal, and Italy) several colonies are protected by closing entrances to caves with fences. More colonies should be protected.

Scientific name: *Monachus monachus*

English common name: Mediterranean Monk seal

Berne Convention: -

Bonn Convention: Appendix I

Habitats directive: -

Red List Category (Europe): Critically Endangered (CR)

Red List Category (EU 25): CR

Red book: Endangered



Class: Mammalia, **Order:** Carnivora **Family** Phocidae **Genus** Monachus

The Mediterranean monk seal is the most threatened pinniped species in the world, with an estimated population of 350-450 animals. The largest remaining population is that of the eastern Mediterranean, with 250-300 individuals, of which c.100 occur in Greek waters. Mediterranean monk seals are medium-sized phocids that reach 2.3-2.8 m. Adults weigh from 240-300 kg, and newborns 15-26 kg), with records of a male reaching 400 kg and a pregnant female reaching 302 kg (Sergeant *et al.* 1978). Mediterranean monk seals once hauled out on open beaches, but this is now rare, and throughout their range they use caves with sea entrances for hauling out and pupping. Sea caves used by seals often have submerged entrances or some other barrier to provide protection from waves. Reasons given for the recent population decline include increased human population displacing seals from their habitat, mortality due to fisheries bycatch and persecution, and the possible effects of toxics and pollutants. Exacerbating these factors are political instability and wars, the challenge of implementing effective conservation for a species in a complex multi-national environment, weak enforcement of agreements and international laws, diseases, genetic consequences of inbreeding, and other catastrophes such as oil spills and collapse of occupied pupping caves. Interactions with fisheries are of great conservation concern, particularly for the population in the eastern Mediterranean, where seals are killed through net entanglement and deliberately killings by fishermen. The presence in of Mediterranean monk seal in Samothraki Island has been reported in the inaccessible south side of the island. However there is no evidence if it uses the island for breeding.

Scientific name: *Delphinus delphis*

English common name: Common Dolphin

Berne Convention: Appendix II

Bonn Convention: Appendix I

Habitats directive: Annex IV

Red List Category (Europe): Data Deficient (DD)

Red List Category (EU 25): DD

Red Book: Vulnerable



Class Mammalia **Order** Cetacea **Family** Delphinidae **Genus** Delphinus

This species has a varying status in different parts of its European range. In the Mediterranean and Black seas there have been substantial population declines; the Mediterranean population was recently assessed as Endangered. This is a very abundant species, with many available estimates for the various areas where it occurs. Mediterranean common dolphins frequent coastal and upper slope waters. The common dolphin is one of the most prominent by-catches of pelagic purse-seine and driftnet, and trawl fisheries. The species is abundant in Samothraki coastal waters.

Scientific name: *Capra aegagrus*
English common name: Wild Goat
Berne Convention: -
Bonn Convention: -
Habitats directive: -
Red List Category (Europe): Not applicable
Red List Category (EU 25): Not applicable
Red Book: Vulnerable



Class: Mammalia, **Order:** Artiodactyla, **Family:** Bovidae, **Genus:** Capra

The domestic goat and the wild goat are treated as separate species, named *Capra hircus* and *Capra aegagrus* respectively. "Wild goats" and "wild sheep" found on Mediterranean islands are generally recognized to have been introduced by humans, and genetic and archaeozoological studies suggest that they are feral populations of ancient domestic. Consequently, such taxa should be included in the respective domestic species (*Capra hircus*, *Ovis aries*) and not as subspecies of the wild taxa. This Red List rationale refers only to anciently introduced populations of "wild" goats on Majorca and certain Greek islands. As they are considered to be feral descendants of early domestic stock, they are classed as Not Applicable (NA). The total population of these animals is >20,000, and although the range is small (Area of Occupancy may be less than 2,000 km²) and there are problems in parts of the range with hybridization with domestic goats and poaching, the population trend overall is believed to be stable or increasing. "Wild" goats can be found in mountainous areas in northern and western Majorca (Spain), and on Crete (Greece) where they were formerly widespread but are now restricted to an area of approximately 72 km² in the Lefka Mountains at the western end of the island. There is a small, semi-captive population on the small (68 ha) satellite island of Theodorou. Populations on the Greek islands of Dia, Agii Pantes (Agii Apostoli), Erimomilos (Antimilos), **Samothrake**, Gioura and others, are all considered hybrids of "wild" and modern domestic or feral goats.

Wild goats existed in Samothraki until the Second World War. They were heavily hunted so it is believed that the species is extinct on the island. However there are about 50.000 goats on the island and it is believed that some of them are mixed with wild goat. Most of the goats of the island can be considered wild or a subspecies of *Capra aegagrus*. Mixed goats can be distinguished from the other by their strait, short and brown fur.

Reptiles and amphibians of Samothraki

Family: Anguidae

Scientific Name: *Ophisaurus apodus*

Greek name: Τυφλίτης, Tiphitis

English name: Sheltopusik,
European Legless Lizard

IUCN:-

Berne Convention: Appendix II

State of protection:-



Species Description

The **Scheltopusik** or **European Legless Lizard** (*Ophisaurus apodus*) is a large glass lizard found from southern Europe to Central Asia. This lizard can reach a length of 135 cm. It has a tan coloration, paler on the ventral surface and the head, with a ring-like/segmented appearance that makes it look like a giant earthworm, with a distinctive fold of skin down each side called a lateral groove. Small (2 mm) rear legs are sometimes visible near the cloaca. Though their legs are barely discernible, they can be easily distinguished from a snake by their ears, their eye lids, and ventral scales. This lizard likes open country, such as short grassland, or sparsely wooded hills. Scheltopusik consume arthropods, and small mammals. Snails and slugs appear to be its favorite prey. This may be the reason for which it is particularly active in wet weather, although it prefers a dry habitat. It can be found in cultivated areas but also in inhabited places.

Family: Boidae

Scientific Name: *Eryx jaculus*

Greek name: Έρυξ, Eryx

English name: European Sand Boa

IUCN:-

Berne Convention:-

State of protection:-



Species Description

Species of Boidae family constitute a relatively primitive family of reptiles with roughly 80 species in the world. Most species are only found in the tropics and very few are found in colder regions. The bigger species of snakes in the world belong in this family (Pythons and Anacondas), but most species are enough small. Eryx it is adapted to dry environments. It i does not give birth to eggs but gives birth to 6-18 sometimes more youngs. In Europe it is found mainly in the Balkans: Greece, Southern Albania, Macedonia (FYROM), N. Bulgaria and south-eastern Romania, where the species is considered extinct. It is species difficult to be observed because it is buried in sandy soils during daytime. It mainly feeds on small rodents, but also lizards, young birds and also slugs.

Family: Colubridae

Scientific Name: *Elaphe longissima*

Greek name: Λαφιάρης του Ασκληπιού

English name: Aesculapian snake

IUCN:-

Berne Convention: Appendix II

State of protection:-



Species description

Aesculapian Snake (*Elaphe longissima* or *Zamenis longissimus*) is a snake native to Europe. It is a large slender non-venomous snake, which is an excellent tree-climber. When young, it feeds on lizards, as an adult its diet consists of rodents, moles, and shrews, young birds and eggs which it kills by constriction, or suffocation by eating its victim head first. Female lay clutches of 5-8 eggs in June/July. Adults can reach 2m. But usually are 140 cm. It prefers dry habitats, ruins, stone fences.

Family: Colubridae

Scientific Name: *Coluber caspius*

Greek name: Ζαμενής, Zamenis

English name:-

IUCN:-

Berne Convention:-

State of protection:-



Species description

Coluber caspius is found in the Balkan area. It is one of the largest snakes of Europe and can reach the size of about 250 cm. They are normally somewhat smaller and normal size is 140 - 160 cm. This snake is found in many different habitats but prefers southern rocky slopes, ruins, stone fences often near buildings. They are day active and have many different food items on their diet. They prefer reptiles like other snakes or lizards, but larger animals also prey on birds and rodents. Juveniles prey nearly exclusively on lizards.

Family: Colubridae

Scientific Name: *Coronella austriaca*

Greek name: Ασινόφιδο, Asinofido

English name: Smooth snake

IUCN:-

Berne Convention: Appendix II

State of protection: -



Species description

Coronella austriaca is a harmless colubrid species found in northern and central Europe, but also as far east as northern Iran. Both sexes grow to an average length of about 50 cm. It can be found up to 1800m above sea. It is a diurnal species found in a variety of dry habitats. It is a slow moving species and bites immediately if touched. However it is

harmless and it emits a smelly fluid. It preys mainly on lizards, small snakes (even young vipers), small mammals and insects.

Family: Colubridae

Scientific Name: *Tellescopus fallax*

Greek name: Αγιόφιδο, Ayiofido

English name: Cat snake

IUCN:-

Berne Convention: Appendix II

State of protection: Endemic subspecies
in Greece



Species description

It is one of the most beautiful snakes of Greece. It reaches the length of 75 – 100cm. It prefers rocky areas, old houses and sparse forests. It feeds solely on lizards and it hunts usually during dawn.

Family: Colubridae

Scientific Name: *Elaphe quatuorlineata*

Greek name: Λαφιάρης, Lafiatis

English name: Four-lined snake

IUCN:-

Berne Convention: Appendix II

State of protection:-



Species description

It is one of the bigger snakes of Greece with length that reaches up to 2,5 m. It moves slow and prefers slight humid biotopes as swamp regions or regions near lakes and streams. Often it hunts when it hot and cloudy or during nighttime. It feeds on small mammals (eg. rats) but also birds, nestlings, eggs and on occasion lizards.

Family: Colubridae

Scientific Name: *Natrix natrix*

Greek name: Νερόφιδο, Nerofido

English name: Ringed Snake or Water Snake

IUCN: Lower Risk Least Concern (1996)

Berne Convention:-

State of protection: Endemic subspecies
in Greece



Species description

The Grass Snake is typically dark green or brown in colour with a characteristic yellow collar behind the head, which explains the alternative name *ringed snake*. The colour may also range from grey to black. They prey almost entirely on amphibians, especially the common frog, although they also occasionally eat mammals and fish. Grass Snakes are strong swimmers and are usually found close to fresh water. Not being venomous, their only defenses are to produce a foul-smelling fluid from the anal glands and/or feigning

death by becoming completely limp. Sometimes, they will also perform fake attacks, striking without actually opening their mouths. They bite in defense rarely. Grass Snakes hibernate over the winter and mate soon after they emerge in the spring during April or May. The leathery skinned eggs are laid in batches of 8–40 in June to July and hatch after about 10 weeks. As eggs require a temperature of at least 21° C to hatch, rotting vegetation, including compost heaps, are preferred locations. The young are about 18cm long when they hatch and are immediately independent.

Family: Colubridae

Scientific Name: *Malpolon monspessulanus*

Greek name: Σαπίτης, Sapitis

English name: Montpellier snake

IUCN:-

Berne Convention:-

State of protection:-



Species description

Montpellier snake is one of the larger snakes species of Greece found in many different habitats. It prefers dry places with some vegetation and south turning slopes, ruins or rocky terrains are among their favorites. They are day active and place themselves at high places overlooking the surroundings. If they are taken by surprise they will start hissing loudly. They rarely attack and flee at the first opportunity. They prey on reptiles, birds and mammals and even small turtles have been found in their stomach. Juveniles prey on smaller lizards. Owing to its prey preferences it inhabits dry stony areas heavily populated by lizards, such as piles of stones on the edges of fields or near ruined buildings. When hunting it will occasionally rear up and look around, making it somewhat resemble the cobra. If it feels threatened it hisses loudly and attacks with the mouth closed. Unusually for a snake, this colubrid possesses good vision.

Family: Colubridae

Scientific Name: *Coluber najadum*

Greek name: Σαῖτα, Saita

English name: Dahl's whip snake

IUCN:-

Berne Convention: Appendix II

State of protection: Endemic subspecies in Greece



Species description

Adults reach 1m in length. It is a day active species which prefers dry, rocky habitats with bush vegetation. It is a fast moving species which bites if touched but it is not venomous. It feeds on lizards, insects and small mammals.

Family: Cheloniidae
Scientific Name: *Caretta caretta*
Greek name: Χελώνα καρέτα, Chelona Caretta
English name: Loggerhead Sea Turtle
IUCN: ENA1abd, Endangered (1996)
Berne Convention: Appendix II
State of protection: Endangered



Species description

Caretta caretta is one of the most rare and threatened species of the Mediterranean sea. It is one of the three marine species that can be found (the other two are *Dermochelys coriacea* και *Chelonia mydas*). In Samothraki and North Aegean sea many individuals have been observed but the species does not reproduce in these waters. It spends most of lifetime in the sea and only females visit specific beaches to lay their eggs. It is threatened mainly by tourist activities in reproduction beaches. In Greece it reproduces in the islands of Zakynthos, Kefalonia and Creta. The NGO Archelon (<http://www.archelon.gr/>) is active on the protection of this species.

Family: Emydidae
Scientific Name: *Mauremys caspica*
Greek name: Γραμμόλαιμη Νεροχελώνα,
Grammolaimi NeroChelona
English name: Striped-neck Terrapin
IUCN:-
Berne Convention: Appendix II
State of protection:-



Species description

This species can be found in wetlands like lakes and rivers. It is very resistant in salinity and water pollution.

Family: Emydidae
Scientific Name: *Emys orbicularis*
Greek name: Στικτόλαιμη Νεροχελώνα,
Stiktogrami Nerochelona
English name: European pond terrapin
IUCN: Lower Risk Near Threatened(1996)
Berne Convention: Appendix II
State of protection: Endangered



Species description

The **European pond terrapin** (also **European pond turtle** or **European pond tortoise**), *Emys orbicularis* is a turtle found in southern and central Europe, West Asia and North Africa. It lives in ponds, lakes, brooks, streams, rivers, drainage canals and around slow-flowing water and hibernates for up to seven months of the year at the bottom of the

water. Its shell is brown with a hint of green, spotted yellow. Despite terrestrial turtles this species is carnivorous. It preys on fish, amphibians even on corpses.

Family: Testudinidae

Scientific Name: *Testudo graeca*

Greek name: Ελληνική χελώνα, Chelona

English name: Spur-Thighed Tortoise

IUCN: Vulnerable, VUA1cd (1996)

Berne Convention: Appendix II

State of protection: -



Species description

A Mediterranean species that has a limited distribution in the southern Balkans, European Turkey, Sicily and southern Italy, southern Spain, northern Africa, Asia Minor up to Persia. In Greece it has a limited distribution concerning the other terrestrial turtle species, *Testudo hermanni*. As the all species of land turtles, the species is threatened by illegal pet trade and by road kills.

Family: Gekkonidae

Scientific Name: *Hemidactylus turcicus*

Greek name: Σαμιαμίδι, Samiamidi

English name: Mediterranean House Gecko

IUCN:-

Berne Convention: Appendix II

State of protection:-



Species description

Mediterranean House Gecko, *Hemidactylus turcicus* is one of the four European species of gecko. They are nocturnal and insectivorous, rarely exceeding six inches in length, and have large, lidless eyes and yellow- or tan-colored skin with black spots, often with stripes on the tail. Their bellies or undersides are somewhat translucent. Though technically an invasive species, due to their habits and small size they rarely threaten populations of native animals. Voracious predators on moths and small roaches, they are attracted to outside lights in search of them. Unlike other lizards, they emit a distinctive, high-pitched call somewhat like a squeak or the chirp of a bird, possibly expressing a territorial message.

Family: Gekkonidae

Scientific Name: *Cyrtodactylus kotschy*

Greek name: Κυρτοδάχτυλος, Kirtodahtilos

English name: Kotchy's gecko

IUCN:-

Berne Convention: Appendix II

State of protection: Endemic subspecies in Greece



Species description

It is a species of gecko that reach 10cm in size. Its habitat is dry rocky areas, stone walls and rocks. It is not solely nocturnal and during the colder times of the year it is active during dawn or in the afternoon.

Family: Lacertiade

Scientific Name: *Lacerta trilineata*

Greek name: Τρανόσαυρα, Tranosavra

English name: Balkan Green Lizard

IUCN: Least Concern (2006)

Berne Convention: Appendix II

State of protection: Endemic subspecies
in Greece



Species description

The **Balkan Green Lizard** (*Lacerta trilineata*) is a species of lizard in the Lacertidae family that reaches 16cm in length. It is found in Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Macedonia, Romania, Serbia and Montenegro, and Turkey. Its natural habitats are Mediterranean-type shrubby vegetation, sandy shores, arable land, pastureland, plantations, and rural gardens. It is threatened by habitat loss.

