

# Cultural and Natural Heritage Sites

Greece scale





## Analysis of Threats and Enabling Factors for Sustainable Tourism at Pilot Scale

# Cultural and natural heritage sites Greece Scale



## OVERVIEW

The present document was produced in the framework of **Co-Evolve4BG** project “*Co-evolution of coastal human activities & Med natural systems for sustainable tourism & Blue Growth in the Mediterranean*” in relation to Threats and Enabling Factors for maritime and coastal tourism development on a national scale” Co-funded by ENI CBC Med Programme (Grant Agreement A\_B.4.4\_0075).

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## Abstract

This study aims to introduce the cultural and natural heritage of Greece (archaeological sites, historical monuments, urban complexes) located in coastal zones, in order to introduce and integrate them into a project of sustainable development, while identifying the difficulties and risks they face. The information provided was collected from various official sources such as UNESCO and studies in scientific journals.

## I. Introduction

On the eastern side of the Mediterranean, Greece is considered one of the distinguished countries, historically and archaeologically, as archaeological evidence has shown that its history dates to prehistoric times. This archaeological and historical heritage must be protected to ensure its survival for future generations. In this deliverable, the most important cultural heritage sites and Geoparks, which are in coastal areas, will be briefly presented, to determine their importance and identify the dangers they may face in the future.

It is worth noting that the threats and dangers concerning these monuments do not only involve the case of Greece but also the entire Mediterranean basin. Many monuments along the Mediterranean are in coastal areas; several studies have been done on the effects of climate change and not only on these monuments. However, very little research has been done on these monuments in Greece, so the present study is based on the international literature trying to apply the effects in the case of Greek monuments located in coastal areas. These studies include: Bardsley and Edwards-Jones, 2007; Ciantelli *et al.* 2018; Dastgerdi *et al.* 2019; Dastgerdi *et al.* 2020 and OECD, 2000.

In Greece, there are many monuments of cultural heritage and natural environment. Some of them are located near coastal areas. According to the UNESCO list, cultural heritage sites are presented in Table 1.

On the other hand, the Geoparks in Greece are equally important regarding the preservation of the natural environment and the protection of specific species. In Greece, UNESCO has recognized the 5 Geoparks, which are presented in Table 2.

In the following analysis, only some of the monuments mentioned above are examined and presented. The main criterion for the selection of monuments is their distance from the sea and the coast.

**Table 1.** Cultural Heritage Monuments, UNESCO

No	Cultural Heritage Monuments, UNESCO
1	Temple of Apollo Epicurius at Bassae
2	Acropolis of Athens
3	Archaeological Site of Delphi
4	Medieval city of Rhodes
5	Meteora
6	Mount Athos
7	Paleochristian and Byzantine monuments of Thessaloniki
8	Sanctuary of Asclepius at Epidaurus
9	Archaeological Site of Mystras
10	Archaeological Site of Olympia
11	Delos
12	Monasteries of Daphni, Hosios Loukas and Nea Moni of Chios
13	Archaeological site of Heraion of Samos
14	Archaeological Site of Aigai (Vergina)
15	Archaeological Sites of Mycenae and Tiryns
16	Historic Centre (Chora), with the Monastery of Saint John the Theologian and the Cave of the Apocalypse on Patmos
17	Old town of Corfu
18	Archaeological Site of Philippi

**Table 2.** Geoparks in Greece

No	Geoparks in Greece
1	Psiloritis Natural Park
2	Petrified Forest of Lesbos
3	Helmos-Vouraikos Global Geopark
4	Sitia Nature Park
5	Vikos-Aoos National Park

## II. Medieval City of Rhodes

### II.1. Current Status

The city of Rhodes was founded in 408 BC at the northern end of the island and was built based on an even urban planning system, designed by Hippocampus the Milesian. The ancient city was succeeded by the Byzantine one, much more limited in size and fortified as early as the 7<sup>th</sup> century. This first Byzantine fortification included just the area named by the Knights “Koulakoi”. At the beginning of the 12th century, however, the wall was extended to include a rectangular shaped area of 175,000 m<sup>2</sup>. This city was conquered by the Knights of St. John in 1309<sup>1</sup>.

