



Terraces of Andros as Green Infrastructure

Green Infrastructures are networks of natural and semi-natural areas with other environmental features designed to deliver essential ecosystem services which underpin human well-being and quality of life.

The recognition of the multifunctionality of natural ecosystems and the services provided by them has led natural areas to require compulsory assessment in the frame of spatial planning.

In this context, Green Infrastructures are of immense importance: they constitute sustainable natural solutions, which are, compared to any technical solution, more effective and economical.

The terraces of Andros and of the Aegean islands in general are an existing Green Infrastructure of vital importance for the climatic resilience of the insular ecosystems: valuable and priceless.

Components and functional elements of terraces as Green Infrastructure



Terraces reduce surface runoff during rainfall by slowing down water flow. Water is given the time to percolate into the ground and enrich the aquifer, while at the same time the surface soil is protected from erosion. In cases of heavy rainfall, flooding and landslides are buffered and prevented.



Drystone walls provide an astonishing variety of refuges. Reptiles, amphibians and insects dwell at their base to protect themselves from high temperatures, while small mammals and even birds, such as the little owl, dwell between the stones where they nest. Many plant species requiring high humidity levels grow at their base, while at the sunny parts lichens are not uncommon.



Hedgerows and field margins support a variety of plants, birds, reptiles, small mammals and insects, including many important pollinators. Within the rural landscape, they constitute "insular" habitats and, due to their linear structure, wildlife corridors. They contribute to biological control of crops, by providing refuge to their pest predators.



Stone-paved paths running through the island landscape, apart from corridors connecting places and fields, act efficiently as fire breakers, due to their linear shape and width, especially in areas of rural land and phryganean vegetation.

Cultivated terraces constitute Green Infrastructures of high functionality



Cultivation with local varieties is even more important than simple cultivation of terraces. These varieties are adapted to the insular climatic and soil conditions (drought, high temperature), as well as the expected prevailing conditions due to climate change, as they require small water inflows and minimal fertilization.

The cultivation on terraces enhances their function as Green Infrastructure through additional soil retention by the plant root system (i.e. leading to even less erosion), while the shield cover by cultivated plants slows down the surface water flow (also leading to increased percolation).



Perennial crops provide year-round ground cover contributing to effective and constant soil protection from erosion, filling of aquifers and retention of organic matter and water in soil. Furthermore, wildlife benefits, as it can feed on the spot, claiming part of the primary production. Common perennial crops are vineries, which provide also fire protection, and orchards that enrich the local mosaic and benefit pollinators (e.g. almond trees) and other wildlife (e.g. fig and turpentine trees).



The main annual crops have always been cereals, quite demanding on soil nutrients. Crop rotation with legumes proved to be a wise practice that restores soil fertility through nitrogen fixation. Cereals and legumes have limited water requirements, the former due to natural selection (winter-developing), the latter due to artificial selection (xeric varieties), which justifies their selection as viable crops in the years of climate change.



Leaving of crop residues

Crop residues, thoroughly placed on the field, protect from erosion and enrich the soil with organic matter, which helps retain nutrients and water in forms easily absorbed by plant roots. At the same time, residues favor the conservation of important microfauna (microorganisms) and mesofauna (small animals), necessary for a series of biological soil processes.



The project

The LIFE TERRACESCAPE project (LIFE16 CCA/GR/000050) aims to the functional restoration of terraces through re-cultivating them. The immediate objective of the project is to demonstrate the benefits of such an action on the spot, with the expectation that the effort will be multiplied by other locals. The ultimate objective is to create adaptive "Green Infrastructures" functioning as a barrier against the effects of climate change. The action takes place on the island of Andros, aiming to expand to other Aegean and Mediterranean islands.

With the contribution of the LIFE Programme of the European Union

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Coordinating partner: Partners:

www.lifeterracescape.aegean.gr





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Land Stewardship as Conservation Strategy

Land Stewardship is a strategical tool for the preservation of landscape values and of the environment as a whole, by prioritizing the functional restoration of agro-ecosystems,

the capacity to respond to environmental disturbances and the preservation of biodiversity, without excluding man, farmer and/or land owner.

Practically, Land Stewardship is implemented through the establishment of an Organization, which –through agreements concluded with landowners– implements interventions on the land granted to it.

These interventions aim to preserve the land, but also its natural and cultural values. Landowners see their land restored and re-cultivated producing crops and local products of high value.

In the framework of the LIFE TERRACESCAPE project the Land Stewardship Organization “Aegean Farmers” has been established through a Collaborative Agreement between the Green Fund, the Municipality of Andros and the Social Cooperative Enterprise having the same name (“Aegean Farmers”).

