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CESAB
CENTRE FOR THE SYNTHESIS AND ANALYSIS OF BIODIVERSITY

RED-BIO

Dynamic resource landscapes, eco-evolutionary feedbacks and the emergence of meta-food webs

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Biodiversity and abiotic resource distribution are intrinsically intertwined. Resource distribution influences productivity and biodiversity, but animal movement also redistributes resources across landscapes. Meta-ecosystem theory integrates this dynamic feedback between biological communities and abiotic resources, but classically considers predefined fixed habitat patches. The assumption of fixed habitat patches, however, does not match well with patterns observed in natural food webs where mobile organisms of different trophic levels forage across contrasting spatial scales.

RED-BIO will synthesize principles from meta-foodweb and meta-ecosystem theory to develop an integrated modelling framework of food web dynamics in spatially explicit landscapes. Habitat patches will emerge from ecological and evolutionary feedbacks rather than being pre-defined and fixed. **The project will develop a spatially explicit extension of an eco-evolutionary body size-based niche model, to let the spatial and temporal heterogeneity emerge from animal movement, resource recycling, and eco-evolutionary feedbacks under global change.**

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