

GHADIRA S-SAFRA (MALTA): A THREATENED COASTAL WETLAND WITH AN ENDANGERED BIOTA

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Saline marshlands are very scarce in the Maltese Islands (SCHEMBRI *et al.*, 1987; ANDERSON & SCHEMBRI, 1989). Several have been obliterated by human activity and only five such sites are still extant, although under constant threat (SCHEMBRI & LANFRANCO, 1993).



Island of Malta indicating location of Ghadira s-Safra

The environment of such habitats restricts colonisation to a highly specialised flora and fauna. Although many species are common to all marshlands in the Maltese Islands, each site has its own habitat characteristics and species assemblage (SCHEMBRI, 1991). The present study evaluates the ecological significance of a representative marshland and highlights the anthropogenic pressures to which it is subjected.

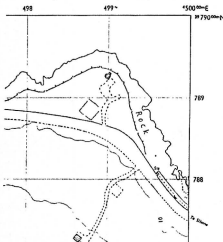
Ghadira s-Safra is a seasonally flooded marshland of area 0.8 ha, and generally located less than 1 m above mean sea level on the northeastern coast of Malta, in the Magħtib-Għallis area (Fig. 1). The site outcrops on the Xlendi Member of the Lower Coralline Limestone Bed which is of Oligocene age. The substratum consists of a fine reddish soil underlain by a thin layer of alluvial clay which enables the marsh to retain water. In most years, the marsh contains water during the wet season (September/October to March/April) and is completely desiccated throughout summer. During the course of a typical wet season, Ghadira s-Safra undergoes several cycles of alternate wetting and drying since the large surface area and shallow depth of the water promote high rates of evapotranspiration which are sufficient to cause drying between successive flooding episodes. The marsh supports a biota of mixed character. The permanent community mainly comprises terrestrial halophilic macrophytes while the temporary community is typical of ephemeral fresh and brackish water habitats and is only present when the marsh contains water. A number of species inhabiting the marsh are of local or regional ecological significance:

- 1. *Triapr camriformis* (Bosc), (Crustacea: Branchiopoda: Neostraca), Ghadira s-Safra is one of the few localities where this locally rare species has been recorded in recent years.
- 2. *Branchipus vinyasi* Kertész, (Crustacea: Branchiopoda: Anostraca), Ghadira s-Safra is the only locality in Malta where this species has been recorded.
- 3. *Crypsis aculeata* (Tracheophyta: Magnoliopsida: Poaceae), Restricted to Ghadira s-Safra.
- 4. *Riella heliophylla* (Bryophyta: Hepaticae), a very rare and endangered liverwort. Listed in Appendix 1 of the Bern Convention as a "Species to be Strictly Protected".

Additionally, an unrecorded epizoin association involving *Branchipus schoeffleri* Fischer (Anostraca) and *Lyngbya* sp. (Cyanobacteria) has been observed at Ghadira s-Safra.

The marsh is subject to regular and severe anthropogenic disturbance. The site is easily accessible and is a popular recreational area with holidaymakers. Encroachment by vehicles is frequent and results in regular disruption of the upper layers of sediment. This favours the proliferation of weed species in preference to slower-growing specialists and may also damage the resting stages of organisms present during the aquatic phase. Frequent bonfires contribute to such disturbance. Although the species assemblage present would qualify Ghadira s-Safra for strict protection under current environmental and planning legislation, no concrete measures for its conservation have as yet been taken.

Vicinity of Ghadira s-Safra (side of square = 100 m)



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