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DIPLOMA THESIS:

Footpaths and Routes of Eira, Municipality of Oichalia, Messenia, Peloponnese

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Abstract

This study investigates the most significant footpaths and routes of Eira in north Messenia, Greece. The mapping of the area was conducted via field research and using GIS, focusing on the footpaths that connect the settlements with the local cultural and natural heritage. The most notable sites are the Temple of Apollo Epikourios, the citadel of Eira and Neda river, as well as its' springs and waterfalls. Combined with the traditional settlements and the natural environment, Eira has the capacity to attract a plethora of visitors.

Alternative tourism and sustainability is the key to the economic, social and environmental development of the area, supported by national grants and local communities' initiative. Suitable interventions related to the upgrading of the footpath network and the provision of basic tourism services can generate additional local income and transform the area into a popular tourist destination.

1. Introduction

1.1. Location and description

The Municipal Unit of Eira appertains to the Municipality of Oichalia and is located in the northern part of the Prefecture of Messenia (Fig.1,2). The region abuts north-west with Elis, northeast with Arcadia, south-west with Municipality of Dorio and south-east with Municipality of Andania. Eira is inhabited by 666 residents (ELSTAT 2011), consists of 88 km^2 mountainous land and includes eight local communities (Hagios Sostis, Ambeliona, Kakaletri, Neda, Petra, Skliros, Stasimo, Syrrizo). Previously to the implementation of the 'Kapodistrias Plan', Neda was the seat of the municipality.

Access in Eira is arranged through the Kalamata - Tripoli Highway, when heading from the southern and eastern Greece, and through the Tripoli - Tsakona - Kalo Nero Highway from the northern and westerly Greece.

From Kalamata:

- Kalamata-Tripoli Highway, Enotiki Tsakonas-Kyparissias, Messene-Epikourios Apollonas Provincial road.
- Kalamata-Tripoli Highway, Megalopoli-Vasta Provincial road, Choremi-Kastanochori Provincial road, Neda-Megalopoli Provincial road, Messene-Epikourios Apollonas Provincial road.
- Kalamata-Tripoli Highway, Pilos-Kalamata Highway, Enotiki Tsakonas-Kyparissias, Sellas-Kato Melpia Provincial road, Messene-Epikourios Apollonas Provincial road.

From Athens:

- Olympia Highway, Kalamata-Tripoli Highway, Enotiki Tsakonas-Kyparissias, Messene -Epikourios Apollonas Provincial road.
- Olympia Highway, Kalamata - Tripoli Highway, Megalopoli - Vasta Provincial road, Sirtzi - Megalopoli Provincial road, Messene - Epikourios Apollonas Provincial road.

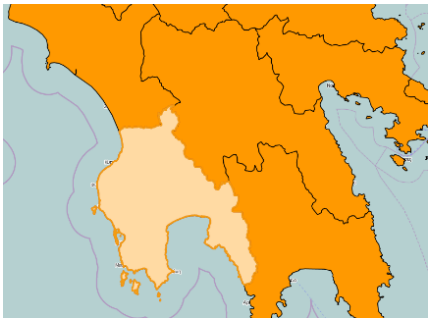

Figure 1: Messenia

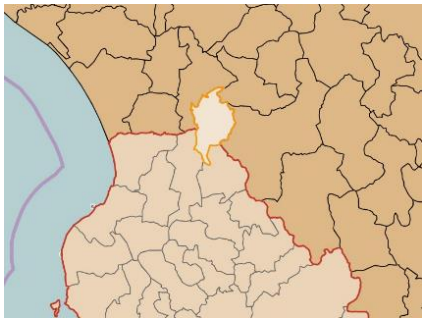

Figure 2: Eira

1.2. Geomorphology, climate and living beings

The topography of Eira mainly comprises limestone and flysch and the climate is classified as mild mountainous Mediterranean. The flora is diverse with many scrubby lands, broadleaved and coniferous trees and fauna mostly includes small mammals and birds. Nature's features led to the development of the settlements, the contemporary and traditional transportation network and the production activities.

Topography

The most dominant rock of the area is limestone and less flysch and alluvium. Limestone is a solid rock, with high tenacity and surface that seems weathered. Flysch has zero hydraulic conductivity caused by multiple layers of sandstone, siltstone, marl and argillaceous schist. Lastly, alluvium in riverside areas, that consists of clay, sand, gravel and shingles, derives from of Neda river deposits (Liarikos et al 2012).

Climate

The climate of the Peloponnese is Mediterranean subtropical with weak overcast and bright sunshine. The Mediterranean climate is typically described as hot, dry summers and mild, rainy winters. However, winter is often severe in mountainous areas and is accompanied by frost and snow, as the average annual temperature does not exceed 16 ° C (Hellenic National Meteorological Service). Table 1 shows the area's climate characteristics per season:

Table 1: Seasonal climate of Eira

Season	Climate
Summer	Significant decrease of precipitation with high aridity and temperature
Autumn	Mild climate with rising precipitation and humidity
Winter	Escalates from mild to severe and influenced by northern cold air masses
Spring	Mild climate with low precipitation and temperature

Flora

The flora of Eira mostly includes coniferous forests, broadleaved trees, Mediterranean scrubs, cultivated vineyards and low vegetation lands. Messenia in general is full of olive trees but high altitude and winter frost of Eira does not favour the trees' flourishing. In riparian areas, the dominant vegetation is platanus trees and garrigueous ecosystems (Dimopoulos et al 2005). The local villages are surrounded by chestnut, walnut and apple trees and vines. More vegetation types of the area are illustrated in Table 2:

Table 2: Flora of Eira

Scientific Name	**Common Name**	**Scientific Name**	**Common Name**
Arbutus Unedo	Arbutus	Dactylis Glomerata	Orchard Grass
Erica Arborea	Heather	Pteridium Aguilinum	Fern
Calicotome Villosa	Calyx	Genista Acanthoclados	Woadwaxen
Quercus Coccifera	Yew	Castanea Sativa	Chestnut Tree
Quercus Ilex	Oak	Juglans Regia	Walnut Tree
Phillyrea Media	Phillyrea	Platanus Orientalis	Plane Tree
Quercus Pubescens	Downy Oak	Malus Domestica	Apple Tree
Pistacia Terebinthus	Terebinth	Campanula Topaliana	Bellflower
Pistacia Lentiscus	Mastic Tree	Barlia Robertiana	Orchid
Cercis Siliquastrum	Redbud	Narcissus Serotinus	Daffodil
Trifolium	Clover	Cyclamen Graecum	Greek Cyclamen
Festuca Ovina	Fescue	Ophrys Argolica	Orchid
Rubus Conescens	Bramble		

Fauna

Eira shelters various animals, both domestic and wild. Besides goats, sheep and donkeys, there are plenty wild mammals, birds and reptiles. The most usually encountered are badgers, hares, martens, foxes, hedgehogs and dormice, as well as wild boars (not very usual). Through forests and open areas, several kinds of birds are observed such as magpies, blackbirds, finches and eagle owls (Dimopoulos et al 2006). The main fauna species (Table 3) found in the area are:

Table 3: Fauna of Eira

Birds			
Scientific name	**Common name**	**Scientific name**	**Common name**
Bubo bubo	Eagle Owl	Turdus viscivorus	Mistle Thrush
Otus scops	Scops Owl	Anthus trivialis	Tree Pipit
Accipiter gentiles	Goshawk	Loxia curvirostra	Red Crossbill
Pernis apivorus	Honey Buzzard	Strix aluco	Tawly Owl
Falco peregrinus	Peregrine Falcon	Fringilla coelebs	Finch
Falco tinunculus	Common Kestrel	Certhia brachydactyla	Short Toed Treecreeper
Ptyonoprogne rupestris	Rock Swallow	Parus ater	Coal Tit
Apus melba	Alpine Swift	Picus viridis	Green Woodpecker
Tichodroma muraria	Wallcreeper	Dendrocopos major	Great Spotted Woodpecker
Corvus corax	Common Raven	Dendrocopos leucotos	White Backed Woodpecker
Monticola saxatilis	Common Rock Thrush	Tyto alba	Barn Owl
Alectoris graeca	Rock Partridge	Asio otus	Long-Eared Owl
Garrulus glandarius	Magpie	Athene noctua	Owl
Regulus ignicapillus	Firecrest	Monticola solitarius	Blue Rock Thrush
treptopelia turtur	European Turtle Dove	Sitta neumayer	Rock Nuthatch
Turdus merula	blackbird	Circaetus gallicus	short-toed snake eagle
Columba palumbus	Wood pigeon	Buteo buteo	common buzzard
Mammals			
Scientific name	**Common name**	**Scientific name**	**Common name**
Meles meles	badger	Glis glis	dormouse
Vulpes vulpes	fox	Felis sylvestris	Wildcat
Martes foina	stone marten	Rhinolophus blasii	Bat
Erinaceus concolor	porcupine	Lutra lutra	otter
Lepus capensis	hare	Sus scrofa	wild boar
Reptiles			
Scientific name	**Common name**	**Scientific name**	**Common name**
Lacerta graeca	Greek rock lizard	Testudo marginata	Marginated Tortoise
Podarcis peloponnesiaca	Small lizard	Natrix natrix	Water snake
Fish			
Scientific name	**Common name**	**Scientific name**	**Common name**
Mugil cephalus	flathead grey mullet	Barbus peloponnesius	barbus
Phoxinellus pleurobipunctatus	Actinopterygii	Leusiscus cephalus	chub

1.3. History and mythology

1.3.1. The Sanctuary of Zeus Lykaios

According to the ancient descriptions, the Sanctuary of Zeus Lykaios on the crest of Mount Lykaion, consisted of a mound-like earthen altar and a temenos at some distance from the altar. Mysterious events were ascribed to the sanctuary as human sacrifices, secret ceremonies, lycanthropy, prohibited entrance into the temenos without inevitable death, shadow loss and rain magic performed by the priests of the god. Nevertheless, no human bones have been identified (Zolotnikova 2002).

Local tradition tells that Lykaon, the son of Pelasgos, established a regular worship at the sanctuary and introduced the epithet Lykaios for the Zeus who was previously worshipped there (Piccaluga 1968). The altar, circular-shaped with no architectural character, has been discovered on the top of the mountain on 1420m altitude, now known as Prophet Elias. The temenos has been identified about 20m. below the altar and no traces of construction occurred in the interior (Kourouniotis 1904). Several votive objects were found in the temenos, dated back to the 7th and 5th century B.C., including bronze figurines representing Zeus and Hermes and a bronze 'knimis' inscribed with a dedication to Zeus Lykaios and Athena (Kourouniotis 1909).

Pausanias described a sanctuary of Pan near the site that was surrounded by a grove. Next to the grove, he located the guesthouses, the stadium and the hippodrome were the Lykaia games; athletic events dedicated to Zeus Lykaios, had once been held (Papachatzes 1974).

