

## 3.3c Lemnos, NE Aegean

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Stefanos Dodouras

### Introduction

In general, the ultimate goal of all research is to find relations between variables. Given that landscapes usually reflect reality and historical time, there are many such variables to consider. The environmental qualities and cultural values of a given area can influence the way humans shape their diverse social attitude. Each and every individual is likely to understand and describe a landscape in their own distinct way; determined by gender, age, social background, education and personal concerns, their perception contains a deeper meaning. Yet, landscapes do not exist in isolation; nature shapes them, but it is human presence that bestows identity upon them. This also applies to the landscapes and seascapes of insular regions.

The territory of Greece includes 6000 islands, a unique geo-morphological phenomenon on the European continent. Lemnos' key geographical position has determined not only its history, but also its landscapes. These landscapes, tangible signs of Lemnos' journey through time, reveal the richness of its natural environment, the daily activities of its people, different aspects of its socio-cultural life and several major historical events. However, the numerous –and inherently complex– sustainability issues involved in landscape conservation and management result in a high degree of uncertainty, since important parameters tend to be ignored. Thus, the issue of how to develop a decision support tool to rationalise and facilitate the complicated management process is an area that requires further investigation.



Fig. 3.12: Louri beach. The ruins of the oldest human settlement in the Aegean have recently been unearthed by archaeologists excavating at Louri beach

## General description

Lemnos is the eighth largest Greek island. Its history dates back to the Bronze Age and the rural community of Poliochni. After the destruction of Poliochni, several tribes (including the Sintians, Minyans and Pelasgians) settled on the island. The Achaean army also stopped off on Lemnos on its way to Troy. Between 510 and 166 BC, Lemnos was occupied by the Athenians, Persians, Spartans, Macedonians and the Romans, who eventually offered Lemnos back to the Athenians. Lemnos remained under Athenian rule until the second century AD. During this period, Lemnos served as Athens' granary, as it would later serve as Constantinople's during Byzantine times. Over the centuries that followed, Lemnos would be ruled by the Byzantines, Venetians, Franks and Genoese until the island became part of the Ottoman Empire in 1479. Lemnos was finally liberated in 1912, and formally became part of Greece in 1914. After the Asia Minor disaster of 1922, a considerable number of Greek refugees settled on the island. In 1941, the Nazis occupied Lemnos. When the Greek Civil War broke out shortly after their departure in 1944, Lemnos became a place of exile for the 'non-compliant'. By the end of the twentieth century, slow economic development and social progress had led to mass migration, primarily to Egypt, America and Australia (Arg. Moschidis Academic Association, 2008).

Lemnos belongs to the purely insular Region of the North Aegean, and along with Agios Efstratios forms the Regional Department (formerly County) of Lemnos, which used to be part of the Prefecture of Lesvos (Fig. 3.13). The decline of Lemnos' population began with the end of the Greek Civil War (NSSG, 1930; 1964; 1978; 1994; 2004). The rate of population decline reached its highest point in 1971, while in 1981 the island had a resident population of 15 721 people. In 2001, Lemnos had a population of approximately 18 000 inhabitants, with Myrina being the largest municipal department with 7488 inhabitants.



Fig. 3.13: Lemnos belongs to the purely insular Region of the North Aegean

In comparison to other Aegean islands, Lemnos is characterised by an intense horizontal relief, absence of limestone cliffs, low land formations, medium inclines and intense human intervention, i.e. agriculture and livestock (Panitsa et al., 2003). In the semi-mountainous western part of the island, the terrain ranges from flat to hilly and is mostly covered by evergreen vegetation. On the east side, the lack of trees combined with cultivated land forms dominant landscapes, with many villages surrounded by flat grazing plains (Kazolis, 2006; 2009). Also, some of the largest and well-preserved Mediterranean wetlands<sup>5</sup> are to be found on Lemnos (Catsadorakis and Paragamian, 2007) including lakes, wetlands, coastal marshes and shallow bay waters that form landscapes of significant ecological and aesthetic value (Figs. 3.14 and 3.15).

<sup>5</sup> These wetlands constitute an excellent environment for providing food and shelter for rare and endangered species of flora [e.g. amaryllis (*suaeda maritima*), wild viola (*mathiola incana*), wild daisies (*anthemis tomentosa*), wild saffron (*crocus cartwrightianus*), etc.] and fauna [e.g. herons, pelicans, gulls, flamingos, wild geese, etc.].

