Pools, Plants, and People: Challenges for Wetland Conservation in Malta

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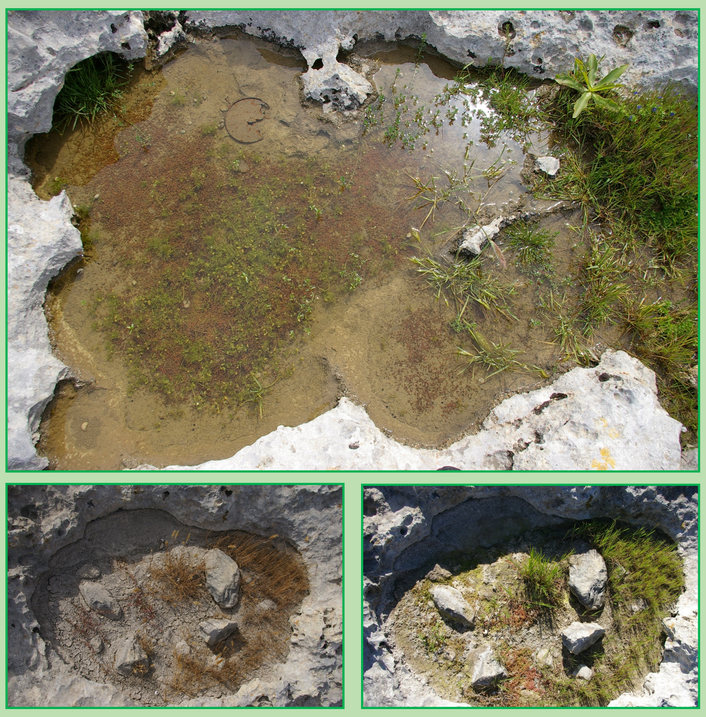
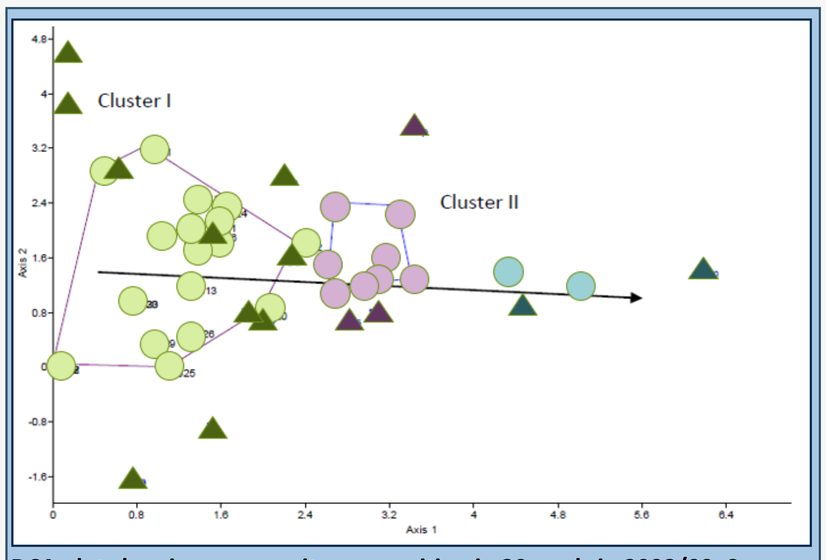
Pools:

