

ENDURE: ENSuring DUne REsilience

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De context

- Twee-Zeeën gebied:
 - Stijging zeespiegel (2–4 mm/jaar)
 - Verlies land (15 km²/jaar)
 - Stijging frequentie stormen
 - Overstromingsgevaar tot x100
- Impact op 70 miljoen mensen
- 1000 miljard € eigendom bevinden zich in de eerste 500 m van de kustlijn



Oplossingen

‘Harde’ infrastructuur:

- Weinig flexibiliteit, statisch
- Duur om te (her)bouwen
- Weinig extra voordelen (behalve makkelijk wandelen)

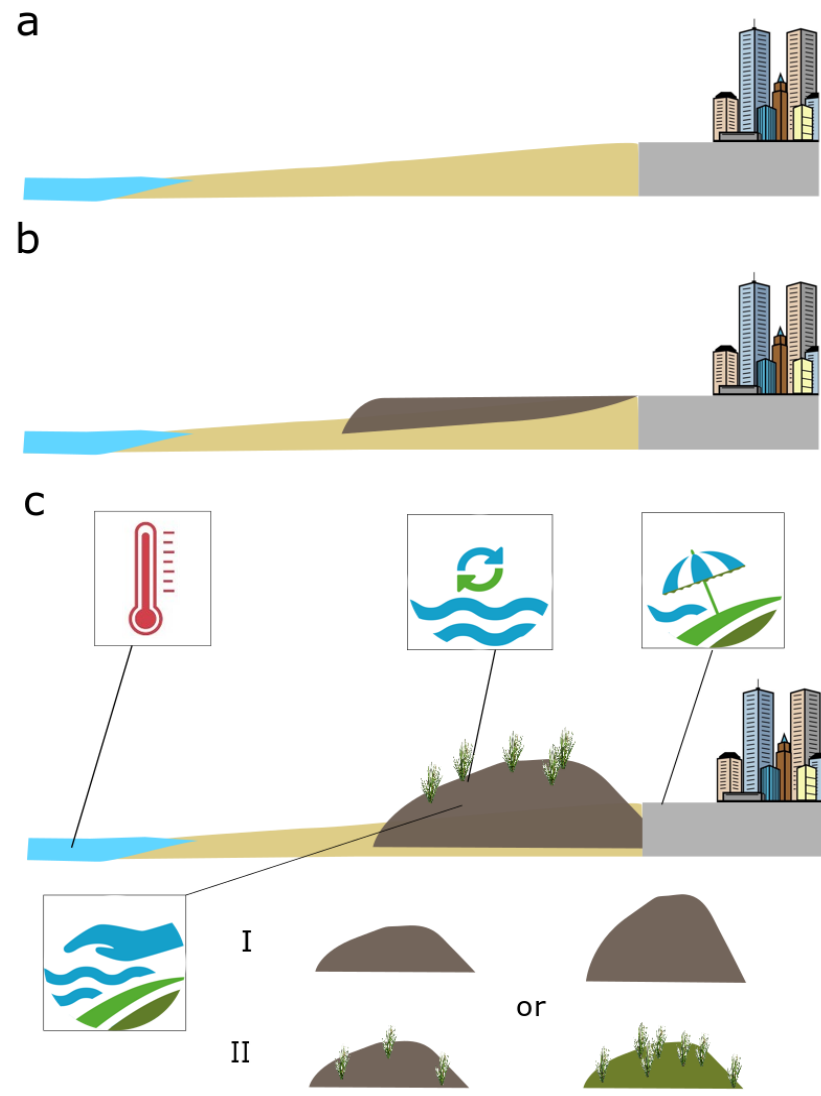


‘Zachte’ infrastructuur – building with nature/dunes:

