The Aegean Islands: A Paradise Lost?

Tourism as a Driver for Changing Landscapes

In the Neolithic, mankind was already sculpturing a cultural landscape on the Aegean Islands. Subsequently, a procession of differing political and social regimes rose and fell, each imprinting its own distinctive mark. As in other Mediterranean localities, human populations increased rapidly during the 19th and early 20th centuries, occupying all available land and using complex management practices for subsistence and commodities. They shaped a cultural landscape based on terraces, with dry-stone walls, small agricultural buildings, small mountain settlements, networks of paths and similar features. At the same time, local and long distance commerce flourished, together with industry, and wealth was created. The change of production patterns during the 20th century caused the economic collapse of industry, agriculture and commerce. This resulted in a rural exodus and migration, and eventually the management of this landscape was abandoned. Later on, tourism arrived and speeded change. There was an upsurge of building and gradually the elements of the former landscape were dismantled, especially on the islands where tourism was more developed, leading to new landscape functions. Recently, plans for tourist development have been challenged by proposed schemes for the protection of unique habitats and species, along with a demand for alternative types of tourism. Landscape values are diverging as a result. Many locals seek short term gain at all costs from developing their land, and demand the high grade facilities found on the mainland, while others seek moderated and controlled development and the preservation of natural resources and the cultural landscape. Visitors and tourists also hold diverging views: some seek island playgrounds for summer holidays and/or houses to buy or rent; others see the islands (especially the smaller, remote ones) as heritage tanks, places where tradition is lived by locals and experienced by tourists. After discussing recent changes, this chapter will seek to answer the question of how future developments are likely to affect the landscape.

The landscapes of the Aegean Islands

The Aegean Islands

Geographically, the Aegean Islands occupy a space defined by the Island of Crete in the south, mainland Greece in the north and west and mainland Turkey in the east, a total of 210,240 km². A complex of 2,800 islands (including rocky islets), out of a total of 3,053, are in the Greek state (the remaining 253 are in Turkey). Administratively, three insular NUTS II Regions (Nomenclature of Territorial Statistics level II) are found in the Aegean, Crete, and North and South Aegean Regions. Some islands are in mainland Regions but; according to EUROSTAT definitions (population > 50 inhabitants, Table 1, Figure 1); of the 70 or so currently inhabited islands, 53 are in the North and South Aegean Regions. The geology is diverse, with many volcanic sites and other geological phenomena and areas of geological interest. The climate is typically Mediterranean, characterised by dry and hot summers and short rainy winters, with major differences in seasonal precipitation between localities (Martyn 1992). Vegetation is Mediterranean and consists of pine-oak forests and Aegean sclerophyllous, evergreen species, forming mixed phrygana (maquis) habitats (Allen 2001, Grove and Rackham 2002). There are marked differences from North to South; namely more arid ecosystems, less forest and more savanna (Grove and Rackham 2002). The major Landscape types found in the area are Mediterranean lowlands, dominated by sediments, and Mediterranean hills, mainly rocks (Wascher 2005); with arable land, scrubland and permanent crops.

The population on the Aegean Islands had reached high levels by the 1950s but declined significantly up to the 1990s. This was a result of economic decline, with 41 of the 53 islands losing population (25% on average, with 11 cases over 50%, Table 1). During the decade 1991-2001 population was stabilised or increased (only six islands lost population again), but for most islands this increase only partially compensated for the losses of the previous 40 years. Additionally, natural growth is negative and immigration positive, because the Aegean Islands’ populations are ageing (the average percentage of persons over 65 was 18.8% in 2001, compared with the country average of 16%). Therefore, this growth can be attributed to immigrants (foreign workers or Greek retirees).

Economy is based on tourism and agriculture. Agriculture has declined in recent decades, but it is still important (Table 2). Tourism is uneven (Textbox 3), but is the most important activity on most islands. National economic differences have evened out in recent years but, because of tourism, the South Aegean Prefectures (Dodekanisa and Kiklades) still have a higher Gross Regional Product (GRP) than North Aegean ones, or the national average (Table 2). However, income data present a more complicated picture, indicating that in some Prefectures a part of the production passes to other areas, especially Athens, as some of those seasonally employed in island tourism live in Athens, during the winter, and spend their earnings there. Conversely, on Hios, shipping profits, produced outside the island, increase incomes and the ratio of taxpayers/inhabitants (Table 2). Islanders in general seem to prefer to save money than invest it, though when they do their first choices are houses and land.