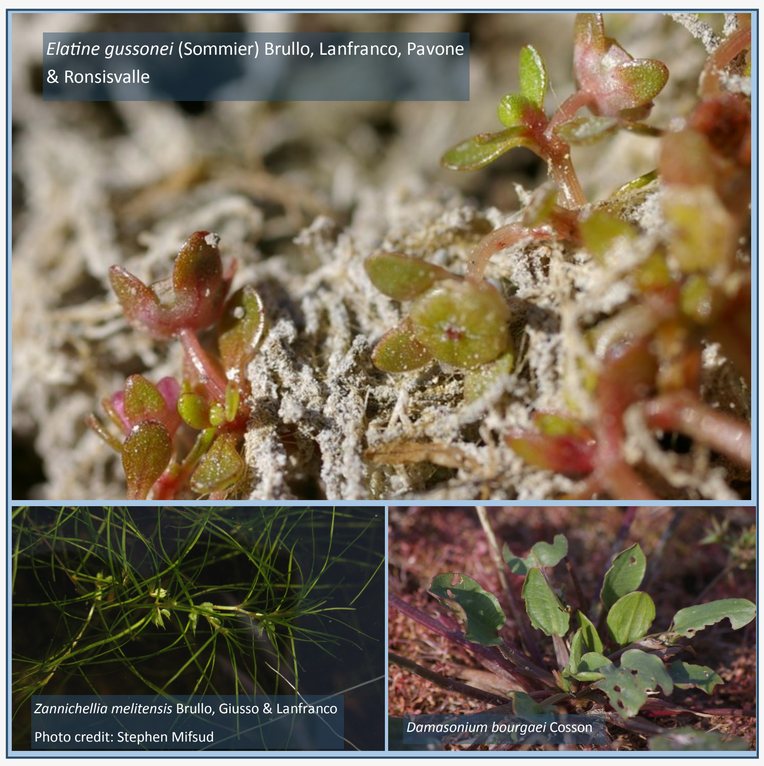
- Form on karstified terrain on plateaux and slopes of Coralline Limestone (Oligo-Miocene).
- Alternate between a wet phase (October-April) and a dry phase (May-September).
- Relatively small basins. Primary axis: 28 cm to 330 cm; secondary axis: 42 cm to 306 cm; maximum morphological depth: 90 cm; maximum sediment depth: 52 cm.
- Sediment layer provides a repository for propagules and acts as a last reserve for water at the end of the wet season.



Approximate location of some of the principal pool landscapes in Malta and Gozo indicated by the areas shaded in yellow. (Base map: Google Earth, 2014, green bar = 10 km). North is towards the top of the picture.



DCA plot showing community composition in 30 pools in 2008/09. Scores on Axis 1 for each pool were correlated with hydroperiod index. Cluster I: Pools with very brief hydroperiods, rich in 'opportunistic' species. Cluster II: Pools with longer hydroperiods and mainly colonised by amphiphytes (purple circles) and hydrophytes (blue circles). Triangular symbols represent individual species.