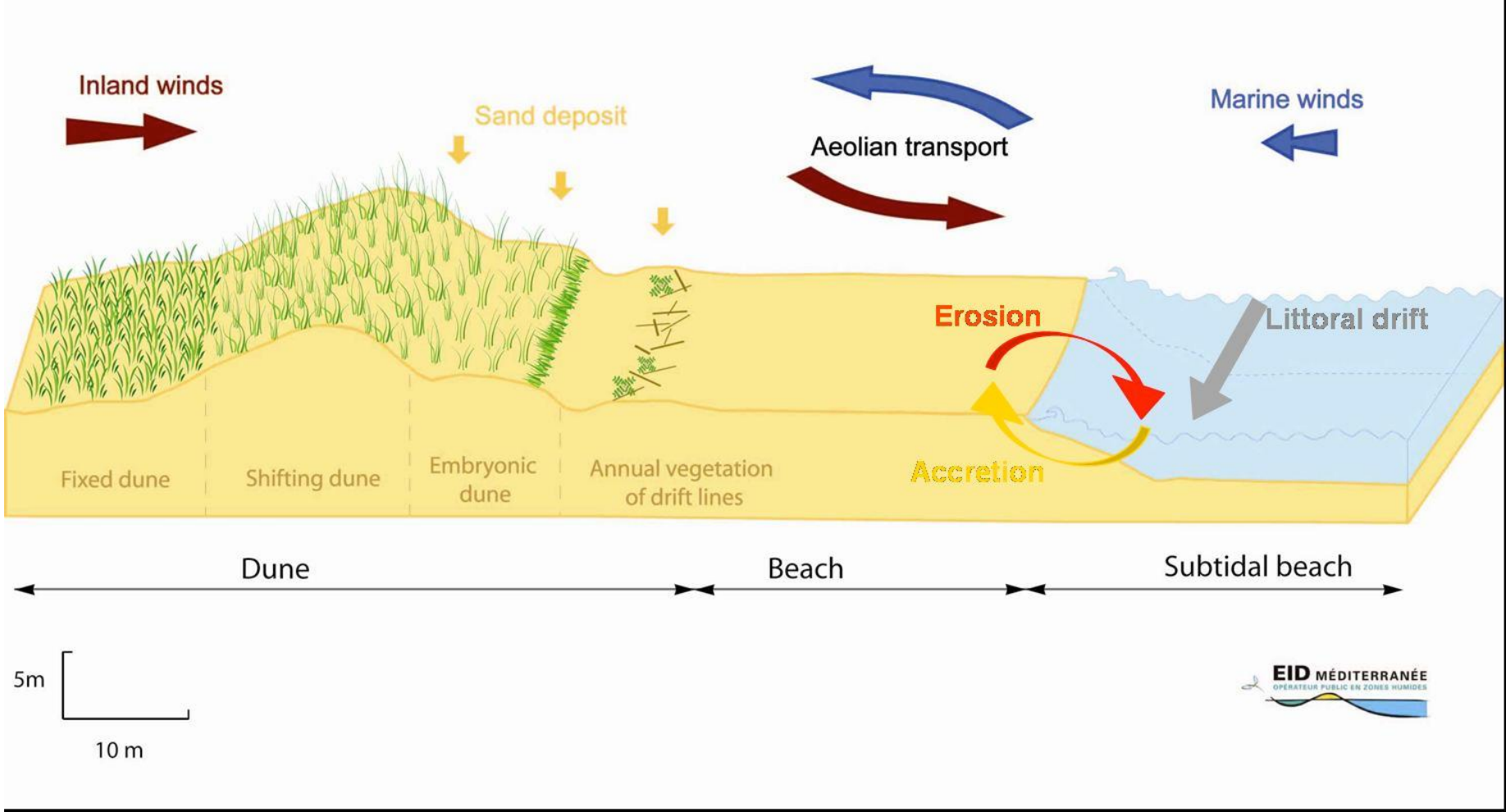
- Flexibel, zelfregulerend
- Goedkoop
- Multifunctioneel