Travel is by sea and air with 15 islands having domestic or international airports (the latter for charter flights) and all having at least one ferry port. The ferry system is radial and oriented towards Athens (at Piraeas port) with sparse inter-island connections. The quality and frequency of connections varies, and bigger islands with more tourism enjoy the faster, newer ferries and more frequent sailings, while small and remote islands often have to do with old ferries and few connections. Frequency is reduced in winter, and sea travel is difficult in strong winds (e.g., 2004 was a rather windy year, and local port authorities on the Island of Lesvos banned ferry departures for 26 days in total, or 2 days per month on average).
---|---|---|---|---|---|---|---
Lesvos | 1630.38 | 89,935 | -31.3 | 3.2 | 55.16 | 17,447 | 1,002,137
Rhodes | 1398.08 | 117,007 | 66.6 | 19.2 | 83.69 | 84,562 | 12,549,029
Hirta | 841.58 | 51,936 | -21.0 | 1.7 | 61.71 | 4,956 | 320,241
Samos | 476.20 | 33,809 | -31.0 | 2.4 | 21.00 | 71.00 | 17,428 | 1,374,110
Ilimnos | 475.61 | 18,009 | -26.5 | 2.1 | 37.87 | 2,716 | 149,769
Keros | 428.13 | 21,188 | -20.2 | 22.6 | 42.48 | 10,683 | 55,121
Anthros | 379.67 | 10,009 | -40.3 | 14.0 | 26.36 | 4,397 | 177,206
Karparkos | 301.18 | 6,111 | -24.5 | 22.3 | 21.6 | 5,655 | 185,557
Kos | 200.28 | 30,947 | -38.3 | 17.3 | 106.61 | 44.25 | 5,520,905
Icaria | 255.28 | 8,312 | -28.9 | 10.2 | 32.56 | 2,872 | 76,857
Paros | 194.52 | 12,853 | 6.3 | 14.0 | 66.08 | 10,513 | 755,784
Tinos | 194.21 | 8,574 | -24.0 | 10.7 | 44.15 | 4,274 | 227,323
Milos | 150.60 | 4,771 | -21.4 | 8.7 | 31.68 | 3,637 | 104,172
Andros | 120.67 | 1,858 | -34.9 | 14.0 | 15.40 | 1,939 | 7,159
Kalimnos | 110.88 | 16,255 | -17.3 | 3.5 | 146.60 | 3,152 | 118,057
Ios | 107.80 | 1,838 | -5.6 | 11.1 | 17.05 | 4,884 | 180,292
Kea | 103.58 | 2,412 | -42.5 | 15.0 | 23.29 | 867 | 30,38
Kithnos | 99.26 | 1,680 | -35.6 | -1.5 | 16.20 | 1,317 | 51,93
Kasos | 96.85 | 1,358 | -34.3 | 15.4 | 12.78 | 1,028 | 16,387
Mikrones | 85.48 | 9,306 | 82.0 | 50.8 | 108.87 | 14,902 | 1,088,253
Samos | 83.63 | 19,782 | -14.1 | -0.4 | 236.54 | 5,716 | 668,61
Chora | 75.79 | 13,402 | 0.3 | 43.2 | 176.83 | 22,925 | 353,592
Serifos | 73.23 | 1,141 | -40.8 | 29.1 | 19.31 | 1,396 | 36,237
Sifnos | 73.18 | 2,442 | -29.3 | 24.6 | 33.37 | 3,442 | 81,762
Naxos | 65.98 | 990 | -21.6 | -9.0 | 15.00 | 87 | 284
Tilos | 62.83 | 533 | -73.5 | 91.0 | 8.48 | 651 | 9,486
Simi | 58.10 | 2,606 | -41.4 | 11.7 | 44.85 | 1,003 | 32,067
Leros | 52.95 | 8,131 | 14.3 | 0.9 | 153.56 | 2,009 | 11,264
Agios Efstratios | 43.23 | 371 | -92.6 | 29.7 | 8.58
Nisos | 41.40 | 498 | -60.8 | 3.8 | 22.90 | 379 | 10,156
Skopos | 41.03 | 238 | -54.7 | -10.9 | 5.80
Psara | 39.77 | 422 | -37.4 | -3.7 | 10.61
Anafi | 38.35 | 273 | -50.9 | 4.6 | 7.12
Kimolos | 35.71 | 769 | -52.6 | 5.6 | 21.53
Antiparos | 34.83 | 1,037 | -20.4 | 26.6 | 29.77 | 1,504 | 31,263
Patmos | 34.55 | 2,884 | 1.9 | 8.3 | 84.70 | 2,716 | 72,12
Folegandros | 32.07 | 667 | -35.3 | 19.5 | 20.80
Fournou | 30.27 | 1,029 | 11.6 | 7.8 | 43.90
Halki | 28.13 | 313 | -51.6 | 11.4 | 11.13 | 295 | 1,609
Kithrios | 17.60 | 151 | -39.2 | 31.3 | 8.58
Pepsi | 15.98 | 698 | -31.5 | 15.2 | 43.68
Pserimos | 14.78 | 130 | -66.1 | 64.6 | 8.80
Imetos | 14.20 | 1,05 | -52.5 | 54.2 | 73.94 | 23 | 5,155
Agathonisi | 13.50 | 158 | -42.9 | 41.1 | 11.70
Donusa | 13.48 | 163 | -59.2 | 46.8 | 12.09
Thimena | 9.99 | 140 | -24.6 | -4.8 | 14.01
Thira | 9.30 | 268 | -53.5 | 15.0 | 28.82
Megisti | 9.13 | 406 | -52.1 | 47.6 | 44.47
Shinusa | 7.78 | 206 | -46.0 | 68.9 | 26.48
Arki | 6.70 | 54 | -45.7 | 8.0 | 8.06
Kefalos | 5.70 | 366 | -2.5 | 33.1 | 64.21
Telenos | 4.65 | 54 | -38.0 | -5.3 | 11.61
Fournokos | 3.88 | 74 | - | 0 | 19.07

