

Biodiversity in a changing environment: predicting spatio-temporal dynamics of vegetation

Project manager	prof.dr. Rien Aerts, dr. Peter van Bodegom		
Institute	VU University Amsterdam, Institute for Ecological Science		
Email	Rien.Aerts@ecology.falw.vu.nl / peter.van.bodegom@ecology.falw.vu.nl		
Consortium	VU University Amsterdam, Institute for Ecological Science Wageningen UR, Alterra MNP KIWA Water Research		
Project website			
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Context / Social problem

In a world heavily influenced by climate change and other human interventions, knowledge of the responses to these changes by ecosystems is essential for making correct estimates of their impacts. Predictive models do not yet exist for vegetation responses, whereas such models are important for the development of national policies that cater for and anticipate the changes.

What do we know/not know?

In the past, various models have been developed to predict vegetation composition from the relations with environmental factors. Many of the current models, however, are either based on empirical relations that will probably not remain valid under climate change, or have many input parameters which are not readily available on a national scale. As a compromise between empiricism and predictability on the one hand and data availability on a large scale on the other hand, we are explicitly incorporating those plant characteristics that can be directly linked to environmental factors. This avoids having to make predictions at the level of individual plant species, which would be impossible at the national scale, while retaining the link with processes. Such models did not exist at the start of the project.

What is being studied?

This project aims to develop a set of models based on plant characteristics that can be used in various climate scenarios. The set of models can be applied on a national scale and linked to existing national models at MNP to:

1. Identify biodiversity hotspots
2. Develop an early warning system for climate change, and
3. Achieve optimal spatial planning for biodiversity conservation

What are the results, and who are they for?

National maps are being developed showing the probability of the presence of certain vegetation types under different climate scenarios. Hotspots and expected changes can be identified by comparing these maps with the probabilities of these vegetation types in the present situation. Collaboration with MNP in the consortium will ensure that the results can be efficiently translated into national policy.