1.3.2. The citadel of Eira

During the third year of the second Messenian war (7th BC) and after the severe battle in the large trench between the Messenians and the Lacedaemonians, the Messenians stampeded to a hill of Eira and built a fortress, where the remains still exist (Facaros and Theodorou 2008). The Lacedaemonians pursued them and sieged the fortress. The situation for the beleaguered has become harder, but the same was applying for their rivals.

Head of the Messinian army was the notorious, Andania-born Aristomenis, son of Pyrrhus and Nikoteleia. Years before, Aristomenis had managed to rouse the Messenians against the Spartans, while ensuring alliance with the Argives and the Arcadians. Aristomenis managed to win several battles and as the fortress remained intact, he and his elite army often descend from the mountain, attacking the Laconian lands, looting and terrorizing the citizens. Eventually, the fortress was conquered, the Messsenians were expatriated and Aristomenis left for Delphi to request assistance (Papachatzes 1974).

1.3.3. Neda river

Neda is one of the two rivers of Greece bearing a female name and sources on Mount Lykaion. It streams between Kakaletri and Petra, in southern Messenia and close to Andritsaina. The river flows through thirty-two kilometres of natural beauty, until it empties into the Ionian Sea at Elea, near Kyparissia bay.

According to Greek mythology, Mount Lykaio is the place where Rea gave birth to Zeus on a part of the mountain called "Kritea", near the Pythian Apollo (or Parrasios grove). Rea entrusted nymph Neda to nurture baby Zeus, in order to protect him from the teeth of his father Kronos. At that time, Arcadia was suffering from severe drought and Rea could not find water for Zeus, so she hit the land with a stick and created the river (Mair and Mair 1921).

Pausanias describes a religious habit occurring on Mount Lykaio. In anhydrous times, the priest of Zeus Lykaion, went to the Agno spring to propitiate the nymph with sacrifices and prayers. He then threw an oak branch to the ground and soon enough the water bubbled. Then formed a vapour cloud, which attracted even more clouds, and finally resulted in rain. The residents of Ancient Figaleia were bathing in Neda to gain power, while in adulthood young people were cutting off their hair and throwing them into the river as a tribute to the goddess (Jones 1935).

In mythology, the Pelasgian Arcades were listed as the ancientest Greeks, while the ‘birth’ of Zeus on Mount Lykaion is advocated by recent archaeological finds in the sanctuary of Zeus, proving the worship of the Father of Gods since 3500 BC. All genealogical and religious myths and traditions of the ancient Arcadians origin from Mount Lykaion. The mountain is the motherland of all the founders of the Arcadian cities, as the primordial was the king Lycaon who founded the city of Lykosoura. According to Hesiod, Lykosoura is considered to be the first city of mankind (Jones 1929).

Pausanias described in the 2nd century AD, the temple of the goddess Dimitra Melena, located inside the Holy Cave, in the canyon that formed by the river course where today stands the chapel of Virgin Mary. According to the legend, the goddess retired there mourning of her daughter Persephone who was abducted by Pluto. Thus, the earth ceased fertility, the crops were destroyed and people were starving to death. Pan found her and informed Zeus, who decided to engage Moires to convince her to get out of the cave. Eventually, Dimitra listened to them and as a result, the land came back to normality.

The Figaleians enshrine a wooden statue in the Holy Cave, depicting the goddess sitting on a rock. The statue was a bizarre and mythical sight that symbolised the primal, underworld nature of the goddess. She had a horse head with snakes and other animals instead of hair and dressed in a long black robe. She held a dolphin in one hand and a pigeon on the other. The statue was burned at some point and the Figalians eventually neglected the worship of the goddess, till the land became fruitless again. After visiting the Delphi Oracle, Pythia

revealed to Figaleians that if they wouldn't praise the goddess, even worse plight would follow. The terrified Figalians ordered to Onatas, the Aeginitian sculptor, to build a marvellous bronze copy of the original statue.

On the altar inside the Holy Cave, the Figalians offered to the goddess grapes, crops, honeycombs and raw wool and bathed them with virgin olive oil. Around the cave, there was a grove and a spring. Pausanias visited the Holy Cave but did not see the statue, because according to the stories of his contemporaries Figaleians, it had been destroyed by a rock that detached from the cave's ceiling (Jones and Ormerod 1926).

1.3.4. Temple of Apollo Epikourios

The temple of Apollo Epikourios, one of the most important and most imposing temples of antiquity, stands in the bare and rocky landscape of Bassae, near the village of Skliros, northeast of Figaleia, south of Andritsaina and west of Megalopolis. It is unique, in the history of ancient Greek architecture, because it combines a variety of novel ideas both in its external appearance and in its internal arrangements. Pausanias considered it to be among the finest temples of the Peloponnese, in terms of sheer beauty and harmony, second only to that of Tegea. The building is dated to 420-400 BC and is believed to be the work of Iktinos, who succeeded in combining masterfully several Archaic features, imposed by the conservative tradition of the Arcadians with the characteristics of the new Classical style. The surviving temple is not the first one to have been constructed on the site. The earliest temple of Apollo erected in the late 7th century BC, possibly at the same location, and was rebuilt at least twice in approximately 600 and 500 BC. Many architectural features from these two phases survive, including a large terracotta acroterion with ornately painted decoration, roof-tiles and antefixes (Sporleder 2013, Dinsmoor 1933).

The Classical temple was raised on the bedrock of a specially built terrace. Like some other temples in Arcadia, it is orientated east-west instead of the usual north-south, possibly because of local tradition. The building is made of local grey limestone, with parts of the roof, the capitals of the cella and the sculptural decoration being of marble. This is the only known temple of antiquity to combine three architectural orders. It is Doric, peripteral, distyle in antis, with the pronaos, cella, adyton and opisthodomos (Guerrieri 2003). The temple has six columns on the short sides and fifteen on the long sides, instead of the period's usual ratio of 6:13, which gave it the characteristic elongated shape of Archaic temples. Inside the cella, on either side was a series of five Ionic half-columns engaged in buttresses, which projected from the sidewalls dividing the space into niches. The last pair of half-columns divided the cella diagonally, not at right angles like the others. Between them stood a single column. Its capital, recorded in the drawings of the first modern travellers, is the earliest known example of a Corinthian capital in the history of Greek architecture (fragments of the capital are now in the National Archaeological Museum). According to one theory, this column was in fact an aniconic representation of the deity in

accordance with the earliest Arcadian traditions, while another theory suggests that the fifth pair of half-columns, which stood on either side of this one, was also Corinthian. The cult statue of Apollo was inside the adyton, which was located behind the Corinthian column. A door on the east wall led to the pteron, on the outside. The two-sloped roof had marble tiles of Corinthian type (Svolopoulos 1995).

A Doric frieze of undecorated metopes and triglyphs ran along the outer facades. Only the inner metopes of the short sides were decorated: those on the pronaos had depictions of Apollo's return to Olympus and those on the opisthodomos contained the rapture of the daughters of the Messenian king Leukippos by the Dioskouroi but pediments may have remained undecorated. The temple's main decorative feature was the marble Ionic frieze supported by the Ionic half-columns of the cella. This frieze was thirty-one metres long and consisted of twenty-three marble slabs, of which twelve depicted battles between Greeks and Amazons and the remaining eleven showed battles between Lapiths and Centaurs. The frieze was unearthed by foreign antiquaries in 1812 and sold to the British Museum in 1815. It may have been the work of Paionios, who also executed the celebrated statue of Nike at Olympia (Jenkins 2006).

The temple remained in use during the Hellenistic and Roman periods, its roof being repaired several times. After the building was abandoned, the decaying roof caved in causing extensive damage, further aggravated by human intervention with the removal of the metal clasps used in its construction. The temple, identified in 1765 by the French Architect J. Bocher, was first explored by a group of antiquaries in 1812. In 1902-6, the Greek Archaeological Society excavated and restored parts of the temple (Hölscher 2009). In 1975 the newly founded Committee for the Conservation of the Temple of Apollo Epikourios launched a program for the monument's conservation and restoration and in 1986 it was the first Greek site to be inscribed as a World Heritage Site by UNESCO. The Committee was reformed in 1982 and the Ministry of Culture has been overseeing the difficult task of restoring the monument ever since. A shelter, which will be removed at the end of the works, was erected in 1987 to protect the temple against Eira’s extreme weather conditions (Conde 2009).

On the crest of Mount Kotilio and near the temple of Apollo were worshipped, in separate altars, the goddesses Artemis and Aphrodite. Demeter was worshipped too but in an unidentified location of the area. The sanctuary on the top of the mountain seems to be founded in the 6th century. B.C. by the Figalians that were living at Bassae. Pausanias visited the place in the 2nd century AD to describe the monuments and their history. The site was abandoned in the 3rd century BC but the temple of Apollo was not affected and continued to operate (Odysseus)[1].

[1] http://odysseus.culture.gr/h/3/gh351.jsp?obj_id=6664

2. Anthropogenic Environment

2.1. Population and employment

The Municipality of Oichalia is de facto populated by 11.753 inhabitants (ELSTAT 2011) and covers 411 km^2 of north Messenia. The region headquarters in Meligalas and includes the Municipal Units of Andania, Dorio, Eira, Meligalas and Oichalia. As illustrated in Table 5, Eira is populated by 666 residents and according to Kallikratis plan, consists of thirteen villages that belong to eight Local Communities (Table 6).

The main occupation of the residents is related to the primary sector and mostly with agriculture. The majority of cultivation are orchards of chestnut, walnut, apple trees and vines, while the olive trees are limited. The olive trees are quite resistant toward low temperatures and high altitude but not able to endure neither the random cold masses of air nor the frost that characterise the mountainous climate of Eira. The livestock mostly includes sheep and goats, grazing on the open pastures and raised for the production of meat, milk and dairy products that falls into the secondary sector. Concerning the tertiary sector, the occupation is minor because there are only two guest houses serving the visitors and just a few traditional coffee shop in the entire region (ELSTAT 2011).

Table 5: Population census, Municipality of Oichalia (ELSTAT 2011)

Municipal Unit	Andania	Dorio	Eira	Meligalas	Oichalia
Population	2.334	3.155	666	3.396	2.202

Table 6: Population census, Municipal Unit of Eira (ELSTAT 2011)

Eira			**666**
Local communities		**Settlements**	
Hagios Sostis	108	Hagios Sostis	100
		Tsouraki	8
Ambeliona	110	Ambeliona	110
Kakaletri	89	Kakaletri	77
		Marina	12
Neda	86	Neda	86
Petra	71	Petra	46
		Pera Rouga	25
Skliros	55	Skliros	37
		Panohori	18
Stasimo	68	Stasimo	68
Syrrizo	79	Syrrizo	36
		Dimandra	43

2.2. Land use

According to Table 6, Ambeliona is the most populated Local Community, although Neda is the headquarter of the area. Eira is classified as a mountainous region and occupies approximately 88 km^2, with rates corresponding to 80% agricultural land, 4,9% forests and 0,4% overland water (Table 7, Chart 1).