A milestone in the history of Rhodes is the year 1522, when Suleiman the Magnificent managed, after an exhausting siege for the population, to capitulate with the Knights (Soucek, 2004). The order of chivalry was forced to deliver the city to the Turks, to leave its headquarters and to withdraw to Malta, leaving behind several monuments and indelible traces of its presence on the island. The period of Ottoman rule lasted until 1912 and was followed by the period of Italian occupation (1912-1948). Only in 1948 was the island integrated into the Greek state.



The site includes monuments such as Agia Triada, Agios Athanasios, Agia Aikaterini, the Palace of the Grand Master and the medieval city fortifications.

1

[http://odysseus.culture.gr/h/3/gh351.jsp?obj\\_id=7029](http://odysseus.culture.gr/h/3/gh351.jsp?obj_id=7029)



**Figure 1.** Medieval city of Rhodes  
([https://viagallica.com/grece/lang\\_el/ville\\_rhodes.htm](https://viagallica.com/grece/lang_el/ville_rhodes.htm))

### II.3. Threats and Risks

- Floods
- Earthquakes
- Coastal erosion
- Climate change

### II.4. Suggestions

- Reduction of air pollution
- Sustainable tourism
- Conservation tasks of the monument

## III. Sanctuary of Asclepius at Epidaurus

### III.1. Current Status

The Sanctuary of Asclepius is situated in the eastern Peloponnese. It was built approximately in the 4<sup>th</sup> century BC and was in operation until the 4<sup>th</sup> century AD. The archaeological site consists of smaller monuments and temples among others, such as the Ancient Theater of Epidaurus, the Tholos, the temple of the Asklepiion and the Greek Baths of Epidaurus.

The monument is in a coastal area and is distinguished by a mild climate and abundant thermal springs. In ancient and Roman times, throughout the eastern Mediterranean, about 200 other installations were found which were considered annexes of the Asclepieion.