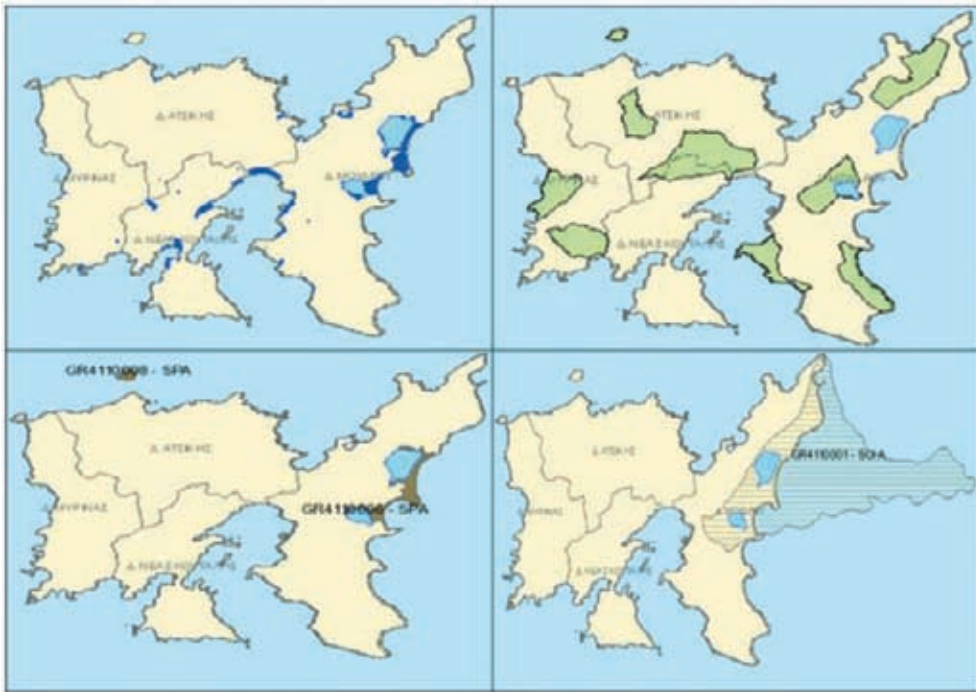


Fig. 3.14: Lemnos' wetlands (top left corner) are dynamic elements that alter the landscape seasonally and play an important role in shaping the microclimate, maintaining the biodiversity and supporting local communities and cultures. Also, many parts of the island have been declared significant wildlife refuges (top right corner). The designated Natura 2000 areas (bottom left and right corner) have been classified as Special Protected Areas (SPA) and Sites of Community Interest (SCI) in accord with, respectively, the EU Directives on Habitats and Birds



Fig. 3.15: The light and dark green areas indicate transitional woodland and evergreen vegetation respectively, while olive green areas represent pasture land. The light and dark yellow areas indicate non-irrigated arable land and complex cultivation patterns respectively, whereas areas in brown stand for land principally used for agriculture. Lemnos airport is shown in light purple, mineral extraction sites in dark purple, and urban areas in red. The blue areas indicate coastal lagoons, whereas inland marshes and salinas are shown in blue grey

The local architecture is inextricably linked with the island's landscapes in terms both of raw materials and style (e.g. masonry is evident), while 18 villages have been declared traditional settlements (Presidential Decree 208/D/2002). Also, one of the main products of the architecture of the local cattle breeders are the *mandres* [pens] made of natural local materials (stone, wood and canes), whereas their building technique remains unchanged, reflecting the unchanged needs that they serve (Sifounakis, 1993). Recently, however, boxy metal sheds (funded by EU subsidies) have begun to replace these traditional *mandres* in many parts of Lemnos, degrading the corresponding landscapes.

The island's socio-economic prospects have been more or less determined by the region's microclimate and geomorphology. Lemnos is known as the 'Anemoessa' [the windy isle] due to the strong winds that blow in the area, and the 'Amichthaloessa' [the hazy isle] due to its sudden weather changes (Nisson Periplous, 2009a; 2009b; 2009c). In antiquity, a special kind of clay known as *Terra Lemnia* became known as a cure-all. In the fifteenth and sixteenth centuries, European travellers and Ottoman decrees mention cheese, honey and wine as the main products of the island (Lowry, 2004). In fact, local people continue to use Lake Alyki's salt to make brine for the preservation of cheese. By the end of the nineteenth century, the eradication of piracy in the Aegean had allowed Lemnos to develop into an island with a considerable maritime trade which, along with fisheries<sup>6</sup>, had improved the living standards of the local population. Moreover, blacksmiths, tinkers, tanners, skimmers and braziers could be found in many of Lemnos' villages; today, most of these traditional occupations live on only in local family names (Pravlis, 2003).

The prevailing element in Lemnos' culinary culture is its authentic relationship with the land. The island's volcanic soils, dry summers and limited rainfall contributed to the development of agriculture, stock raising and viticulture<sup>7</sup>. Wheat, barley, sesame, dairy products, grapes, vegetables, seafood, game, honey and pasta are just some of the local products with a *Protected Designation of Origin* or which have been *Designated Products of Superior Quality*. Yet, intensive agriculture and overgrazing have influenced the types of habitats, since large parts of the island are now covered by herbaceous and shrub vegetation. Furthermore, Lemnos landraces are still under cultivation, especially by people in remote villages who retain their own seeds and use them mainly for their own consumption. Although landrace production is a rare and excellent example of community-based on-farm conservation and maintenance, it is a production system in crisis and the continuation of traditional cultivation is in the balance (Vetelainen et al., 2009).

Ten locations covering a sufficient range of the distinctive features of Lemnos' landscapes have been considered. One characteristic landscape from each of these ten locations was selected for further consideration (see Table 3.3 and Fig. 3.16).

The data collection phase involved, inter alia, a literature review, preliminary identification and consultation with experts in the field, collection of photographic data, field trips, pilot testing of one of the growing number of tools used in landscape research<sup>8</sup>, and follow-up interviews (see Table 3.4). At first, our reasoning moved from a general argument to deduce particular conclusions: i.e. contemporary pressures are leading to unparalleled changes in landscapes at a global level, while Greek landscapes are suffering neglect, misuse and –in many cases– irreversible destruction. Then, qualitative research assisted in gathering particular observations and moving from specific arguments to a general conclusion: i.e. the FSF of the LCA is, indeed, a useful tool for landscape research in the UK, but it has to be more temporal, flexible, narrative and participative in order to facilitate research worldwide.

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6 Lemnos is also known as 'Ampeloessa' [the isle of vines] due to its famous vineyards.

7 The North Aegean is still one of the largest commercial fisheries in Greece.

8 The Field Survey Form (FSF) of the Landscape Character Assessment (LCA) involves 2 stages and 6 steps (Scottish Natural Heritage and the Countryside Agency, 2002). For this study, the field survey (i.e. first stage, step 3) was employed and pilot tested (Dodouras et al., 2009).

