



Book of Abstracts

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Application of spectral signature of selected Invasive Alien Plants (IAPs) of Malta and Sicily for ecological monitoring

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Abstract

The detection and characterization of spectral signatures offer an efficient and cost-effective method for the assessment and monitoring of the distribution range of IAPs. The development of geospatial technology, specifically remote sensing, is no longer limited to satellite imagery. In fact, in the last decade, consumer-grade Unmanned Aerial Vehicles (UAVs) have extended the accuracy of vegetation mapping.

Spectral characterization of the most widespread IAPs of the Maltese Islands (including *Agave* spp., *Ailanthus altissima*, *Arundo donax*, *Cardiospermum* spp., *Ricinus communis* and *Opuntia ficus-indica*) is being used to produce vegetation maps in Special Areas of Conservation (SACs) of the Maltese Islands, including L-Inħawi tax-Xlendi u tal-Wied tal-Kantra (Gozo); Rdumijiet ta' Malta: Mix-Xaqqa sal-Ponta ta' Bengħisa (western coast of Malta) and Il-Magħluq tal-Baħar ta' Marsaskala (southern Malta). All mentioned localities are protected areas of the Natura 2000 network of the Maltese Islands.

Using open access satellite imagery available from the USGS Earth Explorer portal, published data from the SIntegraM project and novel material from dedicated UAV surveys, the spatial distribution and range expansion of IAPs will be assessed and validated by ground-truthing. The variability of the spectral signature due to the species phenology and seasonal illuminance is considered in the classification method used for the vegetation mapping.

The workflow of the methodology will be easy to follow, accessible to everyone and reproducible. The dynamic mapping of IAPs over time would set the baseline for future conservation measures and facilitate the science-based management of the protected areas.

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Fighting Alien Species Trans-border. A Citizen Science perspective

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Abstract

Citizen Science has come a long way since the voluntary collection of specimens by naturalists in the 16th and 17th Century. Indeed, developments in information technology and recent trans-disciplinary collaborations have transformed the efforts of once solitary individuals into an environmental movement with the potential to address important international issues. One such collaborative project is Interreg's Italia-Malta's FAST project (Fighting Alien Species Trans-border) which aims to counteract the introduction, naturalisation and spread of invasive alien species which pose a threat to the ecology of several high nature value sites within Sicily and the Maltese archipelago. The choice of these islands is important for their trans-border role in the Mediterranean region.

Although there are numerous Citizen Science projects currently being undertaken globally, the FAST project is unique for the Maltese Islands in the sense of it being the first national BioBlitz organised on the Islands. The bioblitz will be targeting a Natura2000 site over four days. Participants will be receiving data-collection training for invasive species before joining the bioblitz. At the end of their participation, Citizen Scientists will be asked to fill a standardised international survey developed by European BioBlitz Network (DITOs Consortium 2019).

During this presentation talk we will be discussing the conservation impact of this rapid data collection of invasive species in a protected site as well as the motivations of the participants to continue volunteering as Citizen Scientists in the future.

EFFECTIVENESS OF PAST AND CURRENT CONTROL MEASURES AND NATIVE COMMUNITIES RESTORATION EFFORTS

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Management towards the eradication of *Pennisetum setaceum* from the island of Gozo

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Abstract

Pennisetum setaceum has become a serious invasive species in many coastal areas and islands situated in the southern parts of Europe, including the Canary Islands, Madeira, Sardegna, Sicily and the Maltese Islands. It soon became an invasive alien species of EU concern when the European Commission, by implementing Regulation 2017/1263, obliged member states to manage and restrict the spread of the species. In a short time from its first introduction in the Maltese Islands (around the year 2007), the species had escaped considerably both in mainland Malta and in Gozo – the second-largest island of the Maltese archipelago with a surface area of 67 km². It first escaped in urban areas and later spread in some rural communities, including Natura 2000 sites. In 2017, the EcoGozo Directorate within the Ministry of Gozo embarked on a mission to control and possibly eradicate this alien grass from Gozo. With restricted personnel and budget but a wise strategy, about 90% of the *Pennisetum* population recorded in at least 65 locations has been eradicated within five years of operation. Several simple strategies have been adapted, which have resulted in the desired accomplishment. This presentation gives a brief account of how this was achieved and what strategies have been used, namely Citizen Science and media technology for mapping, persistent monitoring, public involvement, and site-specific solutions for removing the plants from the various habitats in Gozo. Repeated interventions allowed us to reach some observations on how to prevent regrowth and that was instrumental in preventing the spread of plants and seeds. Some NGOs, local councils, and the Environment Resource Authority have also played helpful roles in this success story, which still does not have a jovial end because the ecology and surviving adaptations of *Pennisetum setaceum* are enormous.