

DIACRONIC LANDSCAPE CHANGES: A CASE STUDY ON S-E SICILY SALT MARSHES

G. SPAMPINATO¹, P. CAMERIERE¹, S. SCIANDRELLO², **A. GUGLIELMO**²

¹Department of Agriculture, Mediterranean University of Reggio Calabria, Feo di Vito, I-89100 Reggio Calabria;

²Department of Biological, Geological and Environmental Sciences, University of Catania, Via Empedocle 58, I-95128 Catania

The SIMBIOTIC project, implemented within the Operative Programme Italy-Malta 2007-2013, aims to increase the ecological connectivity between the Maltese Islands and the south-eastern Sicily, carrying out studies for the management of protected areas and environmental restoration (1), as well as to disseminate knowledge and awareness on natural heritage conservation (2). Within project planned activities a pilot project of environmental restoration was realized on some biotopes as salt marshes in Sicily and Mediterranean scrub in Gozo. To this end, a diachronic analysis has been developed in order to monitor and quantify landscape changes in coastal areas of SE Sicily, mainly in Pachino territory where the SCI “Pantani della Sicilia sud-orientale” (SE Sicily salt marshes) is located.

The comparison was carried out among land use maps on the basis of available documents as aerial photos (1966), orthophotos (2008 and 1998), IGMI topographic maps (1928, 1897, 1868), on a total area of 14341 Ha and a period of 150 years. Land use according to CORINE Land Cover (3), processed by GIS, was evaluated. Aerial photos and IGMI maps were clearly georeferenced according to WGS 84 UTM Zone 33 N projection system. The CORINE land Cover easily allows a diachronic comparison in land use starting from sources with different detail and scale (4, 5).

The study highlighted that, already in the mid-1800s, the coastal landscape of south-eastern Sicily was mainly characterized by an agricultural matrix and large extensions of wild areas along the coast consisting of marshes and lagoons occupying about 7% of the territory.

Over time, the agricultural area, after a maximum increase in 1966, declined being reduced to 68% today, but at the same time it has undergone a significant transformation due to widespread cultivations in protected environment that currently occupy 10.5% of the surface. In the meantime a significant fragmentation of the agricultural areas is recorded.

The growth of urban areas in the last fifty years, from 2.7% in 1966 to 8.2% today, is caused not so much by the increase of old urban centers as by the recent extensive urbanization just along the coast.

The coastal marshes and lagoon reduced so that currently occupy 4.5%. Much more drastic is the reduction of sandy coasts extension, from 4% at the end of 19th century to 0.6% at present.

The general trend, as detected by comparison of diachronic land use maps, is that of a steady increase in environmental matrix fragmentation due to increased agricultural practices and urbanization of the coastal strip. It is this a major cause of biodiversity loss at the global level (6).

Coastal wetlands do not appear to have suffered in the last decades of a major reductions, whereas what appears definitely altered is their function in relation to the matrix they are included in: an urban-agricultural texture of very specialized crops, having a negative impact on conservation state of such a fragile habitats.

So dynamic trends of the coastal landscape clarify environmental issues and this study provides valuable elements to support decision-making processes affecting the salt marshes of south-eastern Sicily also in view of future management aimed at ensuring the protection of habitats and biodiversity.

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