2nd Mediterranean Plant Conservation Week
"Conservation of Mediterranean Plant Diversity: Complementary Approaches and New Perspectives"

Humans, landscapes and plant diversity – first results from the Terra Lemnia project on Lemnos island (North Aegean, Greece)

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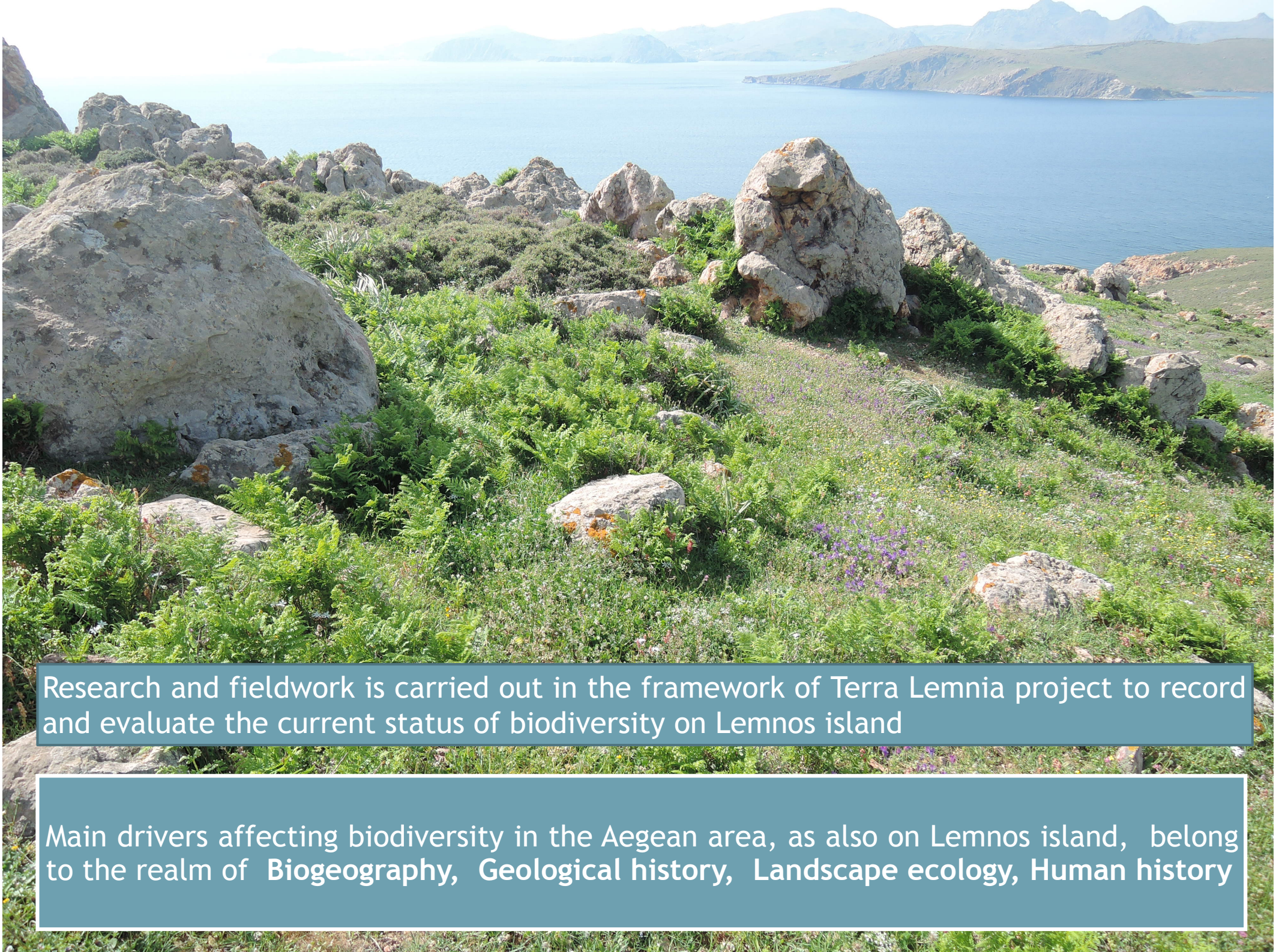
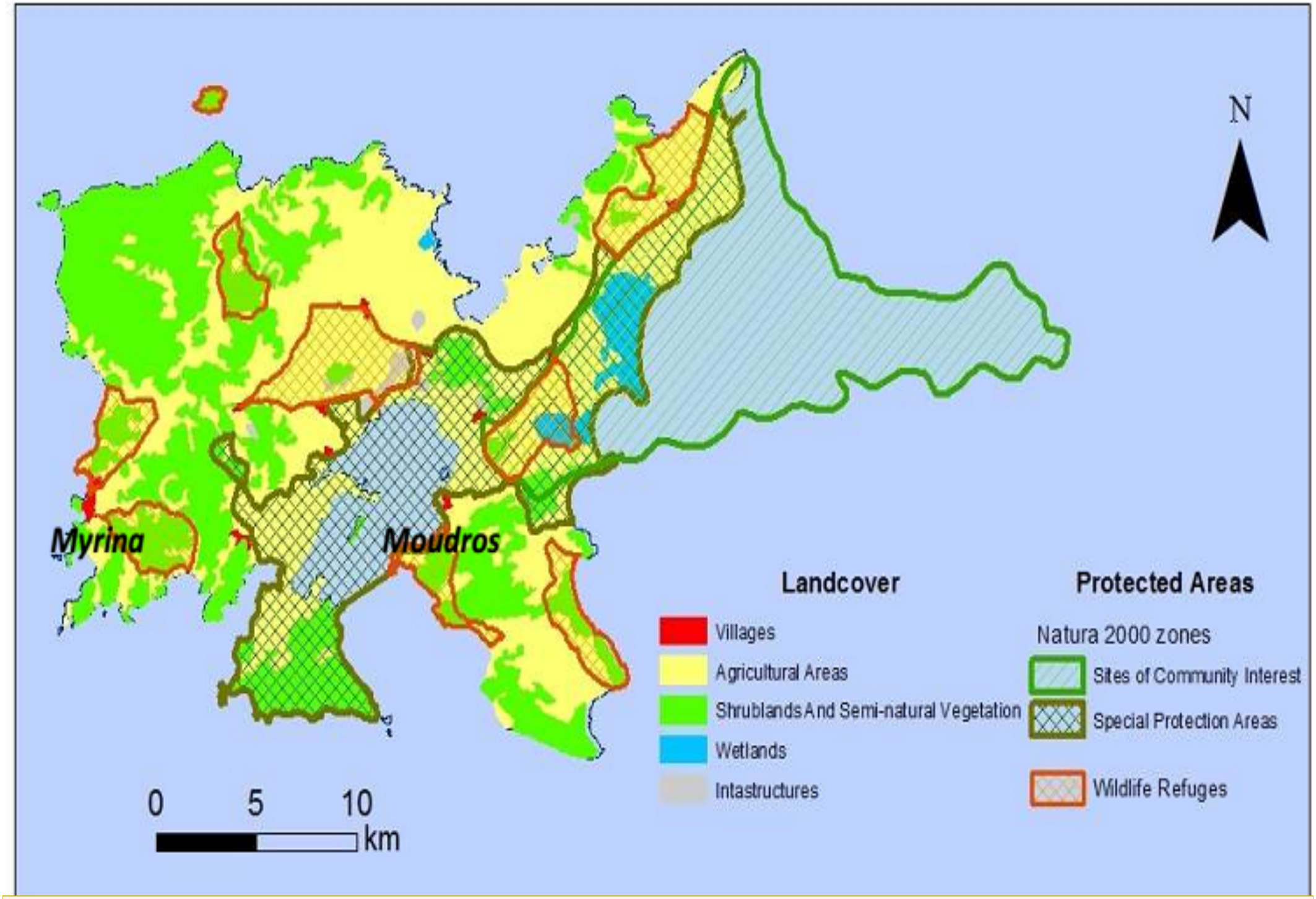


