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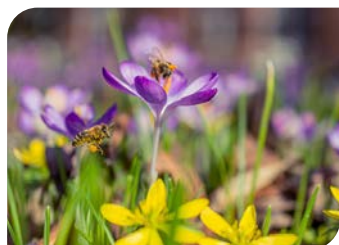
Causes and consequences of functional rarity from local to global scales

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Rarity has always fascinated conservation and evolutionary biologists with the goal to uncover species characteristics causing extinction risk. **Recently, some results suggest that rare species may over-contribute to the diversity of traits within communities thus supporting irreplaceable roles while others show that rare species are functionally redundant with common species.**

Beyond the rarity of species, the rarity of functions played by species, coined as functional rarity, is thus key to understand the impact of biodiversity decline on ecosystem functioning. However, functional rarity still lacks a clear definition and a quantitative framework while its emergence and maintenance within communities is largely unknown.

The aim of the **Free** working group is to advance the concept of functional rarity and examine the **causes and consequences of functional rarity from local to global scales**. We will first analyze the distribution of functional rarity in communities, regions, biomes and at a global scale using a cross-taxonomic group comparative approach (plants, microbes, mammals, birds, fishes) using an identified set of inter-operable databases. Next, we will explore the theoretical causes of the maintenance of functional rarity in communities using simulations. Finally, we will evaluate the theoretical consequences of functional rarity loss on ecosystem functioning and quantify them using a database of biodiversity-ecosystem functioning experiments in plants.

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CESAB (Centre for the Synthesis and Analysis of Biodiversity) is FRB's flagship program and an internationally renowned research center whose objective is to implement innovative work to synthesize and analyze existing data sets in biodiversity research.