LOCATION/TOPONYM	LANDSCAPE CODE	DOMINANT TOPOGRAPHY	LANDSCAPE TYPE	DOMINANT LANDCOVER	RARITY	VISUAL ASSESSMENT	
Myrina – Plati (outskirts)	1	Lowlands, undulate	L.u.Z.q.	Settlement, urban, ancient structures, shrubs and herbaceous vegetation	Rare, this landscape determines the character of the island. Not rare, same patterns of urban sprawl can be observed in most Greek urban centres.	P: Strong T: Textured C: Diverse	Anarchic town planning (Myrina's outskirts), degradation of ancient monuments (Castle and Cape Petasos), loss of identity (local architecture), mass tourism (Romeikos Gialos) and urbanisation (Tourkicos Gialos)
Agios Ioannis (Kaspakas Bay)	2	Lowlands, undulate	L.u.Z.q.	Dry stone walls, arable, rough grazing, phrygana, meadows	Rare, Karvounolakka Beach, unspoiled landscape. Not rare, adverse effects of scattered settlements, mass tourism, high land prices	P: Broken T: Rough C: Diverse	Building/construction activities taking place outside the confines of statutory town plans, secondary homes
Cape Mourtzouflos	3	Lowlands, hilly, shrubs & herbaceous vegetation	L.h.R.n	Dry stone walls, rough grazing, vine(s)	Rare, although boxy metal sheds have recently started replacing the traditional pens	P: Dominant T: Very rough C: Simple	Construction of boxy metal sheds, unrestricted access, waste management, and wind parks
Inland sand dunes, Ammothines	4	Lowlands, undulate, open spaces with little or no vegetation	L.u.X.n.	Dry stone walls, rough grazing	Inland sand dunes are a rare phenomenon in Greece and the European continent	P: Strong T: Smooth C: Simple	Unrestricted access
Hephaestia	5	Lowlands, undulate, shrubs & herbaceous vegetation	L.u.R.t.	Dry stone walls, arable, rough grazing, cereal(s), vine(s), traditional buildings	Rare, two important archaeological sites while traces of human activities are evident	P: Broken T: Textured C: Diverse	Multifunctional landscape, i.e. coastal meadows, lowland plain, range of soft hills, overgrazing
Chortarolimni	6	Lowlands, flat, wetlands	L.f.W.n.	Phrygana, grassland, meadows	Rare, ecosystems that include interesting habitats	P: Broken T: Textured C: Diverse	Uncontrolled waste dumps, illegal hunting, uncontrolled access, intensification of traditional activities
Poliochni	7	Lowlands, undulate	L.u.G.t.	Dry stone walls, arable, rough grazing, farm buildings, settlement, farms, military	Rare, the undulating topography creates two different types of a landscape	P: Broken T: Textured C: Diverse	Abandonment of traditional activities, population ageing and decline, illegal hunting
Pedino Bay	8	Lowlands, flat, heterogeneous agricultural areas	L.f.G.q.	Farm buildings, settlement, improved pasture, cereal(s)	Rare, scenic harbour, coastal meadows, old, rural and deserted settlements	P: Broken T: Textured C: Diverse	Abandonment of traditional activities, population decline, urban sprawl
Fakos Peninsula	9	Lowlands, undulate, pastures	L.u.P.n.	Dry stone walls, fences, arable, rough grazing, cereal(s)	Rare, Lemnos' particular natural and cultural features are reflected on Fakos' "non-commercial" landscapes	P: Strong T: Rough C: Simple	Abandonment of traditional activities, overgrazing, unrestricted access
Mt Kakavos (chapel of Panagia Kakaviotissa)	10	Lowlands, hilly, shrubs & herbaceous vegetation	L.h.R.n.	Ancient structures, traditional buildings, ecclesiastical, dry stone walls, fences, arable, rough grazing, cereal(s)	Rare, Mt Kakavos dominates the landscape. Traces of prehistoric origin and place of worship (chapel)	P: Dominant T: Very rough C: Diverse	Landfill site

Table 3.3: Characteristics of ten selected landscapes of Lemnos



Fig. 3.16: Lemnos' ten characteristic landscapes selected for further consideration

Interviewee Group	Interviewees	Comments
Landscape Group 1 (e.g. farmers, stock breeders, etc.)	Interviewee 01	Farmer, Myrina (Pilot)
	Interviewee 02	Winemaker, Atsiki (Pilot)
Landscape Group 2 (e.g. local residents, tourists, etc.)	Interviewee 01	Public servant, Poliochni (Pilot)
	Interviewee 02	Retired public servant, Myrina (Pilot)
Landscape Group 3 (e.g. councillors, practitioners, etc.)	Interviewee 01	Local development company, Myrina (Pilot)
	Interviewee 02	Academic, Myrina (Pilot)
Landscape Group 1 (e.g. farmers, stock breeders, etc.)	Interviewee 01	Farmer, Fysini (actual)
	Interviewee 02	Civil engineer, Myrina (actual)
	Interviewee 03	Farmer, Kodias (actual)
	Interviewee 04	Fisherman, Nea Koutali (actual)
	Interviewee 05	Farmer, Myrina (actual)
	Interviewee 06	Housekeeper, Myrina (actual)
	Interviewee 07	Farmer, Propouli (actual)
	Interviewee 08	Stock breeder, Dafni (actual)
	Interviewee 09	Stock breeder, Sardes (actual)
Landscape Group 2 (e.g. local residents, tourists, etc.)	Interviewee 01	Priest, Plati (actual)
	Interviewee 02	Lighthouse keeper, Plaka (actual)
	Interviewee 03	Tourism, Kornos (actual)
	Interviewee 04	Archaeologist, Thanos (actual)
	Interviewee 05	Public relations consultant, Sardes (actual)
	Interviewee 06	Tourism, Myrina (actual)
	Interviewee 07	Photographer, Myrina (actual)
	Interviewee 08	Photographer, Myrina (actual)
	Interviewee 09	Journalist, Myrina (actual)
	Interviewee 10	Marketing consultant, Atsiki (actual)
	Interviewee 11	Self-employed, Myrina (actual)
	Interviewee 12	Self-employed, Agios Ioannis (actual)
Landscape Group 3 (e.g. councillors, practitioners, etc.)	Interviewee 01	Local development company, Myrina (actual)
	Interviewee 02	Agricultural cooperative of Atsiki (actual)
	Interviewee 03	Agricultural cooperative of Atsiki (actual)
	Interviewee 04	County of Lemnos, Myrina (actual)
	Interviewee 05	Municipal Councillor (former), Myrina (actual)
	Interviewee 06	Municipal Councillor, Moudros (actual)
	Interviewee 07	Municipal Councillor, Moudros (actual)
	Interviewee 08	Municipal Councillor, Nea Koutali (actual)
	Interviewee 09	Municipal Councillor, Nea Koutali (actual)

