
Identifying "hotspots" of diversity for conservation: taxonomy, phylogeny and ethnobotany in the Flora of Socotra Archipelago

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Abstract

The Socotra Archipelago has a diverse and charismatic flora, characterized by unique plant species. It harbours some 835 vascular plant species, 308 of these (37%) and 14 genera are found nowhere else. Socotra represents a unique opportunity to develop conservation plan. Historically, conservation has relied on individual species and habitat action plans, or has designated protected areas based upon the number of rare and endemic species present. Including evolutionary information will tend to protect the processes that generate and maintain biodiversity. These include maximizing evolutionary history and distinctiveness among protected sites, which is argued to encapsulate a larger proportion of evolutionary potential, a greater flexibility in species adaptation to anthropogenic, environmental and climate change now and in the future. However, little is known about the origin and evolution of the flora of Socotra. The present aim is to establish the phylogeny of Socotra flora, to apply phylogenetic diversity statistics in an explicit spatial context for the design of Protected Areas and a better understanding of the source, time, mode and tempo of insular endemic species evolution. Here, we present an initial comparison of species richness, conservation status, phylogenetic diversity and ethnobotanical diversity in a spatial context from the island of Socotra. A preliminary discussion of how differences between facets of biodiversity might influence conservation strategy is presented.

Keywords: evolutionary history, facets of biodiversity, Protected Areas, insular endemic species

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