Table 7: Land division of Eira (ELSTAT 2011)

	Area Km^2	Agricultural area m^2	Forests Km^2	Water Km^2	Settlements Km^2	Annual cultivations Qty	Orchards Qty	Vineyards Qty	Pastures Qty	Fallows Qty
Eira	88	8047,5	4,9	0,4	0,3	77	135	77	78	49
Local Com.										
Neda	13	1161				8	14	13	9	12
Hagios Sostis	12	599				13	20	6	14	0
Ambeliona	5	119,5				8	13	1	1	0
Kakaletri	16	486				5	15	10	6	4
Petra	6	628,5				15	13	10	10	0
Skliros	16	2491,5				12	16	13	15	0
Stasimo	9	1660,5				9	25	18	16	20
Syrrizo	11	901,5				7	19	6	7	13

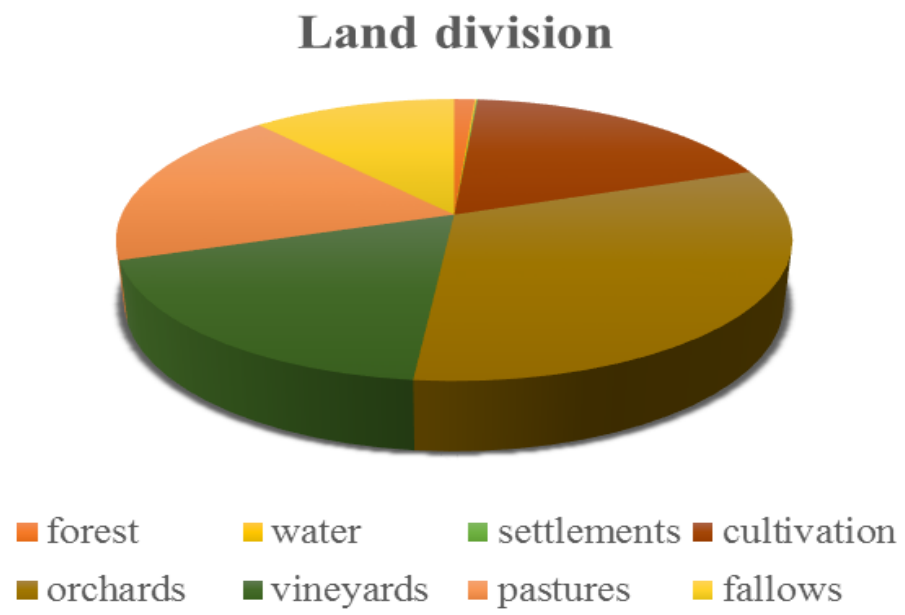

Chart 1: Land division of Eira

2.3. Local Communities and settlements

Local community of Hagios Sostis: Hagios Sostis, Tsouraki

Hagios Sostis is geographically located near the borders of Arcadia, Ilia and Messenia at an 850-900 m. altitude. The community's history is intertwined with the historic district of Gorena (archaeologists argue that Gorena is the Parassiaki Lycoa town, located on the north-west side of Mount Lykaion), and with the Tsourakis[2] settlement. The most famous site of Hagios Sostis is the Hagios Ioannis church, because where the church stands today, used to be a monastery, ruined by the Franks in 1300 AD.

During excavations, 60 cells, a gold tong, a chalice and a tufa cross were found[3]. The neighbouring villages supported the reconstruction of the church and established the annual summer festival of August 29th. Another site is the unfinished Byzantine church of the Holy Trinity in the centre of the village. Immigrants who moved to America financed the construction, until the 1929 US crisis where the economical support ended and the building remained semifinished.

Local community of Ambeliona: Ambeliona

Ambeliona village is well-known for the protected chestnut forest with numerous springs, where travellers are able to bike besides walking. In Papagianni central square stands the well-preserved traditional stone school, converted into a guest house and also the Great Spring that is listed by the Ministry of Culture and Sports. The second guest house 'Epohes', only 11 km away from the temple of Epikourios Apollo, shelters' most of the traveller that deal with rafting in Lousios river, trekking in Neda river, climbing on Mount Lykaion, paintball etc.

Local community of Kakaletri: Kakaletri, Marina

Kakaletri is built in an overgrown slope at an 700m altitude, above the valley of Neda river. Next to the Holy Resurrection chapel, near Kakaletri and Petra, the Neda springs are gushing through a rock. Following a northerly direction by the Neda river, about 3 km distance, there is the stone chapel of Holy Mary that includes a cold water spring. The churchyard is spacious and aptly formed for guests, with benches and dense vegetation shade, ideal for hosting river festivals. The village is also known for the citadel of Eira on the hill.

Local community of Neda: Neda

Neda, an amphitheatrically built village on the southwestern slope of Lykaion mountain at an 790m altitude, is located near Andritsaina and the Ancient Temple of Apollo Epikourios. The former name of the village was Berekla, indicating the first inhabitants' Slavic origin.

[2] Turkish name for the small hut.
[3] The village was named after the Hagiosostitis John Konstantopoulos who visualized the monastery.

Later on, it was baptised again after the Neda river, that is steaming near Petra and flows into Kyparissia bay. Neda is a picturesque village, preserving its traditional architecture of stone buildings with red brick roofs. Characteristic examples are the Hagios Nikolaos chapel and the old school (1904), that today houses the local cultural centre.

Near the village, at 'Kastraki' area, ruins were found identified as the Sanctuary of Pan and awaiting archaeological recovery. As mentioned before, the sanctuary lies in a grove, next to two major sports facilities, the hippodrome and the stadium, where the Lykaion games took place (Jones and Ormerod 1926).

Local community of Petra: Petra, Pera Rouga

Petra is built at an 800 m altitude and is the place where Neda river springs. The few residents retain the villages' traditional style. Stone houses, lush landscape and a small folk cafe are the only attraction for the travellers, that usually visit the place before crossing Neda river.

Local community of Skliros: Skliros, Panohori

Skliros is the northernmost village of Messenia, built on Mount's Lykaion foot at an 899 m. altitude. It is situated within 1 km from the temple of Apollo Epikourios and as the Neda river surrounds the region, it forms a natural boundary between Elis and Messenia.

In ancient times the area belonged to ancient Arcadia and Figaleia. The village was originally founded in 900-950 AD by residents of the nearby settlements (Jones 1935). A few years later, the area was attributed as a fiefdom (province) to Romanos Skliros, son of the Byzantine ruler Vardas Skliros, where he moved with his family. Romanos was married to the so-called "Sklirena", the Emperor's Constantine IX sister and the village was named after him (Kontogiannis 2010).

During the 2nd Venetian Rule (1689), Skliros belonged to the Province of Fanari and to Methoni (Leake 1830). During 1833th administrative division, the village was listed in Olympia province and later in 1899, along with Olympia, constituted the newly formed Trifilia. Trifilia abolished in 1909 and Skliros and Olympia reunited with Messenia. In 1939, Olympia joined Elis, apart from eight local communities and Skliros was one of those attached to Trifilia. At last, according to the Kapodistrias plan (1999), Skliros became Municipal District of Eira Municipality kai in 2010 became a local community of Municipality of Oichalia (Hellenic Parliament 2010).

Local community of Stasimo: Stasimo

Stasimo, is located at the north side of the Eira hill at an 631 m altitude. Standing next to the traditional stone springs, the temple of Apollo Epikourios appears from afar. On the mound, only 1 km away from the village, lies the Konstantinos and Helen chapel, which is an important meeting point for the residents.

Local community of Syrrizo: Syrrizo, Dimandra

Syrrizo is built at an 750 m altitude close to Andania borders, on the foothills of Mount Tetrazion. Travellers pass through the village in order to reach the temple of Apollo Epikourios and the Neda gorge. Among the eight churches, the most significant is Hagia Paraskevi, which hosts an annual festival. Heading north of the village, the Neda valley comes into view, while heading southern for 7 km on the earth road, the picturesque village of Kouvelas looms.

2.4. Geographical situation of Messenia

The Prefecture of Messenia is situated in the south-west part of Peloponnese with Kalamata as the regional capital. Eastward borders with Laconia, northern with Elis and Arcadia and westerly with the Ionian Sea. The total area of Messenia amounts to 2.991 km^2 and the actual 'de facto' population, according to the 2011 census, amounts to 161.288 inhabitants. Messenia is mainly mountainous to hilly (65%) with the remaining sections covered by plains. Especially in the northern and eastern part, the topographical relief is intense and variform. The most significant mountains of Messenia are Lykaion, Tetrazion and Taygetos, with the first two situated on the borders of Elis and Arcadia and the third one in Laconia (ELSTAT 2011).

In the central part of the region lies the plain of Messenia which is one the greatest and most fertile of the Peloponnese. Further lowlands are the plains of Kyparissia, Filiatra, Gargaliani, Pilos and Methoni - Finikounda.

The coastline of Messenia is engulfed in the Messinian bay, which starts at acroterion Tenaro (in Laconia) and ends at acroterion Akritas among Koroni and Methoni. Additionally, the coastline of the Ionian Sea is characterised by intense partition up to Pilos and northerly, especially after Kyparissia coastline, and continues planar up to Katakolo bay.

The area of this study subjects to the Municipality of Oichalia, which in total forms an anthropogenic and geographic section with unique historical, social and economic organisation due to the significance the natural and the human environment. As mentioned on a previous chapter, Eira is headquartered in Neda (Hellenic Parliament 2010). It is located in the northern part of Messenia and bordered northwesterly with Andritsaina and Krestena, southwesterly with Dorio, southeasterly with Andania, central-easterly with Megalopolis and northeasterly with Gortynia.

Eira includes a great natural beauty, ideal for the development of alternative forms of tourism. Within the studying area, there is abundant and interesting flora and fauna, composed by native and typical Mediterranean species (Liarikos et al 2012). The position

of Messenia is illustrated in Figure 3 in relation to Greece, while Figure 4 shows the location of the Prefecture in relation to Peloponnese.