Family: Lacertiade

Scientific Name: *Lacerta viridis*

Greek name: Πρασινόσαυρα, Prasinosaavra

English name: European Green Lizard

IUCN: Least Concern(2006)

Berne Convention: Appendix II

State of protection: Endemic subspecies
in Greece



Species description

The **European Green Lizard** (*Lacerta viridis*) is a large lizard distributed across mid European latitudes from the north of the Iberian peninsula to as far east as Ukraine. It is often to be seen sunning itself on rocks or lawns, or sheltering amongst bushes. The lizard reaches a length of approximately 12 cm length from the tip of the muzzle to the cloaca. The tail can be up to twice the length of the body. This lizard sheds its tail (autotomy), to evade the grasp of a predator. Males have a larger head and a uniform green colouring punctuated with small spots that are more pronounced upon its back. The throat is bluish in the adult males and to a lesser extent in the females. The female is more slender than the male and has a more uniform coloration, often displaying between two and four light bands bordered by black spots. It feeds on insects, small lizards and even mice. In springtime the female lays 6 to 20 eggs. About 2 to 3 months later brown-coloured young appear with a length of 3-4 cm. It has been observed only in Evoia, Corfu and Samothraki among the Aegean islands.

Family: Lacertidae

Scientific Name: *Podarcis muralis*

Greek name: Τοιχόσαυρα, Tihosavra

English name: Common Wall Lizard

IUCN: Least Concern (2006)

Berne Convention: Appendix II

State of protection:-



Species description

It is a relatively small species that does not surpass 19 cm, tail included. It can be found in rocky areas with southern exposure, on road-sides, from sea level to approximately 1000 m high. Large populations are found in limestone areas. It is a colonial species, good climber, can be spotted early in the morning when it basks on rocks. It is very active during daytime, constantly exploring the surroundings in search of prey. Always cautious it seeks refuge at the first sign of danger. It is a proficient hunter of all sorts of invertebrates: coleopterans, flies, butterflies, spiders. It reproduces at the end of May; the female lays a clutch of 2-8 eggs in holes dug in the ground. The hatchlings emerge after 6-8 weeks. Its enemies are raptors and snakes, like the smooth snake, the young horned vipers or large whip snakes with which they often share the habitat.

Family: Lacertidae

Scientific Name: *Podarcis erhardii*

Greek name: Σιλιβούτι, Silivouti

English name: Erhard's wall lizard

IUCN: Least Concern (2006)

Berne Convention: Appendix II

State of protection: Least Concern



Species description

The **Erhard's wall lizard** (*Podarcis erhardii*) lives in the Balakan peninsula and the Aegean islands. On the mainland it ranges from Albania, the Republic of Macedonia and southern Bulgaria to the northeastern part of the Peloponnese peninsula in Greece. In the Aegean archipelago it does not occur in Milos or the surrounding islands, where it is replaced by the Milos wall lizard. The length of the lizard's body is about 7 cm; the tail is twice as long. The head is rather wide, and the skin is smooth. The colour and patterning of this species vary a lot. The main colour is typically grey or brown, sometimes green. Females particularly are often striped. Erhard's wall lizard lives in dry or rocky places with dense, low bushes. It climbs very well. The lizard populations in the Aegean archipelago inhabit open places, like plant-covered dunes, as well. Erhard's wall lizard eats arthropods, especially insects. It mates in spring, and lays eggs at the beginning of the summer. The young lizards hatch in September, then measuring 3 cm. An interesting point is that in some islands a symbiotic relation with the raptor *Falco eleonora* has been observed.

Family: Lacertidae

Scientific Name: *Ophisops elegans*

Greek name: Οφίσωψ, Ophisops

English name: Snake-eyed Lizard

IUCN:-

Berne Convention: Appendix II

State of protection:-



Species description

Snake-eyed Lizard *Ophisops elegans* is a species of lizard found in the Mediterranean region and Central Asia. It has a limited distribution. It is a slow moving species that lives solely on ground.

Family: Ranidae

Scientific Name: *Rana dalmatina*

Greek name: Ευκίνητος βάτραχος, Efkinitos Vatrahos

English name: Agile Frog

IUCN: Least Concern (2004)

Berne Convention: Appendix II

State of protection:-



Species description

The **Agile Frog** (*Rana dalmatina*) is a frog in the genus *Rana* in the family of the true frogs. It is a common from species which does not occur in the Iberian peninsula and in the bigger part of North Europe. The agile frog prefers light deciduous mixed forests with a lot of water. The open land around a forest is often also populated, as long as it is connected to the forest by shrubs. In dry, warm forests, this species often also lives far away from the water. Of the three Middle European *Rana*, it is the frog which likes warmth and dryness the most.

Family: Ranidae

Scientific Name: *Rana ridibunda*

Greek name: Λιμνοβάτραχος, Limnovatrahos

English name: Marsh Frog

IUCN: Least Concern (2004)

Berne Convention:-

State of protection: -

Species description

The Marsh Frog is a water-dwelling, generally green-colored frog species. It can reach a maximum length of 17 centimeters, but males remain smaller (around 12 cm). The diet of the Marsh Frog consists of dragonflies and other insects, spiders, earthworms and slugs. Larger frogs also eat mice, and sometimes salamanders and fish. The green frog occurs in the largest part of Europe, in Asian Russia to Afghanistan and Pakistan and in the Chinese province of Xinjiang. They prefer a water temperature of approximately 15 degrees Celsius. It is now distinguished from *Rana kurmuelleri* (Balkan Frog), which it resembles greatly, and which outnumbers it in most of Greece.



Family: Bufonidae
Scientific Name: *Bufo viridis*
Greek name: Ζάμπα, Zaba
English name: Green toad
IUCN: Least Concern (2004)
Berne Convention: Appendix II
State of protection: -



Species Description

The **European green toad** *Bufo viridis* is a toad found in mainland Europe, Asia, and Northern Africa. They live in many areas, including steppes, mountainous areas, semi-deserts, and urban areas. There are variations in the colors and patterns of these toads across their range. The spots their backs are usually anything from green to dark brown and sometimes red spots appear, too. Most toads have white or very lightly colored stomachs.

Family: Scincidae
Scientific Name: *Ablepharus kitaibelii*
Greek name: Avlefaros
English name: Snake-eyed skink
IUCN: Least Concern (2006)
Berne Convention: Appendix II
State of protection:-



Species description

Ablepharus kitaibelii, the **European copper skink**, **Juniper skink** or **European Snake-eyed skink**, is a species of lizards from the skink family (Scincidae). This small, slender lizard grows up to 15 cm long, and lives in Eastern Europe and southwestern Asia. It is a shy species, which lives under stones and leaves in dry places, such as south slopes, fields, and meadows. The skin is bronze coloured, with dark sides. The eyelids are immovable, in contrast to many other skinks. *A. kitaibelii* is active during twilight, and hunts for insects and small snails. It is a typical ground dweller, and dislikes climbing. The species is protected.

Family: Viperidae
Scientific Name: *Vipera xanthina*
Greek name: Ανατολική οχιά, Anatoliki Ohia
English name: Rock viper
IUCN: Least Concern (2005)
Berne Convention: Appendix II
State of protection:-



Species description

Vipera xanthina is a venomous viper species found in northeastern Greece and Turkey, as well as certain islands in the Aegean Sea. No subspecies are currently recognized. It inhabits a variety of habitats. Usually grows to 70-95 cm, but reaches a maximum length

of 130 cm on certain Greek islands in the Aegean Sea. . It is a venomous species and its bite can be lethal for humans and animals. Listed as such due to its wide distribution, presumed large population, and because it is unlikely to be declining fast enough to qualify for listing in a more threatened category.

Family: Viperidae

Scientific Name: *Vipera ammodytes*

Greek name: Οχιά, Ohia

English name: Nose-horned Viper

IUCN: -

Berne Convention: Appendix II

State of protection:-



Species description

A viper that is smaller in size than *Vipera xanthina*. It reaches 65 to 90cm. It has a “horn” on the nose and a triangular head. It can be found in a variety of habitats. It is a venomous species that feeds on small mammals, birds and lizards.

Bird species of Samothraki

Scientific name	Greek name	Local presence state	EU Directive 79/409	Berne Convention	Bonn Convention	SPEC	Red Book
<i>Gavia stellata</i>	Κηλιδοβούτι	W	I	II	II	3	
<i>Gavia arctica</i>	Λαμπροβούτι	W	I	II	II	3	
<i>Tachybaptus ruficollis</i>	Νανοβουτηχτάρι	W	No	No			
<i>Podiceps cristatus</i>	Σκουφοβουτηχτάρι	W	No	No			
<i>Podiceps nigricollis</i>	Μαυροβουτηχτάρι	W	No	No			K
<i>Calonectris diomedea</i>	Αρτέμης	R	I	II		2	
<i>Puffinus yelkouan</i>	Μύχος	W	I	II		4	
<i>Phalacrocorax carbo</i>	Κορμοράνος	W	No	No			
<i>Phalacrocorax aristotelis</i>	Θαλασσοκόρακας	R	I	III		4	V
<i>Pelecanus onocrotalus</i>	Ροδοπελεκάνος	P	I	II	I & II	3	E1
<i>Botaurus stellaris</i>	Ήταυρος	P	I	II	II	3	I
<i>Ixobrychus minutus</i>	Μικροτσικνιάς	P	I	II	II	3	
<i>Nycticorax nycticorax</i>	Νυχτοκόρακας	P	I	II		3	K
<i>Ardeola ralloides</i>	Κρυπτοτσικνιάς	P	I	II		3	
<i>Egretta garzetta</i>	Λευκοτσικνιάς	P	No	No			
<i>Ardea cinerea</i>	Σταχτοτσικνιάς	P	No	No			
<i>Ardea purpurea</i>	Πορφυροτσικνιάς	P	I	II	II	3	V
<i>Ciconia nigra</i>	Μαυροπελαργός	P	I	II	II	3	E2
<i>Ciconia ciconia</i>	Πελαργός	P	I	II	II	2	
<i>Plegadis falcinellus</i>	Χαλκόκοτα	P	I	II	II	3	E1
<i>Phoenicopterus ruber</i>	Φοινικόπτερο	P	I	II	II	3	R
<i>Cygnus olor</i>	Βουβόκυκνος	W	No	No			
<i>Tadorna ferruginea</i>	Καστανόχηννα	P	I	II	II	3	E1
<i>Anas platyrhynchos</i>	Πρασινοκέφαλη	W	No	No			
<i>Anas acuta</i>	Ψαλίδα	W	II / 1 & III / 2	III	II	3	
<i>Pernis apivorus</i>	Σφηκιάρης	U	I	II	II	4	
<i>Milvus migrans</i>	Τσίφτης	P	I	II	II	3	E1
<i>Circaetus gallicus</i>	Φιδαιτός	P	I	II	II	3	
<i>Circus aeruginosus</i>	Καλαμόκιρκος	P	No	No			V
<i>Accipiter gentilis</i>	Διπλοσάϊνο	IR	No	No			

<i>Accipiter nisus</i>	Ξεφτέρι	R	No	No			
<i>Accipiter brevipes</i>	Σαΐνι	B	I	II	II	2	
<i>Buteo buteo</i>	Γερακίνα	R	No	No			
<i>Buteo buteo vulpinus</i>		U	No	No			
<i>Buteo rufinus</i>	Αετογερακίνα	B	I	II	II	3	R
<i>Hieraaetus pennatus</i>	Σταυραετός	P	I	II	II	3	V
<i>Hieraaetus fasciatus</i>	Σπιζαετός	R	I	II	II	3	V
<i>Falco tinnunculus</i>	Βραχοκιρκίνεζο	R	No	II	II	3	
<i>Falco vespertinus</i>	Μαυροκιρκίνεζο	P	No	II	II	3	
<i>Falco subbuteo</i>	Δενδρογέρακο	B	No	No			
<i>Falco eleonora</i>	Μαυροπετρίτης	U	I	II	II	2	K
<i>Falco biarmicus</i>	Χρυσογέρακο	U	I	II	II	3	V
<i>Falco peregrinus</i>	Πετρίτης	R	I	II	II	3	K
<i>Alectoris chukar</i>	Νησιώτικη πέρδικα	R	II / 2	III		3	
<i>Coturnix coturnix</i>	Ορτύκι	B	II / 2	III	II	3	K
<i>Phasianus colchicus</i>	Φασιανός	R	No	No			V
<i>Porzana parva</i>	Μικροπουλάδα	P	I	II	II	4	R
<i>Gallinula chloropus</i>	Νερόκοτα	W	No	No			
<i>Fulica atra</i>	Φαλαρίδα	W	No	No			
<i>Himantopus himantopus</i>	Καλαμοκανάς	B	No	No			V
<i>Burhinus oedicephalus</i>	Πετροτριλίδα	B	I	II	II	3	V
<i>Charadrius dubius</i>	Ποταμοσφυριχτής	P	No	No			
<i>Charadrius alexandrinus</i>	Θαλασσοσφυριχτής	R	No	II	II	3	
<i>Pluvialis squatarola</i>	Αργυροπούλι	W	No	No			
<i>Calidris minuta</i>	Νανοσκαλίδρα	P	No	No			
<i>Calidris alpina</i>	Λασποσκαλίδρα	P	No	II	II	3	
<i>Numenius phaeopus</i>	Σιγλίγυρος	P	II / 2	III	II	4	
<i>Tringa totanus</i>	Κοκκινোসκέλης	P	II / 2	III	II	2	
<i>Tringa stagnatilis</i>	Βαλτότρυγγας	P	No	No			K
<i>Tringa nebularia</i>	Πρασινোসκέλης	P	No	No			
<i>Tringa glareola</i>	Λασπότρυγγας	P	I	II	II	3	
<i>Actitis hypoleucos</i>	Ποταμότρυγγας	R	No	No			
<i>Larus melanocephalus</i>	Μαυροκέφαλος γλάρος	P	I	II	II	4	V
<i>Larus minutus</i>	Νανόγλαρος	W	No	II		3	

<i>Larus ridibundus</i>	Καστανοκέφαλος γλάρος	W	No	No			
<i>Larus audouinii</i>	Αιγαιόγλαρος	IR	I	II	I & II	1	E2
<i>Larus canus</i>	Θυελλόγλαρος	W	II / 2	III		2	
<i>Larus argentatus</i>	Ασημόγλαρος	R	No	No			
<i>cachinnans</i>							
<i>Gelochelidon nilotica</i>	Γελογλάρωνο	P	I	II		3	E1
<i>Sterna caspia</i>	Καρατζάς	P	I	II	II	3	K
<i>Sterna sandvicensis</i>	Χειμωνογλάρωνο	IR	I	II	II	2	I
<i>Chlidonias hybridus</i>	Μουστακογλάρωνο	P	I	II		3	V
<i>Columba livia</i>	Αγριοπερίστερο	R	No	No			
<i>Streptopelia decaocto</i>	Δεκοχτούρα	R	No	No			
<i>Streptopelia turtur</i>	Τρυγόνι	B	II / 2	III		3	
<i>Cuculus canorus</i>	Κούκος	B	No	No			
<i>Tyto alba</i>	Τυτώ	R	No	II		3	
<i>Otus scops</i>	Γκιώνης	B	No	II		2	
<i>Caprimulgus europaeus</i>	Γιδοβύζι	B	I	II		2	
<i>Apus apus</i>	Σταχτάρα	B	No	No			
<i>Apus melba</i>	Σκεπαρνάς	B	No	No			
<i>Alcedo atthis</i>	Αλκυόνη	R	I	II		3	
<i>Upupa epops</i>	Τσαλαπετεινός	B	No	No			
<i>Galerida cristata</i>	Κατσουλιέρης	B	No	III		3	
<i>Lullula arborea</i>	Δενδροσταρήθρα	W	I	III		2	
<i>Alauda arvensis</i>	Σταρήθρα	B	II / 2	III		3	
<i>Riparia riparia</i>	Οχθοχελίδονο	P	No	II		3	
<i>Ptyonoprogne rupestris</i>	Βραχοχελίδονο	B	No	No			
<i>Hirundo rustica</i>	Χελιδόνι	B	No	II		3	
<i>Hirundo daurica</i>	Δενδροχελίδονο	P	No	No			
<i>Delichon urbica</i>	Πετροχελίδονο	P	No	No			
<i>Anthus campestris</i>	Χαμοκελάδα	P	I	II		3	
<i>Anthus trivialis</i>	Δενδροκελάδα	R	No	No			
<i>Anthus pratensis</i>	Λιβαδοκελάδα	P/W	No	II		4	
<i>Anthus spinoletta</i>	Νεροκελάδα	W	No	No			
<i>Anthus spinoletta</i>		P	No	No			
<i>Motacilla flava</i>	Κιτρινοσουσουράδα	P	No	No			
<i>Motacilla cinerea</i>	Σταχτοσουσουράδα	B	No	No			
<i>Motacilla alba</i>	Λευκοσουσουράδα	W	No	No			