## Characteristic landscapes

Land use changes are leading to unprecedented modifications in landscapes, ecosystems and the environment. Urban areas are growing fast, mainly at the expense of agricultural land, changes in social structures are altering rural landscapes, and coastal areas are being spatially restructured to accommodate tourism activities (EEA, 2010). With so many different stages and levels of development, even islands with great potential struggle to disassociate sustainability from the one-dimensional development by tourism.

Landscapes are 'places of memory' –both tangible and intangible– that people use to give meaning to the world they live in. In its broader sense, natural and cultural heritage is associated not only with the physical structures, but also with the entire landscape of a given area –e.g. past events, artistic productivity, historic sites, traditional villages and the people themselves. It is believed these tangible and intangible elements of Lemnos' landscapes are best reflected in the ten selected landscapes.

### *Landscape 1 – Myrina*

Myrina's architectural heritage includes its castle, which is one of the best preserved in the Aegean and separates its seashores into the Romeikos and Tourkikos Gialos. A clustered settlement form can be observed on these seashores, but the settlement forms become more scattered in the outskirts of Myrina. Myrina was examined from five viewpoints. The area's topography is rolling lowland with a couple of small plateaus in the northern and southern parts of the town. Cape Petasos, Plati Bay, the castle, the seashores, the local architecture and the vineyards are all distinct features of a 'rare' landscape. However, Myrina's landscape can also be regarded as 'not rare', given that other dominant features (e.g. traffic, residential development sweeping away the local architectural identity etc.) can be observed in most Greek cities.



Fig. 3.17: The outskirts of Myrina



### *Landscape 2 – Agios Ioannis*

The village of Agios Ioannis, in the western part of the island, was named after a nearby chapel. Just a few minutes away from Agios Ioannis, the road ends near Karvounolakka beach. A narrow valley, two small waterfalls which have created ponds and amphibian habitats, some cottages, secluded ‘private’ bays and rare visual compositions –i.e. a stunning natural landscape– is all Karvounolakka has to offer. The small army of tourists that visit Lemnos every year are not attracted to this colourful and unspoiled landscape. Agios Ioannis was examined from six viewpoints. At first, it looks like a vacant rolling coastal valley, while in Karvounolakka there is a strong feeling of remoteness. The topography is undulating, with several barren and bushy hills surrounding the coastline.



Fig. 3.18: Cultivated land and stone benches are characteristic features of many villages on the island; Agios Ioannis

### *Landscape 3 – Cape Mourtzouflos*

Cape Mourtzouflos is not a particularly special area, either geographically or geologically. With the exception of some traditional pens, which unintentionally create certain symbolic features, there are no human settlements in the area. The military radars, wind turbines (some already derelict) and the construction of a new sanitary landfill site are the only human interventions in the area. This rough grazing area is a ‘rare’ landscape, since the huge boulders that rise imposingly out of the sea, the low vegetation and rocky formations add to its wild beauty and eerie colours. Cape Mourtzouflos was examined from four viewpoints that justify the view that it is a remote and extreme landscape (perhaps, the term ‘landscape of exclusion’ is more suitable) with an undulating topography.



Fig. 3.19: Cape Mourtzouflos’ wild beauty and eerie colours

### *Landscape 4 – Ammothines*

Many of Lemnos' landscapes are of rare natural beauty due to limited human interventions. Ammothines (the name means 'inland sand dunes') is such a place. This is a peaceful landscape that resembles an African desert. Other dominant landscape elements in the surrounding hills include farm buildings, dry stone walls and the ruins of a small fortress on Gomati beach. A large number of plants (including wild olives, oleander, spach and sand lily) and animals (including wild rabbits, waterfowl, reptiles, spiders, rodents and insects) have colonised the area. Ammothines is a remote landscape whose undulating topography was examined from three different viewpoints.



Fig. 3.20: Ammothines: the landscape resembles an African desert

### *Landscape 5 – Hephaestia*

Hephaestia is a rare landscape with an undulating and rolling topography, coastal meadows and a narrow valley. Tigani Bay, with its entrance silted up, is a shallow and brackish coastal lagoon. The Temple of Kaveiria near Hephaestia staged spiritual ceremonies related to nature and fertility. The Sirens, divinities of the ancient Greek underworld, as well as remains of the sanctuary of the Great Goddess Lemnos are among the most important ancient structures that have been excavated in Hephaestia and Kaveiria. Hephaestia was examined from six different viewpoints. Traces of human activities –namely agriculture (terracing), viticulture, stock breeding (pens) and mass tourism (deserted hotel complex in Kaveiria)– are also evident.