Figure 3: Messenia and Greece

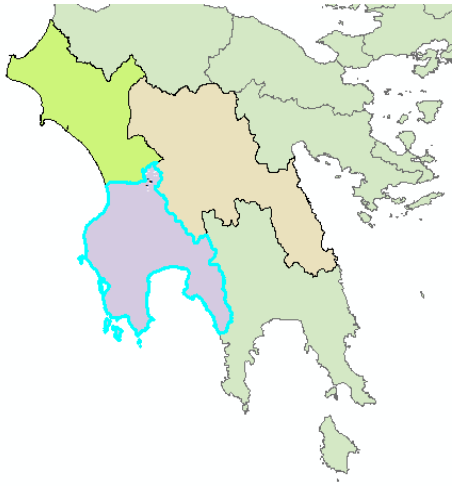

Figure 4: Messenia and Peloponnese

3. Tourism

Tourism is one of the most well-known free time and recreational activities in modern society (Müller 2002). Over recent years, tourism is orientated towards quality rather than quantity. Plenty of target groups became more demanding and sophisticated in looking for new activities and destinations. At the same time, people sensitised to environmental quality issues and demand a more active recreation, such as sports and culture. As a consequence, new forms of tourism became more popular, that occurred after or in parallel with the organised mass tourism to address new market requirements (Carter 2000). Besides the regular forms of conventional tourism, Table 8 shows innovative forms of alternative tourism related to the study area, in the context of the Rural Development Programme for Greece under the CLLD LEADER[4] initiative:

[4] LEADER: Rural Development Programme for Greece which works to make Greece's agriculture and forestry sectors more competitive, to improve the quality of life in rural areas and to diversify rural economies. 'LEADER' is an acronym for a French phrase that means 'links between the rural economy and development actions'. It's an approach to decision-making that CLLDs use to form effective local partnerships for a range of initiatives.

Table 8: Forms of conventional and alternative tourism

Forms of Tourism	
Conventional tourism	**Alternative tourism**
Social	Ecotourism
Cultural	Agrotourism
Religious	Adventure
Family	Mountaineering
Medical	Wildlife
Conference	Sustainable
Sports	Responsible
Mass	

3.1. Definitions of alternative forms of tourism

Alternative tourism is the opposite of conventional mass tourism. It includes forms of specialised tourism, centered on small markets away from traditional travel agencies (Theng et al. 2015). These forms, which are suitable for application in Eira are:

Ecotourism: Responsible travel to natural areas that conserves the environment and improves the well-being of local people (TIES 1990).

Sustainable Tourism: A form of tourism that can contribute to the sustainable development of the visited region (WCED 1987).

Responsible Tourism: Any touristic activity that can be performed in a more responsible way, with respect for local communities and the environment (Goodwin 2011).

Agrotourism: Often presented in the context of ecotourism. A specific type of rural tourism in which the hosting house must be integrated into an agricultural estate, inhabited by the proprietor, allowing visitors to take part in agricultural or complementary activities on the property (Marques 2006).

Adventure tourism: Travelling to unusual, exotic, remote or wilderness destinations and highly engaged with usually outdoors activities, that include perceived risk, potentially requiring specialised skills and physical exertion (Buckley 2006).

Mountaineering tourism: Refers to activities that take place on mountains and provide the sense of excitement, stimulation and potential adventure (Hudson and Beedie 2003).

Wildlife tourism: Encompasses (usually) non-consumptive interactions with wildlife, such as observing and photographing animals in their natural habitats. It has the recreational aspects of adventure travel and supports the values of ecotourism and nature conservation programs (Kutay 1993).

3.2. Alternative tourism and sustainable development

Mediterranean developing countries as Greece, include excellent sea coasts for mass summer 3 S-tourism (i.e. Sea, Sun and Sand). In the last decades, this kind of tourism increased the country's annual income and contributed to the national economy to the detriment of the coastal ecosystems, the virginity of some areas and the preservation of their domestic cultures (Coccossis et al. 1993).

Nowadays, as the market forces of globalised capitalism, new investments in tourism must increase. Mass conventional tourism should be partially replaced by alternative qualitative tourism (A.Q.T.), which constitutes a sustainable touristic development (S.T.D.). The S.T.D. cannot be derived from the principles of sustainable development (S.D.), but the principles of S.T.D., are similar to the general principles of S.D. The touristic management should be given by an effective state and law, in cooperation with the local government and communities, the experts, the social organisations and the grassroots movements (European Chapter for Sustainable Tourisms 1990, Nicolopoulos 2008).

The A.Q.T. is extending to the mainland rural areas, trying to take into account their history and culture and trying to motivate tourists and visitors to engage in new activities (nature-oriented tourism, mountain sports tourism, athletic tourism, ecotourism, medical tourism, cultural tourism, historical and archaeological tourism, educational tourism, expo tourism, conference tourism etc.). Ecotourism, as a subcategory of A.Q.T., connects with organic activities like organic farming, livestock and traditional activities (Coccossis et al. 2001).

According to the European Chapter for Sustainable Touristic Development, the basic ten principles for sustainable development are:

- Respect for the carrying capacity of the touristic area (both of man-made systems and of natural ecosystems)
- Contribution to the protection and enhancement of the natural and cultural heritage of the area. Protection of the natural resources of the area.
- Support and reinforcement of the local economy.
- New jobs.
- Reinforcement of people's participation in the qualitative touristic development of the area.
- Demarcation of protected natural areas to which people can have access.
- Encouragement of people's attitude and behaviour of respect for the environment (ecological awareness).
- Development of high-quality tourism.
- Promotion of this kind of development, which can be a good example for other sectors of the economy.

The A.Q.T. constitutes a S.T.D., so the extent of investments and touristic activities are proportional to the size of settlements, the number of tourists and the carrying touristic

capacity of the concrete area. The quantitative definition of capacity depends on the existing natural and cultural capital and on the specific circumstances of the touristic area. The establishment of a monitoring mechanism is necessary in order to check the outputs of the whole integrated socioeconomic and environmental system of the respective area (Geyer 1994). Some indicators of the carrying touristic capacity are:

- Conservation of local tradition and culture.
- Technical infrastructures which refer to the capacity of infrastructures to cover the needs of tourists.
- Touristic tension, which refers to the quality of touristic services (analogy of touristic beds to the permanent population).
- Tolerable number of tourists (analogy of tourists to the permanent population).

Alternative tourism is usually connected with small touristic units, simply because it is interested in avoiding serious disturbances of natural ecosystems. The S.T.D. is achieved when the attitude of the permanent population of an area is positive to touristic activities, mostly due to the economic development (new jobs, rendering of services, commerce etc.), along with the preservation of the built, cultural and natural environment and the obedience to the law and existing rules (E.T.A.M.E.P.E 2003).

3.3. Ecotourism

Ecotourism contributes both to the increase of society's environmental awareness, as well as the clarification of leading trends in sustainable development in important areas from the environmental point of view. The definitions of eco-tourism are:

- Responsible travel to natural areas that conserves the environment and sustains the well-being of local people (TIES 1990).
- A concept of tourism, related to the natural environment, organised and managed in a sustainable way, containing elements of environmental education and financially contributing to environmental protection (International Centre for Eco-Tourism Research).
- Travel to nature, contributing to its protection (Boo, 1999).

Ecotourism has emerged as one of the fastest-growing sectors of the tourism market, influenced primarily by public demand for more environmentally responsible tourism (Boo, 1990). The annual growth rate is estimated between 10% and 15%, but besides the advantages, it is crucial to consider that ecotourism is not a panacea (Cater and Lowman, 1994).

The specific objective is travelling to relatively undisturbed or uncontaminated natural areas, aiming to the visitors' environmental education, enjoyment of the scenery (flora, fauna, cultural heritage) and involvement to the residents' occupations and traditions. The

above results in conservation funding, political empowerment and economic development of local communities (Honey 1999, Boo 1990, Ziffer 1989).

3.4. Agrotourism

Agrotourism refers to specific leisure agricultural activities, conducted in rural areas and offered to visitors by small-scale farmers (Iakovidou 1997, Kizos and Iosifides 2007). These touristic services are complementary to the main income that belongs to the primary sector (Canary Islands Government 1989). The farmers and their family, are committed to provide shared or independent accommodation in their residence, introduce the guests to traditional customs and offer a peaceful, nature-oriented stay. As a result, tourists acquire environmental awareness and positive attitude towards other worlds, local people and their culture. (Busby and Rendle 2000)

This form of tourism has been extremely successful because the opportunity of enjoying the rural and cultural environment at an attractive price appeals to a large market. The usual participants are families that are trying to avoid mass tourism, crave for natural products and seek for genuine local culture and novel activities (Halfacree 1993, Hall and Jenkins 1998).

3.5. Adventure tourism

Adventure tourism is defined as an experience of excitement, danger and risk. In the last twenty years, the sector grew sharply, since it is related to the increase of all types of nature-based tourism. (Buckley 2006, Pomfret & Bramwell, 2014, Sung, Morrison, & O'Leary 1996). Extreme activities break the routine of urban lifestyle and the reason that some tourists seek risk is that engenders not only danger, but also prestige and sense of heroism. Additionally, the extreme adventure can reflect social stratification i.e. status is formed by overcoming and mitigating risk, earning respect and creating a type of aristocracy (Buckley 2011).

Adventure tourism includes respect to geography and the sites' nature apart from skill, excitement, and risk. Usually, it is practised in remote areas, where access to medical assistance is difficult. Therefore, tourists prepare their visit accordingly to their cultural context (Korstanje 2013). Normally, commercial operators and instructors are hired for guidance and equipment supply (Buckley 2006).

The specific sector is divided into three categories, 'soft', 'nature-based' and 'hard' adventure tourism. Soft adventure concerns 'non-adrenaline junkies' as it is high safety-oriented and 'nature-based' adventure is usually correlated with ecotourism and includes few risk (Hudson 2003) (Patterson & Pan 2002) (Swarbrooke et al. 2003). The last category is that of 'hard' adventure tourism which attracts the 'danger rangers', involving high risk

and danger (Buckley 2007, Lawrey 2010). Table 9 shows all the categories of adventure activities that can be held in mountainous locations of Greece:

Table 9: Feasible adventure activities in mountainous locations of Greece

Adventure activities				
Soft adventure		**Nature-based adventure**	**Hard adventure**	
Camping	aerial boardwalks	birdwatching	quad biking	mountaineering
4x4 trails	acrobatic flights	nature watching	bakkie skiing	rock climbing
fishing in rivers	biplane rides	donkey riding	bridge swinging	river kayaking
Caving	bicycle tours	watching	abseiling	caving
forest walk	canopy tours	wild animal trekking	canoeing	skydiving
Trekking	nature walks		canyoning	mountain biking
rock climbing	hang-gliding		zip lining	paragliding
Hiking	flights in helicopters		horse riding	hang gliding
hot air ballooning	Geckoing		bungee jumping	ice-climbing
aerial cable trails	Gyrocopters		white-river rafting	
Flights in light planes	kloofing (canyoning)			

3.6. Mountaineering tourism

Mountaineering tourism refers to activities that take place on mountains and provide the sense of excitement, stimulation and potential adventure (Beedie and Hudson 2003). Mountains are considered as 'fragile environments' and susceptible to human impact, with slow recovery rates in case of ecological damage (UNCED 1992). In ancient times, mountains were places of worship that were associated with the deities (Goode et al. 2000). Nature-based tourism created new forms of development to remote regions that derived from consumers' demand (Fletcher 2011). Mountaineering tourism, which commonly takes place in protected natural areas, creates development in disadvantaged regional economies, combined with conservation of nature (Duffy 2008). Besides from accommodation and catering, this sector involves engagements with people as fellow participants, team members, guides, porters, regulators etc. (Weed 2005).