Research and fieldwork is carried out in the framework of Terra Lemnia project to record and evaluate the current status of biodiversity on Lemnos island

Main drivers affecting biodiversity in the Aegean area, as also on Lemnos island, belong to the realm of **Biogeography, Geological history, Landscape ecology, Human history**



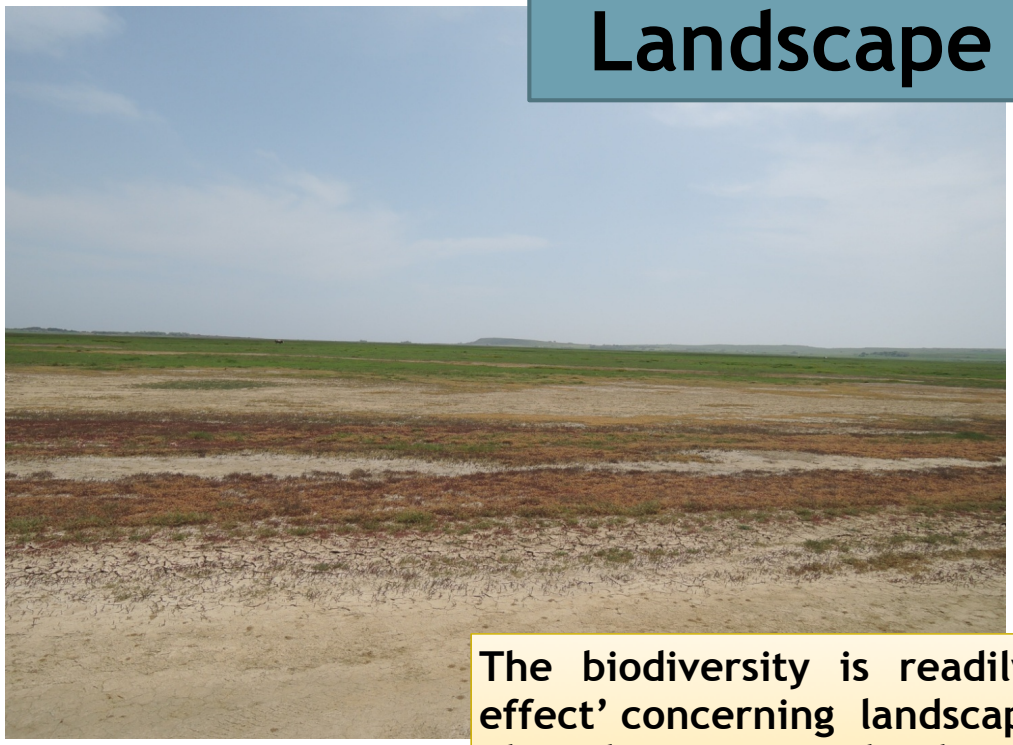
Lemnos land cover and Protected Areas. Source: Med Ina