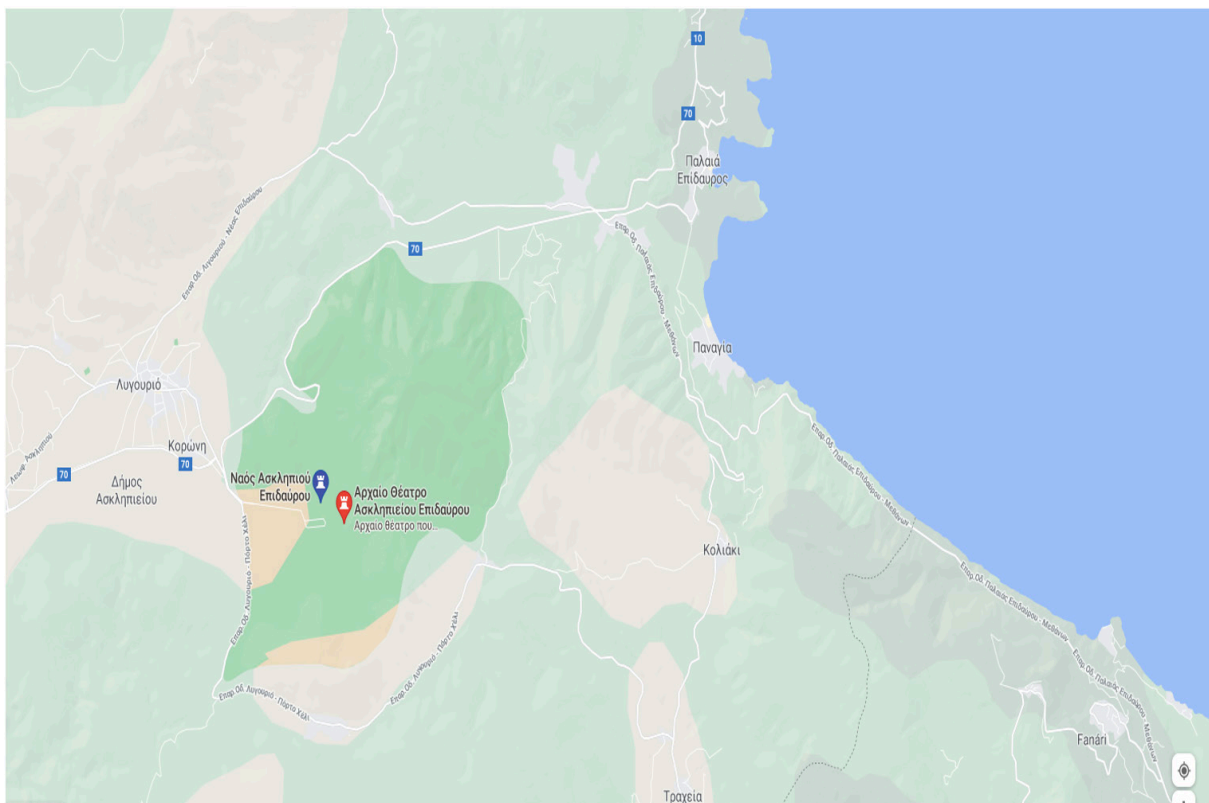


Figure 2. Sanctuary of Asclepius at Epidaurus





Figure 3. Asclepieions net in the Mediterranean (Sailingissues.com)

### III.2. Analysis of threats and risks

The archeological site of Epidaurus is under full protection by law No 3028/2002 (Protection of Antiquities and Cultural Heritage). For this reason, nothing is allowed to be built in the area.

The archaeological site has undergone maintenance and improvement projects, including interventions in important monuments, as well as projects to upgrade the environment and upgrade the services provided to visitors. An upgraded fire protection system has been developed, using conventional and modern instruments. During the restoration work, all the necessary measures are applied to ensure the stability of the monuments, and thus the findings in the museum and its warehouses are adequately protected from earthquakes. At the same time, dangers from the weather are likely to occur in the area, because it is situated relatively close to the sea.



### III.3. Suggestions

Although the site has already been restored and maintained to a great extent and the monument receives an extremely high number of visitors, some suggestions (several have already been implemented) are:

- Creation of historical corridors in the archeological site.
- Visitor management planning
- Reduction of air pollution
- Sustainable tourism
- Conservation works of the monument

## IV. Mount Athos



The steep slopes of Mount Athos, covered with chestnut and other Mediterranean forest species, are perforated by twenty imposing monasteries and their subsidiary facilities. Mount Athos covers an area of over 33.000 hectares, including the entire narrow rocky strip of the eastern peninsula of Halkidiki ([whc.unesco.org](http://whc.unesco.org)).

Agriculture is an important part of the daily life of monks. An orthodox spiritual center since the 10<sup>th</sup> century, Mount Athos has had a self-managed position since

the Byzantine years. “Mount Athos”, which is forbidden to women and children, is also a recognized artistic space. The layout of the monasteries (currently inhabited by 1,400 monks) was as influential as those of Russia, and its school of painting influenced the history of Orthodox art.

Criterion (i): The transformation of a mountain into a sacred place made Mount Athos a unique artistic creation that combines the natural beauty of the area with the expanded forms of architectural creation. In addition, the monasteries of Mount Athos are a veritable conservatory of masterpieces ranging from frescoes (such as the works of Manuel Panselinos in the church of Protonius around 1290 and Frangos Katelanos in the Great Lavra in 1560) in portable icons, gold objects, embroidery, and illuminated manuscripts.

Criterion (ii): Mount Athos exerted a lasting influence on the Orthodox world, of which it is the spiritual centre, in the development of religious architecture and monumental painting. The typical layout of Athonite monasteries was used as far away as Russia. The iconographic themes, codified by the school of painting on Mount Athos and mentioned in detail in the Painting Guide (discovered and published by Didron in 1845), were used and processed by Crete in the Balkans from the 16<sup>th</sup> century onwards.

