

LEMNOS (GREECE)

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LEMNOS IS THE EIGHTH LARGEST GREEK ISLAND (478 KM²) SITUATED IN THE NORTH AEGEAN REGION, midway between Mt Athos and Hellespont. The population is roughly of 16,500 inhabitants (2021). Its strategic geographical location was always of huge economic and political importance.

In contrast to most Aegean islands, Lemnos is characterized by a smooth topography, mainly due to the absence of calcareous rocky ecosystems and the predominance of volcanic, schist and psammitic rock formations. Lemnos conserves high-level ecological value as a result of its habitat diversity, boasting farmland mosaics, natural grasslands and an extensive network of coastal wetlands and sand dunes.

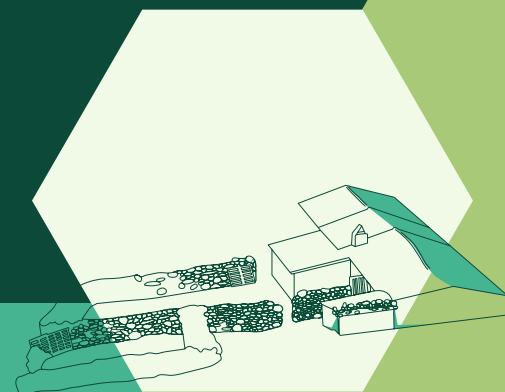
The island as a whole is designated as an Area of Outstanding Natural Beauty; many settlements have been listed as traditional, and a large area (34,000 ha) forms part of the Natura 2000 network.

Lemnos is widely known for the high quality local products such as *Kalambaki* and *Moschato* wine, *kalathaki* and *melipasto* cheese, beans (particularly the local landrace *aspromytiko*), *afkos* (a local variety of yellow split peas), melons, figs, pumpkins, anise, thyme, honey, sesame, *flomaria* (local noodles), *paximadia* (bread rusks), etc.

Lemnos is characterized by the dominant presence of arable and pastoral farmland, featuring a unique agro-pastoral management system, which is called the *mandra* system. The *mandra* is a traditional farming structure that includes an animal shed, the *kehaghias'* (farmer's) hut, a barn and other auxiliary facilities, together with the crops and grazing lands it manages.

The past decades have seen the gradual abandonment of traditional practices, intensification of farming and neglect of many *mandras*, all of which negatively affect the agro-pastoral mosaic of Lemnos. In parallel, the tertiary sector (tourism, trade and public services) has become the main source of employment and income.

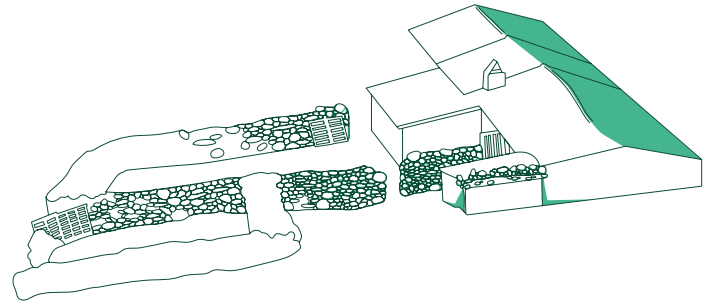
Nevertheless, the primary sector of Lemnos continues to be the backbone of the local economy. The island still retains a thriving farming community of more than 800 farmers, who keep the traditional *mandra* system alive despite the challenges and pressures posed by the globalized agri-food system.



Mandra



Source: [The land use systems of Lemnos island. Terra Lemnia project report 2018](#) © MedINA



CURRENT CHALLENGES

Lemnos' agro-pastoral environment is to a large degree related with the presence of the *kehaghias* with the traditional *mandras* that are spread throughout the island. The *mandras* were traditionally made of natural local materials, i.e. stone, wood, canes, and roof tiles, providing shelter for the *kehaghiades* and their herds. Moreover, they support a unique agro-pastoral management system that forms an integral part of Lemnos' natural and cultural heritage. The past decades have been characterized by major changes in local farming practices, as a result of post-war mechanization, mass emigration in the 1950s and 1960s, and CAP implementation since the early 1980s. Many *mandras* have been abandoned and neglected, as livestock has been concentrated in fewer hands. MedINA and Terra Lemnia partners have been working to protect and valorize this living tradition, which is related to the identity and prosperity of the local society; the inscription of the traditional *mandra* system in the National Inventory of Intangible Cultural Heritage in January 2022 has been an important step in this direction. Other significant changes in local agro-pastoral practices include the use of commercial crops at the expense of landraces (i.e. traditional local crop varieties), the introduction of more productive breeds of sheep from nearby islands and recently from abroad, the use of industrial fertilizers, the decrease of fallow land and crop rotation. These changes led to landscape modification with intensification of cropping in easily accessed fields at the lowlands and, conversely, abandonment of hilly fields that turned into rough grazing lands.

Recent years have seen a renewed interest in cultivation of several landraces, which are better adapted to the local climatic and soil conditions, producing high quality, recognizable local products. Terra Lemnia partners have been working with local farmers and agricultural cooperatives providing support both on the ground and at policy level. As a result of these efforts, *aspromytika* beans and *Panagias* barley have been inscribed to the National Register of the Ministry of Rural Development and Food, whilst three more applications are currently pending for approval.