Mountaineering is classified as a subcultural sport and is associated with informal rules of engagement, that are developed by the individuals through participation and socialisation (Donnelly and Young 1988). Goal orientation may be understood in terms of personal achievement and may be constantly redefined in relation to developing competence and physical and technical challenge. In contrast, mountaineering may also be regarded as an escape to the hills, meaning freedom away from any organised or competitive constraints of society (Pomfret 2006).

The nature-based setting of mountaineering tourism has similarities to ecotourism, and the high-risk nature strongly relates to adventure tourism. Basically, it is the sport of climbing mountains, which often incorporates the skills of alpine rock and ice climbing. The contest-

based nature of mountaineering tests the physical, mental and technical prowess of participants, in terms that may include physical ability, concentration, endurance, stamina, strength and skill (Gibson 1998).

3.7. Wildlife tourism

Wildlife tourism is based on non-domesticated animal encounters. These encounters can occur in either the animals' natural environment or in captivity. The regular activities are viewing, photographing, feeding, hunting or capturing animals, as well as recreational fishing and classified as non-consumptive. Therefore, wildlife tourism can entail either fixed sites or occur as unguided encounters by independent travellers (Newsome et al 2004).

Kutay (1993) claimed, "Wildlife tourism is more than travel to enjoy or appreciate wildlife, it also includes contributions to conservation and community projects in developing countries, and environmental educations and awareness through the establishment of codes of conduct for wildlife tourists as well as the various components of the travel industry".

This sector is triple as comprising adventure travel, nature-based activities and ecotourism, held on an ecologically sustainable framework. The human interaction with wildlife is classified as consumptive for hunting and fishing, low-consumptive for zoos and aquaria and non-consumptive for observation and photography. Management intervention is essential to monitor the wildlife activities, to secure the balance between quality experience and the well-being of fauna (Duffus & Dearden 1990).

3.8. Sustainable tourism

Sustainable tourism development balances the needs of tourists and host regions with wise resources' management. In the case of maintaining cultural integrity, essential ecological processes, biological diversity and life support systems, the economic, social and aesthetic needs can be fulfilled (WTO 2001). The four basic principles (WCED 1987) for achieving sustainability are:

- Protection of human heritage and biodiversity
- Preserving essential ecological processes
- Holistic planning and strategy-making
- Productivity should be sustained over the long term for future generations

Ecotourism is inextricably linked with sustainable tourism, but practically ecological principles should be considered as the main principles of the tourism development (Bakırcı, 2002). Development should take into account the sustainability of local social, political,

agricultural, and ecological systems. The participation of local communities is essential in decision-making processes about the areas' management and healthy profit (Kirk 1995).

3.9. Responsible tourism

Responsible Tourism was defined in Cape Town in 2002 alongside the World Summit on Sustainable Development. The formal motto is "Making better places for people to live in and better places for people to visit" and requires that operators, hoteliers, governments, local people and tourists take responsibility to make tourism more sustainable (Goodwin 2011). Responsible tourism, in fact, is a compilation of almost all forms of tourism, without the disadvantages (Cape Town Declaration 2002). The main principles are:

- Minimal negative economic, environmental and social impacts
- Enhancement of the well-being of local communities and improvement of working conditions
- Local people involvement in decisions, that affect their lives
- Positive contributions to the conservation of natural and cultural heritage and to the world's diversity maintenance
- Enjoyable experiences for tourists (deep connections with local people and empathy for local cultural, social and environmental issues)
- Accessibility for people with disabilities
- Respect between tourists and hosts that builds local pride and confidence

In practice, while travelling responsibly, money circulate within the local area. Choosing to stay in a family's house and tasting local cuisine instead of supporting multinational chains, using recycling and renewable energy and generally confront locals as a family, leads to bidirectional benefits (Krippendorf 1987).

4. Materials and Methods

Eira is an area with rich biodiversity, history and culture and bears numerous cultural elements, demonstrating the uninterrupted human presence for thousands of years. Among the ancient monuments, the myths and the traditions, the old footpaths are considered as an integral part of local culture. These footpaths were shaped by pedestrians and animals, aiming to unite the sites and the settlements of particular human interest. Previously to the contemporary era, these footpaths were the only road network facilitating communication and transport, hosting lengthwise plenty of chapels, springs, inns, bridges etc. Nowadays, a high rate of the footpaths has been sidelined because of the development of motorised transportation, partially covered by dense vegetation or even transformed to asphalted roads. However, under appropriate conditions, national financing and local communities' initiative, they can be regenerated and reused for the development of alternative tourism within the area.

The mapping of the footpaths was initially accomplished through multiple visits and interaction with residents. The data collected on the field about local history, mythology, tradition, natural environment and former use of the paths were documented with literature research. The start points and destinations of the footpaths were captured using GPS and registered on the map[5], serving as guides for the digitization of the routes. Mr Thimios Alexopoulos, a member of the Mountaineering Association of Kalamata, contributed to the field survey and indicated the exact location of the start points and the course of the routes.

The purpose of the study is the production of a Digital Orthophotomap on 1:50.000 scale, displaying the footpath network that connects the cultural and natural heritage along with the settlements. Specifically, this network is significant because of its historical, cultural, religious, ambulatory, environmental and ecological value for the visitors and emotional value for the local population. The mapping of the area was achieved using:

- Geographical Information System (GIS), software: ArcMap 10.3
- True colour Orthophotos
- Digital Orthophotomap (orthomosaic) of Eira
- Global Positioning System (GPS), model: Garmin, e Trex 30
- Topographic map of Eira from the Hellenic Military Geographical Service (H.M.G.S) on scale 1:50.000
- Basemap with the boundaries[6] of the:
  - Prefectures of Greece
  - Municipal Units of Greece
  - Local Authorities of Greece

[5] GPX files converted to shapefiles
[6] geodata.gov.gr

Aerial photographs are essential tools for GIS data acquisition and visualisation, as they provide solid visual effect and a spatial information basis. A conventional perspective aerial photograph contains image displacements caused by the tilting of the camera and terrain relief. (Wang and Ellis 2005). Orthophotographs are images created from vertical or near vertical aerial photographs. The processes that generate orthophotos, remove the effects of terrain relief displacement and the tilt of the aircraft. Orthorectification methods[7] transform raw digital aerial images to digital orthophotos, using software that aligns the image orthogonally. The result is a uniform-scale photograph with constant positional accuracy and ability to serve as a base map. Mosaicking is the process of connecting separate photographs to each other and creating an orthomosaic with map characteristics (Falkner and Morgan 2002).

A geographic information system (GIS) is a computer-based software for mapping and analysing spatial data. GIS integrates common database operations with visualisation and geographic analysis of maps (Longley et al 2001). Some examples are the presentation of natural phenomena, forestry, regional incomes, religion, topography etc. (Gregory and Geddes 2014). The system supports the import of georeferenced (or not) data, analysis and visual (map or other) presentation of the data. In addition, it provides many types of coordinate systems and transformations between them, analysis options of the georeferenced data, and various choices for the presentation of information i.e. colours, symbols etc. (Bodenhamer et al 2010). The basic operations of GIS are:

- Data input/capture
- Mapping/digitisation
- Data/file management
- Visualization/presentation

GIS system provides functions and tools capable of storing, analysing and displaying geographic information, as well as, using a database management system and integrating spatial data with other data resources (Tsolakis 2013). The software also stores information in separate thematic layers that can be linked together by geography. The geographic information can be georeferenced using latitude and longitude, national grid coordinate or even implicit references such as an address, postal code etc. The spatial data must be converted into a suitable digital format before input in GIS, by digitisation or transformation, usually, into a shapefile (ESRI 2012).

[7] Digital Elevation Model (DEM), Ground Control Points (GCP)

5. Results

The footpaths and mule roads in rural and mountainous areas of Greece, until the mid-20th century, served exclusively as communication channels among neighbouring settlements and facilitated the transportation of local residents and animals. Nowadays, the tendency of hiking on mountaineering footpaths offers people an alternative opportunity for spiritual uplift, outdoor recreation, contact with nature, environmental education and physical exercise. Visitors are passing by settlements, canyons, isolated areas, mountain shelters, rivers, natural sites and cultural monuments, grasping the local tradition and character. Their significance led several national and local entities to register and preserve a plethora of trails, upgrading their cultural, environmental and practical capacity.

Within a realistic framework, the majority of the footpaths have multiple uses, despite the official classification. Even European and National trails are fragmented in paths, earth roads and plenty asphalt. Their classification is usually indicative and not so accurate because for example a hiking trail is also used for mountaineering and recreational purposes. In general context, a short distance trail has 500 m length while a long distance trail has about 24 km to 30 km. The footpaths' categories encountered in the region of Eira are mountaineering, hiking-trekking, recreational, educational and local service but in reality, they consist of trail combinations with an average length of 6,7 km.

5.1. The footpaths

The footpaths below were chosen based on their significance in terms of cultural, historical, environmental, ecological and local service value (Fig. 5). Besides them, there is a plethora of secondary paths that are mostly used for rural purposes (Fig.6) and documented with GIS[8] but not analysed in the paper. The footpaths were studied in relation to difficulty level, length, estimated walking time and use. The labelling is not found situ but is indicative of the potential use (Table 11).

[8] The PDF files of the orthophotomaps and the photographs of the area are included in separate documents.