<i>Troglodytes troglodytes</i>	Τρυποφράκτης	W	No	No		
<i>Prunella modularis</i>	Θαμνοψάλτης	W	No	II		4
<i>Prunella collaris</i>	Χιονοψάλτης	R	No	No		
<i>Erithacus rubecula</i>	Κοκκινολαίμης	W	No	No		
<i>Luscinia megarhynchos</i>	Αηδώνι	B	No	II	II	4
<i>Phoenicurus ochruros</i>	Καρβουνιάρης	R	No	No		
<i>Phoenicurus phoenicurus</i>	Κοκκινούρης	P	No	II	II	2
<i>Saxicola rubetra</i>	Καστανολαίμης	P	No	II	II	4
<i>Saxicola torquata</i>	Μαυρολαίμης	R	No	II	II	3
<i>Oenanthe isabellina</i>	Αμμοπετρώκλης	P	No	No		R
<i>Oenanthe oenanthe</i>	Σταχτοπετρώκλης	B	No	No		
<i>Oenanthe hispanica</i>	Ασπροκώλα	B	No	II	II	2
<i>Monticola saxatilis</i>	Πετροκότσυφας	B	No	II	II	3
<i>Turdus merula</i>	Κοτσύφι	R	II / 2	III	II	4
<i>Turdus philomelos</i>	Τσίχλα	W	II / 2	III	II	4
<i>Cettia cetti</i>	Ψευταηδώνι	R	No	No		
<i>Acrocephalus paludicola</i>	Νεροποταμίδα	P	I	II	II	1
<i>Acrocephalus scirpaceus</i>	Καλαμοποταμίδα	P	No	II	II	4
<i>Hippolais pallida</i>	Ωχροστριτίδα	B	No	II	II	3
<i>Hippolais icterina</i>	Κιτρινοστριτίδα	P	No	II	II	4
<i>Sylvia cantillans</i>	Κοκκινοτσιροβάκος	B	No	II	II	4
<i>Sylvia melanocephala</i>	Μαυροτσιροβάκος	R	No	II	II	4
<i>Sylvia communis</i>	Θαμνοτσιροβάκος	B	No	II	II	4
<i>Sylvia atricapilla</i>	Μαυροσκούφης	R	No	II	II	4
<i>Phylloscopus bonelli</i>	Βουνοφυλλοσκόπος	P	No	II	II	4
<i>Phylloscopus collybita</i>	Δενδροφυλλοσκόπος	R	No	No		
<i>Phylloscopus trochilus</i>	Θαμνοφυλλοσκόπος	P	No	No		
<i>Regulus regulus</i>	Χρυσοβασιλίσκος	W	No	II	II	4
<i>Muscicapa striata</i>	Μυγοχάφτης	B	No	II	II	3
<i>Ficedula albicollis</i>	Κρικομυγοχάφτης	P	I	II	II	4
<i>Ficedula hypoleuca</i>	Μαυρομυγοχάφτης	P	No	II	II	4

<i>Parus caeruleus</i>	Γαλαζοπαπαδίτσα	R	No	II	4	
<i>Parus major</i>	Καλόγερος	R	No	No		
<i>Oriolus oriolus</i>	Συκοφάγος	P	No	No		
<i>Lanius collurio</i>	Αετομάχος	B	I	II	3	
<i>Lanius minor</i>	Γαϊδουροκεφαλός	B	I	II	2	K
<i>Lanius excubitor</i>	Διπλοκεφαλός	W	No	II	3	
<i>Lanius senator</i>	Κοκκινοκεφαλός	B	No	II	2	
<i>Garrulus glandarius</i>	Κίσσα	R	No	No		
<i>Pyrrhocorax graculus</i>	Κιτρινοκαλιακούδα	R	No	No		
<i>Corvus frugilegus</i>	Χαβαρόνι	W	No	No		
<i>Corvus corone cornix</i>	Σταχτοκουρούνα	R	No	No		
<i>Corvus corax</i>	Κόρακας	R	No	No		
<i>Sturnus vulgaris</i>	Ψαρόνι	W	No	No		
<i>Passer domesticus</i>	Σπουργίτης	R	No	No		
<i>Passer hispaniolensis</i>	Χωραφοσπουργίτης	R	No	No		
<i>Fringilla coelebs</i>	Σπίνος	R	I	III	4	
<i>Carduelis chloris</i>	Φλώρος	R	No	II	4	
<i>Carduelis carduelis</i>	Καρδερίνα	R	No	No		
<i>Carduelis cannabina</i>	Φανέτο	R	No	II	4	
<i>Emberiza citrinella</i>	Χιρλοτσίχλονο	U	No	II	4	
<i>Emberiza cirlus</i>	Σιρλοτσίχλονο	R	No	II	4	
<i>Emberiza cia</i>	Βουνοτσίχλονο	R	No	II	3	
<i>Emberiza hortulana</i>	Βλάχος	B	I	III	2	
<i>Emberiza caesia</i>	Σκουρόβλαχος	B	I	II	4	
<i>Emberiza melanocephala</i>	Αμπελουργός	B	No	II	2	
<i>Miliaria calandra</i>	Τσιφτάς	W	No	III	4	

Table explanations

Local presence state:

B = Summer visitor, reproducing

IR = Rare observations

P = Observed during migration

R = Permanent presence, reproducing

U = Insufficient data

W = Winter visitor

SPEC = Species of European Conservation Concern

The plant species of Samothraki

Family	Scientific Name	Endemism	Description of the species	References
Labiataeae	<i>Stachys cretica</i> <i>subsp. lesbiaca</i>	Sub-balkan taxon		
Labiataeae	<i>Teucrium</i> <i>chamaedrys</i> spp. <i>Lydium</i>	Rare in Greece		
Crucifereae	<i>Alyssum</i> <i>degenianum</i>	Rare endemic species of Mount Saos(Feggari)		
Hypericaceae	<i>Hypericum</i> <i>athoum</i> Boiss. & <i>Orph.</i>	Rare species endemic in North Aegean sea		
Caryophyllaceae	<i>Silene</i> <i>samothracica</i>	Rare species of Samothraki endangered due to overgrazing		
Caryophyllaceae	<i>Dianthus</i> <i>arpadianus</i>	Very rare species known only from mount Saos and Mount Idi(Creta)		
Labiataeae	<i>Sideritis perfoliata</i> <i>subsp. athoa</i>	Endemic species of Mount Saos and Mount Athos		
Scrophulariaceae	<i>Scrophularia</i> <i>spinulescens</i>	Endemic of Samothraki	Classified Vulnerable. A plant with very limited distribution on Samothraki. It is a small biennial plant that reaches the height of 40 cm. It has been found only on the Eastern sides of mount Saos in altitudes from 1000 until 1600 m. It grows on hilly rocky slopes and exclusively on granite substrate covered with volcanic materials.	
	<i>Symphyandra</i> <i>samothracica</i>	Endemic of Samothraki	It is a local endemic species of Samothraki that has close relationship with the other two endemic types of same genus	Strid & Tan, 1998

Rosaceae	<i>Potentilla halacsyana</i>	Endemic of Samothraki	that are found in Crete and the Northern Sporades islands. It is a local endemic species of Mount Feggari. It was collected and described for first time by Degen (1890).	Strid & Tan, 1998
Labiataeae	<i>Stachys leucoglossa</i>	Endemic of Balkan Peninssula		
Crucifereae	<i>Arabis bryoides</i>	Endemic of Balkan Peninssula		Strid & Tan, 1998
Rosaceae	<i>Potentilla geoides subsp. halascyana</i>	Endemic species of Mount Saos		
Caryophyllaceae	<i>Herniaria degenii</i>	Endemic species of Mount Saos		
Rubiaceae	<i>Galium capreum</i>	Endemic species of Mount Saos		
Polygonaceae	<i>Polygonum icaricum</i>	Endemic species of Ikaria, Samos and Samothraki	.It is an endemic species of the Aegean sea know only from sites in Ikaria, Samos and Samothraki.	Strid & Tan, 1998
Asteraceae (Compositae)	<i>Onopordum illyricum</i>			Strid & Tan, 1998
Asteraceae (Compositae)	<i>Hedypnois cretica</i>			Strid & Tan, 1998
Asteraceae (Compositae)	<i>Hypochoeris achyrophorus</i>			Strid & Tan, 1998
Asteraceae (Compositae)	<i>Hypochoeris glabra</i>			Strid & Tan, 1998
Asteraceae (Compositae)	<i>Jurinea consanguinea</i>		New species for Samothraki	Strid & Tan, 1998
Asteraceae (Compositae)	<i>Rhagadiolus stellatus</i>			Strid & Tan, 1998
Asteraceae (Compositae)	<i>Leontodon crispus subsp. Graecus</i>			Strid & Tan, 1998
Asteraceae (Compositae)	<i>Picnomon acarna</i>			Strid & Tan, 1998
Asteraceae (Compositae)	<i>Filago gallica</i>			Strid & Tan, 1998
Asteraceae (Compositae)	<i>Mycelis muralis</i>			Strid & Tan, 1998
Asteraceae (Compositae)	<i>Leontodon tuberosus</i>			Strid & Tan, 1998
Asteraceae (Compositae)	<i>Senecio vulgaris</i>			Strid & Tan, 1998
Asteraceae (Compositae)	<i>Reichardia picroides</i>			Strid & Tan, 1998
Asteraceae	<i>Carduus taygetus</i>			Strid & Tan,

(Compositae)	<i>subsp. Insularis</i>		1998
Apiaceae	<i>Oenanthe</i>		Strid & Tan,
	<i>pimpinelloides</i>		1998
Apiaceae	<i>Scandix australis</i>		Strid & Tan,
			1998
Apiaceae	<i>Smyrniolum</i>	New species for	Strid & Tan,
	<i>olusatrum</i>	Samothraki	1998
Apiaceae	<i>Tordylium apulum</i>		Strid & Tan,
			1998
Apiaceae	<i>Torilis arvensis</i>		Strid & Tan,
	<i>sbsp. Purpurea</i>		1998
Apiaceae	<i>Torilis leptophylla</i>		Strid & Tan,
			1998
Apiaceae	<i>Torilis nodosa</i>		Strid & Tan,
			1998
Araceae	<i>Arum italicum</i>		Strid & Tan,
			1998
Araceae	<i>Arum maculatum</i>		Strid & Tan,
			1998
Aristolochiaceae	<i>Aristolochia</i>		Strid & Tan,
	<i>rotunda</i>		1998
Asclepiadaceae	<i>Cionura erecta</i>		Strid & Tan,
			1998
Asteraceae	<i>Filago vulgaris</i>	New species for	Strid & Tan,
(Compositae)		Samothraki	1998
Asteraceae	<i>Asteriscus</i>		Strid & Tan,
(Compositae)	<i>spinosus</i>		1998
Asteraceae	<i>Filago pyramidata</i>		Strid & Tan,
(Compositae)			1998
Asteraceae	<i>Centaurea cyanus</i>		Strid & Tan,
(Compositae)			1998
Asteraceae	<i>Centaurea</i>		Strid & Tan,
(Compositae)	<i>spinosa</i>		1998
Asteraceae	<i>Cephalorrhynchus</i>	A rare species with	Strid & Tan,
(Compositae)	<i>tuberosus</i>	sparce distribution in	1998
		Greece. Till today it	
		has been recorded in	
		Mountains Pieria,	
		Brontous, Akarnanika	
		and Samos island.	
		The recording of this	
		species in Samothraki	
		is the first in north	
		east Greece. Only few	
		individuals were found	
		in open oak forest in	
		an altitude 800 –	
		1100m.	
Asteraceae	<i>Crepis foetida</i>		Strid & Tan,
(Compositae)			1998
Asteraceae	<i>Crepis neglecta</i>	New species for	Strid & Tan,
(Compositae)		Samothraki	1998
Asteraceae	<i>Crepis setosa</i>		Strid & Tan,
(Compositae)			1998
Asteraceae	<i>Crupina</i>		Strid & Tan,
(Compositae)	<i>crupinastrum</i>		1998

Asteraceae (Compositae)	<i>Doronicum orientale</i>		Strid & Tan, 1998
Asteraceae (Compositae)	<i>Filago arvensis</i>		Strid & Tan, 1998
Asteraceae (Compositae)	<i>Filago eriocephala</i>	New species for Samothraki	Strid & Tan, 1998
Boraginaceae	<i>Anchusa hybrida</i>	New species for Samothraki	Strid & Tan, 1998
Asteraceae (Compositae)	<i>Aetheoriza bulbosa</i> subsp. <i>Microcephala</i>		Strid & Tan, 1998
Campanulaceae	<i>Polycarpon tetraphyllum</i>		Strid & Tan, 1998
Asteraceae (Compositae)	<i>Urospermum picroides</i>		Strid & Tan, 1998
Campanulaceae	<i>Legousia speculum veneris</i>	New species for Samothraki	Strid & Tan, 1998
Caryophyllaceae	<i>Arenaria rotundifolia</i>		Strid & Tan, 1998
Campanulaceae	<i>Cerastium banaticum</i> subsp. <i>Banaticum</i>		Strid & Tan, 1998
Campanulaceae	<i>Herniaria incana</i>		Strid & Tan, 1998
Campanulaceae	<i>Holosteum umbellatum</i>		Strid & Tan, 1998
Campanulaceae	<i>Minuartia anatolica</i>		Strid & Tan, 1998
Campanulaceae	<i>Moehringia pentandra</i>		Strid & Tan, 1998
Campanulaceae	<i>Moehringia trinervia</i>		Strid & Tan, 1998
Campanulaceae	<i>Moenchia mantica</i>		Strid & Tan, 1998
Campanulaceae	<i>Campanula rupestris</i>		Strid & Tan, 1998
Campanulaceae	<i>Petrorrhagia dubia</i>		Strid & Tan, 1998
Callitrichaceae	<i>Callitriche palustris</i>	New species for Samothraki	Strid & Tan, 1998
Campanulaceae	<i>Sagina apetala</i>		Strid & Tan, 1998
Campanulaceae	<i>Silene colorata</i>	New species for Samothraki	Strid & Tan, 1998
Campanulaceae	<i>Silene gallica</i>		Strid & Tan, 1998
Campanulaceae	<i>Silene nocturna</i>		Strid & Tan, 1998
Campanulaceae	<i>Silene sedoides</i>		Strid & Tan, 1998
Campanulaceae	<i>Silene tenuiflora</i>		Strid & Tan, 1998
Campanulaceae	<i>Silene vulgaris</i>		Strid & Tan, 1998
Campanulaceae	<i>Spergularia rubra</i>	New species for Samothraki	Strid & Tan, 1998

