

# The impact of floodplain sedimentation on vegetation; quantifying nutrient input

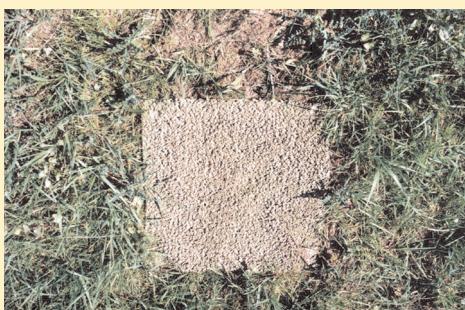
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*The Dommel, location the Dommelbeemden*



*Sedimentation on the levee of the Dommel*



*Traps for collecting sediments during flooding*



*The location of the research sites in the Netherlands*

## Background

Expected climate change leading to increased peak discharges in Western European drainage networks may cause serious problems in the near future. In order to limit the risk of uncontrolled flooding, policy makers in the Netherlands are looking for possibilities of water retention. Physical environments considered for water retention include brook valleys and fen systems. Water retention in combination with nature development in these environments is not in all situations successful and without any risk for the vegetation. Especially vegetation in nutrient-poor conditions will have considerable harm from flooding with nutrient-rich water. Quantitatively, however, the input of nutrients N, P and K by flooding is largely unknown.

## Objective

Research questions:

1. What is the input of nutrients by sedimentation along a vegetation gradient from the brook channel to the floodplain margin?
2. Is the input of nutrients from sediments comparable to the input from floodwater, atmospheric deposition, mineralisation and groundwater?

## Sites and methods

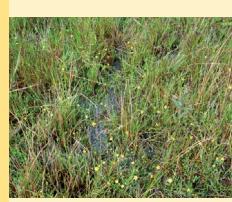
Five research sites were selected in four brook valley systems in the Netherlands: the Dommel, the Drentse Aa, The Reest and the Overijsselse Vecht. Sediment traps were placed along gradients of the vegetation across the levee and floodbasin to the floodplain margin. After flooding, the traps will be collected and the trapped sediment will be analysed on: (1) quantity, (2) texture, (3) content of N, P and K. Spatial patterns of these variables in relation to floodplain geomorphology are of special interest. To characterise the soil and vegetation, an inventory of both is included in the research. Results of the research are expected by the end of 2004.



*High-productive reedland*



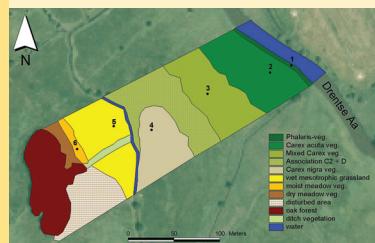
*High-productive sedges*



*Medium-productive sedges (photo: W. Wamelink)*



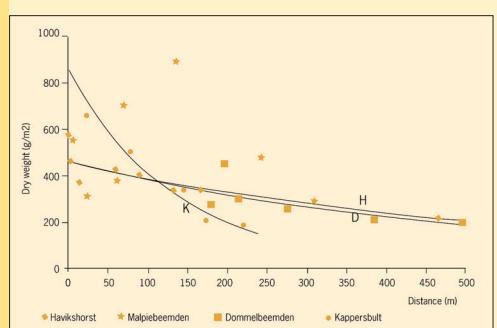
*Low-productive grassland (photo: W. Wamelink)*



*Vegetation map of the Kappersbult area*



*Positioning the sediment traps*



*The biomassproduction of the vegetation along a gradient from the brook to the valley margin*