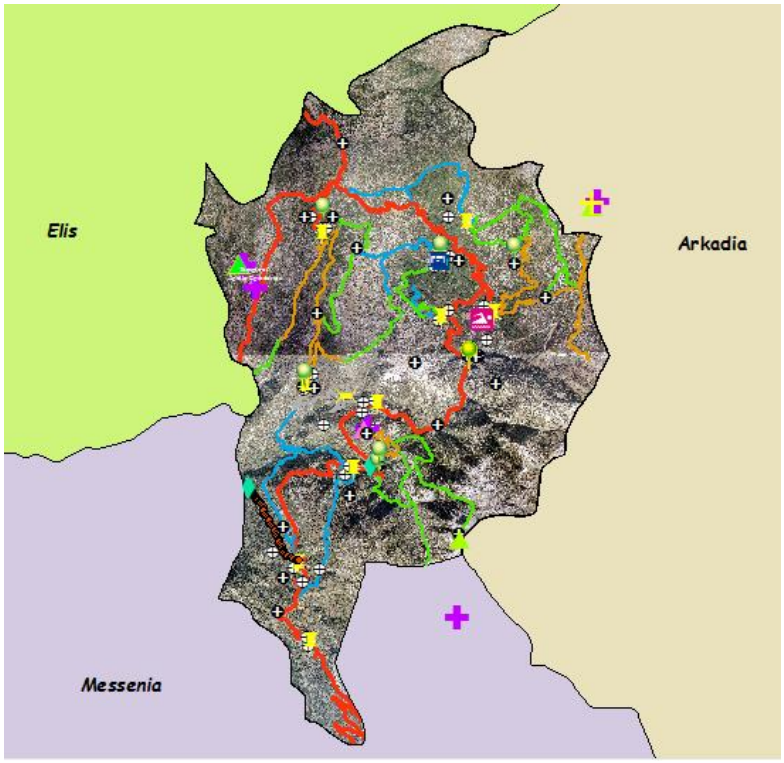

Figure 5: Significant footpaths and routes[9]

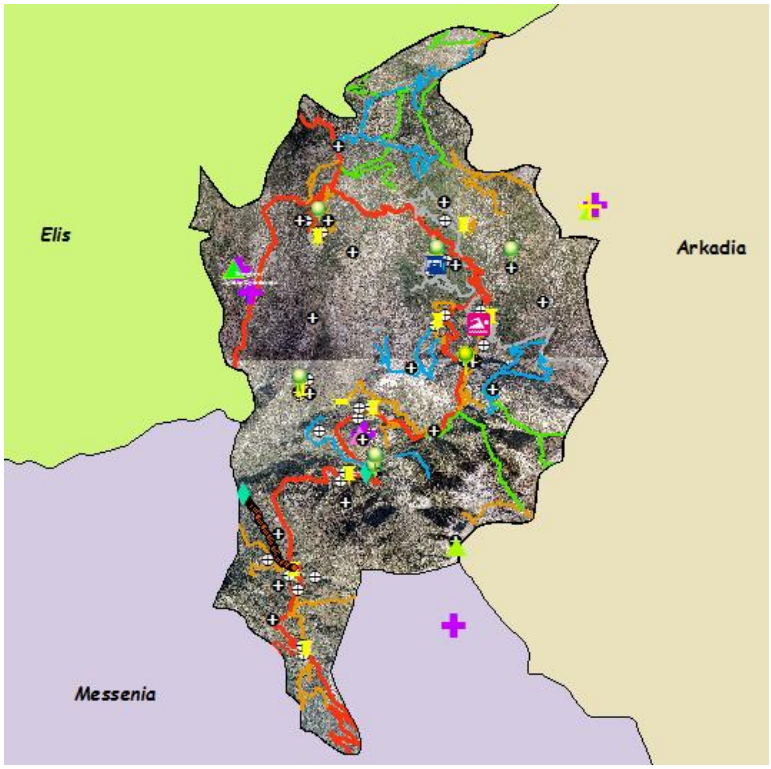

Figure 6: Secondary footpaths and routes

[9] Red line: Messene-Epikourios Apollonas Provincial road, green lines: footpaths, blue lines: mule roads, brown lines: earth roads, fuchsia cross: significant monuments

F1. Marina-Skliros: The footpath is a double earth road, easily accessible by large groups of pedestrians and cars. The total length is 5.954 m. and the estimated walking time is 77 minutes. Begins from Marina and terminates to Skliros. Halfway occurs the Hagios Therapon chapel that can be used as resting stop. Reaching the Temple of Apollo Epikourios is possible only from the Provincial road that connects Skliros and the Temple with 6.556 m and 85 minutes walking time.

03	**F1**	easy	5.9 Km	1,17 h

F2. Stasimo-Eira citadel: The uphill footpath is a sort single earth road, easily accessible from the Provincial road by pedestrians and cars. The total length is 2.835 m and the estimated walking time is 37 minutes. Begins from Stasimo and terminates at the crest of Eira hill, where is located the citadel of Eira and Hagios Athanasios chapel.

11 03	**F2**	moderate	2.8 Km	0,37 h

F3. Stasimo-2nd Mount Tetrazio crest: The footpath is a mountaineering route and merges for a few meters with F2. The total length is 6.436 m and the estimated walking time is 84 minutes. Begins from Stasimo and terminates at the 2nd crest of Mount Tetrazio, where is located the Prophet Elias chapel, next to the highest crest.

02	**F3**	moderate	6.4 Km	1,24 h

F4. Syrrizo-Stasimo: The footpath is an easy mule trail with 4.821 m total length and 63 minutes estimated walking time. Begins from Syrrizo and terminates at Stasimo and used to be the connection between the two villages. Nowadays, is mostly used as local service footpath.

11 07	**F4**	easy	4.8 Km	1,03 h

F5. Hagios Sostis-Neda: The footpath consists of half the path that surrounds Paraskenia ridge and the single earth road that traverses the Kastraki area. The total length is 14.401 m and the estimated walking time is 187 minutes. Begins from Hagios Sostis and terminates at Neda.

02	**F5**	easy	14,4 Km	3,11 h

F6. Hagios Sostis-Neda (near boundaries): The footpath consists of the second part of the path that surrounds Paraskenia ridge and the path that traverses Portes area and a part of an earth road that leads outside the boundaries of Eira. The total length is 7.731 m and the estimated walking time is 100 minutes. Begins from Hagios Sostis and terminates at Neda.

02	**F6**	moderate	7,7 Km	1,4 h

F7. Syrrizo-Stasimo-Marina: The footpath is a mule trail that is accessible by a single car and the last part merges with the local asphalt road of Marina. The total length is 8.962 m and the estimated walking time is 116 minutes. Begins from Syrrizo and branches with direction to Stasimo and/or Marina.

07 11	**F7**	moderate	8,9Km	1,56 h

F8. Skliros-Marina: The footpath merges on the last 2 km with F1. The total length is 6.975 m and the estimated walking time is 91 minutes. Begins from Skliros village and terminates at Marina.

03 02	**F8**	easy	6,9 Km	1,31 h

F9. Ambeliona-Petra: The footpath merges for 211 m with a mule trail. The total length is 3.412 m and the estimated walking time is 44 minutes. Begins from Ambeliona and terminates at Petra.

11	**F9**	easy	3,4 Km	0.44h

F10. Skliros-Ambeliona: The footpath is a combination of F8 and the mule trail that starts from Ambeliona. The total length is 4.947 m and the estimated walking time is 64 minutes. Begins from Skliros and terminates at Ambeliona.

03 02	**F10**	easy	4,9 Km	1,04 h

F11. Marina-Ambeliona: The footpath consists of three types of routes. Firstly, merges with the earth road from Marina, then becomes a footpath and lastly merges with the F10 mule trail. The total length is 7,858 m and the estimated walking time is 102 minutes. Begins from Marina and terminates at Ambeliona.

03 02 11	**F11**	moderate	7,8 Km	1,42 h

F12. Skliros-Hagios Sostis: The footpath is a mule trail that fits a single car at the most extent and starts from the Provincial road near Skliros for 2.267 m. The total length is 6.223 m and the estimated walking time is 80 minutes. Begins from Skliros and terminates at Hagios Sostis.

07	**F12**	easy	6,2 Km	1,20 h

F13. Skliros-Temple of Apollo Epikourios: The largest part of the footpath is an earth road and starts from Skliros, alongside to Neda river. After a course of 3.130 m, it turns into a footpath that continues beyond the boundaries of Eira, merges with the Provincial road and finishes at the Temple of Apollo Epikourios. The length of the route inside of the boundaries is 6.389 and the estimated walking time 83 min. The part of the footpath that continues outside of the boundaries has length 1.487 m and estimated walking time 20 minutes. Consequently, the approximate total length is 7.889 m. and the total walking time is 103 minutes.

03	**F13**	easy	7.9 Km	1,43 h

5.2. Signage

The signposting of the footpaths, especially on mountainous areas, should provide orientation and security to the hikers and basic information about the route. Complementary information such as difficulty level, length, estimated walking time and possible water supply and resting stops could be a positive addition for tourists. In terms of sustainability, the signs must be characterised by austerity and aesthetics, harmonising with the landscape.

The most widespread types of signage for footpaths are aluminium orthogonal plates either installed on tubes, stone structures and trees or coloured rocks. The dimensions and the colors are characteristic of the route's type. The required specifications for the signs are small and simple shape but easily visible, high resistance to weathering, low manufacturing cost and maximum traceability at night (reflective colours). The signs' position must be perpendicular to the route's axis to serve both directions. Table 10 illustrates the four signage categories that are frequently encountered in Europe and Greece:

Table 10: Types of signs[10]

Directional arrow on a small metallic plate or rock	
Directional arrow, destination, estimated walking time and length on a small metallic plate	
Exact location, footpath's map, technical information and short descriptive text in Greek and English on one or more small metallic plates	
Map of the area, footpath network and technical information, starting points on main metal panels at nodal locations	

[10] The signs in table 10 belong to 'Paths of Greece', http://pathsofgreece.gr/?lang=en

According to the Hellenic Ministry of Environment and Energy (H.M.E.E.), the suggested signage for mountaineering footpaths (Table 11) are respective colours to each trail category, enclosed in a square or rectangular plate. The dimension of the square must be 15x15 cm and the rectangular 10x5 cm. The proposed colours and numbers for the classification of the trails are red and eleven for recreational purposes, orange and three for educational-thematic activities, blue and two for athletic (mountaineering, hiking, trekking etc.) routes, light green and seven for local service and white and one for disabled access.

Table 11: Suggested signs for mountaineering footpaths

Footpath category	**Shapes and colors**	
Recreational	11	2
Educational-Thematic	03	5
Athletic	02	1
Local service	07	3
Disabled	01	

6. Discussion

The Hellenic Ministry of Environment and Energy (H.M.E.E.) has submitted proposals for the period 2014-2020, concerning the rural development of Greece and applying in practice under LEADER Community Initiative. A part of the LEADER[4] plan regards to Messenia and is designed exclusively for mountainous, disadvantaged and planar areas. The project's implementation will take place in Municipal and Local regions that are populated by 5.000 residents or less.

The associated draft law of General Framework for Spatial Planning and Sustainable Development (G.F.S.P.S.D.) refers to the touristic and environmental upgrading of each region, according to their respective natural, cultural, financial and social specific features in the context of sustainability. Specifically, the project includes the improvement of touristic destinations' attractiveness through upgrading and organising the concrete space. Additionally, is included the protection and restoration of the landscape i.e. the tangible and intangible cultural heritage, meaning architectural structures, footpath network, nature sites and the environment. Lastly, the project suggests the allocation of tourism away from the usual coastal destinations. A high rate of inland areas has the potential to reclaim their features, in order to attract the attention of tourists.

