
Changes in thermal conditions: their influences on individual dispersal abilities and the consequences for functional connectivity

Thomas Delattre*¹

¹INRA (INRA PSH) – Institut national de la recherche agronomique (INRA) – France

Abstract

An ecologist's understanding of Aesop's fable "The Tortoise and the Hare" could be quite different from its traditional interpretation. In the story, the better disperser - the tortoise - is the one that spent more time moving, even if the hare's intrinsic movement abilities were higher. But the tortoise is actually a poikilotherm, whose metabolism is severely constrained by thermal conditions. Indeed, in actively moving poikilotherms, an individual's movement efficiency, the time he spends moving and his decision to disperse may be strongly influenced by local thermal conditions. As a consequence, the functional connectivity of a given landscape could vary under contrasted meteorological conditions. After a summary of empirical evidences of direct effects of temperature on the different phases of dispersal, we use a curricular model to explore the potential consequence of this mechanism for functional connectivity. Finally, we explore some predictions that may provide interesting perspectives to the research in landscape ecology under climate changes.

Keywords: dispersal, climate, landscape

*Speaker