High diversity of Ruppia meadows in saline ponds and lakes of the western Mediterranean

"Saline inland and coastal waterbodies are valuable habitats that deserve attention for the protection of their unique submerged macrophyte beds that render the water clear, stabilize sediments and provide a habitat for high biomasses of invertebrates as food for waterfowl. The 'continental seagrass' Ruppia has the widest salinity tolerance among the submerged macrophytes and occurs in a wide variety of saline saltmarsh pond and lagoon
systems. Although two cosmopolitan species Ruppia maritima and Ruppia cirrhosa are recognized in Europe and Ruppia drepanensis in the westernMediterranean, their diversity and distribution arenot well known. This previously held traditional ideathat there are only two widespread Ruppia species suggests a uniform and very homogenized population structure following the hypothesis of long-distance dispersal through strong bird-mediated dispersal events. Therefore, the Ruppia chloroplast DNA diversity was investigated along a more than 1,000 km transect of the Iberian Peninsula. Westudied 492 individuals from 11 wetland areas (17ponds) and sequenced a 1,753-bp length of sevenchloroplast introns. Eight haplotypes represented atleast four distinct groups or taxa which is higher thancommonly accepted. Six wetland areas contained more than one haplotype and within-pond diversity occurred within distances as small as 30 m (5 out of17 cases). This underlines the importance of single
waterbodies for harbouring haplotypic diversity in Ruppia. Unique haplotypes were observed in four wetland areas and R. maritima was detected only from a low salinity pond, suggesting the species might be more rare than previously accepted. The present results tend to minimize an overall effect ofstrong bird-mediated dispersal. This emphasizes the role of regional pond habitat diversity for thepreservation of Ruppia taxa and their unique haplotype
diversity in extreme saline habitats."

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