---|---|---|---|---|---|---|---
Vacation islands
Charter dependent islands
Tourism islands

Table 1. Inhabited islands (pop. > 50 inh.) of North and South Aegean regions (Source: Greek National Statistics Service, processed by the authors, * no data)

Archaeological evidence of the Aegean Islands’ prehistoric landscape is not as rich as that of historical times (Doumas et al. 1999). Nevertheless, it indicates that late in the Neolithic many islands were already permanently inhabited by significant populations, with a notable example being Milos, a source of obsidian (Jameison et al. 1994). Another famous one is the island of Thira (Santorini), where a volcanic eruption destroyed a flourishing culture. Classical, Hellenistic and Roman landscapes are better interpreted from literary and archaeological evidence. The Aegean islands flourished until late Roman times, with populations that were only reached again in the late 19th century (Jameson et al. 1994, Barker et al. 1995, Sutton 2000). Evidence suggests that cultivation on terraces was present (Foxhall 1996, Grove and Rackham 2002, Price and Nixon 2005), presumably for cereals and vines, but also for tree cultivation (olives, figs, almonds, oaks). Some islands were famous for their wines and some for their cheeses (Dalby 2001) and some, with forests, were sources of timber. Dating from the same period, farm houses and small production units, for wine or olive oil, are found in the fields; especially ones from late Hellenistic and Roman times (Shalmon and Shipley 1996). Therefore, a landscape that in some respects resembles that of the 18th and 19th centuries can be presumed for some of the islands, where evidence of extended human presence has been recorded. These were landscapes of cereal cultivation, with extensive grazing lands, plots with commercial crops (mainly vines) and managed forests (oak and pine). On other islands where less evidence has so far been found, a less developed but still man made landscape can be assumed.

In the Middle Ages, political instability, and the collapse of the developed economy of late Antiquity, brought significant population decline to most of the islands, and some noticeable landscape differences. Many forts, castles and general defensive structures were built in coastal areas, due to the rising threat of piracy. In places with natural defences, populations retreated and resettled inland, or they moved away from the coast.

**History of the landscape**

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to protect themselves and kept only small, seasonal settlements on the coast (scales). Although some different plants and practices were introduced by the various lords of the islands (Byzantine, Italian, French, Ottoman), existing evidence suggests that these were rather limited. In general they preferred to leave the locals to manage their own affairs (Lock 1998), except on the bigger and richer islands (e.g. Kizos and Koulouri 2006 for Lesvos, Savvorianakis 2000 for Rodos and Kos, and Gasparis 1997 and Rackham and Moody 1996 for Crete).

For most of the Aegean Islands, the arrival of the modern era was much later than in the rest of Greece. It was only after the 1950s that some of them, especially the smallest and/or most remote ones, witnessed the arrival of electricity, piped water, ferries, frequent transport services, airports, tractors and other modern conveniences, though in others modernisation began earlier. Nevertheless, the organisation of the landscape in most of them was similar and structured around settlements and land suitability. Cereals and pulses were the main calorie providers; in biennial or three-year cycles of fallow and/or crop rotation; with many different legumes, and wheat, maize, rye and - on less fertile, steep, or mountain land - barley (Grove and Rackham 2002, Petmezas 2003, Asdrahas et al. 2003). Olive groves and vineyards were common, and industrial and intensive agriculture was introduced on the largest islands' flat and fertile areas (cotton, tobacco). Mountainous, barren or inaccessible land was grazed by sheep and goats (used for cheese, meat and wool) and transhumance practices were recorded on some of the bigger islands (e.g., Lesvos, Kizos and Koulouri 2006). Other animals included cattle, pigs and draught and pack animals (horses, donkeys, mules, oxen). Forest management was

1 : Why the Aegean Islands? Island functions and insularity

Islands in general, and the Aegean Islands in particular, have long been prizes of war and political struggle despite their isolation and confined space. A summary of the main functions they served in the past includes (Kizos, 2007):
- Military posts: with their strategic importance evinced by, e.g., castles, forts, and watchtowers
- Commercial nodes: due to their integration in the intensive commercial networks of the Eastern Mediterranean at different times
- Industrial poles: with industries and manufacturing developing on many Aegean Islands
- Safe hideouts: from big armies (but not fleets); from official or central control (with piracy and smuggling being popular examples); and from undesirable social influences
- Prisons: many have served to isolate exiles, the sick, and the unwanted, and as prisons for criminals, and political detainees
- Holy places: for celebrations and religious ceremonies, with some profiting well from this status; typical examples being Delos and Samothrace in antiquity, and Tinos nowadays