Campanulaceae	<i>Stellaria cupaniana</i>		Strid & Tan, 1998
Campanulaceae	<i>Velezia rigida</i>		Strid & Tan, 1998
Campanulaceae	<i>Paronychia macrosepala</i>		Strid & Tan, 1998
Brassicaceae (Crucifereae)	<i>Alyssum strigosum</i>		Strid & Tan, 1998
Asteraceae (Compositae)	<i>Tyrimnus leucographus</i>		Strid & Tan, 1998
Apiaceae	<i>Lacoecia cuminoides</i>		Strid & Tan, 1998
Boraginaceae	<i>Alkanna tinctoria</i>		Strid & Tan, 1998
Asteraceae (Compositae)	<i>Cirsium lanceolatum</i>		Stojanoff & Kitanoff, 1943
Boraginaceae	<i>Anchusa italica</i>		Strid & Tan, 1998
Boraginaceae	<i>Echium italicum</i>		Strid & Tan, 1998
Boraginaceae	<i>Echium plantagineum</i>		Strid & Tan, 1998
Boraginaceae	<i>Myosotis arvensis</i>		Strid & Tan, 1998
Boraginaceae	<i>Myosotis sicoula</i>	New species for Samothraki	Strid & Tan, 1998
Boraginaceae	<i>Myosotis sylvatica</i>		Strid & Tan, 1998
Campanulaceae	<i>Jasione heldreichii</i>		Strid & Tan, 1998
Brassicaceae (Crucifereae)	<i>Alyssum minutum</i>		Strid & Tan, 1998
Asteraceae (Compositae)	<i>Taraxacum pindicola</i>	New species for Samothraki	Strid & Tan, 1998
Brassicaceae (Crucifereae)	<i>Alyssum umbelatum</i>		Strid & Tan, 1998
Brassicaceae (Crucifereae)	<i>Arabis verna</i>	Endemic species of Balkan peninsula that can be found from Peloponnese up to Albania and Macedonia (FYROM). It is a small plant that grows in slots of lime rocks mainly in altitudes bigger than 1500 m. It is one of the few Mediterranean - Alpine species that can be found on the mountain summits of Thassos and Samothrace.	Strid & Tan, 1998
Brassicaceae (Crucifereae)	<i>Aurinia saxatilis</i>		Strid & Tan, 1998

Brassicaceae (Crucifereae)	<i>Capsella bursa-pastoris</i>		Strid & Tan, 1998
Brassicaceae (Crucifereae)	<i>Cardamine hirsuta</i>		Strid & Tan, 1998
Brassicaceae (Crucifereae)	<i>Clypeola jonthlaspi</i>		Strid & Tan, 1998
Brassicaceae (Crucifereae)	<i>Erophila verna</i>		Strid & Tan, 1998
Brassicaceae (Crucifereae)	<i>Erysimum krendlii</i>		Strid & Tan, 1998
Brassicaceae (Crucifereae)	<i>Matthiola sinuata</i>		Strid & Tan, 1998
Brassicaceae (Crucifereae)	<i>Raphanus raphanistrum</i>		Strid & Tan, 1998
Brassicaceae (Crucifereae)	subsp. <i>Landra</i>		
Brassicaceae (Crucifereae)	<i>Alyssum foliosum</i>		Strid & Tan, 1998
Scrophulariaceae	<i>Veronica sartoriana</i>		
Onagraceae	<i>Epilobium obscurum</i>		
Umbelliferae	<i>Eryngium sp.</i>		
Umbelliferae	<i>Pimpinella tragi</i>		
	subsp. <i>tragi</i>		
Convolvulaceae	<i>Cuscuta aproximata</i>		
Boraginaceae	<i>Anchusa officinalis</i>		
Labiatae	<i>Menta sp.</i>		
Labiatae	<i>Salvia officinalis</i>		
Labiatae	<i>Thymus sp.</i>		
Amaryllidaceae	<i>Leucojum aestivum</i>	A new species for Samothraki. It is a rare species in Greece which is threatened by the loss of wet meadows.	Strid & Tan, 1998
Scrophulariaceae	<i>Veronica verna</i>		
Geraniaceae	<i>Geranium ligidum</i>		
Scrophulariaceae	<i>Verbascum sp.</i>		
Orobanchae	<i>Orobanchae alba</i>		
Rubiaceae	<i>Asperula aristata</i>		
	subsp. <i>thessala</i>		
Rubiaceae	<i>Crucianella angustifolia</i>		
Rubiaceae	<i>Galium verum</i>		
Rubiaceae	<i>Galium verticillatum</i>		
Boraginaceae	<i>Anchusa samothracica</i>	A new species that was described for the first time in 2000. The only location where it was observed is the sandy beach of Pahia Ammos at the south	Bigazzi, M., F. Selvi, 2000

side of the island.
Because of its
ecological
specialisation, limited
distribution and
pressure from
overgrazing species
should be listed in the
Red Book of
Threatened Plants of
European Union and
be protected.

Rubiaceae	<i>Galium</i>
	<i>anisophyllum</i>
Plantaginaceae	<i>Plantago</i>
	<i>holostium</i>
Scrophulariaceae	<i>Scrophularia</i>
	<i>scopoli</i>
Brassicaceae	<i>Erysium</i>
(Crucifereae)	<i>horizontale</i>
Caryophyllaceae	<i>Arenaria filicaulis</i>
Caryophyllaceae	<i>Minuartia recurva</i>
Caryophyllaceae	<i>Cerastium</i>
	<i>brachypetalum</i>
	<i>subsp. Roeseri</i>
Caryophyllaceae	<i>Scleranthus</i>
	<i>perennis subsp.</i>
	<i>Marginatus</i>
Caryophyllaceae	<i>Silene viridiflora</i>
Caryophyllaceae	<i>Silene</i>
	<i>samoethracica</i>
	<i>(Rech. fil.) Greuter</i>
Caryophyllaceae	<i>Silene mulicaulis</i>
	<i>Guss. subsp.</i>
	<i>genistifolia</i>
Caryophyllaceae	<i>Dianthus pinifolius</i>
	<i>subsp. pinifolius</i>
Caryophyllaceae	<i>Dianthus gracilis</i>
	<i>Sibth. & Sm.</i>
	<i>subsp. gracilis</i>
Violaceae	<i>Viola</i>
	<i>reicherbachiana</i>
Papaveraceae	<i>Corydalis</i>
	<i>densiflora</i>
Hypericaceae	<i>Hypericum</i>
	<i>olympicum</i>
Crassulaceae	<i>Sedum annuum</i>
Fabaceae	<i>Genista carinalis</i>
Fabaceae	<i>Lathyrus laxiflorus</i>
Fabaceae	<i>Coronilla varia</i>
Fabaceae	<i>Vicia sp.</i>
Fabaceae	<i>Trifolium sp</i>
Euphorbiaceae	<i>Euphorbia deflexa</i>

Strid & Tan,
1998

Strid & Tan,
1998

Geraniaceae	<i>Geranium mole</i> <i>subsp. mole</i>		
Asteraceae (Compositae)	<i>Solidago</i> <i>virgaurea</i>		
Ranunculaceae	<i>Ranunculus</i> <i>sartorianus</i>		
Asteraceae (Compositae)	<i>Calendula</i> <i>arvensis</i>		Stojanoff & Kitanoff, 1943
Campanulaceae	<i>Asyneuma</i> <i>limonifolium</i>		
Saxifragaceae	<i>Saxifraga graeca</i>		Stojanoff & Kitanoff, 1943
Leguminosae	<i>Pisum elatius</i>		Stojanoff & Kitanoff, 1943
Geraniaceae	<i>Geranium</i> <i>tuberosum</i>		Stojanoff & Kitanoff, 1943
Euphorbiaceae	<i>Euphorbia veneta</i>		Stojanoff & Kitanoff, 1943
Euphorbiaceae	<i>Euphorbia</i> <i>myrsinites</i>		Stojanoff & Kitanoff, 1943
Oleaceae	<i>Jasminum</i> <i>fruticans</i>		Stojanoff & Kitanoff, 1943
Labiatae	<i>Lamium</i> <i>bithynicum</i>		Stojanoff & Kitanoff, 1943
Labiatae	<i>Satureja montana</i> <i>var. aegea</i>		Stojanoff & Kitanoff, 1943
Cruciferae	<i>Lepidium</i> <i>graminifolium</i>		Stojanoff & Kitanoff, 1943
Campanulaceae	<i>Campanula</i> <i>rapunculoides</i>		Stojanoff & Kitanoff, 1943
	<i>Leontice</i> <i>leontopetalum</i>		Stojanoff & Kitanoff, 1943
Convolvulaceae	<i>Convolvulus</i> <i>arvensis</i>		Strid & Tan, 1998
Asteraceae (Compositae)	<i>Taraxacum</i> <i>megalorrhizum</i>		Stojanoff & Kitanoff, 1943
Caryophyllaceae	<i>Arenaria biflora</i>		
Apiaceae	<i>Apium nodiflorum</i>	New species for Samothraki	Strid & Tan, 1998
Apiaceae	<i>Buplerum</i> <i>fontanesii</i>		Strid & Tan, 1998
Apiaceae	<i>Buplerum</i> <i>rotundifolium</i>	New species for Samothraki	Strid & Tan, 1998

Apiaceae	<i>Buplerum trichopodium</i>	Strid & Tan, 1998
Apiaceae	<i>Crithmum maritimum</i>	Strid & Tan, 1998
Apiaceae	<i>Daucus involucratus</i>	Strid & Tan, 1998
Valerianaceae	<i>Valeriana dioscoridis</i>	Stojanoff & Kitanoff, 1943
Caryophyllaceae	<i>Dianthus gracilis</i> <i>spp. gracilis</i>	
Apiaceae	<i>Eryngium campestre</i>	Strid & Tan, 1998
Asteraceae (Compositae)	<i>Carduus timoleus</i>	
Asteraceae (Compositae)	<i>Hieracium pannosum</i>	
Liliaceae	<i>Allium vineale</i>	
Juncaceae	<i>Juncus sp.</i>	
Poaceae (Graminae)	<i>Bellardiochoa variegata</i>	
Poaceae (Graminae)	<i>Brachypodium sylvaticum</i> subsp. <i>sylvaticum</i>	
Poaceae (Graminae)	<i>Koeleria lobata</i>	
Araceae	<i>Dranunculus vulgaris</i>	Strid & Tan, 1998
Cruciferae	<i>Cakile maritima</i>	Stojanoff & Kitanoff, 1943
Orchidaceae	<i>Orchis pallens</i>	
Asteraceae (Compositae)	<i>Anthemis cretica</i> subsp. <i>cretica</i>	
Berberidaceae	<i>Berberis cretica</i>	
Cistaceae	<i>Cistus salvifolius</i>	
Cistaceae	<i>Cistus parviflorus</i>	
Liliaceae	<i>Muscari comosum</i>	Stojanoff & Kitanoff, 1943
Amaryllidaceae	<i>Sternbergia lutea</i>	Stojanoff & Kitanoff, 1943
Iridaceae	<i>Crocus chrysanthus</i>	Stojanoff & Kitanoff, 1943
Orchidaceae	<i>Ophrys bicornis</i>	Stojanoff & Kitanoff, 1943
Orchidaceae	<i>Orchis provincialis</i>	Stojanoff & Kitanoff, 1943
Polygonaceae	<i>Rumex creticus</i>	Stojanoff & Kitanoff, 1943

Araceae	<i>Arum elongatum</i>	It has an impressive, very dark purple flower. It is a species known only from few localions in North-eastern Greece, otherwise is widespreader in the Black Sea (Boyce, 1993).	Strid & Tan, 1998
Polygonaceae	<i>Rumex cristatus</i>	New species for Samothraki	Strid & Tan, 1998
Poaceae	<i>Poa annua</i>		Strid & Tan, 1998
Poaceae	<i>Poa infirma</i>	New species for Samothraki	Strid & Tan, 1998
Poaceae	<i>Poa trivialis</i>		Strid & Tan, 1998
Poaceae	<i>Poa trivialis subsp. Trivialis</i>		Strid & Tan, 1998
Poaceae	<i>Polypogon maritimus</i>		Strid & Tan, 1998
Poaceae	<i>Psilurus incurvus</i>		Strid & Tan, 1998
Poaceae	<i>Rostraria cristata</i>		Strid & Tan, 1998
Poaceae	<i>Stipa bromoides</i>		Strid & Tan, 1998
Poaceae	<i>Triticum aestivum</i>		Strid & Tan, 1998
Ranunculaceae	<i>Ranunculus chius</i>	New species for Samothraki	Strid & Tan, 1998
Poaceae	<i>Vulpia ciliata</i>		Strid & Tan, 1998
Poaceae	<i>Parapholis marginata</i>	New species for Samothraki	Strid & Tan, 1998
Polygonaceae	<i>Rumex pulcher</i>		Strid & Tan, 1998
Polygonaceae	<i>Rumex tuberosus subsp. Creticus</i>		Strid & Tan, 1998
Polypodiaceae	<i>Adiadoum capillus-veneris</i>		Strid & Tan, 1998
Polypodiaceae	<i>Anogramma leptophylla</i>		Strid & Tan, 1998
Polypodiaceae	<i>Asplenium ceterach</i>		Strid & Tan, 1998
Polypodiaceae	<i>Pteridium aquilinum</i>		Strid & Tan, 1998
Posidoniaceae	<i>Posidonia oceanica</i>		Strid & Tan, 1998
Primulaceae	<i>Anagallis arvensis</i>		Strid & Tan, 1998
Ranunculaceae	<i>Nigella damascena</i>		Strid & Tan, 1998
Campanulaceae	<i>Chenopodium multifidum</i>		Strid & Tan, 1998

Poaceae	<i>Vulpia bromoides</i>		Strid & Tan, 1998
Poaceae	<i>Corynephorus divaricatus</i>	New species for Samothraki	Strid & Tan, 1998
Poaceae	<i>Aira elegantissima</i>		Strid & Tan, 1998
Poaceae	<i>Anthoxanthum odoratum</i>		Strid & Tan, 1998
Poaceae	<i>Avena barbata</i>		Strid & Tan, 1998
Poaceae	<i>Briza maxima</i>		Strid & Tan, 1998
Poaceae	<i>Briza minor</i>	New species for Samothraki	Strid & Tan, 1998
Poaceae	<i>Bromus fasciculatus</i>		Strid & Tan, 1998
Poaceae	<i>Bromus intermedius</i>		Strid & Tan, 1998
Poaceae	<i>Bromus madritensis</i>		Strid & Tan, 1998
Poaceae	<i>Bromus scoparius</i>		Strid & Tan, 1998
Poaceae	<i>Bromus sterilis</i>		Strid & Tan, 1998
Poaceae	<i>Piptatherum miliaceum</i>		Strid & Tan, 1998
Poaceae	<i>Catapodium rigidum</i>		Strid & Tan, 1998
Poaceae	<i>Phalaris coerulescens</i>	New species for Samothraki	Strid & Tan, 1998
Poaceae	<i>Cynosurus echinatus</i>		Strid & Tan, 1998
Poaceae	<i>Dactylis glomerata subsp. Hispanica</i>		Strid & Tan, 1998
Poaceae	<i>Dasypyrum villosum</i>		Strid & Tan, 1998
Poaceae	<i>Hordeum bulbosum</i>		Strid & Tan, 1998
Poaceae	<i>Hordeum murinum</i>		Strid & Tan, 1998
Poaceae	<i>Lagurus ovatus</i>		Strid & Tan, 1998
Poaceae	<i>Lolium perenne</i>		Strid & Tan, 1998
Poaceae	<i>Lolium rigidum</i>		Strid & Tan, 1998
Poaceae	<i>Melica transsilvanica</i>	New species for Samothraki	Strid & Tan, 1998
Ranunculaceae	<i>Ranunculus ficaria subsp. Ficariiformis</i>		Strid & Tan, 1998
Poaceae	<i>Bromus tectorum</i>		Strid & Tan, 1998
Urticaceae	<i>Urtica dioica</i>		Strid & Tan, 1998
Scrophulariaceae	<i>Verbascum</i>		Strid & Tan,

Scrophulariaceae	<i>rupestre</i> <i>Veronica</i>		1998 Strid & Tan, 1998
Scrophulariaceae	<i>anagallis-aquati</i> <i>Veronica</i>	New species for Samothraki	Strid & Tan, 1998
Scrophulariaceae	<i>anagalloides</i> <i>Veronica arvensis</i>		Strid & Tan, 1998
Scrophulariaceae	<i>Veronica</i> <i>chamaedrys</i>		Strid & Tan, 1998
Scrophulariaceae	<i>Veronica</i> <i>cymbalaria</i>		Strid & Tan, 1998
Scrophulariaceae	<i>Veronica</i> <i>hederifolia</i>		Strid & Tan, 1998
Scrophulariaceae	<i>Selaginella</i> <i>denticulata</i>		Strid & Tan, 1998
Solanaceae	<i>Hyoscyamus</i> <i>albus</i>		Strid & Tan, 1998
Ranunculaceae	<i>Ranunculus</i> <i>arvensis</i>		Strid & Tan, 1998
Urticaceae	<i>Parietaria judaica</i>		Strid & Tan, 1998
Scrophulariaceae	<i>Parentucellia</i> <i>viscosa</i>	New species for Samothraki	Strid & Tan, 1998
Urticaceae	<i>Urtica pilulifera</i>		Strid & Tan, 1998
Valerianaceae	<i>Valerianella</i> <i>coronata</i>		Strid & Tan, 1998, Stojanoff & Kitanoff, 1943
Valerianaceae	<i>Valerianella</i> <i>locusta</i>	New species for Samothraki	Strid & Tan, 1998
Verbenaceae	<i>Vitex agnus-</i> <i>castus</i>		Strid & Tan, 1998
Violaceae	<i>Viola kitaibeliana</i>		Strid & Tan, 1998
Violaceae	<i>Viola parvula</i>	New species for Samothraki	Strid & Tan, 1998
Vitaceae	<i>Vitis vinifera</i> <i>subsp. Sylvestris</i>		Strid & Tan, 1998
Ranunculaceae	<i>Ranunculus</i> <i>illyricus</i>	This species exhibits an interesting plant regional distribution. It is expanded in a broad region of Continental Europe from south-eastern Europe up to Oland island in Sweden. However in Greece it has limited distribution and occurs only in north-eastern and in the islands Thassos, Samothraki and Lesvos.	

