

# BOOK OF ABSTRACTS



VALENCIA (SPAIN) | 23-27 OCTOBER | 2023  
*Plant Conservation and Ecosystem Restoration  
in the Mediterranean*



**4th Mediterranean Plant  
Conservation Week**

VALENCIA | 23-27 OCTOBER | 2023

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## An international network for the protection of sexual and parthenogenetic populations of streptophytic green macroalgae (*Chara canescens*)

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The loss of genetic diversity is considered a key element in entering the extinction vortex. This is especially true for asexually reproducing species, where recombination of traits is limited to the genetic variability of a single parent. The conservation of genetic diversity is thus a central element of conservation concepts. This presentation focuses on a project (Biodiversa+ 2021-2022) studying the stonewort *Chara canescens*, a species consisting of a few sexually reproducing populations and widespread asexual ones. The asexual populations are mainly found in Europe, with a few outposts recorded from North America, Australia and Central Asia. Sexual populations are very rare, only five sites are currently known worldwide, four in the Mediterranean and one in the Pannonian Basin. Previous studies have shown that the *Chara canescens* asexual populations have a higher genetic diversity than assumed. These results have led to the establishment of this hypothesis: "Species consisting of linked sexual and asexual populations can overcome the risk of loss of genetic diversity as long as efficient transfer of genotypes between populations is ensured". So far, little is known about the connections between sexual and asexual lineages of a species. We will gather the knowledge necessary for the development of transnational conservation strategies. Based on this, we will establish a network for the sustainable conservation of *C. canescens*, as said, composed of extremely rare bisexual and common parthenogenetic populations. For this, field work at recent sites as well as analysis of herbarium material will be carried out to unravel recent and past gene flow within and between populations. The key activities will be: (1) to identify former and recent inland brackish water sites suitable for sexually and parthenogenetically reproducing populations, (2) to gain knowledge on recent and past genetic diversity of the target species, (3) to evaluate the potential of a few sexual populations in sustaining the genetic diversity of the widespread parthenogenetic populations. These data will provide a sound scientific basis for the ultimate goal: to develop management plans for inland brackish water sites that meet the requirements of *C. canescens* embedded in a transnational network of conservation sites with sexually mature populations, and focus on maintaining effective gene flow. In this presentation, the strategies to develop this plan, consisting of recommendations for site management and information exchange among network partners will be put forward.

**Keywords:** aquatic flora, charophytes, conservation strategies, genetic diversity, inland brackish water