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VEGETATION SCIENCE IN THE ERA OF NATURE RESTORATION

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Book of Abstracts



Ecosystem restoration is a hot topic in the scientific community and the urgency of a long-term and sustained recovery of biodiverse and resilient nature is increasingly recognised politically, with the European Nature Restoration Law being the first continent-wide law on ecosystem restoration. Venice has long been recognised as the stage of the world and, for its long history of resilience and integration with the natural environment, has been appointed the Sustainability Capital of the World. We are therefore delighted to welcome you to the 57th International Congress of the Italian Society of Vegetation Science, where Venice will once again become the world's stage on which ecosystem restoration will be the theme of the play.

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EFFECT OF ANTHROPOGENIC DRIVERS OF CHANGE ON THE LOCAL PLANT COMMUNITY DIVERSITY OF CHESTNUT GROVE ON ELBA ISLAND

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Chestnut groves have a long history in Europe. They have been cultivated and managed for centuries for their suitability to produce wood and fruit, as well as for their landscape and natural value. In Italy, the products of chestnut groves have been the basic sustenance of many local populations, especially in the mountains. Initially, many chestnut groves were planted well outside the climatic optimum of the species but managed and cultivated in such a way that they thrived for a long period. However, the socio-cultural changes of the last century have led to a progressive decrease in chestnut cultivation and thus to the abandonment of chestnut groves. In Tuscany, there are 32 thousand hectares of chestnut groves of which more than half are abandoned. Furthermore, the depopulation of the mountains and the outbreak of aggressive phytopathologies, such as the American cortical cancer and the Chinese gall, are the most common reasons for the abandonment.

This study investigates the consequences of the stresses potentially caused by the abandonment of chestnut groves, on Elba Island, in the Tuscan Archipelago. The chestnut tree's presence on the island is of anthropic origin and has been documented for a long time. Chestnut groves are primarily located on the northern slopes of Monte Capanne. However, these areas are not within the optimal climatic conditions for the chestnut tree, there are only a few remaining groves, generally surrounded by Mediterranean maquis, and chestnut cultivation is infrequent. Despite their often compromised health status, chestnut groves have an important ecological and naturalistic value. Understanding how anthropic and climatic stresses, as well as abandonment or current management, can influence the development of these environments will help preserve their naturalistic value and understorey biodiversity. Towards these aims, we combined remote sensing analysis correlated with floristic characterization of the abandoned areas through ground surveys to assess the status of conservation of Elba's chestnut groves.

Correlating the normalised difference vegetation index (NDVI) calculation and the vegetation map for the island, it was possible to delineate the chestnut groves on the northern and eastern sides of Monte Capanne and to assess their vegetative cumulative stress. We then surveyed the chestnut groves on the island with a probabilistic sampling design, to represent the different levels of stress identified in the analysed areas. 10 x 10m plots were sampled to estimate the presence and relative cover of species in the understorey layers. An assessment of plot stress was also conducted, with stressors including damage caused by Chinese gall and/or cortical cancer, management status of the area (abandoned or not), and damage to vegetation and topsoil caused by ungulates. The preliminary results indicate varying levels of species richness based on the degree of site disturbance.

In addition, the fragile health of chestnut trees results in leaf loss and openings in the canopy, which allows more light to pass through and nourish the herbaceous layer. However, this can lead to an increase in grazing ungulates and subsequently impoverish the undergrowth.