In parallel, the Terra Lemnia team has genetically identified the local breed of sheep of Lemnos, which is now almost extinct. In 2021 a petition, signed by local authorities and many Lemnian farmers, was submitted to the Ministry of Rural Development and Food, requesting its recognition as a rare breed, for which livestock farmers would receive financial support.

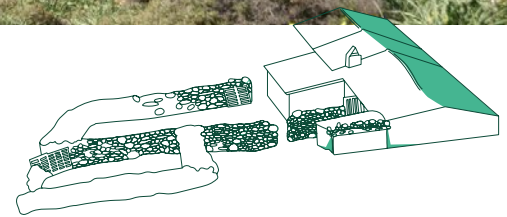
NEGATIVE IMPACTS ON BIODIVERSITY

The island of Lemnos conserves high-level ecological value, based on a variety of natural and man-made habitat types, such as arable and pastoral farmland. This value is endangered by intensification, land abandonment and by the effects of climate change which have resulted in locally severe land degradation, compromising the functionality of the island's cultural landscape ecosystems. A special problem, triggered by land abandonment, is the over-population of wild-rabbits in the past two decades, becoming a plague on the island's biodiversity, ecosystems and crops.

The Terra Lemnia biodiversity core group, a multidisciplinary team of 12 experts from 5 organisations, has been able to document the importance of Lemnos' agro-ecosystems for local biodiversity. Bio-indicator species of flora, insects and avifauna have been identified and are being used as part of a proposed monitoring system that combines expert knowledge and citizen (producers') science. This extensive fieldwork has also allowed to document a set of farming practices that are beneficial for biodiversity and the landscape, used to develop a novel certification scheme for local farmers, as well as to significantly enrich scientific knowledge on Lemnian biodiversity. In addition, electric fences have been installed to deter wild-rabbits in collaboration with farmers, producing encouraging results.



Traditional *mandra* in Fakos, Lemnos © MedINA



CULTURAL SUSTAINABLE LAND-USE PRACTICES

A series of good practices has been identified on the basis of agricultural management in Lemnos and divided in five categories.

- **Crop management** practices include polyculture (maintenance of at least three rain-fed crops or two crops and fallow land per year), systematic crop rotation, intercropping (mixing two crops in the same field), and use of landraces and local seeds.
- **Input reduction and sustainable use of natural resources** can be achieved by decreasing the use of agrochemicals, avoiding burning plant residue, minimizing ploughing, reducing the use of inorganic fertilizers and promoting natural fertilization.
- **Sustainable livestock management and grazing**, by supporting grazing on natural grasslands and arable land, own fodder production, conservation of indigenous or locally adapted breeds, and animal welfare.
- **Conservation of natural and semi-natural landscape elements**, by maintaining *trafoi* (uncultivated field boundaries), trees and shrubs at field edges, uncultivated patches and coarse materials (stones and gravel) within fields; as well as by enriching or reintroducing such elements in farmland areas.
- **Maintenance or restoration of *mandras* and other stone-built constructions**, construction of new *mandras* and other traditional farming structures, maintenance or creation of water ponds for rainwater storage.

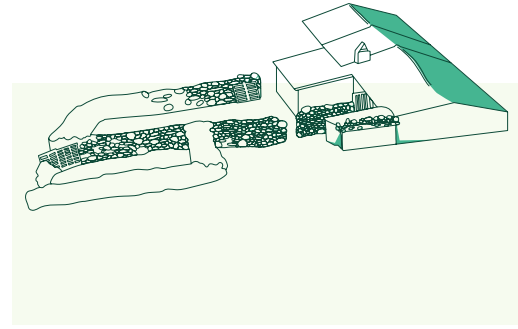
The benefits of these practices are numerous for the farmers and for biodiversity. They contribute to:

- making a better use of natural resources and maintaining soil fertility mixed crops, crop rotation, planting trees at hedges of fields,
- reducing the costs for farmers and enhancing productivity through the use of local and well adapted varieties and breeds.

The Terra Lemnia team has developed the “Terra Vita - Agricultural Tradition and Biodiversity” certification and labeling system to support implementation of these practices by local farmers.



Common corn-cockle (*Agrostemma githago*) © Stefan Meyer



BENEFITS OF LEMNOS AS A CULTURAL LANDSCAPE

Traditional management of this agricultural mosaic of farmlands and semi-natural vegetation is a carbon sink, which contributes to limiting climate change. The carbon sink results from the increase of carbon storage in farmland soils (fallow land, crop rotation, grazing and avoidance of residue burning), wildfire risk prevention (grazing), and reduced use of petrol and petrol-derived chemicals (limited ploughing, use of natural fertilizers instead of inorganic ones).

Landscape diversity enhances biodiversity and functional stability, notably through landscape heterogeneity, maintenance of corridors for wildlife, conservation and creation of habitats (ponds, stone walls). The use of landraces and local seeds supports the presence of wild arable plants, sustainable grazing supports wild rangeland plants, limited use of pesticides benefits entomofauna, the diversity of invertebrates contributes to controlling crop pests and attracting farmland birds – creating a virtuous circle across the local food chain.

The Terra Lemnia project aims to build a common vision for sustainable development of Lemnos based on conservation and restoration of the extensive agro-pastoral practices that favour local biodiversity and shape the unique landscape of the island. Bringing together the different local actors, developing a common narrative to effectively promote Lemnos' unique identity, supporting the farming community and valorising the local products, are at the heart of our efforts.