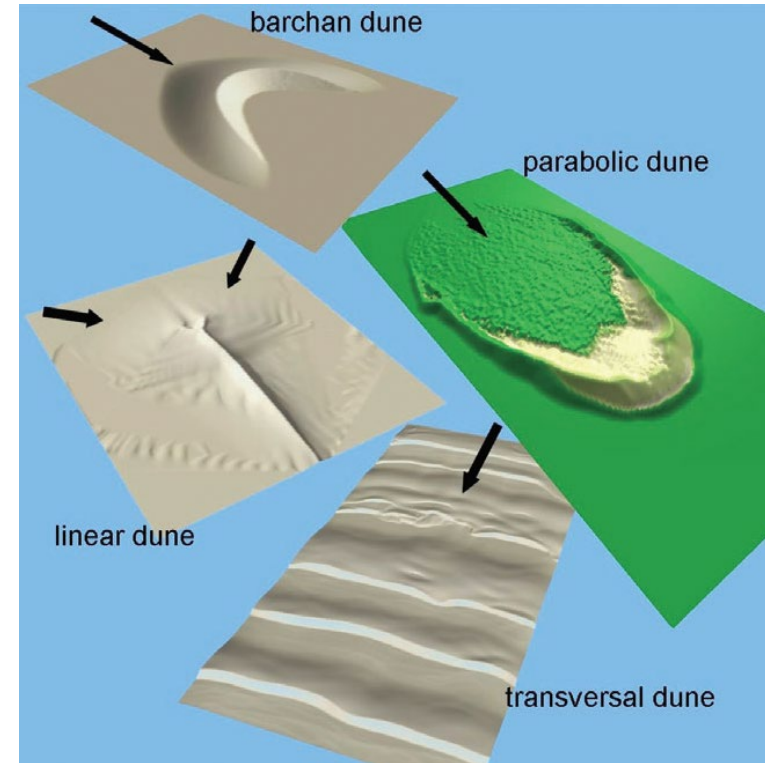
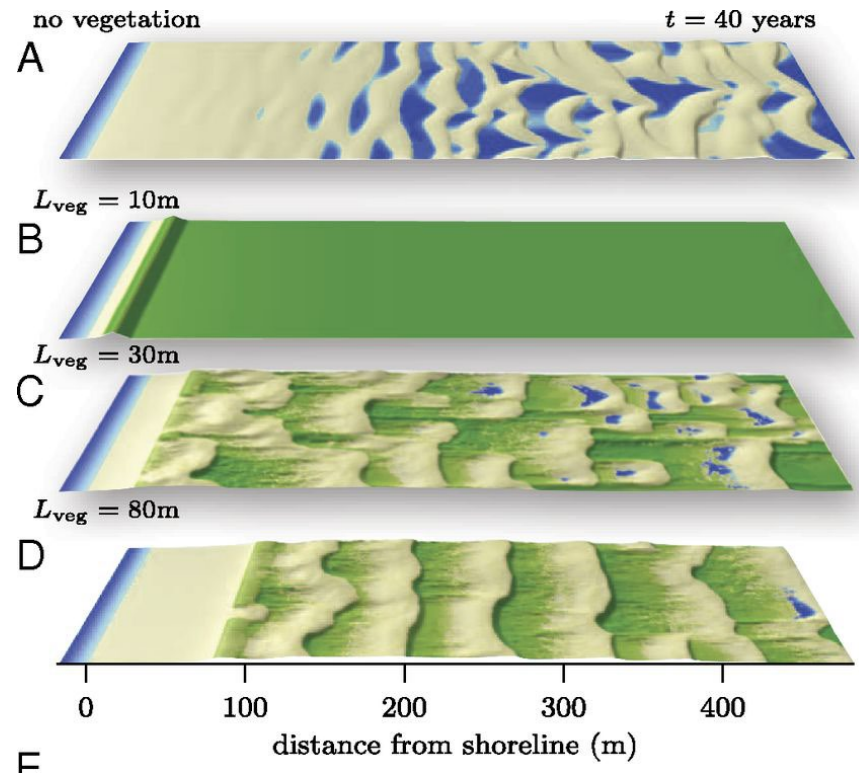
Duin voor dijk principe – building with nature



