

Adaptive restoration and the assemblage of wetland communities: the importance of long-term approaches.

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The Doñana marshes area an iconic example of the problems posed to conservation areas by development activities in their close neighborhood. Simultaneous to its declaration as a National Park and MAB Reserve, agricultural development resulted in the drainage of two-thirds of the marsh surface and the canalization and loss of three of the four water inlets. The managers of the remaining marshes have been struggling since them to manage a chronically insufficient water inflow that combined at times with water quality problems, birds mortalities of unknown origin and overgrazing by feral cattle. The rigid engineering responses adopted probably contributed to worsen he problems rather than ameliorating them. As a consequence, the marshes included in the National Park are nowadays severely degraded, with rampant problems of sediment deposition, a predominance of turbid, algae-dominated states in their shallow wetlands, and an accelerating process of invasional meltdown.

In the midst of this scenario, an ambitious restoration project (Doñana 2005)t is being develop, with the main aim of controlling sediment deposition, improving water quality and assuring water quantities by restore the original water entrances to the marshes, and recovering the flooding regimen of two large portions of formerly drained marshes. After several initial problems caused by the used of rigid engineering techniques, the project has turned to an adaptive approach in which the interaction between engineers, future managers and scientist is actively fostered. But in developing engineering and management strategies and monitoring programs, we are faced by the inadequacy of baseline data. Although the works take place in one of the most studied natural areas of Europe, the multitude and varied nature of pressures and stressors that have influenced te composition of natural communities across the marshes prevents us from being able to pick up a reference baseline that could be assimilated to a “original” or “pristine” state, free of severe human influence. Moreover, the combination of historical effects and timextreatmet interactions (treatment being understood as the effect of various human disturbances and restoration works) hampers the interpretation of temporal series of both restored and reference ecosystem. This situation will be use as a case study to discuss the necessity of long-term data that take into account the influence of various source of man-mediated disturbance; the potential stategies to disentangle timextreatment effects in the restoration monitoring programs; and the possibilities of picking up large restoration areas and their reference sites as particularly valuable sites for Long-Term Ecological programs.