Land Stewardship and conservation of biological and cultural heritage on Andros



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Terraces re-cultivation

The functional restoration of terraces in High Natural Value agricultural areas further strengthens ecosystem functions, improves coherence of Natura 2000 network, and enhances the spatial heterogeneity of the landscape, creating small oases of productivity that are attractive to wildlife.



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Utilization of climate-smart agricultural practices

Climatic adaptation of farmlands is achieved through implementing climate-smart agricultural practices. The state of habitats and biodiversity is improved, especially that of some threatened species favored by the practices, and the same holds true for the micro-climate (temperature reduction, humidity increase).

Restoration of structures

The restoration of supporting drystone walls enhances the function of the terraces as Green Infrastructure. At the same time, the terraced landscape is maintained as an element of tangible cultural heritage, inextricably linked to the inclusion of the art of drystone walling in the list of UNESCO Intangible Cultural Heritage in 2018.



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Local community involvement

Land Stewardship is an effective mean to engage local communities and stakeholders in the implementation of core nature and culture conservation actions in the area, contributing to their sustainability.

Rehabilitation of honeybee gates, honeybee houses and a watermill

The reuse, following the restoration, of these structural elements brings back to life traditional activities related to wise land management. At the same time, it contributes to the preservation of the island’s cultural heritage, constituting an element that adds value to the produced crop based on traditional, sustainable and environmental-friendly practices.



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Construction of wildlife ponds

In the rural landscape wildlife ponds not only provide water to wildlife, but also act as “ephemeral” aquatic ecosystems and stepping stones for wildlife movements on the island.



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Maintenance and creation of hedgerows, bee gardens and field margins

These natural structures support biodiversity, especially species related to the biological control of crops, providing natural enemies to their diseases. At the same time, they support apiculture and act as Green Infrastructure.

Land Stewardship and development of a local sustainable economy

Growth of the agricultural product

Insular agriculture is characterized by small properties and scattered land parcels. This constitutes a great obstacle for the systematic and rational land management. Land Stewardship can provide a useful solution, through the overall management of a large number of properties, often in adjacent areas.



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Production and promotion of high-value products

Working with producers and local businesses in the tourism and catering sector to promote production in the market and signing agreements with local and other companies for the use of the produced crop as raw material for their products or as fodder, is the optimistic vision. Products are produced directly and vertical, are certified as products produced on terraces, and as climate- and biodiversity-friendly.



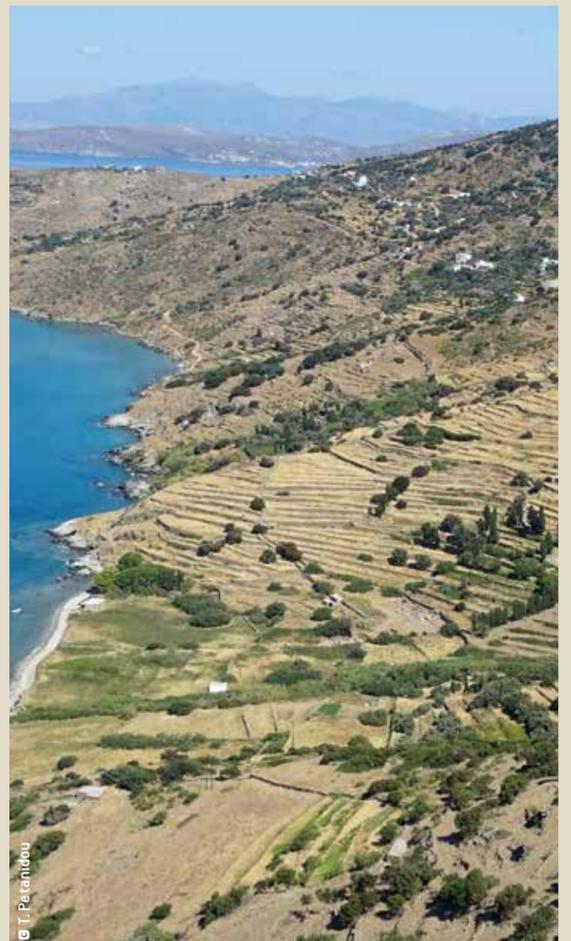
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Sustainability and expansion of agricultural production

The objective of the project for the Land Stewardship Organization is to soon become financially self-sustained, supported by the production revenue and the product placement on the market. Its revenue from the terrace cultivation will be invested back to the Organization for the inclusion of new fields in the venture.



For more information about the Land Stewardship Organization “Aegean Farmers”: www.landstewardship.gr



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