
Interactions between non-native predators and human-induced ecological disturbance: implications for conservation of island biodiversity in the Mediterranean

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Abstract

The long-standing influence of humans in the Mediterranean has reshaped the function and composition of island ecosystems, through processes involving introductions, expansion and extinctions. The widespread introduction of non-native species and the provisioning of anthropogenic food subsidies to generalist species have both contributed to profound changes in the trophic structure of Mediterranean islands. Central to the issue of environmental conservation is the notion of synergetic interactions between various sources of threats. In this talk, I will first evaluate the long-term consequences of invasive black rat *Rattus rattus* impacts on the structure of Mediterranean island communities. I will then present evidence of interactions between black rats and human-derived non-native resources on Mediterranean islands. Data from a two-year rat population monitoring across different habitats showed that the population dynamics of rats inhabiting non-subsidised habitats varied with environmental fluctuation, whereas rats in habitats with anthropogenic subsidies maintained high population growth rates during both good and harsh years. These results, along with additional evidence from other island systems, suggest that the availability of anthropogenic resources on Mediterranean islands may reduce the variance of rat demographic parameters and help buffer the effects of environmental stochasticity. Greater recognition of the ecological complexities between major processes that threaten island-native Mediterranean biodiversity, and an evaluation of potential cascading impacts derived from these interactions, is required to both advance ecological theory and improve conservation actions and outcomes. I will end by discussing how various approaches to environmental management can be used to ameliorate invasive species impacts in the Mediterranean.

Keywords: invasive species, synergetic effects, population dynamics, island biodiversity, Mediterranean

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