

# Pools, plants and people: challenges for wetland conservation in Malta

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## **Extended abstract**

The Maltese Islands are characterised by the smallest land area (316 km<sup>2</sup>) and the highest population density (1261 persons km<sup>-2</sup>) in the European Union. These factors, coupled with intensive anthropogenic disturbance and a strongly biseasonal climate with a long summer drought, interact to present considerable challenges for wetland conservation in Malta.

Pool landscapes in the Maltese Islands are generally restricted to karstic terrain on coralline limestone plateaux and slopes. These areas have historically also attracted agricultural, bird-trapping, and quarrying activity, obliterating the pools and their biota. The recent rapid growth of the human population has also created a demand for outlets for waste disposal, a need that is sometimes met by disposing of municipal waste in pools.

In general, although habitats consistent with European Commission habitat-type 3170 \*Mediterranean Temporary Ponds are protected by legislation, the remnant pool landscapes of the Maltese Islands are highly fragmented and subject to frequent disturbance or to deliberate destruction, particularly when they are perceived to represent an impediment to construction works or other land developments. The relatively small size of the cupular pools of the Maltese Islands suggests that they are not significant providers of prominent ecosystem services, and are therefore popularly perceived as ‘unimportant’ or ‘expendable’ habitats, a perception that does not promote their effective conservation. In general, the already fragile nature of the temporary pool communities is being further destabilised by anthropogenic influence, leading to new equilibrium states dominated by species tolerant of disturbance.

The fragmented nature of the formerly contiguous pool landscapes and the constant pressure on their biota also renders detailed study of their metacommunity dynamics and of the ecological dynamics of individual species essential. These knowledge gaps have started to be addressed over the past few years, mainly through the studies of Camilleri & Lanfranco (2013), Sammut (2013), and Briffa (2014). These studies have characterised the relative effects of the morphometric properties of the basins, the volume of the effective seed bank and on proximity to other sources of colonisers, on the diversity of biota in these habitats. As such, any effective conservation or restoration strategies should be informed by the results of studies such as these, characterising the responses of individual species and of whole communities to various environmental influences. This increasing volume of specific research about temporary pools in the Maltese Islands suggests that restoration strategies can be based on information concerning the influence of morphometric heterogeneity of basins, of hydroperiod

characteristics and of habitat-connectivity in determining macrophyte richness and life-form richness.

A major strategy for effective conservation of these wetlands involves raising public awareness through education and public participation in conservation activities. In this regard, the public profile of these temporary wetlands, and of their resident flora and fauna, has been raised through the organisation of public lectures, field visits and an increased volume of published research.

**References:**

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