Today, the Aegean islands serve different functions. They are paradises for tourists and visitors, places were people can re-discover themselves, escape from the modern way of life and return to a relaxed and traditional lifestyle. Examining the concept of insularity, of the singular qualities identified with islands, may explain this islamania - a craving for island life - (Clarke 2002), and the complex, common identity that islands have, despite differences like size, population, remoteness, economy, or culture (Baldacchino 2004). Insularity is the expression of objective and measurable qualities (such as, small size, isolation, and special natural and cultural environments), but it also has a particular experiential identity, a non-measurable quality that stems from imagining islands and the life on them. Literature on islands (Brigand 1991, Royle 2001, Baldacchino 2004, Peron 2004, Gillis 2004) agrees on this specific point: they exist an idea, as well as physical entities, and the islands of the mind “continue to be extraordinarily valuable resources, a treasure trove of images” (Gillis 2004: 3).

integrated with agriculture and animal husbandry and included (Horden and Purcell 2000, Dalby 2001, Grove and Rackham 2002, Kizos and Koulouri 2006): (a) Tree planting (e.g., the introduction of chestnut cultivation on Crete and Lesvos); (b) Pollarding, coppicing and other management practices, for fuel and timber; (c) Hunting; (d) Gathering wild fruit and nuts; harvesting tree products (e.g. retsini from pines for wine preservation and acorns from oaks for tanning); and (e) Grazing and periodic fires. Production was oriented towards self-sufficiency with diversification (of production and land uses), storage (of raw or processed products) and redistribution (to markets) (Horden and Purcell 2000), which spread risk and insured a strong connection with markets in the dense communication networks of the area.

The landscape elements that resulted from the above management systems and land uses (apart from settlements, which are not considered here) can be classified into five categories (Rackham and Moody 1996, Gasparis 1997, Kizos and Spilanis 2004):

Terraces, which were constructed in order to increase the extent of cultivatable land and preserve natural resources (soil and water). They are abundant on the Aegean islands and are of three types (Rackham and Moody 1996): step (in a straight line, or along contours); braided, (zigzagging on the slope); and pocket (for individual trees). The first two types supported many different land uses, such as cereals, vegetables, legumes, and other arable crops; vines and trees (orchards, chestnuts, nuts and olives); and grazing lands (sown with pulses or cereals). The last type supported mainly olives. Their spread over much of the Aegean islands appears to be connected with steady population increase until the first quarter of the 20th century. The rural exodus that followed resulted in the abandonment of agriculture on terraces and their slow but steady deterioration, if not actual destruction and/or removal (see next section). Figures 2, 3, 4 and 5 provide some examples of their extent and different types.

2 : Seasonal landscapes and the development of tourism

Tourism on the Aegean Islands is an intensively seasonal activity, taking place almost exclusively, in the summer. Summer workers follow these seasonal tourist flows for seasons of two, four or six months. At the same time, many Greeks and Northern Europeans (especially pensioners) buy a holiday home, mostly on islands such as Rodos and Mikonos in the Aegean; Corfu, Crete and mainland Greece; but increasingly on smaller islands too. Therefore, the most important impact of tourism on the landscape is the infrastructure that tourist development requires (including buildings, roads, ports, and marinas). This sees only seasonal use, so whole landscapes switch from bustling to empty. Some tourism developments are ghost towns in the winter, and some of the smaller islands are inhabited only in the summer. Another very intense, seasonal tourist impact is the transport schedules of ferries and planes. Ferries are especially important for island residents, and this makes the frequency of their arrivals, and the quality and capacity of the boats very important. Summer and winter timetables are very different for some islands, creating two different Aegeans, a summer and a winter one.

Islanders have to live with this cycle of changes. Tourism provides seasonal jobs and incomes, but also changes attitudes, ethics and habits; by opening up closed island societies to the world. Landscape and development values are diverging as a result: many locals want short term prosperity and a better future for their children by developing their land at all costs (mostly by building on it or selling it) and demand the superior facilities found on the mainland, while others seek moderated and controlled development with preservation of natural resources and the cultural landscape. Visitors and tourists also hold diverging views: some seek island playgrounds for summer holidays and/or houses to buy or rent; others see islands (especially the smaller, remote ones) as heritage tanks, places where tradition is lived by locals and experienced by visitors.
3: A tourism typology of Aegean islands

Tourism on the Aegean Islands is diverse and unequal. Nevertheless, there are some characteristics that can be used to arrive at a tourism typology of the islands (for islands with at least one hotel unit, Spilanis et al. 2006). One example is charter arrivals (flights bringing in only foreign tourists): islands that cater mainly for the charter flight trade have more foreign visitors, who tend to stay longer, and the hotels are larger and higher class. Another class is vacation beds: with Greek tourists renting the holiday homes of people who do not live on the islands throughout the year. A typology based on charter arrivals and vacation beds (slightly and negatively correlated, r=−0.525, p=0.000) yields three types of tourism on Aegean islands (Table 1):