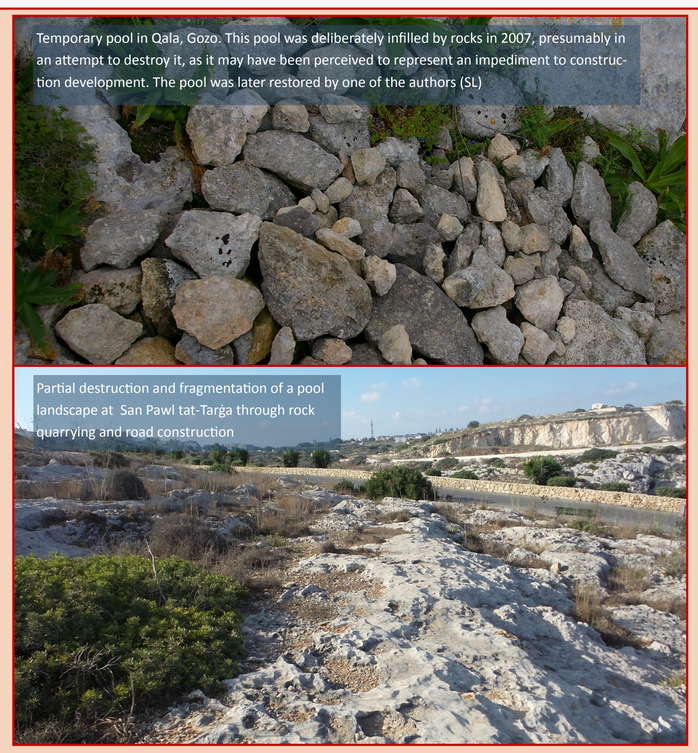


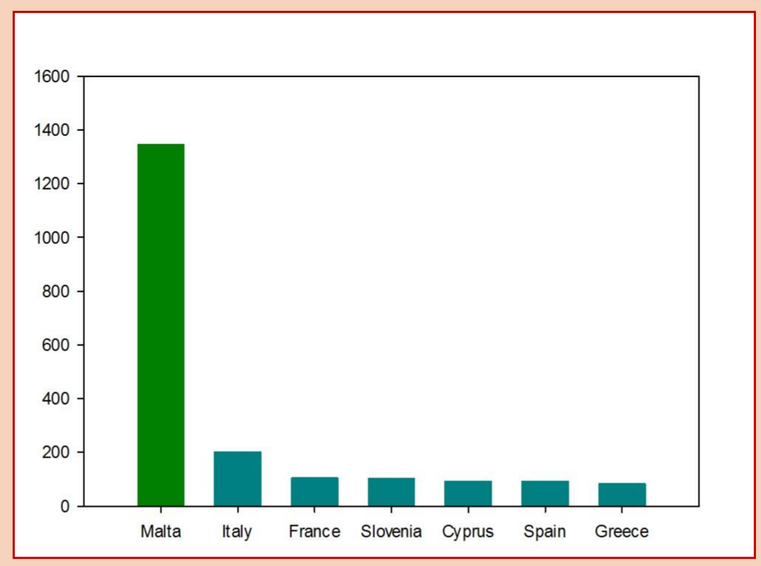
Plants:

- Pools colonised by species-poor assemblages of specialised aquatic hydrophytes, amphiphytes, and aquatic macroalgae (Charophytes) during the wet phase and by opportunistic terrestrial plants during the dry phase. Most specialist species are rare or endangered.
- Include endemic (*Zannichellia melitensis*) and sub-endemic species (*Elatine gussonei*).
- Relative balance of hydrophytes, amphiphytes, charophytes determined by hydroperiod characteristics and by sediment depth.

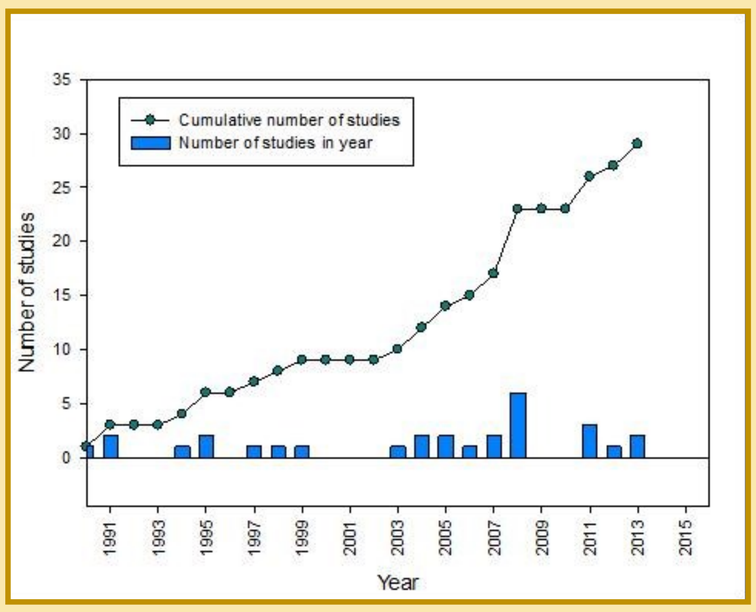
People:

- Highest population density in the European Union (1346 persons km^{-2}).
- Pool landscapes have several conflicting land-uses: agriculture, rock quarrying, hunting, trapping, waste disposal.
- 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.





Population density (persons km^{-2}) of the Maltese Islands compared to that of other European Union states with a Mediterranean coastline (source data: Eurostat)



Number of research projects on temporary freshwater wetlands undertaken at the University of Malta during the period 1990-2014.

Awareness and conservation:

- Pools popularly perceived as 'unimportant' or 'expendable' habitats.
- Limited public awareness of 'wet' habitats in a 'dry' island is now progressively increasing through popular outreach and more academic research.
- Early research focused on biotic inventories; more recent research focuses on processes.
- Conservation of pool landscapes often integrated with conservation of terrestrial habitats and with preservation of archaeological remains.