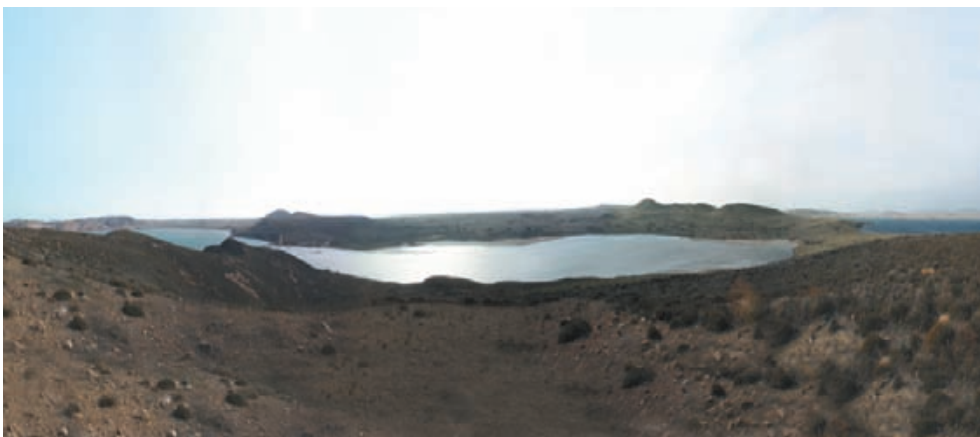


Fig. 3.21: Hephaestia, Panorama

### *Landscape 6 – Chortarolimni*

Chortarolimni is surrounded by the soft hills of eastern Lemnos, pens, terraces, reed beds and farmhouses, which create a minimal insular landscape. This seasonal coastal brackish marsh has a natural beauty which remains unknown to many and, evidently, unappreciated by some, since rubbish, tyres and scrap iron can be found dumped in Chortarolimni. Ecosystems that can be identified in the area include interesting habitats for endangered and migratory species of fauna as well as important species of flora. This rolling lowland landscape with its flat plain topography, grasslands and coastal meadows was examined from four viewpoints. Other dominant landscape elements include pens, military structures, the remains of a petrified forest and dry stone walls.



Fig. 3.22: Chortarolimni, near the village of Kalliopi, is a brackish lake that dries up completely during the summer

### *Landscape 7 – Poliochni*

Poliochni was examined from four different viewpoints. Poliochni's Neolithic settlement was discovered in 1930 and the finds that have come to light there are similar to those of Ancient Troy. The villages of Skandali and Fysini stand out for their traditional stone houses, while the monastery of Agios Sozon stands next to remote Louri beach. In contrast to the villages of south-western Lemnos, the simple lives of the residents of south-eastern Lemnos helped shape and preserve a simple, humble architectural style. The locals' main occupations are beekeeping and stock breeding, with agriculture being slowly abandoned. The local topography creates two dry valleys with two distinct types of patterned ground: the rolling lowland landscape of the archaeological site of Poliochni, and the pastures of the Fysini plain. The stone wells, stockyards, farmhouses built from dark volcanic stone, abandoned windmills, quiet pastures, windswept beaches and anti-fire zones constructed by the Greek Army on a nearby hill are some other dominant landscape elements.



Fig. 3.23: The stone wells, pens, farmhouses, windmills are the dominant landscape elements that surround the archaeological site of Poliochni

### *Landscape 8 – Pedino Bay*

Pedino Bay was examined from four viewpoints. The area is perceived as both calm and vacant. Scattered settlements, electricity pylons, military camps, harbours, coastal meadows and pastures are the area's dominant landscape elements. Cereal cultivation, mussel and salted seafood production, livestock breeding and bee-keeping (made possible by the abundance of thyme) are the locals' main occupations<sup>9</sup>. Many traditional stone houses of the once wealthy inhabitants of the villages that surround Pedino Bay are still in good condition. In Portianou, for instance, the house where Winston Churchill stayed during military operations in World War One is still standing, although Palaio Pedino, one of Lemnos' oldest villages, was destroyed after a catastrophic earthquake in 1968.



Fig. 3.24: Agkariones, overlooking an army camp and Pedino Bay, with the Moudros Gulf and Fakos Peninsula in the background

### *Landscape 9 – Fakos Peninsula*



Fig. 3.25: Bucolic landscapes in Fakos

A narrow isthmus<sup>10</sup> connects the undulating Fakos Peninsula in south-western Lemnos with the rest of the island. Diapori is a small freshwater wetland that completely dries up during the summer season until winter rain refills it. Fakos is a protected wildlife habitat that was examined from six viewpoints. Access to Fakos is not easy, but its rough dirt roads lead to and reveal some impressive landscapes. This is a wild and tranquil country landscape with scattered –traditional and modern– farm facilities, a few cultivated fields, steep cliffs and remote beaches. The island's particular natural and cultural features are reflected in Fakos' rare and 'non-commercial' landscapes.

9 Sponge fishing and processing was a thriving business in the area for decades. Today, natural sponges, fishing equipment and photos are on display in the Nea Koutali Maritime and Natural Sponge Museum.

10 The East coast of the isthmus features the Vourlidia Bay, while the West coast is known as Kodias Bay.

### **Landscape 10 – Panagia Kakaviotissa chapel**

The jagged silhouette of Mt Kakavos dominates the landscape in the south-western part of the island. Its undulating topography was examined from six viewpoints. It is a remote, semi-mountainous landscape with several steep hills surrounding a small plateau. A designated footpath, lined with wild vegetation, leads to a stone staircase where the chapel of Panagia Kakaviotissa stands. Agios Pavlos Bay, Moudros Gulf and Nevgatis beach are visible from there. Traces of prehistoric origin (artificial cavities, drilled holes, etc.) are visible along the way. The landscape around the roofless chapel has a mystic aura, with granite cliffs full of alcoves (most likely cells used by monks in the past) surrounding the chapel.



