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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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REVISITING PIANOSA (ITALY): HOW VEGETATION OF A SMALL MEDITERRANEAN ISLAND HAS CHANGED IN THE LAST 15 YEARS

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Resurveying historical vegetation plots has become a fundamental methodology in ecological research as it provides a unique opportunity to estimate vegetation and environmental changes over the past decades (Kapfer et al., 2017). Indeed, this approach allows to evaluate how the vegetation dynamics are affected by anthropogenic factors, such as land-use change, invasion of alien species and climate change (Hédli et al., 2017). Small islands are among the ecosystems in which the effects of these processes might be more detectable and less predictable. One of these cases is Pianosa (Tuscan Archipelago, Italy), a small Mediterranean island that hosted intense human activity in the form of an agricultural penal colony until the end of the 1990s, after which the process of the abandonment of the land began. Moreover, in the last decades, many conservation measures have been implemented on the island, such as alien species control or eradication and restoration of natural habitats. This research aimed to use this island context to evaluate how different types of vegetation occurring on the island (rocky cliffs *Crithmo-Limonietum* communities, Mediterranean *Thero-Brachypodietea* xeric grasslands, and Mediterranean scrub) changed in the last 15 years, both in terms of species and functional composition.

The vegetation of Pianosa has been thoroughly described by Foggi et al (2008), who carried out several vegetation relevés, and it has been resurveyed in spring 2023. The original methodology was followed and a total of 30 georeferenced vegetation plots revisited, ensuring a strong correspondence between the location of the old and the new sampling points (Verheyen et al., 2018). Moreover, the literature information has been complemented with personal feedback provided by the botanists that sampled the historical plots.

The preliminary results a significant compositional shift for all the considered types of vegetation. The main processes which has been detected as responsible of such changes in species composition are: i) the spread of some alien species (e.g. *Pinus halepensis*) which colonised and drastically changed the physiognomy of some contexts (e.g. from garigues to woody stands of pine); ii) a significant encroachment of the grasslands by typical shrub species, with their transition from open areas with herbaceous species to Mediterranean maquis; iii) a decrease of the abundance of *Jacobaea maritima* and *Mesembryanthemum nodiflorum* in rocky cliff communities. Such changes in species composition of the vegetation have been also found, even stronger, at a functional level, and can be probably explained by the changes in vegetation physiognomy. These results are relevant for research on the main drivers of changes occurring in small island contexts and might provide pivotal information for the conservation of Tuscan Archipelago habitats.

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