(a) Charter dependent tourist islands (four big islands in size and population, with more than 0.25 of their total arrivals being charter arrivals and a low ratio of vacation beds to total beds)
(b) Tourism islands (ten islands, with less than 0.25 of their total arrivals being charter arrivals and a low ratio of vacation beds to total beds)
(c) Vacation islands (18 islands, of very variable size, with less than 0.25 of their total arrivals being charter arrivals and a high ratio of vacation beds to total beds)

Important differences exist between islands (due to the different routes they followed in the development of tourism) which this broad typology may obscure, but it is a very useful tool for understanding trends, challenges and impacts. Regarding tourism pressures: the more charter dependent an island is, the more pressures are inflicted upon it; however, vacation islands are not pressure free, but in their case they arise from the permanent infrastructure of holiday homes (see Textbox 4) and the pressures put on natural resources by holidaymakers.

Fences, which are of two types: hedgerows and dry stonewalls. Hedgerows are very rare on the Aegean islands, seen only on some windy plains, as wind breaks and protection for arable land, vineyards and small orchards from grazing (see Figures 1 and 3 for an example). Stonewalls are very common as protection from grazing or for marking land boundaries. Differences may refer to height, thickness, and whether they have been topped, e.g., with bushes, branches, and nowadays, wire. Where they restrict grazing they follow the contours, and where they separate fields they are in regular arrangements (see Figures 3 and 4). Modern fences are made of wire and often replace fallen stonewalls.

Footpaths could range from simple paths through fields to paved and broad tracks (Figures 3 and 4 illustrate two examples). Today, they have either been replaced by dirt or asphalt roads or abandoned and covered by vegetation.
The infrastructure for agriculture and animal husbandry included many different elements; e.g., dwellings, storehouses, stock yards, provision for irrigation or for watering animals, and for harvesting or processing products: threshing floors, wine presses, windmills, water mills, wells, cisterns. These constructions are part of the local architectural craft/cultural heritage of traditional stone buildings and local variations are important. The decline of traditional management systems, new and cheaper building materials and methods, and a dearth of craftsmen, have led to the degradation of their quality, or replacement of stone with non-traditional materials such as concrete or metal. Figures 3, 4 and 5 provide some examples.

Rural buildings which are not dwellings, e.g., temples and churches, are dotted through the countryside, adding distinctive colour to the landscape. From the 15th to the 19th century, the ancient temples and ruins were an integral part of the experience for foreign visitors to the Aegean. They now have status as components of protected archaeological landscapes, and are found even on some of the smallest islands. The great importance of convents stems from their historical control of substantial areas of land: it was they who created the landscapes. Today, some of them are prime destinations for religious tourism.

4 : Buildings and houses

Tourism and holidaymaking have created a demand for buildings, and supply has soared in recent decades. Data on the new houses built on the islands reveal that, with the exception of one Prefecture (Lesvos), over the last 20 years all the others have experienced a period of rapid house building, at an even greater rate than Athens, Greek capital (Table 3). Especially in the last few years, new houses increase pressures on island space following the constant rise of prices (e.g., property taxes for houses on Mikonos and Santorini are the highest in Greece). On holiday islands (Textbox 3) many of these are built for well-off Athenians or foreigners, who want to buy an island home. The local economy has benefited greatly, but such development is not sustainable, not even in economic terms, as these houses may be seasonally empty, but they still require permanent infrastructure (roads, sewerage, power, water) and demand for them will eventually cool, leaving many locals jobless and landless. A notable characteristic of most of the new houses is that they are built to resemble older, vernacular architecture and are kept as traditional-looking as possible, although they are much larger than the genuine old houses and have modern interiors.

A typical example of buildings’ expansion is illustrated in the three aerial pictures (1945, 1973 and 1988) of the port and the main settlement on the island of Serifos. It is a small island, where agriculture (vineyards and sheep) and iron mining (abandoned in the 1960s) were the main economic activities, and tourism began later than on most nearby islands (after the end of the 1970s). The expansion is already evident in 1973 and intensified in the 1980s. Today (Figure 5 with a ground view), the coastal settlement has expanded along the main road and has merged with the main one, with either holiday homes, or tourist hotels, apartments, or cafes.

