

Endophytic symbiosis fine-tunes the persistence strategy of its alpine host grass in response to edaphic resource levels

Anaïs Gibert, Daniele Magda, Laurent Hazard

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Présentations orales

Session 1

10:00-10:20 Anaïs GIBERT - "Endophytic symbiosis fine-tunes the persistence strategy of its alpine host grass in response to edaphic resource levels"

Anaïs GIBERT, Danièle MAGDA and Laurent HAZARD

GIBERT Anaïs anais.gibert@gmail.com

INRA-UMR 12-48 AGIR, Chemin de Borde Rouge 31320 Castanet Tolosan, FRANCE

An understanding of hereditary endophytic symbioses, and the affects on grass persistence strategies (i.e., relative investment in sexual reproduction and vegetative growth) is required to predict how some alpine ecosystems will respond to environmental change. Because endophyte persistence depends on the host plant species strategy, we tested the hypothesis that an integrated reciprocal relationship exists, where the symbiosis affects a persistence strategy in the grass species to increase fungus persistence in the plant population. We compared persistence strategies of symbiotic and non-symbiotic *Festuca eskia* (Poaceae), an alpine grass infected by the asexual form of the fungal endophyte *Epichloë festucae*. We characterised endophyte transmission efficiency, and described vegetative growth and sexual reproduction of Symbiotic (S) and Non-symbiotic (NS) plants in a *F. eskia* natural population that harbours naturally approximately 50% S plants. We built a demographic model to estimate plant vegetative

growth rates. Correlation between plant and fungal persistence strategy was evaluated by increasing edaphic resource levels. Compared to NS plants, S plants exhibited similar reproductive output, but increased vegetative growth, suggesting a fitness advantage of S relative to NS plants under natural conditions. However, no conclusion can be drawn regarding endophyte effects on plant fitness under resource addition; increasing resource levels increased S plant reproductive output at the expense of vegetative growth and induced a shifted in S plant flowering time. Clearly, results indicated S plants are more plastic in persistence strategies than NS plants; and plant resource availability elicited plasticity. Endophyte transmission rates, which were higher from tiller to tiller (92%) than tiller to seed (57%), were not affected by resource levels. Therefore, the fungal endophyte does not modify the host persistence strategy to maximise spreading among individuals within the population.

10:20-10:40 Nadège BONNOT - " Effets des activités humaines sur l'utilisation de l'habitat par les chevreuils"

Nadège BONNOT, Nicolas MORELLET, Mark HEWISON et Hélène VERHEYDEN

BONNOT Nadège bonnot.nadege@gmail.com

INRA- CEFS 24 chemin de Borde-Rouge, 31326 CASTANET-TOLOSAN

Les risques liés à la prédation peuvent avoir, en plus des effets directs létaux, des effets indirects (non-létaux) sur les populations. La reconnaissance de l'importance de ces effets non-létaux sur la faune sauvage a donné naissance au concept de « l'écologie de la peur » (Brown 1999), qui traite des réponses comportementales des proies face aux stress causés par les prédateurs et des conséquences de ces stress en termes de valeur adaptative. Dans

ce contexte, le paysage de la peur (Brown 1999, Laundré 2001), prédit que le niveau de risque modifie l'utilisation de l'espace par les proies ainsi que leur comportement alimentaire. Les dérangements anthropiques peuvent affecter les individus d'une population en modifiant leur comportement et leurs mouvements dans l'espace, ce qui peut entraîner des changements de la taille du domaine vital, dans la sélection de domaine refuge ou encore dans l'utilisation des