

Colonization of forests in the Dutch IJsselmeerpolders by understorey plant species

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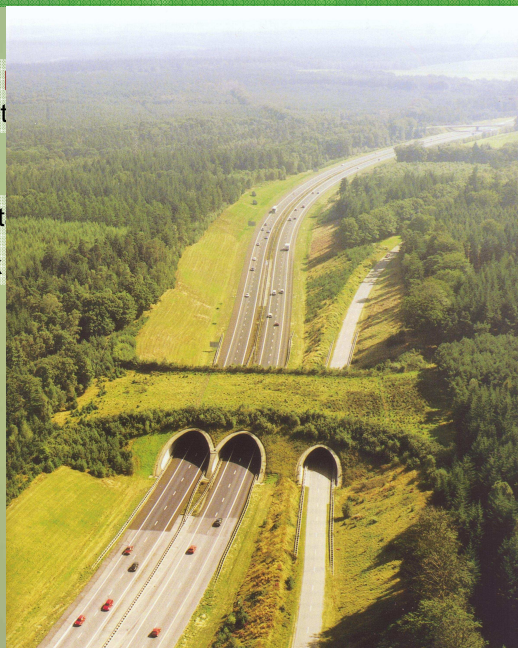
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Introduction

NEN: National
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Introduction

NEN: National **E**cological **N**etwork

Increasing spatial cohesion of nature areas in The Netherlands.

- What will happen to the distribution of plant species in a changing environment (due to climate change)?
- Is it necessary to adjust the design of the NEN for species to be able to move to stay in their suitable habitat?

Introduction

Focus on important processes determining species distributions and species composition

→ Colonization and extinction

Project consists of 4 different case studies

→ Colonization of plant species in the 'new' land

Introduction

The Dutch polders (land reclaimed from the sea):

Unique area to study colonization processes from source populations to a new area.

- land recently reclaimed from the sea
- 'zero' situation is clear
- focus on forest species

Introduction

How fast do plant species colonize the new land and how fast do they move through the landscape?

Which factors determine the colonization rate?

- Distance to main land, distance to nearest source population
- Patch age, patch size
- Plant traits
 - Dispersal mode
 - Seed production
 - Longevity (seedbank)

Study area



- Reclaimed in 1942
- Forests planted from 1950 - 1975

- Reclaimed in 1957
- Forests planted from 1963 - 1977

- Reclaimed in 1968
- Forests planted from 1974 - 1993







start situation: just after reclamation....



First spontaneous plant species:
Marsh fleawort (*Tephrosia palustris*)



First sown (from airplanes) plant species:
Common reed (*Phragmites australis*)



Het oogsten van riet, dat straks voor dekriet, de fabricage van karton en andere doeleinden zal worden bestemd.



Land cultivation



De koolplantmachine in bedrijf.



Boomkwekerij aan de Eettenlandseweg, alwaar het plantmateriaal voor de Noordoostpolder wordt gekweekt.

Tree nursery for the forests in the new polders



Methodology

Fieldwork:

Forests in Noordoostpolder and Oostelijk Flevoland surveyed in 1993

- repetition of species inventarisation in these forests in 2006
 - walking through the forests
 - recording all species in understorey
 - abundance estimation following Tansley scale

Forests in southern Flevoland (youngest polder) surveyed in june 2007

- to complete overview of the area



Methodology

Analyses: (Starting soon!)

Comparison data 1993 and 2006

- how did the species pool change?
- relating species distribution to forest and landscape parameters