The monasteries of Athos present the typical form of orthodox monastic facilities. The auxiliary spaces of the monasteries (dining rooms, cells, libraries, etc.) follow the architecture of the 10<sup>th</sup> century.

The harmonious interaction of traditional agricultural and forestry practices is associated with the strict observance of monastic rules over the centuries, which has led to the excellent preservation of the Mediterranean forests and the corresponding flora of Mount Athos.

All the monasteries are well maintained due to the ongoing restoration works carried out according to approved plans. The materials used for the restoration are traditional and environmentally friendly.

Mount Athos includes an entire peninsula of 33,042 hectares, an area of sufficient size to preserve a rich flora and fauna that has been well preserved with careful management of forests and traditional agricultural practices. Although preserved, the natural environment is vulnerable to forest fires, infrastructure development (mainly roads), and seismic activity. Monastic activities have retained their traditional character due to rules that have remained relatively unchanged over the centuries and the evolution of monastic life must not harm the environment.

Restoration and maintenance works, co-financed by the European Union, are carried out by the Greek State (10<sup>th</sup> Ephorate of Byzantine Antiquities and Centre for the Preservation of Athonite Heritage). There is a continuous cooperation between the competent services of the Ministry of Education and Religions, Culture, and Sports, the General Secretariat of Culture and other ministries in the monastic community. However, it should be emphasized that planning and executing all work related to individual Holy Monasteries requires both their consent and that of the Holy Community.

Preserving its exceptional value requires the constant maintenance of buildings, including murals, as well as manuscripts and works of art. Studies have been carried out on the installation of infrastructure in the buildings of the monastery, including fire protection. The protection and management of forests, including the provision of important infrastructure, is the subject of specialised programs designed by the monasteries, in collaboration with the Holy Community and relevant scientists.

## IV.1. Threats and Risks

- Floods
- Winds
- Earthquakes
- Coastal erosion
- Climate change

## IV.2. Suggestions

- Reduction of air pollution
- Sustainable tourism
- Conservation works of the monument
- Creation of historical corridors in the archeological site.
- Visitor management planning
- Waste management
- Maintenance and protection of forests against fires.

## V. Delos

The island of Delos is an extensive archaeological site that dates from 3000 BC. The monuments show that Delos was a rich and cosmopolitan Mediterranean port. The island has the Sanctuary of Apollo, while it reached its peak during the Archaic and Classical times. After 167 BC Delos is presented as the main port for all commercial transactions of the eastern Mediterranean.

Delos has been preserved over the centuries because it remained uninhabited from the 7th century AD, and because of its remoteness. Today, the whole island has been designated as an archaeological site. The Ministry of Culture, Education, and Religions monitors the condition of the monuments and continuously provides their protection, preservation, support, and presentation. Therefore, the property not only maintains its integrity, but also, through ongoing projects that serve its maintenance, continuously improves and highlights the values for which it has been designated a World Heritage Site. Among the most important factors that affect the monuments of Delos are the strong north winds that dominate the central region of the Aegean and its proximity to the sea. The property receives more than 100,000 visitors per year and any hazards to the fragile landscape are measured.

The restoration work mainly aims at preserving the monuments in the condition found during the excavations, while the methods and materials used are compatible, distinct, and reversible, according to international standards. Therefore, there are no changes to the authenticity of the site in the last 130 years.

The landscape also remains unchanged, no village or town was ever built on top of the ancient ruins. The only modern constructions on the island are the Museum and some small houses for the staff, which were necessary for the operation of the island as an archaeological site.

The whole island of Delos is an archaeological site, protected according to the provisions of Law 3028/2002 “General for the Protection of Antiquities and Cultural Heritage”. The Ministry of Culture, Education, and Religions is the competent body that supervises the website and supervises all the work that is done. The Ephorate of Antiquities of the Cyclades, the competent Regional Service of the Ministry, is responsible for its management and protection. All projects carried out at the archaeological site are supervised by the Committee for the Preservation of Monuments of Delos, a scientific body that designs, supervises, and executes work programs for the maintenance, support, and restoration of monuments, as well as for the presentation and protection of the property.