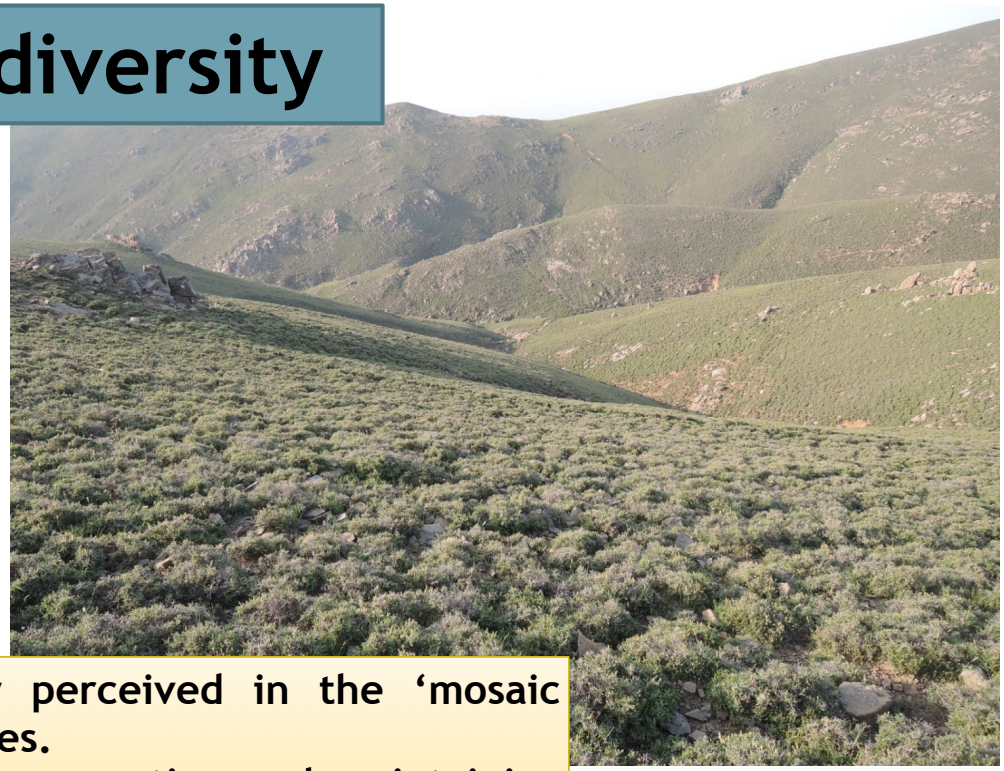
Landscape diversity

Complex and evolving rural landscape retain a high degree of landscape diversity mosaic and high biodiversity.

Varying landscapes and regional biota we perceive today have almost all been directly and repeatedly manipulated and, according to Blondel & Aronson (1999), "redesigned" by humans.

Landscape diversity





The biodiversity is readily perceived in the 'mosaic effect' concerning landscapes.
This plays a critical role in generating and maintaining diversity at the scales of populations and species.

Landscape diversity

A unique phenomenon in the Aegean arcipelago, resembling a real desert on an Aegean island:
spectacular formations of fine sand, forming a unique and fascinating landscape, interrupted only by scattered brushwood.
The dunes are located in the Gomati area (NW part of Lemnos).

Landscape diversity

Faraklo is located on the northern coast of the island, near the sea.
It is an area of rare natural beauty characterized by great volcanic formations, picturesque coves and strange rock shapes.

Landscape diversity

Protected insular areas are like habitat islands on islands.

Habitat types diversity

Table 4. Habitat types [illegible] its priority for protection.

Natura 2000 code	Habitat type
1110	Sandbanks slightly covered by sea water all the time
1120*	*Posidonia* beds
1150*	Lagoons
1170	Reefs
1310	*Salicornia* and other annuals colonizing mud and sand
1410	Mediterranean salt meadows (Juncetalia maritimi)
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Arthrocnemetalia fruticosae)
1510*	Salt steppes (Limonietalia)
2120	Shifting dunes along the shoreline with *Ammophila arenaria*
2195	Dune-slack reedbeds and sedgebeds
2260	Dune sclerophyllous scrubs (Cisto-Lavanduletalia)
3290	Intermittently flowing Mediterranean rivers
5420	Aegean phrygana *(Sarcopoterium spinosum)*
6220*	Pseudosteppe with grasses and annuals (Thero-Brachypodietea)
9350	*Quercus ithaburensis* subsp. *macrolepis* forests
–	Reed thickets
–	*Pancratium maritimum* biotopes

Pancratium maritimum biotopes

Pancratium maritimum **is a common bulbiferous seashore plant belonging to the family Amaryllidaceae.**

The severely fragmented nature of its distribution, and the continuing threat of habitat fragmentation and loss has as a result the decrease of its populations.

