Hadjibiros, K. (2003). Landscape conservation in Greece. Inventorying sites of natural and cultural interest (national paper), in: Il Paesagggio nelle Politiche Europee, Council of Europe and Presidenza Italiana del Consiglio dell'Unione Europea, Roma, p. 135-142.

Landscape conservation in Greece: Inventorying sites of natural and cultural interest

Kimon Hadjibiros
National Technical University of Athens
k.hadjibiros@hydro.ntua.gr

Introduction

Greece is a relatively small european country, with an area of 132,000 km^2 and a population of about 10 million inhabitants. A large part of its area is mountainous, only 35% of it is covered by agricultural land, while 60% of it is covered by forests and/or shrub vegetation. Sea surrounds the greatest part of the country and the length of the coastline reaches 18,000 km. There are thousands of islands, but only 140 of them are inhabited. Greece is situated in the Mediterranean climate zone, its spatial mean annual and seasonal rainfall being unevenly distributed. A fact that, in combination with its geologically young origin and long coastline, has formed generally small catchment areas and a landscape dominated mainly by small valleys.

During the last years, greek economic and environmental conditions have been greatly influenced by the European Union. Input from EU funding sources determines to a large extent the development planning of the country. Environmental legislation has also been under significant EU influence, but many legislative regulations are implemented in a more or less ineffective manner. As a result of rapid economic development in recent decades, the natural environment of Greece has undergone great pressures, which have led to many natural sites being degraded.

The great diversity of the greek natural environment is related to a combination of different factors, such as:

- The specific geographical position of the country, at the common point of three continents.
- The complex geological base and geomorphological fragmentation, with a great number of valleys, mountains, islands etc.
- The wide spectrum of climate types, ranging from subtropical to central european temperate climate.
- The long and, until recently, turbulent history of the country.

These factors have created a lot of different types of ecological habitats, resulting in the existence of a great number of important biotopes, an exceptional diversity of biological species and, therefore, in the formation of a great landscape and seascape diversity. The number of natural sites having significant aesthetic value reaches several thousands. These sites include forests, wetlands, sea coasts, islands, alpine zones, rivers, lakes, ravines, springs, caves etc. The country is also characterized by an exceptional cultural wealth, which also contributes to the formation of valuable

landscape and is strongly related to the diversity of the natural environment. Therefore, valuable natural and cultural characteristics, often interconnected, are found in a great number of environmentally important sites. Nevertheless, most interesting sites are not adequately protected and, moreover, are small in scale and vulnerable. Consequently, they are very sensitive to anthropogenic changes.

During the '60s and the '70s, according to the greek law 5351/1932 concerning archaeological heritage, the Ministry of Culture had designated a number of Sites of Outstanding Natural Beauty (SONBs). They included mainly archaeological and historical sites, as well as traditional settlements. Later, the responsibility for these sites has been transferred to the Ministry of the Environment and the National Technical University of Athens (NTUA) has been asked to review and complete the old list. A database for SONBs has been developed during the period 1996-2000 and incorporated into the "Data Bank for the Natural Environment of Greece" (FILOTIS), a program carried out by the NTUA since 1990. The first phase of this program had been developed in the framework of CORINE biotopes. Its last phase constituted the development of a database for the SONBs, where 449 sites, most of them with both natural and cultural interest, have been included. The whole program has been financed in the beginning by the D.G. Environment and at the final stage by European Structural Funds.

Methodology

In the framework of the scientific program FILOTIS, descriptive and geographical data from the registered sites have been collected and organized. The criteria for the selection and evaluation of sites involve visual impression, ecological and cultural aspects of the landscape, multiple sensations and educational prospects. A "Site of Outstanding Natural Beauty" has been defined as a site of important aesthetic value, its beauty consisting of natural and/or cultural elements. As it has to be easily assimilated by human perception, its size should not exceed one-day's walk.

The work for the registration, evaluation and delimitation of SONBs has lasted about three years. It consists of the collection, organization and assessment of data. The information is gathered by a number of specialists, who fill one questionnaire for each site, using appropriate codes, names and texts. Data refer to landscape, ecological, archaeological, historical, architectural, social and other aspects. The questionnaires have to be as simple as possible and similar to those used for other site inventories (CORINE, NATURA etc.), while they should cover combined aesthetic, cultural or ecological aspects. In order to facilitate automatic information treatment, codes are used in the place of texts, wherever possible. Codes consist much more of letters than numbers, a choice that makes codes more friendly to the respondents and, moreover, it helps avoiding errors. A code number, given by the administrator of the database, corresponds to each site. It is related to a geographical database, containing the site borders, digitized in a 1:50000 scale. The respondents gather information based on bibliographic data, personal experience, in situ visits etc. Main types of data are:

- Site name, date, respondent name
- Geographical information
- State of knowledge, conservation status, ownership, social reactions
- Physical and social characteristics, description, trends
- Aesthetic, ecological, cultural value
- Threats, vulnerability

- Human presence, activities, price of land, infrastructure
- Documentation.

The main criteria used for the assessment of sites are the following:

- Geomorphological, geological, meteorological, presence/movement of water
- Vegetation, presence of flora or fauna, biodiversity
- Sense of time, monuments, fossils, change, succession
- Feelings, sight, hearing, smell, memories
- Constructions, buildings, land uses, ways of life/production
- Recreation, inspiration, quietness, isolation, "escape"
- Education, awareness, sensitivity
- Size, borders, neighborhood, planning and management possibilities

Results and conclusion

Some interesting findings result from analysis of the information contained in the database. Tables I, II, III, IV and V show distributions of the sites with respect to their geographical position, to environmental values, to priority threats, to conservation condition and trends and to social reactions, respectively. One can realize, for example, that archaeological, traditional, ecological and landscape characteristics occur, to some extent, at the same sites. Protection priorities for vulnerable sites can be drawn from these results, too.

Registering sites of important natural or cultural interest contributes to the development of a more efficient system of conservation areas, using adequate selection methods and establishing priorities. On the other hand, the conservation of "everyday" landscape constitutes an important aspect of the general environmental problem, too. Reliable information from sites of natural and cultural interest may also contribute to this issue, as it helps improving assessments of impact from technical works or human activities on sensitive parts of the european "everyday" landscapes.

Table I.

Geographical position of SONBs in Greece

Peloponnese and Ionian islands	105
Central Greece	54
Thessaly and Epirus	66
Macedonia	53
Thrace and Aegean islands	89
Crete	82

Table II

Distribution of SONBs according to environmental values

Archeological and historical sites	49%
Traditional settlements	28%
CORINE and/or NATURA biotopes	40%
Important ecosystems	42%
Excellent natural condition	29%
Presence of threatened birds	38%
Presence of threatened plants	15%
Presence of threatened freshwater fish	14%

Presence of endemic species	19%
Rare landscape type	44%
Interesting natural elements	53%
Valuable anthopogenic elements	40%
Panoramic views	66%

Table III
Priority threats (among 47 types of environmental threat)

Hunting	42%
Tourism	30%
Road construction	26%
Grazing	26%
Modern architecture	22%
Building	20%
Wild fires	16%

Table IV
Distribution of SONBs according to conservation condition and trends

Excellent or good condition and rapid degradation	4%
Excellent or good condition and slow degradation	28%
Excellent or good condition and upgrading	5%
Excellent or good and stable condition	56%
Bad condition and upgrading	0%

Table V
Social reaction to conservation measures

Positive	46%
Indifferent	39%
Rather negative	13%
Strongly negative	2%

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