EEB SEMINAR SERIES 2017 - 2018

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When life history matters: Somatic maintenance costs and juvenile-adult stage-structure jointly overturn ecological rules-of-thumb

Tuesday, April 24, 2018 - 11:00 a.m.
Salle Favard - IBENS - 46 rue d'Ulm - 75005 Paris

Ecological theory about the dynamics of interacting populations is mainly based on unstructured models that account for species abundances only. In turn, these models constitute the basis for our understanding of the functioning of ecological communities and ecosystems and their responses to environmental change, natural disturbances and human impacts. Structured models that take into account differences between individuals in age, stage or size have been shown to sometimes make predictions that run counter to the predictions of unstructured analogues. It is however unclear which biological mechanisms that are accounted for in the structured models give rise to these contrasting predictions. I will show how the addition of two ingredients of individual life history, the energetic requirements to cover maintenance costs to stay alive and differences between juveniles and adults in their energetic efficiency, jointly overturn some of the most basic theoretical predictions regarding population dynamics and community structure. I will illustrate the importance of these insights with data from freshwater and marine fish communities.

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