Eira, as a mountainous and relatively remote region, falls within the specifications of the project. Nevertheless, the competent institutions have not conducted yet an integrated study of the area, besides some sites' classification. Neda river is listed within the landscapes of special natural beauty and also the Neda valley and the Temple of Apollo Epikourios are listed within landscapes of great value and protection requirement. In the following chapters are presented proposals, concerning the exploitation and improvement of the area's settlements, cultural heritage, footpaths, touristic management and advertisement.

6.1. Proposals for the development of Eira through alternative tourism

Alternative tourism and the related forms, increase the economic viability of areas, boost the communities' confidence and improve the living conditions in rural regions. In the course of the investigation of Eira has been observed a diversification of seasonal population. During winter, the settlements are occupied by few permanent elderly residents, while the population throughout summer, and especially August, the population is doubled or even tripled. Most of the summer residents live permanently in various cities of Greece of even other countries due to lack of employment and activities.

Throughout the region only two guest houses operate, both in Ambeliona, offering shelter to the tourists. The guest houses are beautiful and in harmony with the landscape, but cannot accommodate large groups. This fact creates a new perspective in the field of

hospitality and catering. Instead of building new guest houses that would cost millions in national and local level, locals could utilise the already existing traditional houses. The landlords that live elsewhere and visit their village only in August, could use online platforms (Airbnb, Trivago, Flipkey etc.) to turn their house into short term rentals for the rest of the year. The expected profit, should allow the employment of a local individuals in order to household the house, greet the customers and express availability if needed. Depending on the landlord's vision, within maintenance could be included the preservation of fruit and vegetable gardens to offer an integrated rural experience of life on the mountain. Adherents of ecotourism and agrotourism would appreciate the homestay occupation with the garden that offers the daily biological food (Iakovidou 1997, Kizos and Iosifides 2007). In addition, it is suggested for the houses to store extra truckle beds in case of hosting large groups. Tourists that visit remote areas are not seeking for luxury but practicality, however, the access to the internet within the house is necessary for map and information browsing.

In the context of sustainability and ecology, the renewable energy sources have to play a primary role in the area. The power is feasible to be produced through solar thermal panels, installed either on the houses' roofs or in the fields for heating purposes. Certainly, the panels must be creatively covered because their appearance does not match with the traditional character of the settlements and the natural landscape. Furthermore, the lamps can be substituted by low energy light bulbs, not only within the houses but also in public space. Last but not least that deals with sustainability is the waste management. The increasing visitors create huge amounts of litter and inappropriate operation could destroy the purity of the area. A widespread solution is the utilisation of organic waste for compost and biogas production (Kirk 1995).

Apart from the 'danger rangers' that would visit the area for adventure and sports, accidents happen even in the safest environment. The constant presence of rural service doctors is essential in a practical way and also provide the sense of security to potential visitors (Buckley 2011). Furthermore, the formation of parking spaces located near but not inside the villages would solve upcoming traffic problems. The H.M.E.E. suggests striped asphalt parts of unused land, surrounded by trees so the cars won't be visible and distort the landscape. Near the parking spaces could start a horse, donkey and bicycle rental business, providing guided or non-guided services, among the respective village and the footpaths nearby. Riding in nature is a highly recreational activity and an ideal example is the Marina-Skliros (F1) trail with last stop at the Temple of Apollo Epikourios.

Inhabitants of remote areas are usually neither used to change nor easy embrace it went it comes up. A way to persuade the residents to do all the above is to motivate them with free seminars in their location that present specific examples, case studies and success stories of other areas. The presentation must also provide information about the procedures that people could make a profit out of their property and learn about agrotourism and its requirements.

The communities of Eira should collaborate with the Mountaineering Association of Kalamata to create patterns of organised hiking trips on Mounts Tetrazion and Lykaion, crossing Neda river, walking through the canyons and discovering the footpaths of the area. A high rate of visitors all over the wold is buying mountaineering guidance services and it is proven that this kind of business is successful. Mountain guides provide assistance for personal goal achievement, support the development of skills, expand the experience in nature and protect the hikers from hazards, therefore the occupation of freelance professional mountaineers in the area would raise the interest of many hikers (Briedenhann and Wickens 2003).

These proposals are ranging in realistic frameworks, they are achievable and have been tested in other regions. The financing expenses would be reasonable and mostly concern subsidies for the purchase and installation of the solar thermal panels and the low energy light bulbs. Apart from anything already stated, the greatest advantage is the creation of jobs that will regenerate the area in a social and financial level. Several examples are tour operators to create trips for a local experience, caretakers for housekeeping the rental houses, employees to operate the horse/donkey/bicycle rental businesses, marketing administrators and local food suppliers. The diverse economic activities will boost the local income and encourage youth to return to their birthplace and focus on farming, artistic traditions and tourism (Bramwell1 and Sharman 1999).

6.2. Proposals for the upgrading of the footpaths

The development of rural routes, accompanied by organised activities in nature that are leading to attractive destinations of natural and cultural sites, stimulates co-operation between local communities. Together with public sector's support and efficient promotion, Eira has the potential to become an ideal destination for alternative tourists and to yield profit to the residents.

The specifications for the dimensions and the geomorphological features of mountainous footpaths and routes are already provided by the H.M.E.E. and listed on the official website[11] of the Greek Government. Practically, nearly nothing has changed since ancient times concerning the mountain routes. The mule roads must have 2,5 m width so two loaded mules can easily intersect, while the footpaths suitable for two crossing hikers, must have the width of 1,20 m. In case of intense footpaths, located on high altitude (+1000 m) and steep slopes (+25% inclination), the suggested width is 0,80 m - 1,00 m and in moderate footpaths (10-25 % slope inclination) the width must be 0,80-1,50 m. The easy footpaths with less than 10% inclination have a width that varies between 1m and 2m.

[11] http://www.opengov.gr/minenv/?p=7512

In several cases, hiking footpaths are going through places with dense vegetation, hindering accessibility and traceability. A proper action is the removal of shrubs and pruning of low branches in a bandwidth that corresponds to the dimensions of the path, while deforestation is acceptable only for the creation of minor rest points. Regarding the cleanliness maintenance of the footpaths, is advisable the placement of signs that necessitate good behaviour toward the environment and induce visitors to collect their waste. Setting waste containers aside the paths is useful only when the collection of litter is guaranteed by the respective community, otherwise, they will become a source of contamination.

Parts of the footpath network is required to fulfil some basic prerequisites for the access and convenience of people with permanent or temporary disabilities, involving also the use of wheelchairs. Consequently, the parts must be flat and coated with evenly compressed material with turning areas every 300 m. The appropriate width is 1,50-2,20 m that allows the parallel movement of two wheelchairs and the slope cannot exceed a 5% inclination. In the case of a path that addresses to blind people, emerges the necessity of lateral railing or deck guide, easily detectable using the white walking stick.

The mountainous Eira has a plethora of spots with an amazing view either on the course of the footpaths or aside the Provincial road that crosses through the villages. As mentioned before, people that are fans of hiking and ecotourism in general, do not seek for convenience but escape to nature, away from the cities' lifestyle. A suggestion for the attraction and service of all the categories of visitors, is the creation of sheltered view posts. The structures must be in harmony with the landscape, therefore they should be constructed using rocks from the surrounding area and wood that matches the colour of the environment, firmly anchored to the ground to avoid overturning in the case of extreme weather. Following the same constructional rules, observatories of birds and animals could be installed in sites where visitors can observe the local fauna and flora at a safe distance for both the ecosystems and the people.

6.3. Proposals for the promotion of the footpaths

The documented footpaths (chapter 5.1) are ready for uploading on several national and private websites. The purpose is the direct access and free downloading of the data by anyone interested. The shapefiles can be included in the National Cadastre and Mapping Agency S. A. and the Hellenic Military Geographical Service, as well as the Geodata for quick and easy download. Nevertheless, these websites are designed for professional and academic use so the potential tourists of the area will not be able to find, understand or manage the information.

A solution to this problem is the importation of the features in interactive maps accompanied by an explanatory description of Eira within applications that specialise in travel guides, mapping and advertise popular destinations of Greece. The official website of

the Greek National Tourism Organisation[12] is favoured by various target groups because it is based in personalisation, as the searching criteria for the destinations are categorised by interest, region and mood. Another exceptional website is the 'Experience Greece'[13] that provides affordable mobile applications for specific regions, including offline navigation, descriptions, appealing interface, photo galleries, points of interest and activities. In addition, the website offers an interactive map of Greece that is editable and fully updated. The map provides the opportunity to create personal routes, points and polygons that are downloadable and automatically converted to KML[14] and GPX files.

A useful website to upload the footpaths, that is mainly addressed to hikers is the 'HellasPath'[15] and constitutes a compilation of downloadable files for GPS and Earth browsers of Greek mountainous routes. The files are also analysed with qualitative and quantitative statistics, extensive descriptions of the routes, instructions and commentary from personal users, giving confirmation to the reliability of the website. Last but not least, Google Earth and Google Maps are the most popular and user-friendly mapping software, therefore they cannot be excluded. The applications are connected to each other and support all the files mentioned before, converted to KMZ[16] files. The uploading of a track provides visual and statistical information about the geographic position, walking time, waitpoints, speed and elevation changes on a 3D topographic map and the ability to share with others.

[12] Greece, All time classic, http://www.visitgreece.gr/
[13] Experience Greece, http://www.xprgr.com/
[14] KML (Keyhole Markup Language) is an XML based file format used to display geographic data in an Earth browser such as Google Earth, Google Maps, and Google Maps for mobile.
[15] HellasPath, http://www.hellaspath.gr/
[16] KMZ is a file extension for a placemark file used by Google Earth. and stands for Keyhole Markup language Zipped. It is a compressed version of a KML (Keyhole Markup Language) file.

7. Conclusion

The footpaths of Eira are already functional and the only substantive requirement is the partial removal of vegetation and small interventions adapted to the environment, like signposts and viewpoints. The duty of the local communities is to monitor regularly the status of preservation and make the area an attractive destination. The proper management of the area, including basic services such as accommodation, nutrition and creative promotion can attract the target groups that prefer alternative tourism. Regarding the less oriented tourists, it is expected to move towards sightseeing, therefore the routes that lead to the sites could become part of the touristic product. The desired outcome is the economic and social development for the local communities in the context of sustainability and the improvement of the residents living standard.

The region has the potential to join the LEADER[4] plan and to receive national grants for the implementation of the project, after the submission of an extensive technical study including maps, feature documentation, development proposals and financial costs. The main actions required are the formation of a complete footpath network, aiming to the protection and exploitation of the environment, as well as the connection among the monuments of cultural and natural heritage. The implementation of the project is expected to create new jobs for the local communities and promote the area which is proven to be one of the gems of Messenia.