Modern Landscapes: abandonment and the emergence of tourism

In general, after the first quarter of the 20th century, change became an important factor in most Mediterranean rural areas, and it peaked in the 1950s, although localities differed widely. These changes included (Pratt and Funell 1997) intensification of both agriculture and animal husbandry (i.e., mechanisation, irrigation, chemical fertilisers and pesticides, more livestock, with imported feedstuff for animals), while the harvesting of natural products (e.g., acorns and retsini) was abandoned, along with management of most forests. In areas with limited fertility or resource availability (especially irrigation water), such as the Aegean Islands, most production was marginalised. Simultaneously, production and transportation changes modified the industrial geography of the wider region by favouring the mainland areas and marginalising islands. These developments reinforced migration to urban areas and caused a widespread rural exodus. The land use changes that resulted are very important because they resulted in a reduction of cultivated land, and an increase in grazing land and settlements; especially in coastal areas. Most of the elements that characterised Aegean landscapes were neglected and their quality decreased (Textbox 5, see Figures 3 and 4 for a clear depiction of this collapse).

Nowadays, except for sheep husbandry, agriculture is limited, due to the importation of cheap products from the mainland into the formerly closed island market. Sheep have increased over the last decades (although sheep farmers have decreased) and are grazed at high densities, which has resulted in overgrazing and erosion. Local demand is satisfied to only a limited degree and for few products: most food has to be imported, especially for tourists. Low agricultural incomes and tourism opportunities have made hobby and part time farming very important in the area. Organic agriculture and animal husbandry is increasing,
especially for permanent crops such as olives, and lately for vegetables. However, organic production does not involve less irrigation or lower grazing densities, and so it can not be viewed as the sole solution to the environmental problems of the islands; particularly when water scarcity, and soil erosion and degradation are taken into account. Finally, the Aegean Islands do supply a number of speciality products. Most of the Greek commodities registered under the EU protection systems of Protected Designation of Origin (PDOs), and of Protected Geographical Indication (PGIs), are produced on one or more of the islands (31 of the 61 products that were registered up to 2005; although some were produced in very limited quantities, making the marginal in production terms). These products are sought by locals, Greek consumers and tourists, and have attracted the interest of major producers.

After the 1950s, economic decline and population loss was balanced on some islands by the emergence of tourism. At first, it was islands rich in history and historic sites that were favoured destinations. Later on, the increasing focus of tourism on hot weather, sea, sun and relaxation, and the intrinsic appeal of islands, made them almost synonymous with holidays; especially since the development of cheap and frequent air transport (Williams 1997, Minca 1998, Lickorish & Jenkins 2004). Moreover, the rich variety of localities, settings, degree of isolation, and levels of tourist development afforded by the Aegean Islands, is capable of satisfying, not only those who want to live it up and party in a holiday playground, but also those who seek a little paradise that offers peace and quiet, relaxation, and remoteness.

Today, tourism on the Aegean Islands is unequally developed both seasonally and spatially (Spilanis and Vayanni 2004). Seasonally, approximately 3.5 million tourists visit, almost exclusively in summer; mostly by charter flights (67% in 2001); and this fact causes intense seasonal changes in transport frequency and

5 : Abandonment of agriculture and landscape management

The creation of the complex landscape of the late 19th and early 20th centuries (Figures 3 and 4) was based on human labour. The rural exodus after the middle of the 20th century; and the reduced competitiveness of the islands’ traditional agriculture; deprived them of that labour, resulting in the abandonment of agriculture and the neglect of landscape management. The elements of this landscape are slowly degrading; where they have not been destroyed. Today, in most cases, agriculture is restricted to a few flat areas or close to bigger settlements, for the production of vegetables for local markets, and animal feed, and they are irrigated by water pumped from the limited aquifers. On terraces and hillsides only vines and trees (mostly olives) are cultivated, with the rest of the land that is still in use being grazed by sheep, and some goats, to produce a variety of cheeses and meat; mainly for the domestic market. Data on land use and livestock indicate that in some cases abandonment has exceeded 50% of formerly cultivated land, but stock has increased and, in many cases, densities are higher than grazing capacity; resulting in overgrazing and erosion. Unused and un-grazed areas are quickly re-vegetated by Mediterranean forests (Grove and Rackham 2002). Another more recent cause of abandonment is the increased demand for land for urban development and new buildings (Textbox 4). Greek legislation allows cultivated land to be built on in parcels of at least 0.4 ha, and larger fields are being divided and sold, bringing large earnings to farmers. All this predominantly flat and highly productive land is forever lost to agriculture. Some examples are offered in the Figures, where the loss of agricultural land to urbanisation is evident (Figures 2, 5, 6 and 7), along with the impacts of abandonment on former complex landscapes (Figures 3 and 4).
environmental pressures. Spatially, most of the beds (250,000 in total) are found on a small number of islands (Table 1): 44% are on Rodos and Kos, and more than 65% are found on only six islands. The nights that tourists spend (more than 25 million in total) are even more unequally distributed, with 72% on Rodos (49%) and Kos (23%). In addition to tourists, holidaymakers in general are very important economically and in terms of land use, since the amount of new housing is one of the most intense problems confronting the landscape and the environment (Textbox 4). The local economy has benefited greatly from building works, and the consequent rise in land prices, but this development is temporary; whereas the environmental and social impact is permanent.

