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Conference Abstract

From Mapping to Operational Management: Two Years of Monitoring and setting Intervention Priorities for Invasive Alien Plants on Capraia Island (LIFE TETIDE)

Alice Misuri‡, Renato Benesperi‡, Lorella Dell'Olmo‡, Michele Mugnai‡, Daniele Viciani‡, Lorenzo Lazzaro‡, Filippo Dell'Agnello§, Michele Giunti§

‡ University of Florence, Florence, Italy
§ NEMO Nature and Environment Management Operators srl, Florence, Italy

Corresponding author: Lorenzo Lazzaro (lorenzo.lazzaro@unifi.it)

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Abstract

The LIFE TETIDE project (Turning Eradication Targets Into Durable Effects) focuses on the conservation of Mediterranean island ecosystems through the management of invasive alien species (IAS) and the active involvement of local communities. On one of the project sites, Capraia Island, recent efforts have transitioned from initial assessments to the drafting of a comprehensive executive project aimed at protecting Natura 2000 habitats through the targeted control and eradication of several invasive plant species, including *Opuntia stricta*, *Opuntia ficus-indica*, *Zantedeschia aethiopica*, *Nicotiana glauca* , *Chasmanthe floribunda*, *Ailanthus altissima*, and *Arundo donax*. Between 2023 and 2025, we conducted multi-modal surveys, combining land-based fieldwork, a boat-based circumnavigation of the island to detect invasive plants on inaccessible seaside cliffs, and high-resolution drone flights, producing orthophotos with a resolution of 1 to 3 centimeters. These different sources of information allowed the drafting of a control plan, taking into account also a detailed quantification of biomass and IAS density. In parallel, a scientific monitoring program established a baseline in May 2024 through a

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standardized sampling design involving 25 permanent 100-square-meter macroplots and 50 subplots to assess habitat cover and species composition. Updated spatial analysis revealed that the invasion extent is significantly larger than previous estimates, now covering approximately 186 hectares (9.4% of the island's surface), with *Opuntia stricta* identified as the primary threat due to its extensive colonization of natural habitats. While the other IAS remains largely confined to urban and peri-urban areas, *O. stricta* wider invasion poses a severe threat to several hectares of habitats worthy of conservation. As a result, the executive project has substantially increased its conservation targets, scaling the planned recovery of priority Natura 2000 habitats from an initial 15.8 hectares to around 50.0 hectares. The transition from initial mapping to an operational executive project, supported by two years of continuous monitoring, now enables a highly targeted approach to IAS control on Capraia. The definition of intervention priorities ensures an efficient use of LIFE program resources, maximizing the recovery of protected habitats and ensuring the long-term sustainability of conservation actions.

Keywords

IAS control, manual control, prioritization, mediterranean islands, monitoring

Presenting author

Lorenzo Lazzaro

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Conflicts of interest

The authors have declared that no competing interests exist.