

Science for Environment Policy

Can the Dutch National Ecological Network meet its goals?

Ecological networks connect areas of habitat to prevent biodiversity loss and have been established across Europe. The ambitious Dutch National Ecological Network aims to span 728 500 hectares by 2025. In this study, researchers explored the feasibility of this goal in the context of climate and policy changes.

Biodiversity loss continues worldwide. Ecological networks aim to halt this process by conserving nature, maintaining ecosystem function and services, and promoting the sustainable use of natural resources. They connect animal and plant populations, thereby decreasing extinction risk. By allowing different populations to exchange genes, ecological networks also increase genetic variation and therefore the ability of populations to respond to environmental change. Several EU Member States have committed to implementing their own national ecological networks (NENs), including Bulgaria, Croatia, Germany, Hungary and the Netherlands.

Designed in the 1990s, the Dutch NEN aims to span 728 500 hectares by 2025. When first launched, public and political support for the Dutch NEN was high and, because the economic outlook for farming was poor, many farmers were willing to sell their land for nature conservation purposes. In the years following however, public support dwindled and the economic prospects for farmers improved. In addition, the national government body responsible for NEN implementation was abolished and associated budgets were cut, leaving provinces to decide for themselves how best to meet NEN targets. Together, these factors have led many to question the feasibility of the implementation of the NEN.

To answer this concern, this study investigated the outlook for the NEN in the context of global change, such as variability in climate and the economy, and policy reform, represented by the loss of the government body responsible for NEN implementation. To do so, the authors applied agent-based modelling, a method that simulates the actions and interactions of autonomous agents (i.e. people and organisations) to see how they affect an entire system (i.e. the NEN and surrounding agricultural land). This particular model, called the Rural Land Exchange model, simulated sales and purchases of land among and between farmers and nature conservation organisations in a case study area in Gelderland, the largest province in the Netherlands.

The model simulated land exchange from 2010–2025, the years in which Gelderland aims to implement their part of the NEN. Simulations were carried out under two contrasting socio-economic scenarios and two corresponding climate change scenarios.

The results suggest that only a portion of the NEN area that remains to be implemented can be realised in the next 10 years, largely due to limited land exchange. The researchers list several reasons for this: budget limitations, increased competition for land between farmers with improving economic prospects, loss of land-selling farms, and a reluctance to pay high prices for land by nature conservation organisations. The most important factor however was the abolition of the organisation that previously organised land trade. The loss of this government body not only reduced land acquisition but also led to more fragmented pattern of areas to be restored, which may limit their conservation power. The authors recommend the swift re-establishment of a nationwide body to organise land trades, supported by a land bank, to achieve the network's goals.



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