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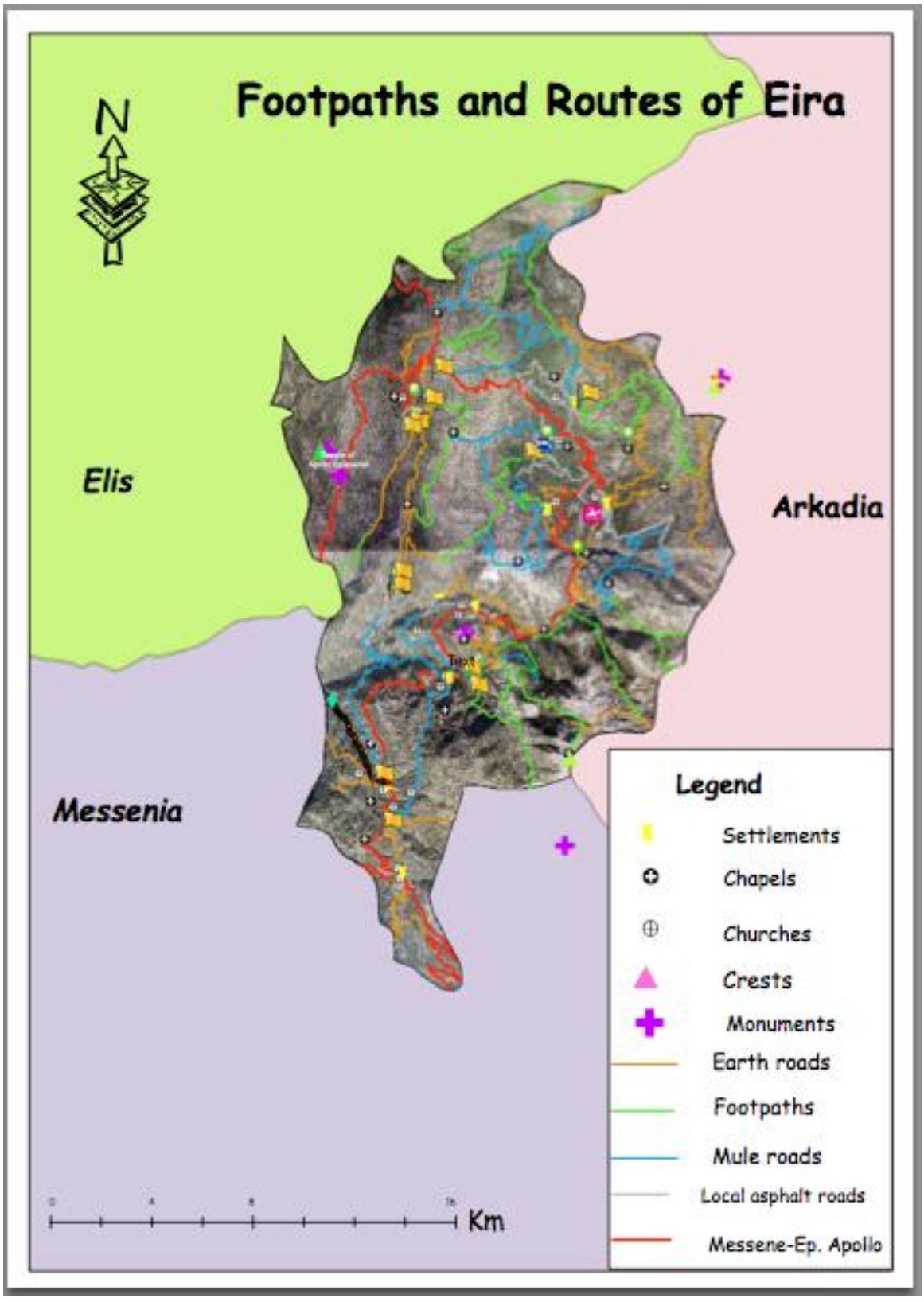
Appendices

Appendix I:



Appendix II: Figures

1 Stasimo
2 Small waterfalls, Stasimo
3 Hagios Vasilios, Marina
4 Open space for the construction of a view point, Kakaletri
5 Kouvelas canyon, Syrrizo
6 Kouvelas canyon, Syrrizo
7 Great Spring, Ambeliona
8 Great Spring, Ambeliona
9 Xenonas guest house, Ambeliona
10 Epohes guest house, Ambeliona
11 Hagios Therapon, F1 footpath (Marina-Skliros)
12 Neda river
13 Neda river
14 Neda
15 Neda springs winter
16 Neda springs winter
17 Holy Resurrection next to Neda springs
18 Neda waterfall, Neda
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20 Marina bridge
21 Traditional stone house, Skliros
22 The Sanctuary of Zeus Lykaios, Mount Lykaion crest
23 Apollo Epikourios from Skliros
24 Apollo Epikourios surroundings
25 Apollo Epikourios covered
26 The view of Eira
27 F2. Stasimo - Eira Citadel
28 Kakaletri - Citadel of Eira
29 Messene – Apollo Epikourios Provincial Road
30 Messene – Apollo Epikourios Provincial Road

Figure 1: Stasimo

Figure 2: Small waterfalls, Stasimo

Figure 3: Hagios Vasilios, Marina

Figure 4: Open space for the construction of a view point, Kakaletri

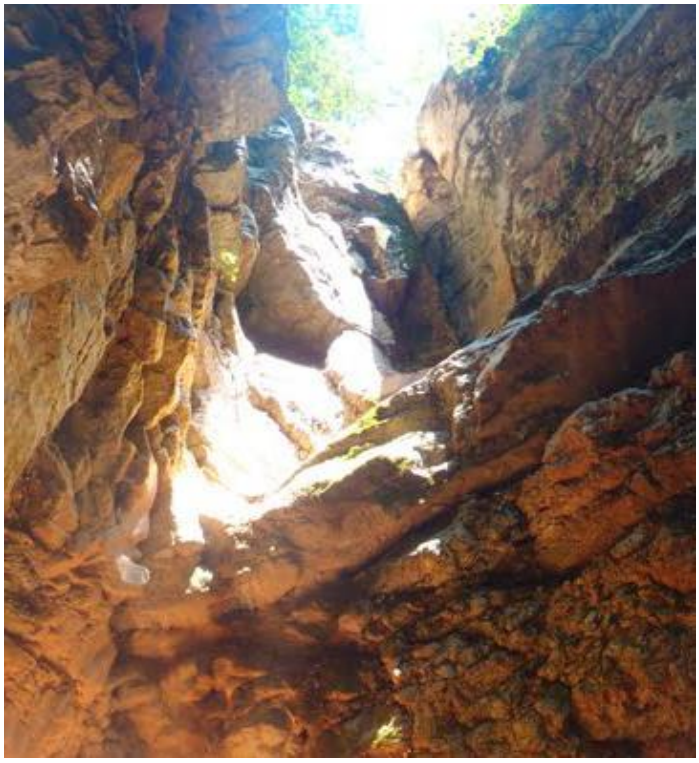

Figure 5: Kouvelas canyon, Syrrizo

Figure 6: Kouvelas canyon, Syrrizo

Figure 7: Great Spring, Ambeliona

Figure 8: Great Spring, Ambeliona

Figure 9: Xenonas guest house, Ambeliona

Figure 10: Epohes guest house, Ambeliona

Figure 11: Hagios Therapon, F1 footpath (Marina-Skliros)

Figure 12: Neda river

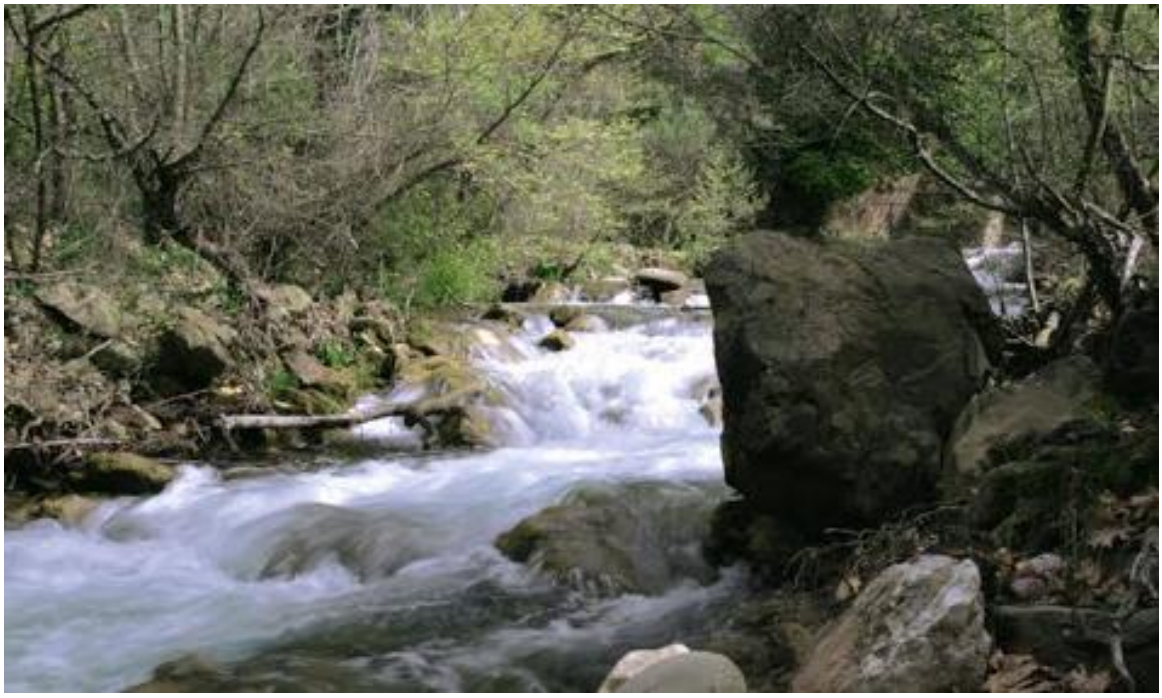

Figure 13: Neda river

Figure 14: Neda

Figure 15: Neda springs winter

Figure 16: Neda springs summer

Figure 17: Holy Resurrection next to Neda springs

Figure 18: Neda waterfall, Neda

Figure 19: Neda waterfall from above, Neda

Figure 20: Marina bridge

Figure 21: Traditional stone house, Skliros

Figure 22: The Sanctuary of Zeus Lykaios, Mount Lykaion crest

Figure 23: Apollo Epikourios from Skliros

Figure 24: Apollo Epikourios surroundings

Figure 25: Apollo Epikourios covered

Figure 26: The view of Eira

Figure 27: F2. Stasimo - Eira Citadel

Figure 28: Kakaletri - Citadel of Eira

Figure 29: Messene – Apollo Epikourios Provincial Road

Figure 30: Messene – Apollo Epikourios Provincial Road