Fig. 3.26: Agios Pavlos Bay, Moudros Gulf and Fakos Peninsula, view from Mt Kakavos

### **Management and conservation proposals**

In general, the absence of land use planning or of its orderly execution, the existence of financial or legal incentives that have led to the wrong decisions, and one-sided central planning leading to over-utilisation of the land resources are only some of the main threats facing landscapes today (EEA, 2010). However, landscape conservation and management cannot be governed solely by legislation and regulation; it must be extended to various sectors of socio-economic life. Landscapes are a vital component of sustainability, and as such strategic initiatives should include, inter alia, issues relating to (Hemingway, 2003; Jennings, 2004):

- Land use: e.g. improved planning, preservation of local architecture, coastline management, sustainable agriculture, etc.
- Waste treatment: e.g. re-use, recycling, disposal areas, etc.
- Tourism: e.g. traffic-free zones, support of local businesses, environmental practices for tour operators, etc.
- Cultural heritage: e.g. promotion of local history, marketing local produce, etc.
- Natural heritage: e.g. water management, renewable energy measures, etc.

Furthermore, certain tools should be developed to support a number of future actions (Eurostat, 1999; Council of Europe, 2000; European Commission, 2003), including:

- (i) Statutory tools: e.g. improved legislation on landscape, development of integrated approaches with regard to cultural and natural heritage, etc.
- (ii) Participatory tools: e.g. active involvement of local communities in the protection, management and planning of landscape, etc.

- (iii) Training tools: e.g. training schemes and campaigns aimed at raising awareness of the specific nature of landscapes among concerned individuals and social groups, etc.
- (iv) Technical tools: e.g. promotion of the economic importance of landscapes, establishment of landscape observatories, etc.

When outdoors, people tend to think of landscapes as nearly everything they see. However, just as humans cannot be separated from nature, so nature cannot be separated from culture. Thus, landscapes are not just 'things'; they are dimensions that encompass aesthetics, feelings, collective memories, etc. A rocky mountain, a cultivated field, an archaeological site and a traditional village are much more than rocks, soil, ruins and narrow alleys. To put it plainly, treating Lemnos' landscapes as a mere segment of the economy is like putting the cart before the horse. In this respect, landscape management should be a constant learning process.

### *Landscape 1 – Myrina*

The town centre seems to be in a state of permanent chaos due to several mixed-use development interventions. In Romeikos Gialos, the elegant 19<sup>th</sup>-century mansions create a *belle époque* atmosphere which is immediately dispelled by air and noise pollution (aircraft and *cafés*). Urban sprawl makes it difficult to clearly state where Myrina ends and Plati starts, and it has been alleged that further residential and tourist development is being considered on Cape Petasos. In addition, the iron gate of the castle's main entrance has collapsed, strong winds have scattered the waste bins inside this historical monument and, in some areas, deer in an advanced state of decomposition can be found. Moreover, certain ancient constructions are not easily accessible due to the lack of signs, lighting, walkways, etc. Myrina has been gradually changing, though not in a progressive way. Such change, which is seemingly welcomed, can irreversibly affect the locality. Strategic management plans relating to town planning, the preservation of cultural heritage and sustainable tourism are needed in order to cope with the aforementioned threats

### *Landscape 2 – Agios Ioannis*

It is not easy to determine the type of Agios Ioannis' landscape. There are some remote places, but as more landscapes are being uncovered along the road network, the area increasingly looks like any other saturated tourist destination. Furthermore, local demands for waste management schemes, road signs and lighting, water management (i.e. construction of a dam), marine management (i.e. fisheries), statutory town plans and alternative forms of tourism remain unsatisfied. Change must supplement, rather than transcend and destroy, the current characteristics of the landscape. In Agios Ioannis, these characteristics should not be reflected in land prices, but rather in the area's natural and cultural values.

### *Landscape 3 – Cape Mourtzouflos*

Cape Mourtzouflos provides habitats for stock breeding and wildlife, along with a cultural record (sense of identity) of how people have lived and live now. However, the construction of new rural roads and modern pens, uncontrolled access, waste management and overgrazing are some of the main threats to the Cape's landscapes. Whatever the management needs of such areas may be, the consultative process is very important in order to enable everyone involved to discuss the sustainability priorities that would guide decision-making. Strategic interventions, effective participation, and technical assistance / expertise can guarantee that sustainable decisions –which preserve, restore or shape the landscape– are actually implemented on the ground.

### *Landscape 4 – Ammothines*

Apart from its aesthetic worth, Ammothines maintains a range of ecosystems that support local flora and fauna. The main threats to the area relate to unrestricted access and the abandonment of traditional activities. Landscapes have been greatly overlooked in the sustainability discourse on Lemnos. The community wants the wilderness, scenery and geological features of the area to be protected from inappropriate development, yet the locals may also seem indifferent due to the mistaken belief that environmental –and landscape– protection can undermine their ability to sustain themselves and their families. Such conflicts arise from the lack of a set of robust criteria to evaluate landscape values and consider them as ‘capital’ rather than a ‘luxury good’.



Fig. 3.27: The horse racing tradition is revived annually on St George’s Day in Kalliopi, near Chortarolimni

### *Landscape 5 – Hephaestia*

Tigani Bay separates the two important archaeological sites of Hephaestia and Kaveiria. In Kaveiria, one can effortlessly visit the site (even when it is closed) by following a nearby track, whereas the deserted hotel complex seems to haunt the otherwise magnificent landscape of Hephaestia. Complex situations may present local communities with opportunities that could be turned into success stories. Culture is not only entertainment and leisure. The current focus in Hephaestia should lie on tourism, history and the local environment. Basically, Lemnos has a clear choice: invest in the potential that is embedded in its locality, or lose the chance to make its surroundings and economy rich and diverse, innovative and competitive, interesting and entertaining.