6: Rural tourism and alternative tourism demand as a driver for the preservation of landscape elements

Rural tourism is relatively new to Greece. It is not yet as developed as other more familiar types, but it is growing fast, for both foreigners and Greeks. Some of the activities that are part of the rural tourism experience are also being sought by a growing number of more conventional tourists. One of the most important is hiking. On many Aegean Islands, there is a growing demand for traffic-free tracks and footpaths, permitting the enjoyment of rewarding, interesting, stimulating and/or special-interest activities (e.g., bird watching). This has resulted in some local policy initiatives to conserve, signpost, clean and repair old footpaths, especially paved ones (mainly LEADER projects). These schemes could lead the way for the restoration of other landscape elements. Policy initiatives are only recently beginning to emerge, in response to growing concern about the future of deteriorating landscapes (evident in Figures 3 and 4); e.g., an EU co-funded agro-environmental programme for repairing terraces, although it is restricted due to limited funding. The main lesson about the footpaths’ example is that, once old landscape elements acquire new functions (due to new values regarding the landscape or activities in it), they have better chances of preservation.

Archaeological sites and monasteries are similar examples of new functions and values for older landscape elements. Ancient sites and monuments are famous features of the islands, and the monasteries draw thousands of Greek visitors, especially for religious festivals and celebrations.
7: A Homeric Quest to prevent illegal building development

Serifos is an island blessed with many very good beaches, and Vagia beach is one of the finest. It is a typical pocket beach, with the soft granitic sand reaching high up the valley. The site is close to a former opencast iron mine, out of operation since the 1960s, and until recently the only buildings to be seen there were the remains of the ruined mine, up on the hillside. Suddenly the foundations of two buildings were dug, right by the seafront, on the beach. Greek law (a draconian one in terms of fines and penalties, but not enforced in many cases) bans building on the beach and questions were raised in the local society about the legitimacy of the building licence. Inquiries revealed a number of unusual procedures or plain illegalities: the building plot was illegally extended to the edge of the beach and the licence file was an impressive monument to missing documents. Nevertheless, the owner had succeeded in getting a licence from the agency, which was located on the nearby island of Milos; and then the real fight began. Locals who did not want to see yet another illegal building on yet another of the island’s beaches, took the case to the ombudsman (a civil servant who oversees civil works). Irregularities were found throughout and it was ordered that work should stop. The Ministry for Environment and Public Works stepped in, to order the demolition of the existing buildings. This decision was challenged in court by the owner. Locals even brought in a famous TV star who spent his holidays on the island, and it was the threat of publicity that really got the process going. The owner publicly declared the legitimacy of the whole procedure and privately complained that, everybody does such things; why should I be the only one to be stopped by them [the locals who wanted to prevent building]? This is tragically divisive and the real issue is that a law needs to be made that will act, not as a mere bureaucratic hindrance, but as a tool to prevent such acts in future.

What is good landscape practice?

Good landscape practice in this context must first be identified. A factor which must be considered when determining good practice is housing (and building in general), which threatens the character of the landscape, raise prices, and turns all pieces of land into potential building plots. Another issue is the characteristic elements of this landscape, most of which no longer function, due to the abandonment of the management systems that created them. Therefore, the issue of how to preserve their quality turns into the question of how to make them functional once more; though for different functions now, more related to new landscape values and uses. A third issue refers to the environment and natural resources. In general islands have limited space and host more fragile ecosystems than the mainland. In addition, many rare and indigenous species and habitats are found on the Aegean Islands. Here, good practice must include protection of habitats and restrictions on human activities in them.

These three dimensions are linked. Some of the former functions of landscape elements are either beneficial or at least neutral to environmental protection, and common conservation policies and programmes would benefit both. On the other hand, housing development is harmful to landscape character, natural resources and habitats (Figures 6 and 7), and is such a powerful driving force on many islands that restricting individual development permits only results in the major problem of illegal building (Textbox 9). This situation leads to widely diverging values about the current and future landscape of the islands. Conservationists’ words and actions are regarded as hostile interference by development enthusiasts; who are mostly - though not exclusively - local people, who nowadays have most of the political clout and local consensus.

8: Environmental issues and conservation of habitats and species

Nature conservation on the Aegean Islands is based on the NATURA 2000 network. The network in Greece has been slowly developing since the late 1990s, and most of the areas to be protected have been identified. An important number of sites (15% of the total, 28 sites of roughly 50,000 ha with nine more sites in a second catalogue) are on the Aegean Islands (www.minev.gr). The actual management and protection plans have so far been finalised for only two areas; so the process is still in progress; however, it is already being used as a means of exerting pressure for the protection of the environment. Many locals regard protection as a series of bans; especially where building permits and agriculture are concerned; and consider them as a call to war, for they want to keep unchecked building rights, even in core areas.

