BIOLOGIE DES ORGANISMES ET DES POPULATIONS

M1 bop - 2012-2013
Proposition de stage

Encadrement :

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Titre du stage :

Experimental study of movement and dispersal under climate change and habitat degradation in *Tetrahymena thermophila* microcosms

Mots clés :

Movement, dispersal, environmental heterogeneity, microcosm

Résumé (150 mots maximum) :

Movement is a very essential feature of life and involved in many ecological processes such as predation, foraging or mate search. The importance of individual movement was strikingly demonstrated in the framework of metapopulation and -community theory. Due to the detrimental effects of climate change, which forces organisms to either adapt *in situ* or move to conditions, where persistence is not at stake, the relevance of movement even increased.

Under field conditions individual movement is notoriously hard to follow. Therefore, we study the vital role of movement under climate change and habitat degradation using *Tetrahymena thermophila* microcosms. *Tetrahymena* is a single-celled eukaryote belonging to the ciliates, which is cultured under controlled environmental conditions in the lab. To simulate global change drivers as climate change and habitat degradation, we will expose populations to varying temperature and nutrient availability regimes. Subsequently, we study how population-level phenomena such as dispersal as well as individual-level properties such as single cell trajectories are quantitatively affected by changing environmental conditions.

Deux références bibliographiques:

Clobert, J., Le Galliard, J.F., Cote, J., Meylan, S. & Massot, M. (2009) Informed dispersal, heterogeneity in animal dispersal syndromes and the dynamics of spatially structured populations. *Ecology Letters*, **12**, 197

Fjerdingstad, E.J., Schtickzelle, N., Manhes, P., Gutierrez, A. & Clobert, J. (2007) Evolution of dispersal and life history strategies – *Tetrahymena* ciliates. *BMC Evolutionary Biology*, 7, 133

Techniques mises en œuvre:

Cell culture, digital image and video analysis, trajectory analysis

Compétences particulières exigées:

Familiarity with working in a laboratory environment.

Communication in English ; l'occasion de parfaire votre communication dans une université francophone où la langue de travail est l'Anglais.