### *Landscape 6 – Chortarolimni*

Although Greek insular wetlands cover less than 1% of the country’s total land surface, their environmental values are extremely important. Sadly, some of them have been so irreversibly damaged that they will disappear in the future, and immediate action is required to save and protect those that can be saved. Chortarolimni is a brackish lake that dries out completely during the summer. Nearby Lake Alyki is covered in seawater, and when there is no water, both lakes form an extended salt meadow. The huge variety of habitats –reed-beds, wet meadows and agricultural land– adds to the diversity of these protected areas (i.e. Natura 2000). Land reclamation, construction works and pollution are some of the main threats to the area. The legislative framework is available, but lacks implementation and monitoring mechanisms.

### **Landscape 7 – Poliochni**

Poliochni's various phases of architectural and cultural development, coupled with its *Bouleuterion* [parliament], justify the view that it was the first democratic society in antiquity. The local community of eastern Lemnos must realise that further development should simultaneously provide long-term employment and business opportunities (e.g. stock raising, tourism, alternative energy schemes, etc.) and build on community values rather than adversely impacting on them. This includes protecting the landscapes from several threats that relate to the diversification of land use, the loss of agricultural areas, illegal hunting and potential tourism expansion that may cause noise, littering and the loss of scenic areas. Any other development pathway may lead to polluted coasts, damaged biotopes, deserted villages, landscapes without any special identity, places without local food and frequently without local people, not to mention an unfavourable macroeconomic environment.

### **Landscape 8 – Pedino Bay**

Pedino Bay is surrounded by the villages of Agkariones, Nea Koutali, Neo Pedino, Palaio Pedino and Portianou. The traditional houses of the deserted village of Palaio Pedino are characteristic examples of North Aegean folk architecture, but it is questionable whether their cultural and aesthetic values have been sufficiently appreciated. Today, the fact that the Pedino Bay landscape has not remained untouched by the usual 'modern' interventions and 'innovative' constructions (e.g. urban sprawl, uncontrolled waste dumps and abandonment of traditional activities) is far from comforting. Such characteristics make the Bay's landscapes both pleasant and –at times– repulsive. Narrow development plans should be replaced by integrated approaches that will facilitate landscape management and ensure the long-term quality of the land for human use, the prevention or resolution of social conflicts related to land use, and the conservation of the natural environment.

### **Landscape 9 – Fakos Peninsula**

Lemnos has a vibrant agricultural and stock-breeding community. These traditional activities have created Fakos' beautiful scenery and shaped its landscapes. Yet, abandonment of traditional activities is likely to lead to the gradual transformation of these landscapes, since they are treated as commodities instead of key elements of the local environment and culture. Currently, it seems that whether further development must come at the expense of the local environment and culture is, sadly, up for discussion. Management strategies should therefore focus on the need to combine scientific knowledge with the values and aspirations of the community. However, a major hurdle preventing the sustainable management of the landscapes of Fakos, and Lemnos in general, is the confusion over the roles and responsibilities of the stakeholders involved.

### **Landscape 10 – Panagia Kakaviotissa chapel**

In Mt Kakavos, weeds have invaded the once cultivated but now mostly abandoned cereal fields. Myrina's repository of liquid waste, located at the start of a footpath leading to the chapel of the Panagia Kakaviotissa, spoils the entire landscape. Nonetheless, this is a rare and inspiring area, which includes aesthetically pleasing landscapes. It also provides habitats for stock breeding and wildlife, and a cultural record of how people have exercised their religious duties. However, the paradox here relates to the fact that, from a certain viewpoint, human interventions are hard to spot, while from another, a disgraceful landfill site dominates the entire landscape. Mt Kakavos is a characteristic example of an unspoiled and sensitive landscape (steep slopes, prime agricultural land, monumentalised area, etc.) which is slowly being degraded by, inter alia, development sprawl and inadequate waste management.





Fig. 3.28: Volcanic rock formations in Cape Farakla, northern Lemnos

## Interviews

The ambiguity of most landscape interpretations can reveal not only people's overlapping views, but also the preoccupation of many disciplines with the visible aspects of landscapes; the less obvious factors that form and explain landscapes can sometimes be overlooked. The previous points were supported by the views of the participants in the interview survey.

The majority of the interviewees stated that landscape is an area's natural and human environment, while some of them suggested that it is a complex and difficult-to-define term. Further, most of the interviewees stated that Poliochni (*...living in an area that has been inhabited for millennia is a kind of magic...*) is the most characteristic landscape of Lemnos, with Chortarolimni (*...fragile natural environment... with hidden exquisiteness...one of the largest insular wetlands in Greece...*) being the second most cited landscape. Moreover, according to the interviewees, Lemnos' landscapes are changing because they [...] *remain unappreciated* [...] since [...] *we have not realised that they are part of our surroundings, our culture* [...]. Nonetheless, the [...] *central government failed to form and implement sustainable regional development plans* [...] while [...] *the local authorities were incapable of successfully managing and allocating programmes and funds* [...] and thirdly [...] *the attitudes of the uninformed local community remained pessimistic and fatalistic* [...]. It follows then that [...] *increased participation, improved collaboration and consensus building* [...] could lead to [...] *the development of a common framework* [...] and ultimately to the [...] *implementation of sustainable landscape strategies* [...].

## Conclusions

Quality of life seems to be a straightforward term, since most people are likely to refer to simple things such as employment, security, health and a pollution-free environment: landscape is not usually included in it. Disagreements about quality of life start to emerge when we move from the general to a more specific –and rather fuzzy– vision of sustainability. Landscapes seem to fit into this category, since their contribution to sustainability is not always widely appreciated.

Applying creative and innovative ideas to the development of remote areas –and border regions, in general– through capitalising on local natural and cultural heritage may provide a window of opportunity for sustainable regional development in these areas. However, any shift in the development path cannot be accomplished without winners and losers, which in turn can create obstacles to the necessary changes. The fundamental issue thus remains the same: how to integrate conflicting world views into practical and comprehensible decision-making.