Asteraceae (Compositae)	<i>Anthemis tenuiloba</i>	New species for Samothraki	Strid & Tan, 1998
Brassicaceae	<i>Rorippa sylvestris</i>	New species for Samothraki	Strid & Tan, 1998
Urticaceae	<i>Parietaria cretica</i>		Strid & Tan, 1998
Rubiaceae	<i>Galium rotundifolium</i>		Strid & Tan, 1998
Ranunculaceae	<i>Ranunculus isthmicus</i>	New species for Samothraki	Strid & Tan, 1998
Ranunculaceae	<i>Ranunculus marginatus</i>		Strid & Tan, 1998
Ranunculaceae	<i>Ranunculus peltatus</i> subsp. <i>Saniculifolius</i>	New species for Samothraki	Strid & Tan, 1998
Resedaceae	<i>Reseda lutea</i>		Strid & Tan, 1998
Rosaceae	<i>Aphanes arvensis</i>		Strid & Tan, 1998
Rosaceae	<i>Potentilla reptans</i>		Strid & Tan, 1998
Rosaceae	<i>Sarcopoterium spinosum</i>		Strid & Tan, 1998
Rubiaceae	<i>Crucianella latifolia</i>	New species for Samothraki	Strid & Tan, 1998
Rubiaceae	<i>Galium aparine</i>		Strid & Tan, 1998
Rubiaceae	<i>Galium debile</i>		Strid & Tan, 1998
Scrophulariaceae	<i>Verbascum phlomoides</i>	New species for Samothraki	Strid & Tan, 1998
Rubiaceae	<i>Galium murale</i>		Strid & Tan, 1998
Scrophulariaceae	<i>Scrophularia canina</i> subsp. <i>Bicolor</i>		Strid & Tan, 1998
Rubiaceae	<i>Galium samothracicum</i>		Strid & Tan, 1998
Rubiaceae	<i>Sherardia arvensis</i>		Strid & Tan, 1998
Rubiaceae	<i>Theligonum cynocrambe</i>		Strid & Tan, 1998
Rubiaceae	<i>Valantia hispida</i>		Strid & Tan, 1998
Santalaceae	<i>Osyris alba</i>		Strid & Tan, 1998
Saxifragaceae	<i>Saxifraga sibirica</i> subsp. <i>Mollis</i>	It is an Eastern species that is found mainly in Turkey and Caucasus. Very few locations for the species have been reported for in Greece (Samos, Samothraki) and in south-western Bulgaria.	Strid & Tan, 1998

Scrophulariaceae	<i>Bellardia trixago</i>		Strid & Tan, 1998
Scrophulariaceae	<i>Digitalis lanata</i>		Strid & Tan, 1998
Scrophulariaceae	<i>Linaria</i> <i>peisseriana</i>		Strid & Tan, 1998
Plantaginaceae	<i>Plantago</i> <i>coronopus</i>		Strid & Tan, 1998
Rubiaceae	<i>Galium</i> <i>divaricatum</i>		Strid & Tan, 1998
Fabaceae	<i>Medicago</i> <i>monspeliaca</i>		Strid & Tan, 1998
Fabaceae	<i>Lathyrus aphaca</i>		Strid & Tan, 1998
Fabaceae	<i>Lathyrus nissolia</i>	New species for Samothraki	Strid & Tan, 1998
Fabaceae	<i>Lotus</i> <i>angustissimus</i>		Strid & Tan, 1998
Fabaceae	<i>Lotus edulis</i>	New species for Samothraki	Strid & Tan, 1998
Fabaceae	<i>Lotus</i> <i>ornithopodioides</i>		Strid & Tan, 1998
Fabaceae	<i>Medicago arabica</i>		Strid & Tan, 1998
Fabaceae	<i>Medicago</i> <i>coronata</i>		Strid & Tan, 1998
Fabaceae	<i>Medicago</i> <i>disciformis</i>		Strid & Tan, 1998
Fabaceae	<i>Medicago lupulina</i>		Strid & Tan, 1998
Poaceae	<i>Aegilops neglecta</i>		Strid & Tan, 1998
Fabaceae	<i>Medicago minima</i>		Strid & Tan, 1998
Fabaceae	<i>Colutea</i> <i>arborescens</i>	New species for Samothraki	Strid & Tan, 1998
Fabaceae	<i>Medicago</i> <i>orbicularis</i>		Strid & Tan, 1998
Fabaceae	<i>Medicago</i> <i>scutellata</i>		Strid & Tan, 1998
Fabaceae	<i>Onobrychis</i> <i>aequidentata</i>		Strid & Tan, 1998
Fabaceae	<i>Onobrychis caput-</i> <i>galli</i>		Strid & Tan, 1998
Fabaceae	<i>Ornithopus</i> <i>compressus</i>		Strid & Tan, 1998
Fabaceae	<i>Securigera</i> <i>securidaca</i>		Strid & Tan, 1998
Fabaceae	<i>Trifolium</i> <i>angustifolium</i>		Strid & Tan, 1998
Fabaceae	<i>Trifolium arvense</i>		Strid & Tan, 1998
Fabaceae	<i>Trifolium</i> <i>campestre</i>		Strid & Tan, 1998
Fabaceae	<i>Trifolium</i> <i>echinatum</i>		Strid & Tan, 1998

Fabaceae	<i>Medicago marina</i>	New species for Samothraki	Strid & Tan, 1998
Cyperaceae	<i>Carex punctata</i>	New species for Samothraki	Strid & Tan, 1998
Poaceae	<i>Aegilops biuncialis</i>	New species for Samothraki	Strid & Tan, 1998
Convovulvaceae	<i>Convovulvus elegantissimus</i>		Strid & Tan, 1998
Convovulvaceae	<i>Cuscuta planiflora</i>		Strid & Tan, 1998
Crassulaceae	<i>Sedum rubens</i>		Strid & Tan, 1998
Crassulaceae	<i>Umbilicus rupestris</i>		Strid & Tan, 1998
Cucurbitaceae	<i>Ecballium elaterium</i>		Strid & Tan, 1998
Cyperaceae	<i>Bolboschoenus maritimus</i>	New species for Samothraki	Strid & Tan, 1998
Cyperaceae	<i>Carex distachya</i>		Strid & Tan, 1998
Cyperaceae	<i>Carex distans</i>		Strid & Tan, 1998
Cyperaceae	<i>Carex divisa</i>		Strid & Tan, 1998
Fabaceae	<i>Hymenocarpus circinnatus</i>		Strid & Tan, 1998
Cyperaceae	<i>Carex otrubae</i>		Strid & Tan, 1998
Fabaceae	<i>Dorycnium hirsutum</i>		Strid & Tan, 1998
Cyperaceae	<i>Carex remota</i>		Strid & Tan, 1998
Cyperaceae	<i>Eleocharis palustris</i>		Strid & Tan, 1998
Cyperaceae	<i>Scirpoides holoschoenus</i>		Strid & Tan, 1998
Equisetaceae	<i>Equisetum ramosissimum</i>		Strid & Tan, 1998
Euphorbiaceae	<i>Euphorbia characias</i>	New species for Samothraki	Strid & Tan, 1998
Euphorbiaceae	<i>Euphorbia taurinensis</i>		Strid & Tan, 1998
Euphorbiaceae	<i>Mercurialis annua</i>		Strid & Tan, 1998
Fabaceae	<i>Anthyllis hermaniae</i>		Strid & Tan, 1998
Fabaceae	<i>Astragalus pelecinus</i>		Strid & Tan, 1998
Fabaceae	<i>Trifolium infamia- ponertii</i>	New species for Samothraki	Strid & Tan, 1998
Cyperaceae	<i>Carex divulsa</i>		Strid & Tan, 1998
Linaceae	<i>Linum bienne</i>		Strid & Tan, 1998
Fabaceae	<i>Trifolium glomeratum</i>		Strid & Tan, 1998

Lamiaceae	<i>Micromeria juliana</i>		Strid & Tan, 1998
Lamiaceae	<i>Prunella vulgaris</i>		Strid & Tan, 1998
Lamiaceae	<i>Sideritis curvidens</i>		Strid & Tan, 1998
Lamiaceae	<i>Stachys cretica</i>		Strid & Tan, 1998
Lamiaceae	<i>Thymus sibthorpii</i>		Strid & Tan, 1998
Liliaceae	<i>Allium sp.</i>		Strid & Tan, 1998
Liliaceae	<i>Asphodeline lutea</i>		Strid & Tan, 1998
Liliaceae	<i>Fritillaria drenovskii</i>	It is an endemic species found on mountains of north- eastern Greece (Pangeo, Falakro, Menoikio, Orvilos) and neighbouring regions of south - west Bulgaria. It can be found in dry meadows in altitudes between 1200 - 1800 m.	Strid & Tan, 1998
Liliaceae	<i>Ornithogallum fimbriatum</i>		Strid & Tan, 1998
Lamiaceae	<i>Lamium amplexicaule</i>	New species for Samothraki	Strid & Tan, 1998
Liliaceae	<i>Scilla bifolia</i>		Strid & Tan, 1998
Lamiaceae	<i>Ballota acetabulosa</i>		Strid & Tan, 1998
Loranthaceae	<i>Loranthus europaeus</i>	New species for Samothraki	Strid & Tan, 1998
Lythraceae	<i>Lythrum hyssopifolia</i>		Strid & Tan, 1998
Onagraceae	<i>Epilobium tetragonum</i>		Strid & Tan, 1998
Orchidaceae	<i>Limodorum abortivum</i>		Strid & Tan, 1998
Oxalidaceae	<i>Oxalis corniculata</i>		Strid & Tan, 1998
Papaveraceae	<i>Corydalis solida</i>		Strid & Tan, 1998
Papaveraceae	<i>Glaucium flavum</i>	New species for Samothraki	Strid & Tan, 1998
Papaveraceae	<i>Papaver rhoeas</i>		Strid & Tan, 1998
Plantaginaceae	<i>Plantago bellardii</i>		Strid & Tan, 1998
Cistaceae	<i>Cistus creticus</i>		Strid & Tan, 1998
Liliaceae	<i>Ruscus aculeatus</i>		Strid & Tan, 1998

Fabaceae	<i>Vicia tetrasperma</i>	New species for Samothraki	Strid & Tan, 1998
Plantaginaceae	<i>Plantago lagopus</i>		Strid & Tan, 1998
Fabaceae	<i>Trifolium micranthum</i>	New species for Samothraki	Strid & Tan, 1998
Fabaceae	<i>Trifolium pallidum</i>	New species for Samothraki	Strid & Tan, 1998
Fabaceae	<i>Trifolium petrisavii</i>		Strid & Tan, 1998
Fabaceae	<i>Trifolium repens</i>		Strid & Tan, 1998
Fabaceae	<i>Trifolium squamosum</i>		Strid & Tan, 1998
Fabaceae	<i>Trifolium stellatum</i>		Strid & Tan, 1998
Fabaceae	<i>Trifolium subterraneum</i>		Strid & Tan, 1998
Fabaceae	<i>Trifolium tomentosum</i>		Strid & Tan, 1998
Fabaceae	<i>Trifolium uniflorum</i>		Strid & Tan, 1998
Lamiaceae	<i>Lamium garganicum</i>		Strid & Tan, 1998
Fabaceae	<i>Vicia sativa</i>		Strid & Tan, 1998
Fabaceae	<i>Trifolium hirtum</i>		Strid & Tan, 1998
Geraniaceae	<i>Erodium cicutarium</i>		Strid & Tan, 1998
Geraniaceae	<i>Geranium columbinum</i>		Strid & Tan, 1998
Geraniaceae	<i>Geranium robertianum subsp. Purpureum</i>		Strid & Tan, 1998
Geraniaceae	<i>Geranium rotundifolium</i>		Strid & Tan, 1998
Hypericaceae	<i>Hypericum cerastoides</i>		Strid & Tan, 1998
Hypericaceae	<i>Hypericum perforatum</i>		Strid & Tan, 1998
Iridaceae	<i>Gladiolus italicus</i>		Strid & Tan, 1998
Juncaceae	<i>Juncus bufonius</i>		Strid & Tan, 1998
Juncaceae	<i>Juncus compressus</i>	New species for Samothraki	Strid & Tan, 1998
Juncaceae	<i>Juncus gerardi</i>	New species for Samothraki	Strid & Tan, 1998
Fabaceae	<i>Vicia parviflora</i>	New species for Samothraki	Strid & Tan, 1998

Trees and bushes of Samothraki

Family	Scientific name	Greek name	Local name	Information
Taxaceae	<i>Taxus bacata</i>	Ίταμος, Itamos (yew)	Σταυρόξυλο, Stavroksilo	It is the most shadow resistant tree in Greece. In mainland Greece it has a limited distribution while it is very rare on the islands. The whole tree is poisonous, except its red fruit, due to an alkaloid substance called taxine or taxole which is drastic for the heart. However it has been proved that taxole has antitumor action. It is a species that lives many years and individuals have been found aging up to 200 years old! In Samothraki it occurs in high altitudes in the north side of the island. Individual age- old trees can be found which constitute residues of an ancient dense oak and taxus forest that used to cover sometimes this part of the island.
Cupressaceae	<i>Juniperus communis</i>	(Juniper)	Κάτσαρος, Katsaros	
Cupressaceae	<i>Juniperus oxycedrus subsp. oxycedrus</i>	(Prickly Juniper)	Κέδουους, Kedouous	
Cupressaceae	<i>Juniperus foetidissima</i>			
Pinaceae	<i>Pinus brutia</i>	Τραχεία πεύκη, Trahia Pefki, (Mediterranean pine)	Τ'σάμ, Tsam (Turkish word)	Clumps of pines are surrounding Chora Village but

		tree)		they are a product of reforestation. The only natural clump that exists in the island is found near Kipos beach. The explanation for the virtual absent distribution of pines on Samothaki is the climate and soils of the island. Oak forests is the natural type of vegetation.
Juglandaceae	<i>Juglans regia</i>	Καρυδιά, Karidia, (Common walnut)	Καργιά, Karya	
Betulaceae	<i>Alnus glutinosa</i>	Σκλήθρο, Sklithro, (Alder)	Σκλήθρους, Sklithous	Alder grows in humid, swamplands with sandy or poor clay soils. It expands with rhizomes, in which nitrogen producing bacteria flourish. It forms immiscible clumps or clumps mixed with poplars and willows. It is a species that improves the physiochemical attributes of the soil. It is a fast growing species that does not live a lot of years. The occurrence of Alder in the Aegean islands is extremely rare because few places meet the conditions for such a tree. In Samothraki a big clump is found

adjoining
Vdelolimni
wetland at the
delta plain of
Fonias river.
However this only
Alder forest is a
residue of an
bigger stand that
now has
disappeared due
to habitat
fragmentation.