Other important environmental issues on the islands include management of water and waste because there is a shortage of water on many; especially the smaller ones; and there is inefficient recycling of waste-water on most. The demands of seasonal tourism exacerbates the problems, because it is concentrated in the summer, when availability of water is naturally low. On many islands, water has to be brought in by special ships in the summer, while others have desalinisation plants. Energy is another major issue. Few islands are connected to the national grid, and oil-fired power stations operate on most of the rest, producing expensive power which is subsidised. Renewable energy production is restricted to solar domestic water heating and small wind farms.
What stems from the above discussion is that, in the light of the issues taken into consideration here, really good landscape practices are rare on Aegean Islands. Some of the issues in this ongoing debate are discussed next, with examples of the good and the bad. In the first category is the preservation of footpaths to satisfy the growing enthusiasm of tourists for hiking (Textbox 6). An example of the second demonstrates the way that local consensus has created major obstacles to the application of the law; illustrated by an account of the thwarting of an illegal development scheme (Textbox 7). To finish, there will be a reflection on the development of the NATURA 2000 islands scheme, with regard to their overall environmental problems (Textbox 8).

**Figure 15.** Abandoned cereal cultivation on terraced and fenced former fields, now heavily grazed on Serifos Island (photo by T. Kizos, summer 2004)

**Figure 16.** Mixed cultivation of olives and cereals for grazing on terraced fields on Sifnos Island (photo by T. Kizos, summer 2004)

**Figure 17.** It is not so easy to walk in a Mediterranean forest: S. Kizos is tangled with oak and pine maquis on former grazing land on a hilltop near the city of Mytilini on Lesvos Island (photo by T. Kizos, summer 2005)

**Figure 18.** Winter melancholy: February, on one of the most crowded summer beaches of the Mediterranean on Rodos Island, with hotels closed for the winter in the background (photo by T. Kizos, winter 2005)

**Figure 19.** Mixed cultivation of trees (olive, pear, pistachio) and cereals (now only grazed) on terraced fields on Nisros Island (photo by T. Kizos, spring 2004)
CHALLENGES FOR THE FUTURE

Is there a way to sustain the character of traditional and historic landscapes, preserve the environment, and develop tourism at the same time? The example of the Aegean Islands presented here seems to suggest a negative answer. Once the driving forces of tourist development are unleashed, re-harnessing them proves difficult. The islands with the most highly developed tourism are today’s prime examples of how the blinkered and unbridled development of tourism can lead to the whole local economy becoming dependent on it; while at the same time transforming the landscape so that it is no longer fit for other use. This argument does not suggest that all change should be outlawed. Landscapes are dynamic, they are the product of interactions between the natural environment and continuously changing societies. To freeze a landscape in time is not feasible, unless in the form of an open air museum. However, the real issue is twofold. The first point is that tourist development was founded on this landscape and on ‘islomania’. Therefore, serious transformation of the landscape undermines the very tourism that is so eagerly courted. The second issue is that simple embargoes will not work. The voices of the locals must be heard, in order to reach a general consensus, and it is essential to reach a compromise in the current conflict between landscape and development. These new common values can add new functions to old elements (so that they can be preserved), and give meaning to the planning of sustainable development within its three components: economy, society and the environment. There is a real challenge for the future development of the landscapes of the Aegean Islands because, for some of the islands, the current situation leaves little room for optimism. There are some brighter colours in the picture though. There are a number of smaller islands that remain less developed, and some of the larger islands have areas where they seem to have found a way of balancing the two extremes of preservation and development.

REFERENCES

Geographically, the Aegean Islands in the Greek state are a complex of 2,800 islands (including rocky islets, out of the 3,053 islands in total, the rest 253 in Turkey) in a space defined by the Island of Crete in the south, continental Greece in the north and west and continental Turkey in the east, in total 210,240 km².

The Aegean islands are rich in landscapes within a European dimension. According to LANMAP2 more than 85% of the Aegean islands is covered by four major landscape types. The most important landscape type is Mediterranean hills dominated by rocks and arable land (Mhr_al). The second most important landscape type is the Mediterranean hills dominated by rocks and shrubs & herbaceous vegetation (Mhr_sh). The third landscape type is Mediterranean lowland dominated by rocks and arable land (Mlr_al). The fourth landscape type is Mediterranean hills dominated by sediments and shrubs & herbaceous vegetation (Mhs_sh). Throughout most of these Mediterranean landscape types, however, shrub and herbaceous vegetation dominates. Hence human cultivation patterns such as the different forms of terraced agricultural land use (‘step’, ‘braided’, and ‘pocket’ types) are key landscape characteristics.

This Box has been produced by C.A. Mücher, D.M. Wascher and P. Dziamski
Agriculture in the Aegean islands is often extensive, and possesses characteristics of high natural value. As can be seen from the map, the smaller islands are not covered by the resolution of the mapping methodology. Only NATURA2000 sites or Important Bird Areas (IBA) are identified, and when the precise boundaries of an IBA site were not available, its delineation was approximated with a circle of equal area to the site.

This box is a joint product of JRC/EEA.


