
Functional Rarity of Four Major Taxas in Mainland France

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Abstract

Biodiversity has been the long focus of ecology. Less attention is generally devoted for rare species. Recently the idea of functional rarity of species, i.e., the rarity of their traits locally and regionally, has been proposed.

Conservation science traditionally focus on species that are rare in abundance but neglect species that are rare in terms of traits, while species with original traits may fulfill original functions locally and regionally.

We quantified the functional rarity of species and its relation to conservation measures (IUCN status, protected areas) across mainland France on four major taxa using field relevés: birds, herbs, trees and fishes.

Most species were geographically rare while functionally common for all taxa. Their regional and local trait rarity was highly correlated. Threatened species were functionally rarer on average than non-threatened species for all taxa. We pinpoint several functional rarity hotspots at the scale of France, where the concentration of functionally rare species was highest for all taxa.

These results suggest that better conservation measures could be taken for additional protection of functionally rare species. More research is needed to understand the origin and importance of functional rarity as a new facet of biodiversity.

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