Corylaceae	<i>Carpinus orientalis</i>	Ανατολικός γαύρος, Anatolikos gavros, (Oriental hornbeam)	
Corylaceae	<i>Ostrya carpinifolia</i>	Οστριά, Ostrya, (Hop-hornbeam)	Αστυργιά, Astirya
Fagaceae	<i>Castanea sativa</i>	Καστανιά, Kastania, (Sweet Chestnut)	Καστανιά, Kastania
Fagaceae	<i>Quercus pubescens</i>		
Fagaceae	<i>Quercus dalechampii</i>	Βελανιδιά, Velanidia	Δέντρου, Dentrou
Fagaceae	<i>Quercus ilex</i>	Αριά, Aria, (Holm Oak)	Άργιους, Aryious
Fagaceae	<i>Quercus coccifera</i>	Πουρνάρι, Pournari, (Kermes Oak)	Κότσνας, Πίνους, Kotsyas, Piinous

Kermes oak is
perhaps the more
common bush in
Greece. However
when it is not
oppressed by
continuous
grazing, it
develop in a very
beautiful tree. In
many spots
mainly in the
northern side of
Samothraki but
also next to small
chapels, age-long
kermes oak trees
can be admired.
One of the most
ancient colour
names that is
reported by
Homer is “alikon”
meaning red. In
the antiquity red
colour was
extracted by the
red bumps that
form on the
shoots of kermes

				oak called “kikidia”. These red bums emanate from female individuals of a hemiptern insect. (Bauman, 1993).
Ulmaceae	<i>Ulmus campestris</i>	Καραγάτσι, Karagatsi, (Common Elm)	Σουγούτ, Souyout	
Moraceae	<i>Morus alba</i>	Μουριά, Mouria, (White mulberry)	Ασκαμνιά, Askamnia	
Moraceae	<i>Ficus carica</i>	Συκιά, Sikia, (Common Fig)		
Lauraceae	<i>Laurus nobilis</i>	Δάφνη, Daphne, (Bay Rauler)	Βάγια, Vayia	
Platanaceae	<i>Platanus orientalis</i>	Πλατάνι, Platani, (Platane, Oriental plane)		Oriental plane was a holy tree in ancient Greece because “its green leaves announce from distance, the existence of water and shadow”. Numerous platane forests were protected and holy during the antiquity. Many myths and stories are connected with this tree. One of the most extensive coastal platane forests of Greece is found in Samothraki (Bauer, 1993).
Rosaceae	<i>Crataegus monogyna</i>	(Common Hawthorn)		
Rosaceae	<i>Sorbus domestica</i>	(Service Tree)	Σουρβαλιά, Sourvalia	
Rosaceae	<i>Prunus prostrata</i>			
Anacardiaceae	<i>Pistacia terebinthus</i>	Κοκορεβιθιά, Kokorevithia, (Terebinth)	Κουκδγιά, Koukdyia	Από τα κηκίδια της κοκορεβιθιάς οι Αρχαίοι Έλληνες έβγαζαν μία κίτρινη χρωστική ουσία που χρησιμοποιούσαν για να βάφουν

μεταξωτά
υφάσματα της
Ανατολής
(Bauman, 1993)

Anacardiaceae	<i>Rhus coriaria</i>		Ούουδ', Ouoūd'
Aceraceae	<i>Acer monspessulanum</i>		Σφιντάμ', Sfindam
Rhamnaceae	<i>Paliurus spinachristi</i>	Παλιούρι, Paliouri	Αμπαλιουργιά, Abaliourgia
Tiliaceae	<i>Tilia cordata</i>	Φλαμουριά, Flamouria	Φλαμούρ', Flamour
Myrtaceae	<i>Myrtus communis</i>	Μυρτιά, Mirtia, (Myrtle)	Μυρσίν', Mirsin
Punicaceae	<i>Punica granatum</i>	Ροδιά, Rodia	Οουουδιγιά, Oououdyia
Cornaceae	<i>Cornus mas</i>	Κρανιά, Krania	
Ericaceae	<i>Arbutus adrachne</i>	Γλιστροκουμαριά, Glistrokoumaria	Αντραχλιά, Andrahlia
Ericaceae	<i>Erica arborea</i>	Ρέικι, Riki	Ρείχι, Rihi
Oleaceae	<i>Olea europaea subsp. oleaster</i>	Αγριελιά, Agrielia	Αγιργιουλιά, Κουτσουνουλιά
Apocynaceae	<i>Nerium oleander</i>	Πικροδάφνη, Pikrodaphne	Δάφνη, Daphne
Caprifoliaceae	<i>Sambucus nigra</i>	Κουφοξυλιά, Koufoxilia	
Oleaceae	<i>Phillyrea latifolia</i>	Φιλίκι, Filiki	Θλύκους, Thlikous
Rosaceae	<i>Pyrus amygdaliformis</i>	Γκορτσιά, Gortsia	Αξαπιδιγιά, Axapidia
Oleaceae	<i>Fraxinus ornus</i>	Φράξος, Fraxos	Μιλιός, Milios
Ericaceae	<i>Arbutus unedo</i>	Κουμαριά, Koumaria	Κμαργιά, Kmaryia
Rosaceae	<i>Prunus spinosa</i>	Τσαπουρνιά, Tsapournia	Απουρνιά, Apournia
Salicaceae	<i>Salix alba</i>	Ιτιά, Itia	
Fagaceae	<i>Quercus frainetto</i>	Ρουπάκι, Roupaki	Οουουπακιά, Oouupakia
Ulmaceae	<i>Celtis australis</i>	Κελτίς, Keltis	
Rosaceae	<i>Sorbus torminalis</i>	Σορβιά, Sorvia	
Rosaceae	<i>Rubus ulmifolius</i>	Βάτος, Vatos	Βάτους, Vatous
Rosaceae	<i>Rubus canescens</i>	Βατσινιά, Vatsiyia	Αβατσινιά, Avatsiyia
Rosaceae	<i>Rosa sp.</i>	Αγριοτριανταφυλλιά, Agriotriantafilia	
Aceraceae	<i>Acer orientale</i>		
Ericaceae	<i>Erica manipuliflora</i>		
Verbenaceae	<i>Vitex agnus-castus</i>	Λυγαριά, Lygaria	Λυγαριά, Lygaria
Ranunculaceae	<i>Clematis vitalba</i>	Κλιματσίδα, Klimatsida	Κλουμπατσιά, Kloubatsia
Caprifoliaceae	<i>Lonicera etrusca</i>		
Vitaceae	<i>Vitis vinifera subsp. Sylvestris</i>		

Araliaceae	<i>Hedera helix</i>	Κισσός, Kissos	Κισσός, Kssos
Liliaceae	<i>Smilax aspera</i>		Τζιμπλακιά, Tziblakia
Cupressaceae	<i>Juniperus excelsa</i>		
Cupressaceae	<i>Cupressus sempervirens var. horizontalis</i>	Κυπαρίσσι, Kypa	Κυπαίσσ
Moraceae	<i>Morus nigra</i>	Μουριά, Mouria	Ασκαμνιά, Askamnia
Salicaceae	<i>Populus alba</i>	Καβάκι, Kavaki	Καβάκ', Kavak
Leguminosae	<i>Spartium junceum</i>	Σπάρτο, Sparto	Σπάρτο, Saprto
Aceraceae	<i>Acer sempervirens</i>		
Rosaceae	<i>Prunus prostrata</i>		

Annex 6:

Samothraki Biosphere Reserve Nomination Form - Reference List

- Ade A. and K. H. Rechinger. 1938. Samothrake. *Repert.Spec.Nov.Regni Veg.Beih* 106-46.
- Alkimos A. 1988. *The Orchids of Greece*. Athens: Psychalou Editions.
- Amelung B. and Viner D. 2006. Mediterranean Tourism: exploring the future with tourism climatic index. *Journal of Sustainable Tourism*, 14(4), 249-266.
- Bakalakis George and Robert L. Scranton. 1939. An Inscription from Samothrace. *The American Journal of Philology* 4 452-8.
- Biel B. and Tan K. 2013. Studies on the Flora and Vegetation of Samothraki Island (Greece). Höchberhg, Germany
- Bigazzi M. and F. Selvi. 2000. *Anchusa samothracica* (Boraginaceae), a new species from the island of Samothraki, Greece. *Nordic Journal of Botany* 2 141-8.
- Blau, O. and K. Schlottmann. 1855: Bericht über die Verhandlungen der Königlichen Preussischen Akademie der Wissenschaften, Berlin.
- Bloch Herbert. 1940. L. Calpurnius Piso Caesoninus in Samothrace and Herculaneum. *American Journal of Archaeology* 4 485-93.
- Borges M.A., Carbone G., Bushell R. and Jaeger T. 2011. *Sustainable Tourism and natural World Heritage – Priorities for action*. Gland, Switzerland: IUCN. 29pp.
- Bouzek Jan, Radislav Hošek, and Iva Ondřejová. 1985. *Samothrace, 1923/1927/1978 : the results of the Czechoslovak excavations in 1927 conducted by A. Salac and J. Nepomucký and the unpublished results of the 1923 Franco-Czechoslovak excavations conducted by A. Salac and F. Chapouthier*. 161 p., [48] p. of plates : ill., plans ; 30 cm.. ed. Praha : Univerzita Karlova. 161 p., [48] p. of plates : ill., plans ; 30 cm..
- Bridgewater, P. B. 2002. Biosphere reserves: special places for people and nature. *Environmental Science & Policy* 1 9-12.
- Broggi M. 1988. Herpetologische Beobachtungen auf Samothrake (Griechenland). *ber.Bot.Zool.Ges.Liechtenstein Sargans Wendenberg* 5 93-9.

- Brown Robert F. 1977. *Schelling's Treatise on "The Deities of Samothrace": A Translation and an Interpretation*. Missoula, Mont: Scholars Press.
- Buttle D. 1989. Notes on reptiles and amphibians of Northeastern Greece and the island of Samothraki. *British Herpetological Society Bulletin* 49-53.
- Cattaneo A. 2001. L' erpetofauna delle isole egee di Thassos, Samothraki e Lemnos. *Bolletino del Museo Civico di Storia Naturale di Venezia* 155-82.
- Chapouthier F. 1935. *Délos, XVI: Le sanctuaire des dieux de Samothrace*. Paris: De Beccard.
- Champouthier, C., A. Salač and F. Salviat. 1956. Le theatre de Samothrace. *Bulletin de Correspondance Hellénique* 80.
- Cheyland G. 1988. Compte-rendu de la table Ronde: Repartition Geographique et statut des mammifères menacés dans les îles Méditerranéennes. *Bulletin Ecol.* 481-4.
- Christofides G. 2000. *The evolution of Samothraki granitic pluton (N. Aegean, Greece)*. 193-209.
- Clark R. 1991. A report on herpetological investigation on the island of Samothraki, North Aegean Sea-Greece. *British Herpetological Society Bulletin* 3-7.
- Cole Susan Guettel. 1984. *Theoi Megaloi: the cult of the great gods at Samothrace*. Leiden: E.J. Brill.
- Conquart, E. 1867. Note explicative accompagnée de plans et dessins et faisant suite au rapport de M. Gustave Deville. Archives des missions scientifiques et littéraires 2(IV): 267-278.
- Conze A. 1860. *Reise auf den Inseln des thrakischen Meeres*. Hannover:
- Conze A., A. Hauser, and G. Niemann. 1875. *Archaeologische Untersuchungen auf Samothrake*. Vienna:
- Conze A., A. Hauser, and O. Benndorf. 1880. *Neue archaologische Untersuchungen auf Samothrake*. Vienna:
- Crucitti P. 1988. Chiroterri della Tracia e dell'isola di Samotraccia. *Atti.Soc.ital.Sci.nat.Museo civ.Stor.at.Milano* 1 78-84.
- Degen A. V. 1891. Ergebnisse einer botanischen Reise nach der Insel Samothrake. *Oesterr.Bot.Z.* 301-9.

- Deville, G. 1867. Rapport sur une mission dans l'île de Samothrace. *Archives de missions scientifiques et littéraires* 2(IV): 253-265.
- Diaz-Almela, E. and C.M.E.Duarte. 2008. *Management of Natura 2000 habitats 1120 Posidonia beds (Posidonium oceanicae)*. European Commission.
- Dimitriadis J. N. 1937. Capra aegagrus: Reste auf griechischen Inseln. *Biologia generalis*
- Dimitrova Nora and Kevin Clinton. 2003. An Archaic Inscription from Samothrace. *Hesperia* 2 235-9.
- Dimopoulos P., E. Bergmeier, K. Theodoropoulos, P. Fischer, and M. Siafouli. 2005. *Monitoring guide for habitat types and plant species in the NATURA 2000 sites of Greece with management institutions*. Agrinio, Greece: Hellenic Ministry for the Environment, Physical Planning and Public works, University of Ioannina.
- Dinsmoor Anastasia N. 1992. Red-Figured Pottery from Samothrace. *Hesperia* 4 501-15.
- Dusenbery E. B. 1967. Ancient Glass from the Cemeteries of Samothrace. *Journal of Glass Studies* 34-49.
- Dusenbery E. B. 1998. *The Nekropoleis. Samothrace, Excavations Conducted by the Institute of Fine Arts, New York University* 11. Princeton:
- Dusenbery Elsbeth B. 1978. Two Attic Red-Figured Kraters in Samothrace. *Hesperia* 3 211-43.
- Ehrhardt H. 1985. *Samothrace, Heiligtümer in ihrer Landschaft und Geschichte als Zeugen antiken Geisteslebens*. Stuttgart:
- Evros Prefecture directorate of tourism. 2008. *Report on touristic activities of Evros Prefecture*.
- Fischer-Kowalski M., L. Xenidis, S.J. Singh and I. Pallua. 2011. Transforming the Greek Island of Samothrace into a UNESCO Biosphere Reserve: An Experience in Transdisciplinarity. *Gaia*, 20(3), 181-190.
- Fischer-Kowalski M., I. Pallua, L. Xenidis and S.J. Singh (2013, in preparation). Samothrace. Die Geschichte von einer griechischen Insel, die sich aufmachte, ein UNESCO-Biosphärenreservat zu werden. in Dressel, G., Heimerl, K., Berger, W. Winiwarter, V. (Hg.): "Inter- und transdisziplinär forschen Praktiken und Methoden", transcript - Verlag, Bielefeld.

