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Predicting changes in wetland vegetation by 2100 in the context of climate change: the case of the brière marshes (France, Loire-Atlantique)

Coastal freshwater wetlands are under threat from the effects of climate change. As one of France's nationally important wetlands, the Brière marshes represent a considerable biodiversity reserve for flora and fauna. In recent years, however, changes have been observed in the composition of plant communities, associated with more marked climatic variations. Local stakeholders would like to have an overview of the landscape mosaics between now and 2100 as a function of management results and climatic factors. After first identifying the climatic factors that regulate a wetland, the regional climate indicators for a +3°C world were broken down (changes in rainfall patterns, temperature increases) in order to build a climate model for the Brière in 2100. The effects of rising sea levels and the risk of salinisation of coastal wetlands are also assessed as related effects of climate change. Then, on the basis of a habitat map drawn up during the course of the thesis, a matrix of transitions is drawn up, with two main families of scenarios: salinisation of the marshes associated with the maintenance of economic activities, and on the other hand a fight against marine intrusions associated or not with the maintenance of agricultural and tourism activities. Mappings of landscape recompositions are proposed, with overviews of the new species that could move and those that would not survive. Particular attention is paid to invasive exotic species, which are very present in this marsh. This approach should enable local managers to anticipate current decisions and future changes.

Biography

Thomas Lafitte is a PhD candidate in fourth year of PhD CIFRE studentship funding co-financed by ANRT (national research-technology association) and the European Regional Development Fund (ERDF) with the french natural regional Park of Brière.