Due to possible damage from the north wind, fragile marble sculptures, such as the Naxia Lions, were transferred to the Museum and have been replaced with exact copies. In addition, research was conducted to investigate the building materials of ancient monuments, their origin, and their pathology. There are also ongoing studies on the overall maintenance, support, and presentation of these monuments.

Many projects have been implemented in the huge archaeological site of Delos in recent years, with funding from the European Union and the Greek state. The aim of the projects was the maintenance and unification of the monuments and the creation of visitors' paths, thus ensuring access to the entire archaeological site, especially for people with special needs. In addition, the projects aspired to make the visit to the site truly instructive, substantial and, of course, safe for monuments and visitors.

Despite the great practical difficulties arising from its remoteness, which considerably aggravates the conditions for carrying out any type of work, and from the fact that the guardians of antiquities, archaeologists, curators, architects and technicians reside on the island throughout the year in order to carry out maintenance, restoration and identification - development work; the site has gradually been made accessible, more "readable", understandable and user-friendly for many visitors. However, the maintenance and renovation of the museum are considered necessary in order to improve the experience of the visitors.

Any risks to the fragile landscape and ancient monuments that may arise from the growing number of visitors are mitigated by setting specific itineraries and hiring temporary staff during the high tourist season.

## V.1. Threats and Risks

- Floods
- Winds
- Earthquakes
- Coastal erosion
- Climate change

## V.2. Suggestions

- Reduction of air pollution
- Sustainable tourism
- Conservation works of the monument
- Creation of historical corridors in the archeological site
- Visitor management.

## VI. Pythagoreion and Heraion of Samos

### VI.1. Current Status



**A**ncient Samos (Pythagorion) was considered one of the most important cities of antiquity. Both in this region and in the region of Hera, the oldest archaeological discoveries date back to the 4th millennium BC. The period of prosperity of Samos is placed in the middle of the 6th century BC. The island was a large naval power and gained trade relations with neighbouring Asia Minor and the Mediterranean countries. The Samians established colonies on the Ionian

coast, in Thrace, and the West ([whc.unesco.org](http://whc.unesco.org)).

Its importance is reflected in the extent and richness of the archaeological remains, which to a large extent have not been touched by the subsequent development. The ruins of Samos are some of the most impressive and complete in the Greco-Roman world.

Threats to the integrity of the monuments are due to humidity, the marine environment, illegal constructions, and free grazing.

Authenticity is maintained through the application of preservation and restoration methods, which respect the original constructions. The projects carried out aim to preserve the ancient ruins, to enhance them and to present them without calling into question their characteristics. Interventions were minimal in order to preserve their original form as revealed after the excavations. All the materials used were previously analyzed in specialized laboratories to test their compatibility with the ancient ones.

The Ephorate manager, through continuous monitoring of the area and its interventions, where necessary, has successfully addressed these threats, maintaining the physical and visual integrity of the site. In addition, it makes efforts through informational and educational activities to raise the awareness of the local community on issues of protection of the site, especially among young people.

In the case of Heraion, specific issues need to be addressed, such as the uncontrolled growth of vegetation and water, which are associated with both the high level of humidity and precipitation in the area. These negative factors are addressed through the continuous removal of vegetation and the channeling of water into the sea. In a project to strengthen Heraion, which took place in the period 2004-2007, facilities and visitor itineraries were created, while information boards have been placed to familiarize visitors with the history, architecture, and use of the property.



Several projects, related to the maintenance and enhancement of the two spaces, have been considered with a view to making accessible and “readable” an important part of the urban fabric at the center of both the ancient city and the modern city. Maintenance works have also been planned in the Eupalinos tunnel. At the same time, the Ephorate conducts archaeological research to study ancient topography and discover building blocks, so that the creation of an archaeological park will be possible in the future.