Quercus ithaburensis subsp. *macrolepis* forests

The importance of *Quercus ithaburensis* subsp. *macrolepis* relict forest and the woody flora of the island should be underlined.
In consequence of conversion of forests to agricultural land, illegal lumbering, overgrazing and forest fires, *Q. macrolepis stands have* become marginal and fragmented into a small-forested unit or isolated individuals in locations not grazed.

Patterns of oak regeneration are related to current grazing intensities, environmental site characteristics, and the plant community structure

Oak regeneration can be enhanced by adaptive management of livestock grazing.

Quercus ithaburensis subsp. *macrolepis* stands

The main general aim and long-term goal of *in situ* conservation of target species is to protect, manage and monitor selected populations in their natural habitats so that the natural evolutionary processes can be maintained, thus allowing new variation to be generated in the gene pool that will allow the species to adapt to changing environmental conditions (Heywood 2014)

Phryganic formations with *Sarcopoterium spinosum*

Long-term abandonment of rangelands appears to lead to a denser subshrub (and shrub) canopy and to a lower proportion of annual plants, a process resulting in a net loss of species density.

Maritime *Centaurea spinosa* phrygana

Rare, relict formations on coastal sands and gravels of the East Mediterranean, dominated by the large, silvery hemispherical cushions of *Centaurea spinosa*, sometimes accompanied by *Sarcopoterium spinosum* or *Euphorbia acanthoclada*.

Plant species diversity

Field work and collection of baseline data on the current status of biodiversity has been realised on arable and agro-pastoral land of selected areas of the island, including farmlands and rangelands of the Natura 2000 site GR4110006 (Chortarolimni, wider area of Lake Alyki and Fakos Peninsula)

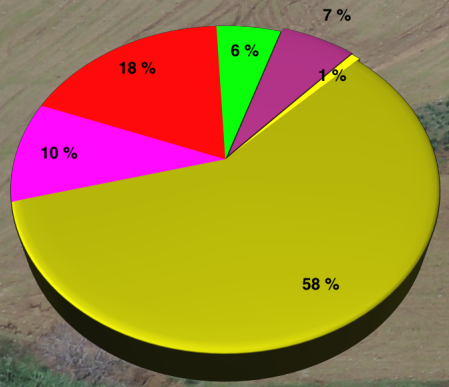




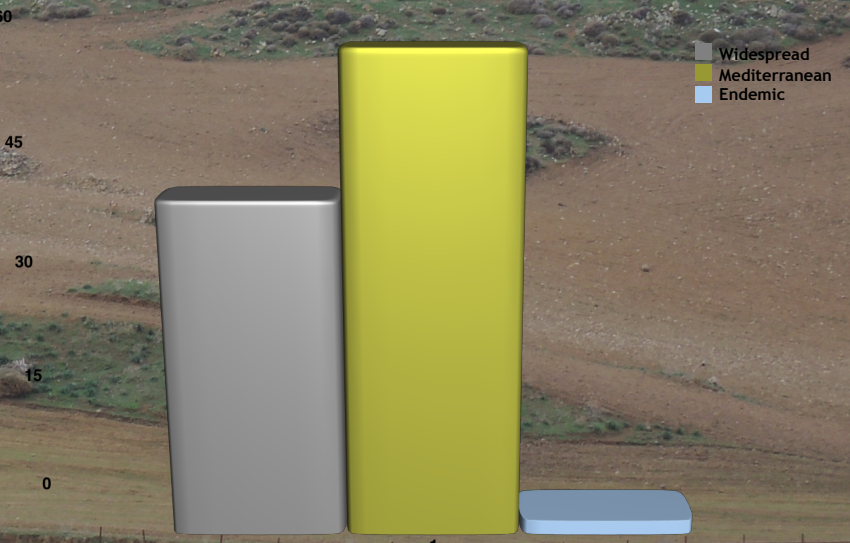

Plant species diversity

The vascular plant flora of Lemnos is consisted of more than 810 taxa

✓The three richer in taxa families, Fabaceae, Asteraceae and Poaceae represent 47% of the total flora registered and 52% of the annuals.



