

Advances in Ecological Research Volume 52

Trait-Based Ecology - From Structure to Function

Ecology has traditionally used species diversity as a proxy for ecosystem health. Over the last decade or so however, ecologists have begun to move towards a more mechanistic and general framework for predicting ecosystem dynamics by shifting focus to the consequences of trait diversity on coupled ecological and evolutionary population dynamics. Indeed, it is now well-accepted that ecological and evolutionary timescales often overlap, and that understanding the effects of trait variation is paramount for unraveling how evolutionary processes affect ecological dynamics and vice-versa, ultimately shaping ecosystem dynamics. Nevertheless, trait variation is fundamentally an individual- and population level phenomenon, and an integrated understanding of how trait variation scales from individuals to communities and ecosystems is still very much a work in progress. This *Advances in Ecological Research* volume brings together a set of research papers at different levels of biological organization that push the boundaries of our current knowledge of trait-based biology, presenting novel insights and identifying promising avenues of future research.

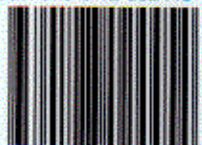
Cover image: Two common predator avoidance traits are aposematic contrasting colouration versus camouflage, as seen here in two frog species: Blue poison dart frog (*Dendrobates tinctorius "azureus"*) (left panel, credit: Michael Gähler) and the Leopard frog (*Lithobates pipiens*) (right panel, credit: Sreejith K).



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