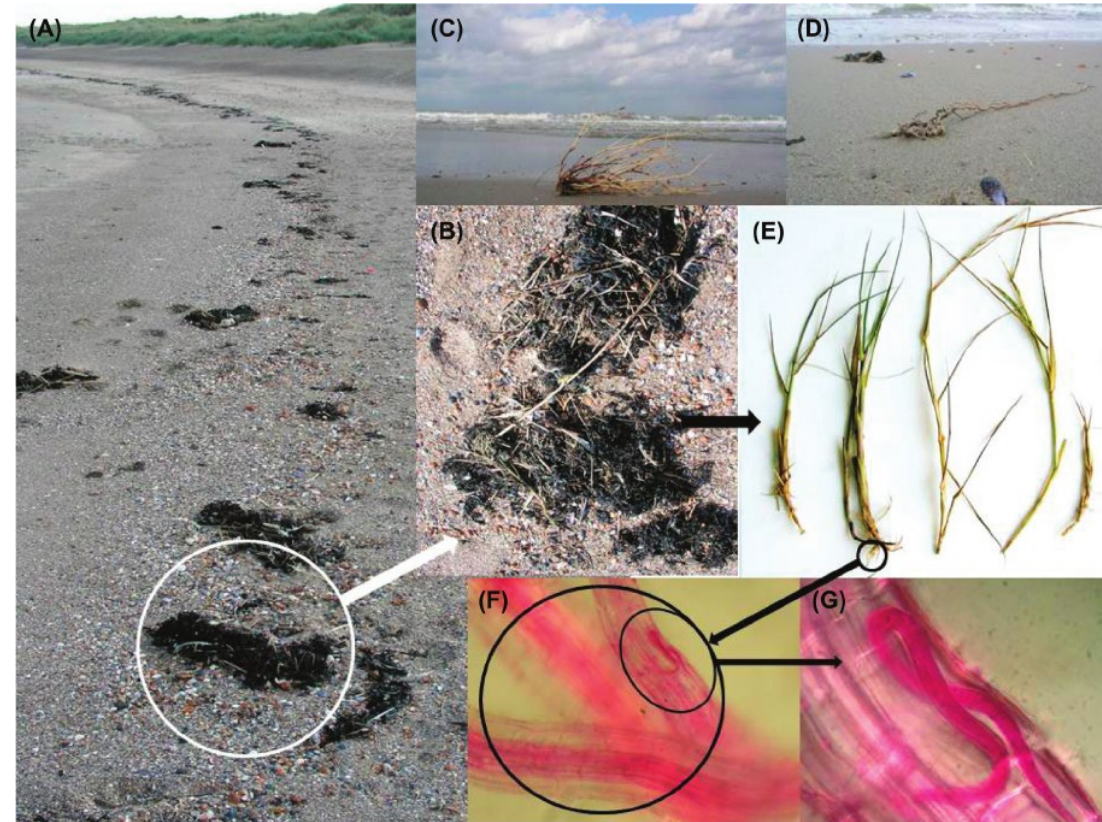
Duinontwikkeling: zandaanwas



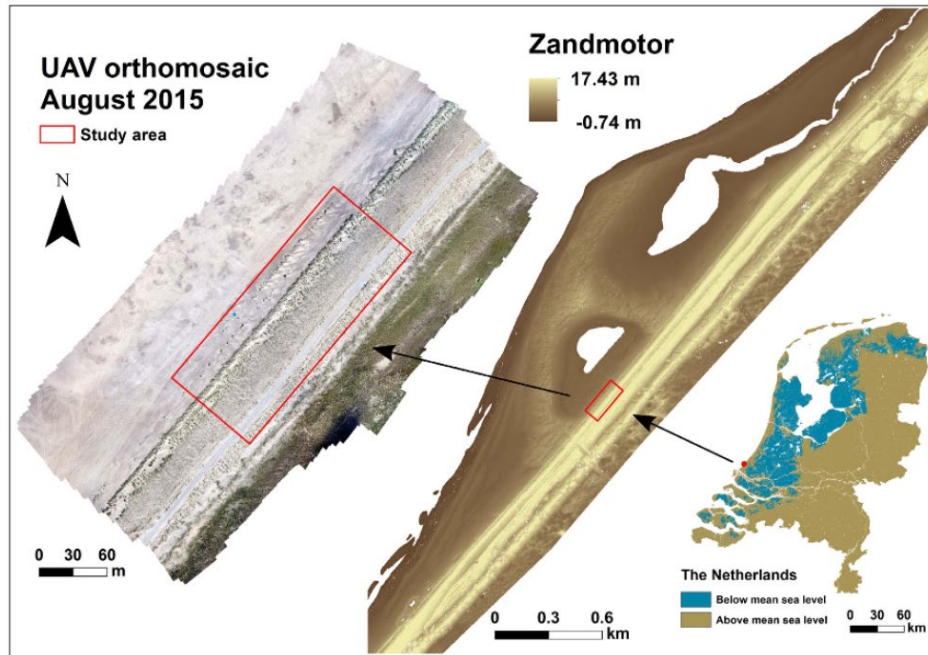
Statische benadering van vegetatie