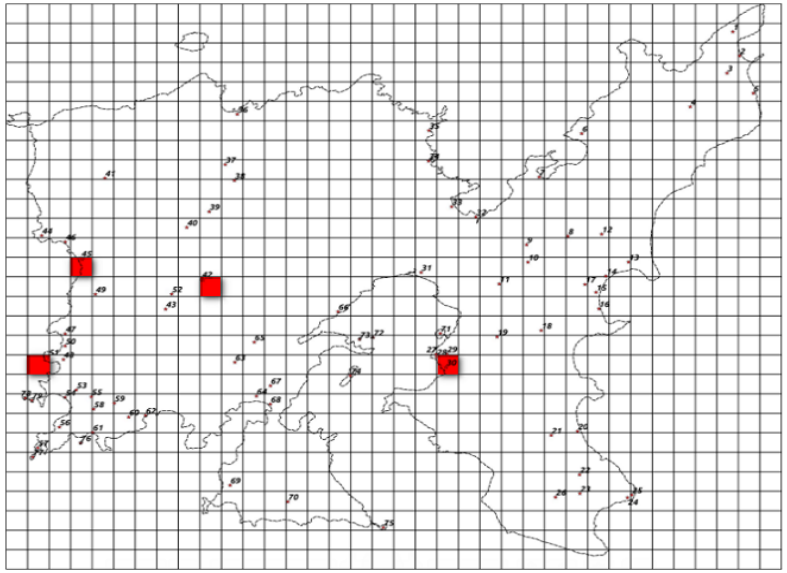
Biological spectrum



Chorology

Plant species diversity

The total number of taxa is rather low compared to other Greek islands with a comparable or even smaller size and this is possibly related to the geomorphology of the island (low elevations, almost total absence of limestone cliffs) as also to the continuous and intense human interference (grazing, fires and camping) in the main island.



Areas with the higher number of native species

Combining several and ecologically meaningful criteria techniques like Multi Criteria Evaluation, thus a habitat based conservation status assessment could comprise a reliable basis for setting priorities and planning conservation as also for management and monitoring of biodiversity.

Key island ecosystem services

Search terms	MA	TEEB	CICES
island* AND ecosystem* AND erosion	Erosion regulation	Erosion prevention	Mass stabilisation and control of erosion rates
island* AND ecosystem* AND crop* AND cultivat* island* AND ecosystem* AND livestock	Food	Food	Terrestrial plant and animal
island* AND ecosystem* AND freshwater	Freshwater	Water	Potable water Water flow regulation; Water quality regulation
island* AND ecosystem* AND pollinat*	Pollination	Pollination	Pollination and seed dispersal
island* AND ecosystem* AND eco-tourism island* AND ecosystem* AND recreation	Recreation and eco-tourism	Recreation and tourism	Recreation and community activities
island* AND ecosystem* AND cultur* value*	Cultural diversity	Inspiration for culture, art and design	Experiential use of plants, animals and land-/sea-scapes in different environmental settings Physical use of land-/sea-scapes in different environmental settings
island* AND eco-tourism	Recreation and eco-tourism	Opportunities for recreation and tourism	Recreation and community activities

Balzan et al. (2018), International Journal of Biodiversity Science, Ecosystem Services & Management, 14:1

CICES: Common International Classification of Ecosystem Services (Haines-Young and Potschin, 2013).

TEEB : The Economics of Ecosystems and Biodiversity

MA: Millenium ecosystem Assesment report

Biodiversity is the “live” part of the natural capital

Thank you for your attention