
Assessing the vulnerability and the socio-ecological resilience of biodiversity and functioning of terrestrial and marine Mediterranean ecosystems

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Abstract

The Mediterranean region, one of the 34 global terrestrial biodiversity hotspots, features exceptionally high species diversity of Magnoliophyta, metazoans, fungi and other taxa. Paleocological contexts, climatic constraints and diversity of habitats associated to fragmentation, diversity of relief, substrates, and human activities since the Neolithic, have contributed to considerable evolutionary advantages. In the same way, the Mediterranean basin is a marine hotspot of species and ecosystem diversity. Global interconnected factors including climatic (water availability, temperature, sea level rise), ecological (e.g. invasive species, local species extinction, functional species extinction), societal (cultural, economic and political) and human development (e.g. urbanization, ports, fishery, pollution) factors may affect Mediterranean biodiversity (MB). Major questions raised are: what is the vulnerability of the Mediterranean biodiversity within the context of global change? What scales (e.g. spatial scale and ecosystem vs. species scale) should be considered to understand vulnerability and how do human practices, biodiversity-related values and perceptions interact with these different scales? Our aim is to make a state of the art of the vulnerability of MB at different scales using social-ecological indicators from ecosystems to intraspecific level covering marine and terrestrial ecosystems. The power and efficiency of the ecosystem-based approach will be emphasized. Available published data will be used to establish a baseline and conduct metadata analysis. Specific case studies of experts based on empirical field research will be used to better understand processes involved at different scales and socio-ecological drivers of global change.

Keywords: ecosystem, based approach, biodiversity and ecosystem functioning, management, restoration, conservation, stakeholders

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