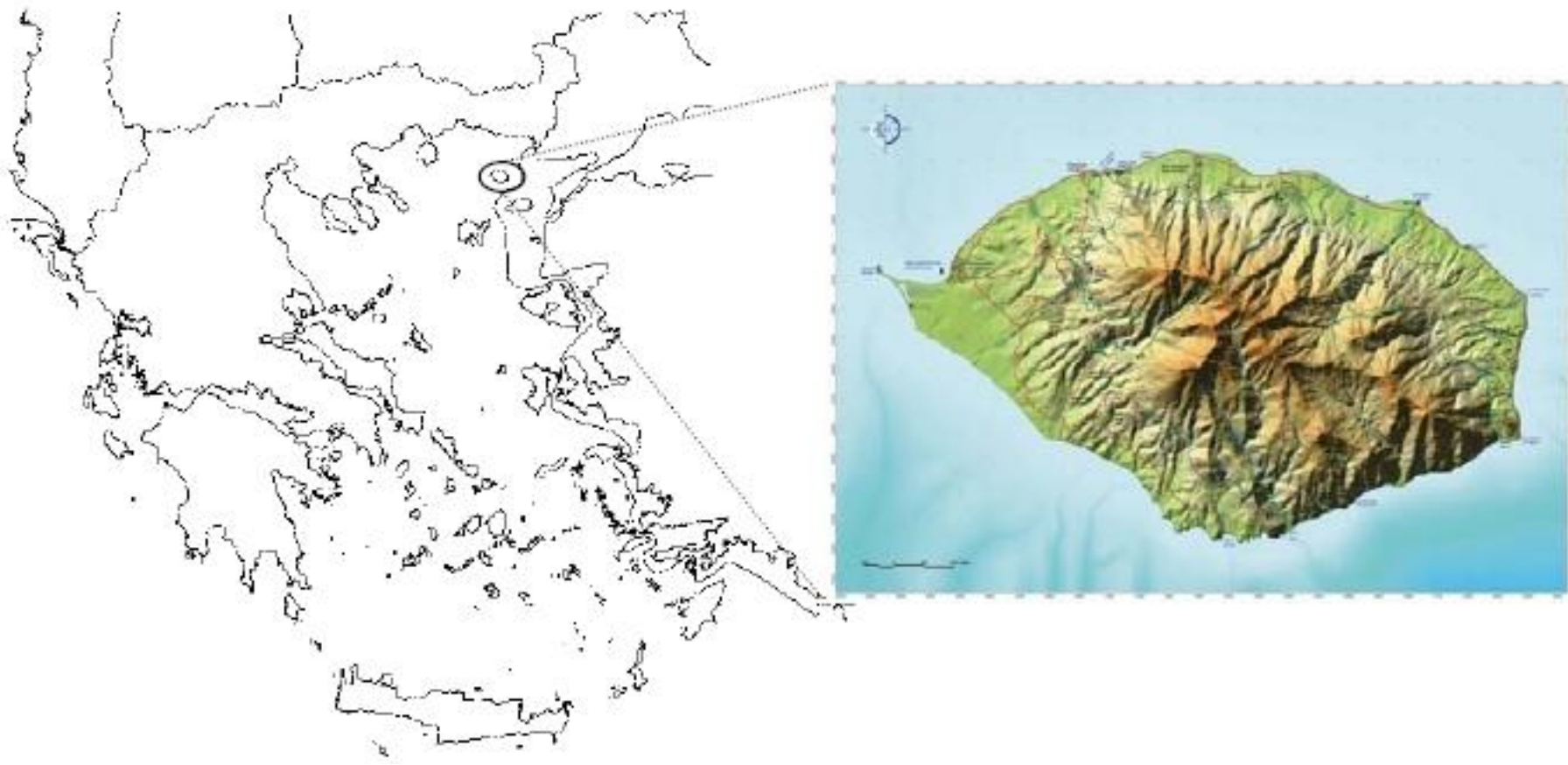
- Frantzis A. and Alexiadou P. 2003. *Cetaceans of the Greek Seas*. Athens: HCMR.
- Friedrich, C.J. 1915: Vor den Dardanellen, auf altgriechischen Inseln auf dem Athos. Weidmannsche Buchhandlung, Berlin.
- Graham A. J. 2002. The Colonization of Samothrace. *Hesperia* 3 231-60.
- Gočeva, Z. 2002. Le culte des Grands Dieux de Samothrace à la période hellénistique. *Kernos* 15: 309-315.
- Greek Biotope and Wetland Center. 2001. *Samothraki NATURA 2000 Area - SCI GR1110004 "Fengari Samothrakis"*.
- Greek Ministry of Agriculture. 2008. *Annual Report on agriculture on Samothraki Island*.
- Gruber U. 1979. Patterns of relationship and ecology of Aegean snakes. *Biologia Gallo-Hellenica* 345 348
- Harris W. V. 1992. An Inscription Recording a Proconsul's Visit to Samothrace in 165 A.D. *The American Journal of Philology* 1 71-9.
- Hellenic Ornithological Society. GR007 - Samothraki island. Important Areas for the Birds of Greece . 2007. 5-15-2008. (GENERIC)
Ref Type: Electronic Citation
- Hemberg B. 1950. *Die Kabiren*. Uppsala:
- Hoernes, R. 1874. Geologischer Bau der Insel Samothrake. *Denkschriften der Akademie der Wissenschaften in Wien, Mathem.-Naturw. Cl. Band 33*, Wien.
- Ishwaran N. and Persic A. 2008. Concept and practice: the case of UNESCO biosphere reserve, *International Journal of Environment and Sustainable Development*, 7(2), 118-131.
- IUCN. European Mammal Assessment. IUCN . 10-12-2008. 10-5-2008. (GENERIC)
Ref Type: Electronic Citation
- IUCN - Threatened plants Committee. 1982. The rare threatened and endemic plants of Greece. *Annales Musei Goulandris*
- Kolodny E. 1982. *Samothrace sur Neckar. Des migrants grecs dans l'agglomeration de Stuttgart*. Aix-en-Provence: Insitute de Recherches Mediterraneennes.

- Korsching Peter F., Eric O. Hoiberg, Gordon L. Bultena, and Steven C. Padgitt. 2001. Soil Erosion as a Community Issue: Public Perceptions of Off-Site Impacts. *Society & Natural Resources* 1 67-76.
- Koutrakis, E., G.Sylaios, and A.Tsikliras. 2001. *Fisheries development of the Agios Andreas Lagoon (Samothraki)*. Kavala: NAGREF-Fisheries Research Institute.
- Koutsaftikis A. 1973. A comparative zoogeographical study of some families of Heterocerae from the North Aegean islands Thassos, Samothraki and Limnos. *Annales Musei Goulandris* 185-238.
- Koutsaftikis A. 1974. The faunistic past of the North Aegean islands Thasos, Limnos and Samothraki in relation to the present distribution of the Lepidoptera. *Entomologische Nachrichten* 3 41-3.
- Lawrence A. W. 1926. The Date of the Nike of Samothrace. *The Journal of Hellenic Studies* 213-8.
- Lehmann-Hartleben Karl. 1939. Excavations in Samothrace. *American Journal of Archaeology* 1 133-45.
- Lehmann-Hartleben Karl. 1940. Preliminary Report on the Second Campaign of Excavation in Samothrace. *American Journal of Archaeology* 3 328-58.
- Lehmann-Hartleben Karl. 1943. Cyriacus of Ancona, Aristotle, and Teiresias in Samothrace. *Hesperia* 2 115-34.
- Lehmann-Hartleben Karl. 1955. *Samothrace: a guide to the excavations and the museum*. New York: University Press.
- Lehmann-Hartleben Karl and Phyllis Williams Lehmann. 1959. *Samothrace: Excavations conducted by the Institute of Fine Arts of New York University*. New York: Pantheon Books.
- Lehmann Phyllis Williams. 1972. Addendum to Samothrace, Volume 3: The Lateral Akroteria. *Hesperia* 4 463-5.
- Lehmann, K., 1998. *Samothrace: A Guide to the Excavations and the Museum*, 6th edition. Thessaloniki.

- Matsas D. 1984. Mikro Vouni: A prehistoric community in an island system of North East Aegean Sea (in Greek). *Anthropologika* 6 73-94.
- Matsas, D. and A. Bakirtzis. 2001. Samothrace. A short Cultural Guide, Athens.
- McCredie James R. 1979. Samothrace: Supplementary Investigations, 1968-1977. *Hesperia* 1 1-44.
- Moore Mary B. 1975. Attic Black Figure from Samothrace. *Hesperia* 2 234-50.
- Municipality of Samothraki. 2004. *Corporate planning for Samothraki island: The natural environment of Samothraki*. Municipality of Samothraki, Municipal Development Company of Samothraki, Hellenic Ministry for the Environment, Physical Planning and Public works.
- National Statistical Service of Greece. 2005. *Statistical Yearbook of Greece*. Pireas:
- Oliver James H. 1939. Latin Inscription from Samothrace. *American Journal of Archaeology* 3 464-6.
- Oliver James H. 1966. A Roman Governor Visits Samothrace. *The American Journal of Philology* 1 75-80.
- Petridis P. 2012. Perceptions, attitudes and involvement of local residents in the establishment of a Samothraki Biosphere Reserve, Greece. *Eco.mont - Journal on Protected Mountain Areas Research*, 4(1), 61-65.
- Petridis P., R. Hickisch, M. Klimek, R. Fischer, N. Fuchs, G. Kostakiotis, M. Wendland, M. Zipperer and M. Fischer-Kowalski. 2013. *Exploring local opportunities and barriers for a sustainability transition on a Greek island*. Social Ecology Working Paper 142, Vienna, Austria. Available at: http://www.uni-klu.ac.at/socec/downloads/WP142_WEB.pdf
- Philippson A. 1959. *Das Agaische Meer und seine Inseln (Die griechische Landschaften IV)*. Frankfurt am Main:
- Pounder Robert L. and Nora Dimitrova. 2003. Dedication by the Thessalian League to the Great Gods in Samothrace. *Hesperia* 1 31-9.

- Pujadas Anna and Alicia Castillo. 2007. Social Participation in Conservation Efforts: A Case Study of a Biosphere Reserve on Private Lands in Mexico. *Society & Natural Resources* 1 57-72.
- Rechinger H. K. 1951. *Phytogeographia Aegea*. Wien:
- Rostovtzeff M. 1940. A Note on the New Inscription from Samothrace. *The American Journal of Philology* 2 207-8.
- Singh, S.J., H. Haberl, M. Chertow, M. Mirtl and M. Schmid (Eds.). 2013. Long Term Socio-Ecological Research: Studies in Society: Nature Interactions Across Spatial and Temporal Scales (Vol.2). Springer.
- Skapetas B., D. Nitas, A. Karalazos, and I. Hatziminaoglou. 2004. A study on the herbage mass production and quality for organic grazing sheep in a mountain pasture of northern Greece. *Livestock Production Science* 2-3 277-81.
- Skoulikidis, N., A. Lampou, S. Zogaris, I. Karaouzas and K. Gritzalis. 2013. Inland Waters of Samothraki Island (Greece): Exploratory Ecological Assessment. Paper presented at the 3rd International Geography Symposium - GEOMED 2013, June 10-13, 2013 Kemer, Antalya, Turkey.
- Spanos Ioannis, Panagiotis Platis, Ioannis Meliadis, and Alexandros Tsiontis. 2008. A review on the ecology and management of the Samaria Gorge, a Greek biosphere reserve. *Journal of Geography and Regional Planning* 019-33.
- Stojanov N. and B. Kitanov. 1943. Beitrag zur kenntnis der Florula der Insel Samothrake. *Bull.Soc.Bot.Bulg* 49-51.
- Strid A. 1986. *Mountain flora of Greece*. Cambridge: Cambridge University Press. 1.
- Strid A. and K. Tan. 1991. *Mountain flora of Greece*. Edinburgh: Edinburgh University Press. 2.
- Strid A. and K. Tan. 1998. *Flora and vegetation of North East Greece, including Thasos and Samothraki - Report of a student excursion from University of Copenhagen, May 17-31, 1997*. Copenhagen: Botanical Institute, University of Copenhagen.
- Tzanoudakis D. and K. Tan. 2000. *Allium samothracicum*, a new species from the North Aegean area, Greece. *Portugaliae Acta Biologica* 355-60.

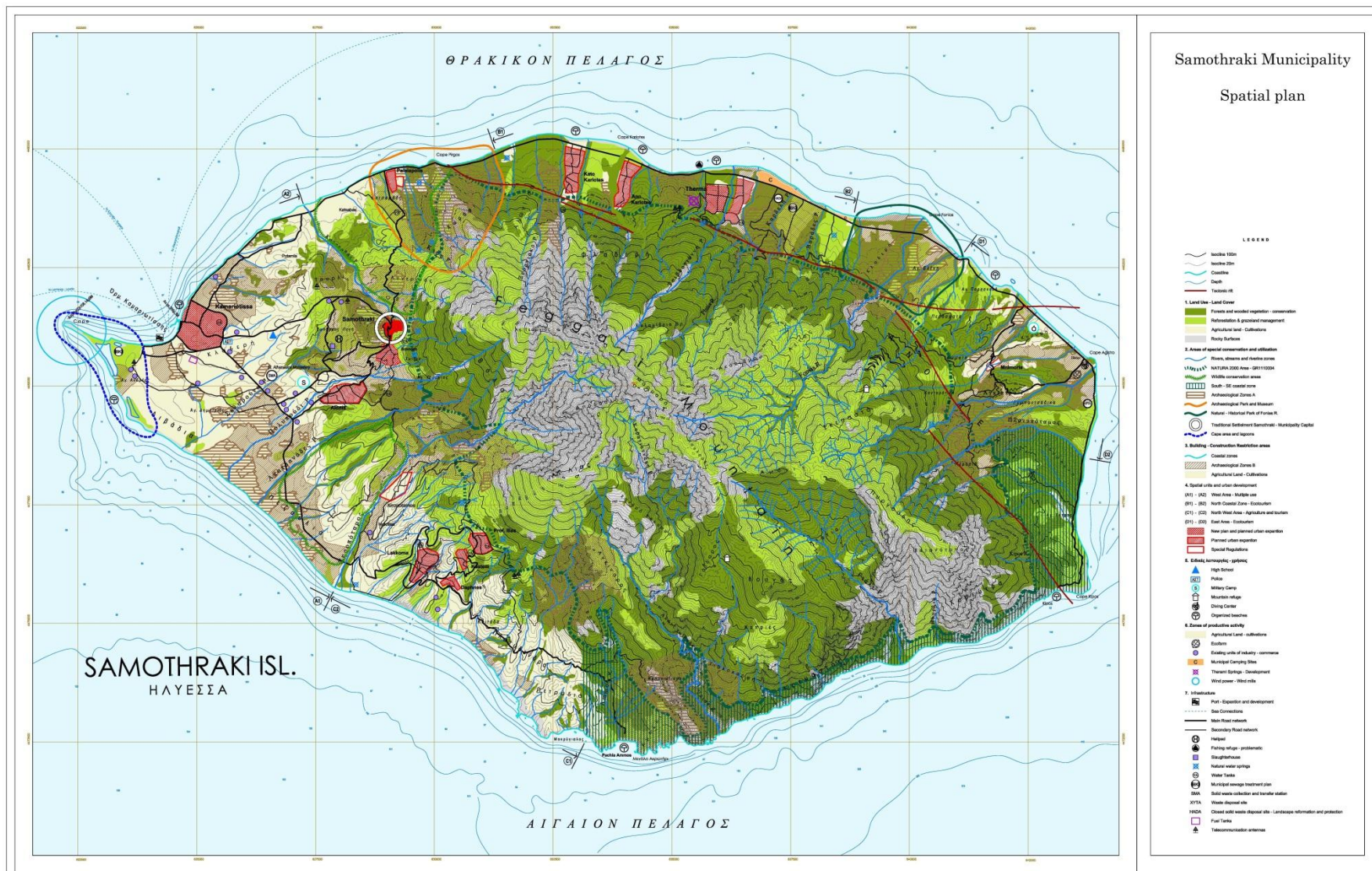
- Unesco Courier. 1995. *The Seville Strategy for Biosphere Reserves and Statutory Framework of the World Network of Biosphere Reserves*.
- Unesco Courier. 1997. The world network of biosphere reserves. *UNESCO Courier* 5 36
- Vohlarik V. and T. Sofianidou. 1991. Small mammals (Insectivora, Rodentia) of Thrace, Greece. *Acta Universitatis Carolinae Biologica* 341-69.
- Wallner Astrid, Nicole Bauer, and Marcel Hunziker. 2007. Perceptions and evaluations of biosphere reserves by local residents in Switzerland and Ukraine. *Landscape and Urban Planning* 2-3 104-14.
- Watson G. E. 1962. Notes on copulation and distribution of Aegean land tortoises. *Copeia* 317-21.
- Welch Katherine. 1996. A Statute Head of the "Great Mother" Discovered in Samothrace. *Hesperia* 4 467-73.
- WWF - Greece. 1995. *The red data book of rare and threatened plants of Greece*. Patras: World Wide Fund for Nature (WWF). eds. Phitos D., A. Strid, S. Snogerup, and W. Greuter.
- Yiakoulaki M. D. and A. S. Nastis. 1995. Intake by goats grazing kermes oak shrublands with varying cover in Northern Greece. *Small Ruminant Research* 3 223-8.
- Zapparoli M. 1993. Taxonomic, faunistic and zoological considerations on the Chilopodes from the Aegean islands. *Biologia Gallo-Hellenica* 1 89-98.



