Session : Structures **paysagères** et dynamiques de la **biodiversité**

Title : Investigating the relationship between ecotone dynamics and local biodiversity in agricultural landscapes

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Abstract :

The transition zones between two landscapes, named ecotones, are known to be biodiversity hotspots as they may host the communities of both biotopes as well as the potential species needing access to both biotopes (Fahrig et al. 2011). Because of this, the relationship between ecotones and biodiversity is already well described (Kark 2017). However, the dynamic dimension of these key landscape elements is not taken into account by current research, even though landscape temporal change has been documented to partially drive biodiversity (Lecoq et al. 2021). Depending on multiple factors (land use, climate change, extreme events frequency, etc.), ecotones may be stable or unstable which could affect biodiversity, modulating the 'ecotones - biodiversity' relationship.

The ECOTONES project (FEDER-REGION LABEL ECOTONES) aims at investigating the relationship between biodiversity and the dynamics of ecotones and their surrounding landscapes, targeting the interface of forests, “bocage” and intensive crop farming in Normandy. Aerial photographs from 1947 coupled with current land use databases allowed us to select 18 'forest - culture' ecotones with contrasted temporal trajectories of landscape configuration and composition. We sampled multiple taxa at these sites during spring and summer 2025, including plants, pollinators, birds and bats. This was achieved by leaving one passive acoustic monitoring device at each site to detect bats and birds, and by observing plants and pollinators along ten 50-meter hedgerow sections for each ecotone.

We detected important variation among the sampled sites. For instance, plant species richness varied twofold, ranging from 72 to 135 plant species per ecotone. Further data analysis will provide insights into the possible moderation of expected 'ecotones - biodiversity' relationships by ecotone past dynamics, thereby informing landscape management and conservation policies.

Bibliography :

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