**Figure 4.** Heraion of Samos

(<http://www.hellenicaworld.com/Greece/Geo/gr/IraionSamou.html>)

## VI.2. Threats and Risks

- Floods
- Coastal erosion
- Climate change
- Earthquakes
- Free grazing
- Illegal construction of buildings

## VI.3. Suggestions

- Reduction of air pollution
- Sustainable tourism
- Conservation works of the monument
- Creation of historical corridors in the archeological site.
- Visitor management planning

## VII. Historic centre (CHORA), with monastery of Saint John the theologian and the cave of the Apocalypse on Patmos Current Status



**T**he small island of Patmos in the Dodecanese is famous as the place where Saint John the Theologian wrote both the Gospel and the Apocalypse around 95 AD. A monastery dedicated to Saint John was founded there in 1088 by Osios Christodoulos Latinos and since then it has been a place of worship. Its founding was part of the policy of Emperor Alexios I Komnenos to colonise the islands and establish a base in the Aegean. The colonisation of Chora of Patmos took place gradually around the fortified monastic complex, which always had

absolute domination on the island as the main governor and regulator of the islanders' social life organization (whc.unesco.org).

The monastery of Saint John the Theologian is a unique creation, which incorporates monastic values in a fortified enclosure, which has evolved in response to the changing political and economic conditions for over 900 years. It has the appearance of a polygonal castle, with towers and intersections. The house has also a remarkable collection of manuscripts, icons, and functional works of art and objects. The old settlement of Chora has many religious buildings. It is one of the oldest and best-preserved villages in the Aegean, while it is the only one that is organised around a monastic complex.

The monastic complex of Saint John the Theologian, the cave of the Apocalypse, and the settlement of Chora itself retain their primary morphology to this day. The original forms have been preserved. The settlement, which gradually developed around the monastery, is still inhabited, and continues to expand, but always within certain limits and under the strict control and regulations of the responsible authorities. The changes that took place over the centuries and under the influence of historical conditions allow the visitor to see even today the separate phases. The main dangers are likely to arise from the tourism and the overdevelopment of the port of Skala in the wider environment. In addition, Patmos is in a seismic zone.

The authentic character of the settlement in Chora of Patmos survives due to the protective legislative regulations (ministerial decisions published in the Official Government Gazette) that were implemented in the area since 1948 when the island of Patmos was integrated into the Greek state. Any intervention in the area without the approval of the Ephorate of Antiquities of the Dodecanese is prohibited.



## VII.1. Threats and Risks

- Floods
- Coastal erosion
- Earthquakes
- Climate change

## VII.2. Suggestions

- Reduction of air pollution
- Sustainable tourism
- Conservation works of the monument

## VIII. Old town of Corfu

### VIII.1. Current Status



The Old Town of Corfu, on the west coast of Albania and Greece, is strategically located at the entrance to the Adriatic Sea and has its roots in the 8<sup>th</sup> century BC. The three forts of the city, designed by Venetian engineers, were used for four centuries to defend the maritime commercial interests of the Republic of Venice against the Ottoman Empire. Over time, the forts were repaired and partially rebuilt several times, most recently under British rule in the 19<sup>th</sup> century. The main neoclassical housing stock of the Old Town comes partly from the Venetian period, partly from later constructions, especially in the 19<sup>th</sup> century ([whc.unesco.org](http://whc.unesco.org)).

As a fortified port of the Mediterranean, the urban and port ensemble of Corfu is remarkable for its high level of integrity and authenticity.

The overall form of the fortifications has been preserved and shows traces of Venetian occupation, including the old citadel and the new fort, but mainly interventions from the British period. The present form of the ensemble derives from the works of the 19<sup>th</sup> and 20<sup>th</sup> centuries. The authenticity and integrity of the urban tissue are those of a neoclassical city.