The collapse of the pre-industrial economic system, the social upheavals of the early twentieth century, the abandonment of traditional activities and the lack of infrastructure are some of the most important factors in the underdevelopment of many Greek regions. This is also the case in insular Greece, where geographical isolation and fierce competition for tourists may be added to the previously noted factors. There were times, however, when Greek insular landscapes were so prominent precisely because of the way they harmoniously integrated the natural and human environment in the local context.

Of course, many Greek insular regions faced a socio-economic crisis in the twentieth century, which explains their current desire for change. Yet, change without vision will ultimately lead to nothing but a deterioration in the local environment, culture, social structures, settlements, productive activities, etc. The cases of Paros, Santorini, Skiathos and even Agios Efstratios can only make one wonder how their beautiful insular landscapes could have been altered with such levity. But landscapes are alive.

Recently, a shift in the development patterns of many Greek insular regions would indicate that local societies are seeking to adopt more sustainable forms of development which would allow them to protect their natural and cultural heritage while also experiencing a considerable increase in their real incomes. Sikinos and Sifnos are systematically promoting their inclusion in the European Natura 2000 network. Alonissos stands out for its National Marine Park, while Karpathos is becoming a well-known eco-tourist destination. Kimolos' impressive rock formations, Folegandros' folk architecture and Anafi's walking green routes attract an increased number of tourists annually.

On Lemnos, nature inspired humans to decorate their mansions, to create legends and form dialects and songs, moulding an authentic cultural heritage and unique landscapes. Although the strong relationship between humans and nature is reflected in the island's landscapes, those same landscapes are slowly being degraded. Lemnos' distinct natural and cultural characteristics should be turned into levers for sustainable development. Any future intervention, as far as its landscapes are concerned, should have nature and local people (culture) at the forefront in order to promote a strong insular profile and cope efficiently with the so-called development deficit.

Recent socio-economic changes have created serious pressures and future challenges with regard to Greece's insular environmental reserves. Such problems are hindered by administrative inefficiency, ineffective communication and limited trans-disciplinary cooperation and public participation. Sustainability challenges do not fit neatly into either the natural or social sciences; they are complex, uncertain and inescapably both socio-cultural and environmental. As such, the sharing and coordination of thoughts, theories, conceptual frameworks and methodological approaches is essential, requiring increasingly elastic boundaries between sectors and disciplines; the question is how this is to be achieved. An integrated framework should introduce ways that can contribute to a holistic view of sustainability, establish common ground, and facilitate efficient cooperation that will enable different stakeholders to bridge diverse concepts, practices, methods and modes of communication.



Fig. 3.29: Bournias Gulf, northern Lemnos, view from Mt Kakavos

## References

- Arg. Moschidis Academic Association (2008), *Getting to know my roots*, Lemnos, Arg. Moschidis Academic Association.
- Catsadorakis, G. and Paragamian, K. (2007), *An inventory of the wetlands in the Aegean Islands – Identity, ecological status and threats*, Athens, WWF Greece.
- Council of Europe (2000), *European Landscape Convention*, Strasbourg, CoE Treaty Series 176.
- Dodouras, S., Papayannis, T. and Sorotou, A. (2009), In search for the Greek landscapes: current trends and future concerns, in *Proceedings of the European IALE Conference*, 12-16 July 2009, Salzburg, pp. 37-40.
- European Commission (2003), *Agriculture and the environment – Fact sheet*, Brussels, EC, Directorate-General for Agriculture.
- European Environment Agency (2010), *Environmental topics – Land use* (available at <http://www.eea.europa.eu/themes/land use>, accessed May 2010).
- Eurostat (1999), *Towards environmental pressure indicators for the EU*, Luxemburg, Office for Official Publications of the European Communities.
- Hemingway, S. (2003), Action plan for sustainable tourism in the Mediterranean, *Sustainable Mediterranean*, **31**, 4-5.
- Jennings, S. (2004), Landscape sensitivity and tourism development, *Journal of Sustainable Tourism* **12** (4), 271-272.
- Kazolis, C. (2006), *Deeds of men*, Myrina, Terra Lemnia.
- Kazolis, C. (2009), *Lemnos – A view to the North Aegean*, Myrina, Terra Lemnia.
- Lowry, H. (2004), *Early Ottoman State*, Athens, Papazisi.
- Nisson Periplous (2009a), *Architecture of light*, Athens, ANEL.
- Nisson Periplous (2009b), *Isle-Lands*, Athens, ANEL.
- Nisson Periplous (2009c), *Waves of flavour*, Athens, ANEL.
- NSSG (1930), *Greek census*, Athens, National Statistical Service of Greece.
- NSSG (1964), *Greek census 19<sup>th</sup> March 1961 – Volume I & II*, Athens, National Statistical Service of Greece.
- NSSG (1978), *Greek census 14<sup>th</sup> March 1971 – Volume I & II*, Athens, National Statistical Service of Greece.
- NSSG (1994), *Greek census 17<sup>th</sup> March 1991*, Athens, National Statistical Service of Greece.
- NSSG (2004), *Greek census 18<sup>th</sup> March 2001*, Athens, National Statistical Service of Greece.
- Panitsa, M., Snogerup, B., Snogerup, S. and Tzanoudakis, D. (2003), Floristic investigation of Lemnos Island (NE Aegean area), *Willdenowia*, **33**, 79-105.
- Pravlis, P. (2003), *Lemnos – Images of life in Lemnos and Agios Efstratios*, Athens, Ellinika Grammata.

Scottish Natural Heritage and the Countryside Agency (2002), *Landscape Character Assessment*, UK, Department of Landscape, University of Sheffield and Land Use Consultants.

Sifounakis, N. (1993), *Lemnos' mandres*, 2<sup>nd</sup> edition, Athens, Greece, Kastaniotis.

Vetelainen, M., Negri, V. and Maxted, N. (2009), *European landraces, On-farm conservation, management and use*, Rome, Biodiversity International.