Life history evolution in metapopulations

Ophelie Ronce*[1]

[1]Institut des Sciences de l'Evolution UMR5554 (ISEM) – CNRS : UMR5554 – CC 65 Université Montpellier 2 Place Eugène Bataillon 34095 Montpellier cedex 05, France

Abstract

I will explore how ecology matters for evolution using Life History theory from a metapopulation perspective. Life history theory deals with the evolution of those traits that shape an organism's age schedules of birth and death. Life history evolution is a very productive field organized around a few central questions with a very strong unifying theoretical background, grounded in both optimization principles and quantitative genetics. The realm of most studies of life history theory is however that of a single, large, undisturbed and spatially homogenous population. Despite increasing awareness of the importance of metapopulation structure and dynamics for the demography, genetics and conservation of many species, little is still understood about how much these characteristics have shaped basic life histories. Founding events and small local population size in a metapopulation are two causes of genetic resemblance among neighbours exploiting the same local environment. I will illustrate how this genetic structure makes life history evolution in a metapopulation deviate from that expected in a single large panmictic population. Changes in population age structure and density following disturbance and recolonization are major features of life in a metapopulation. Species whose biology is most adequately described using the metapopulation framework also often occur in habitats subject to successional changes. Such variation in selection pressures associated with colonization and succession have deep implications for life history evolution.

*Speaker