The responsibility for protection is shared by various institutions and the relevant decrees. These include the Ministry of Culture (ministerial decision of 1980), the Ministry of Environment, Spatial Planning and Public Works (Presidential Decree of 1980), and the Municipality of Corfu (Presidential Decree of 1981). Also relevant are the Greek law for the costs of cities and islands in general, the law on the protection of antiquities and cultural heritage in general (no. 3028/2002), and the creation of new independent supervision of Byzantine and post-Byzantine antiquities in 2006. A protection zone has been established. Preventive policies to restore and strengthen the fortifications and the citadel have led to a generally accepted conservation status. However, many projects have not yet been completed or started.

## VIII.2. Threats and Risks

- Floods
- Coastal erosion
- Earthquakes
- Climate change

## VIII.3. Suggestions

- Reduction of air pollution
- Sustainable tourism
- Conservation works of the monument

## IX. Petrified Forest of Lesvos

### IX.1. Current Status

The Petrified Forest of Lesvos is a unique monument of nature, which has been declared a “Preserved Monument of Nature”. From the systematic study of fossilized trunks and leaves have been determined the genus and species of plants that made up the forest of Lesvos 20 million years ago. The island is scattered with unique value and important natural creations and deities such as volcanoes, hot springs, mineral springs and mineral sites, large geological faults, important fossil sites, rocky shores and preserves important evidence of the geological history of the basin (whc.unesco.org).



### IX.2. Threats and Risks

- Floods
- Earthquakes
- Tourism
- Erosion
- Road construction and other development projects
- Intensive fishing. The seabed is scraped and the meadows of *Posidonia Oceanica* are destroyed
- Loss of biodiversity due to climate change



**Figure 5.** Petrified Forest of Lesvos

### IX.3. Suggestions

- Reduction of air pollution
- Sustainable tourism
- Conservation works of the monument
- Informing the community about the protection of the park
- Education for sustainability and environmental protection.

## X. Sitia Nature Park

### X.1. Current Status

It includes the plateau and the eastern coastline which has a unique geophysical wealth: caves, gorges, rare rocks, and fossils. A mosaic of habitats and ecosystems, such as the Vai Palm Forest, is unique to the Mediterranean region. The area includes impressive rocks and special formations as well as a wealth of fossils. Within the Park, more than 100 geotopes have been captured, locations that are special and characteristic monuments of the geo-heritage.

### X.2. Threats and Risks

- Floods
- Coastal erosion
- Climate change
- Illegal use of natural resources and materials
- Vandalism
- Lack of protection
- Loss of biodiversity due to climate change

### X.3. Suggestions

- Reduction of air pollution
- Sustainable tourism
- Conservation works of the monument
- Informing the community about the protection of the park
- Training for sustainability and environmental protection

## XI. Cultural and natural parameters

As part of the Co-Evolve4BG project, a set of parameters has been developed to provide an overview of the different cultural and natural sites in the coastal zones. This set consists of 9 parameters as shown in Table 3.

Data related to these parameters were collected at both the national and regional levels.

**Table 3.** Parameters of cultural and natural heritage monuments

Parameters	Description	Source
<b>Monument name</b>	Name	Monument website
<b>Monument place</b>	Co-ordinates	Google maps
<b>Area</b>	Wider geographical area	Monument website
<b>Protection of cultural heritage</b>	Determination if there are plans or strategies for the protection of the cultural space (Yes/No)	Responsible Ephorate of Antiquities
<b>Vulnerability of the monument</b>	Indication if the site is in a vulnerable zone	Responsible Ephorate of Antiquities
<b>Threats</b>	Reporting if the monument is in danger	Responsible Ephorate of Antiquities
<b>Number of visitors 2018</b>	Reporting the number of visitors to the cultural area in 2018	Responsible Ephorate of Antiquities
<b>Number of visitors 2019</b>	Reporting the number of visitors to the cultural area in 2019	Responsible Ephorate of Antiquities
<b>Annual increase rate of visitors</b>	Classifies the decrease/increase of visitors to the cultural area	Responsible Ephorate of Antiquities

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