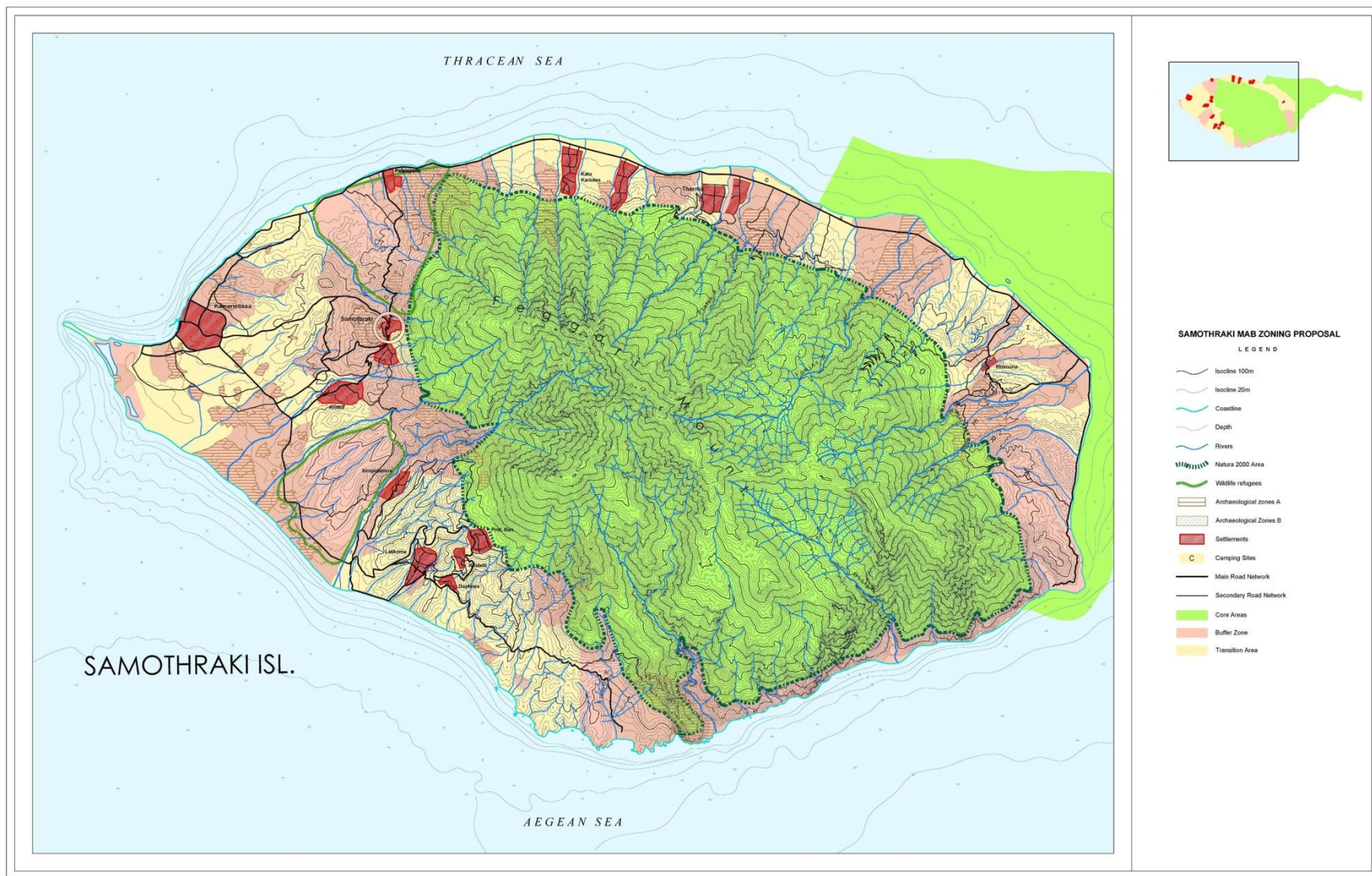
The Greek island of Samothraki and its location within the Aegean Sea



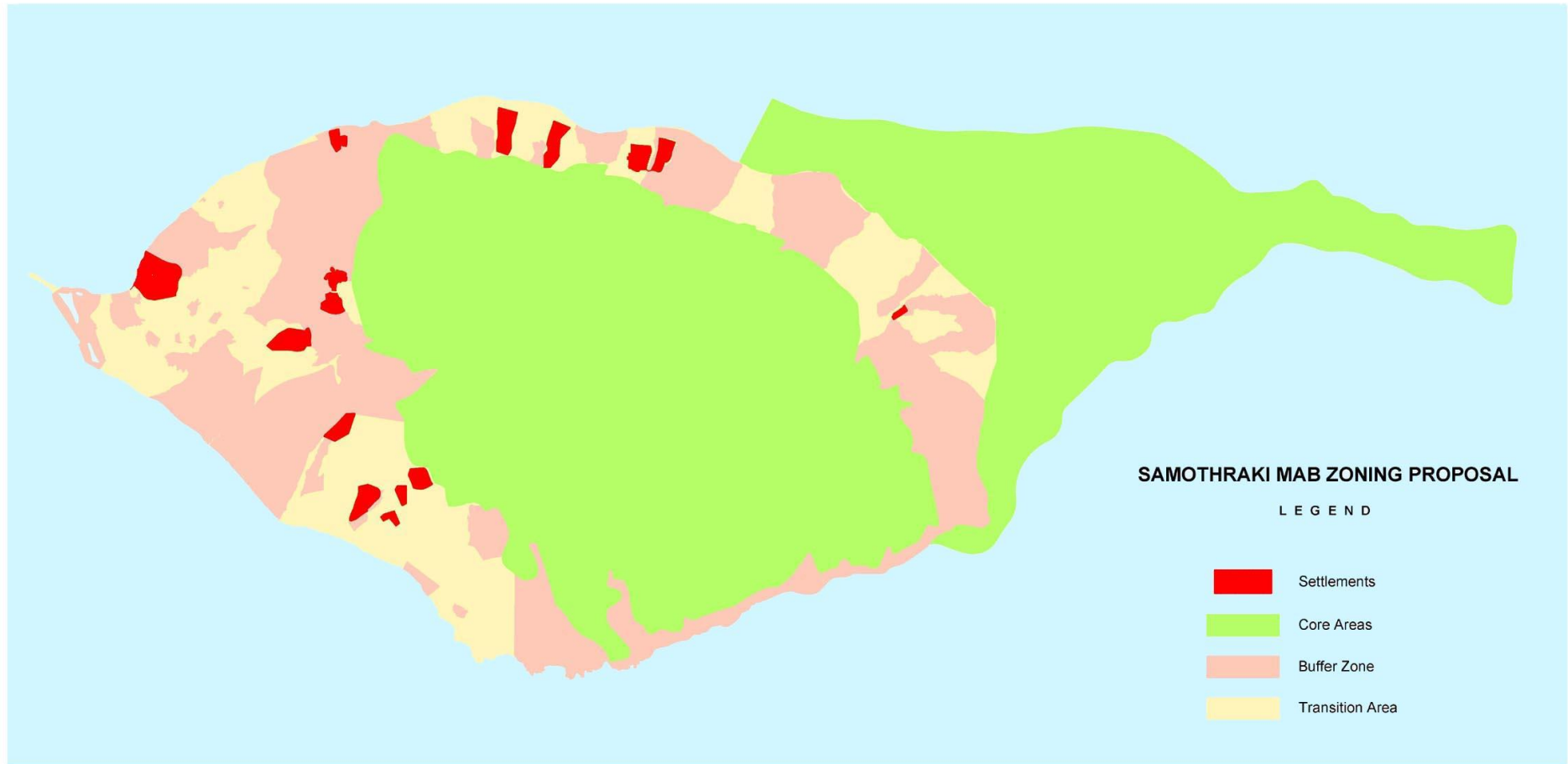
General Overview Map of Samothraki



Samothraki Municipality Spatial Plan



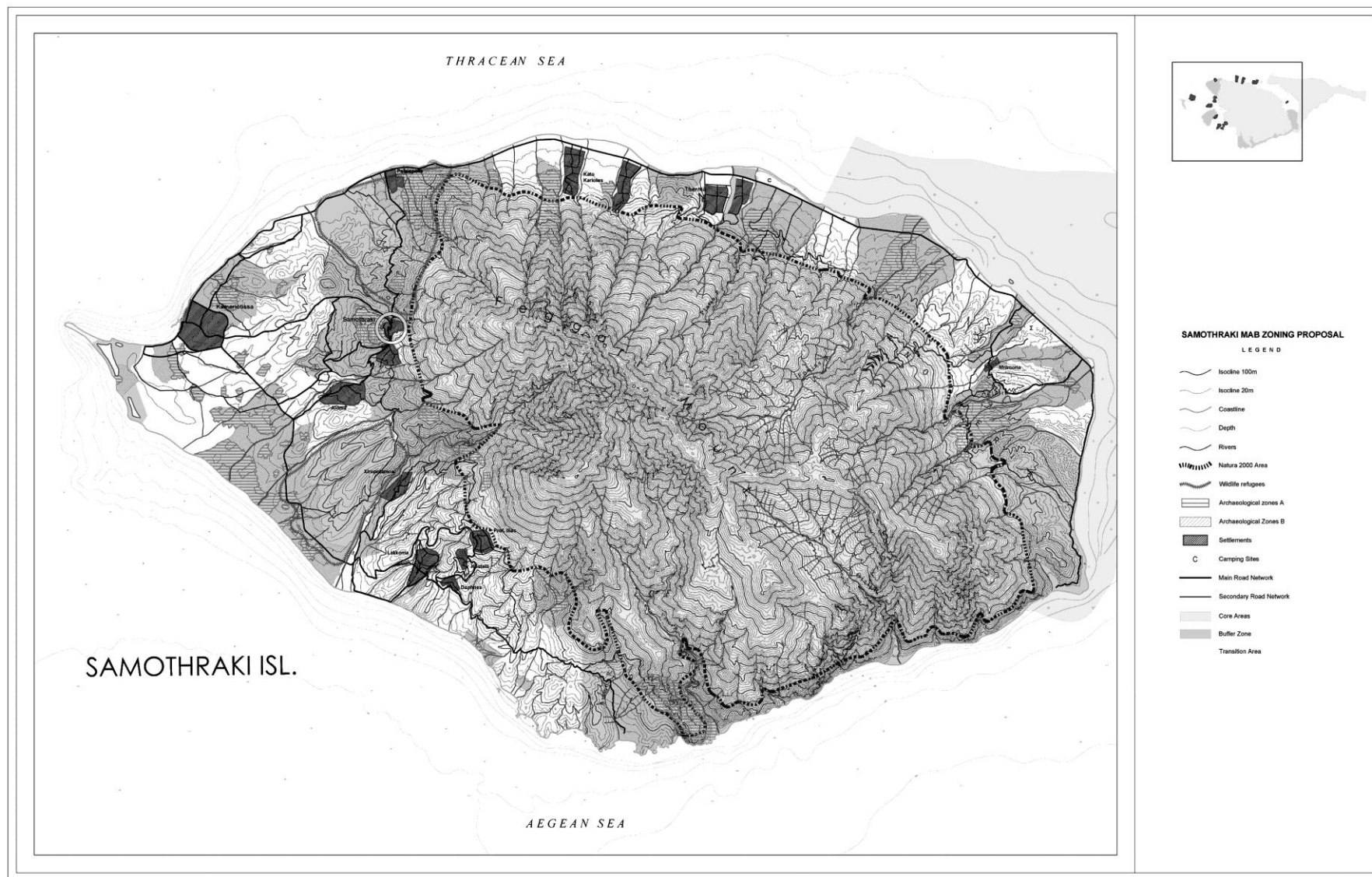
Samothraki Biosphere Reserve Proposed zonation



Samothraki Biosphere Reserve Zoning overview

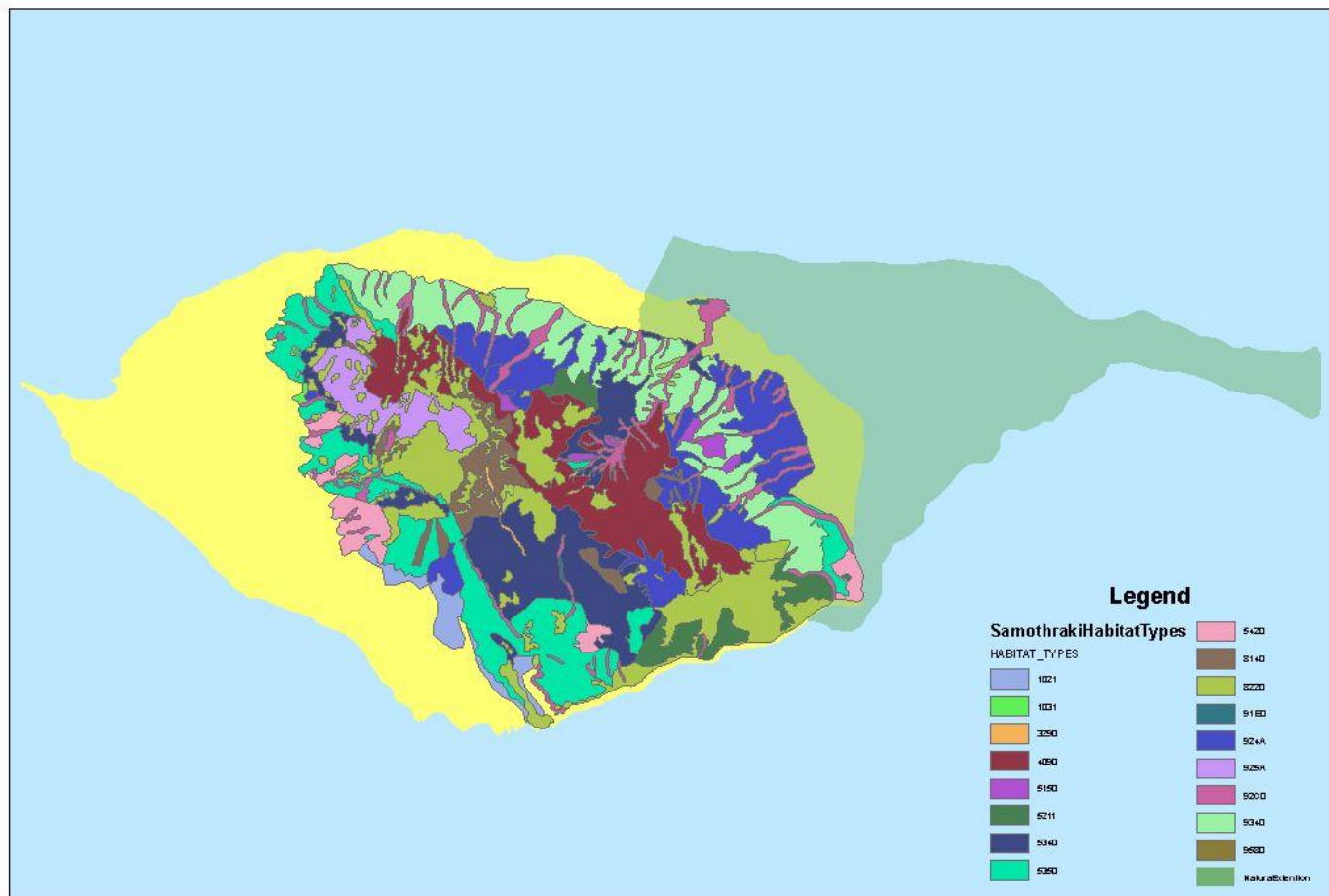


Samothraki Biosphere Reserve Zoning overview Grayscale



Samothraki Man and Biosphere Reserve Zoning Grayscale

Samothraki NATURA 2000: Habitat types and Extension



Samothraki NATURA 2000 Area Habitats Directive Site (SCI), code: GR1110004, (coinciding with the proposed BR core zone) habitat types and recent extension. Codes of Habitat can be found in the following table.

Habitat Type	Code
Intermittently flowing Mediterranean rivers	3290
Endemic oro-Mediterranean heaths with gorse	4090
Bracken fields	5150
<i>Juniperus oxycedrus</i> arborescent matorral	5211
Eastern Garrigues / Carrigues with Labiatae	5340
Pseudomaquis	5350
Aegean phrygana (<i>Sarcopoterium spinosum</i>)	5420
Balkan screes	8140
Vegetated silicicolous inland cliffs with casmophytic vegetation	8220
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> – Residual alluvial forest	91E0
Eastern white oak woods and balkanic thermophilous oak woods	924A
Hop-hornbeam, oriental hornbeam and mixed thermophilous forests	925A
Oriental plane woods (<i>Platanion orientalis</i>)	92C0
<i>Quercus ilex</i> forests	9340
<i>Taxus baccata</i> woods	9580
Agriculture	1021
Reforestation	1031