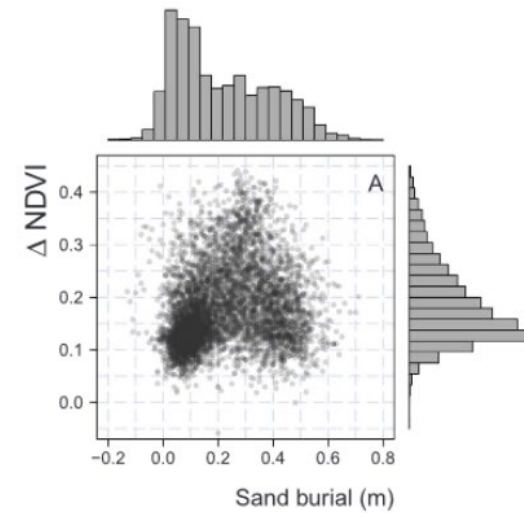
Helm gras als natuurlijke ingenieur



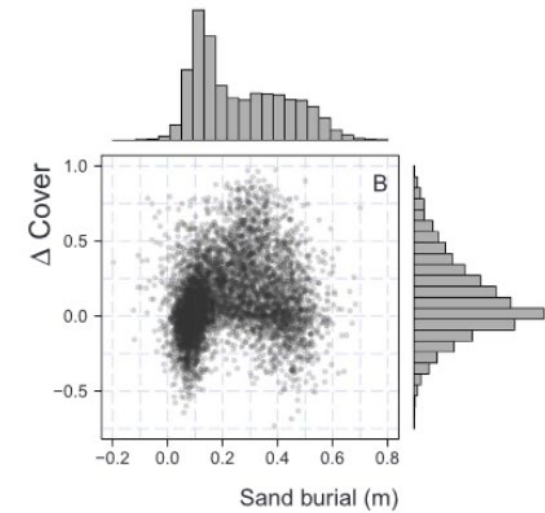
Groeit met het zand



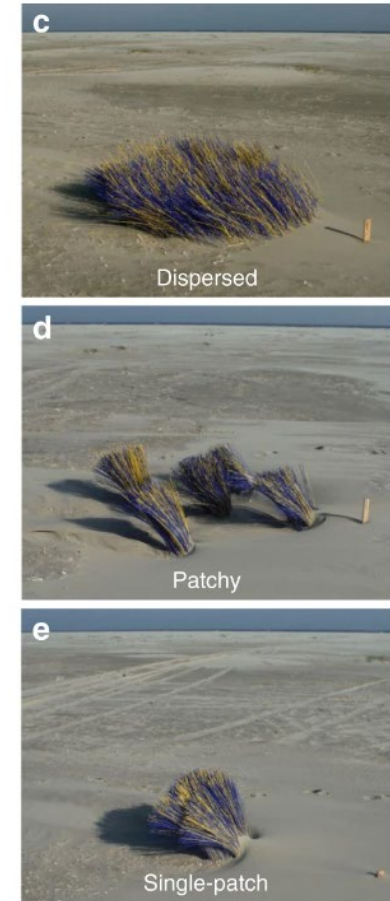
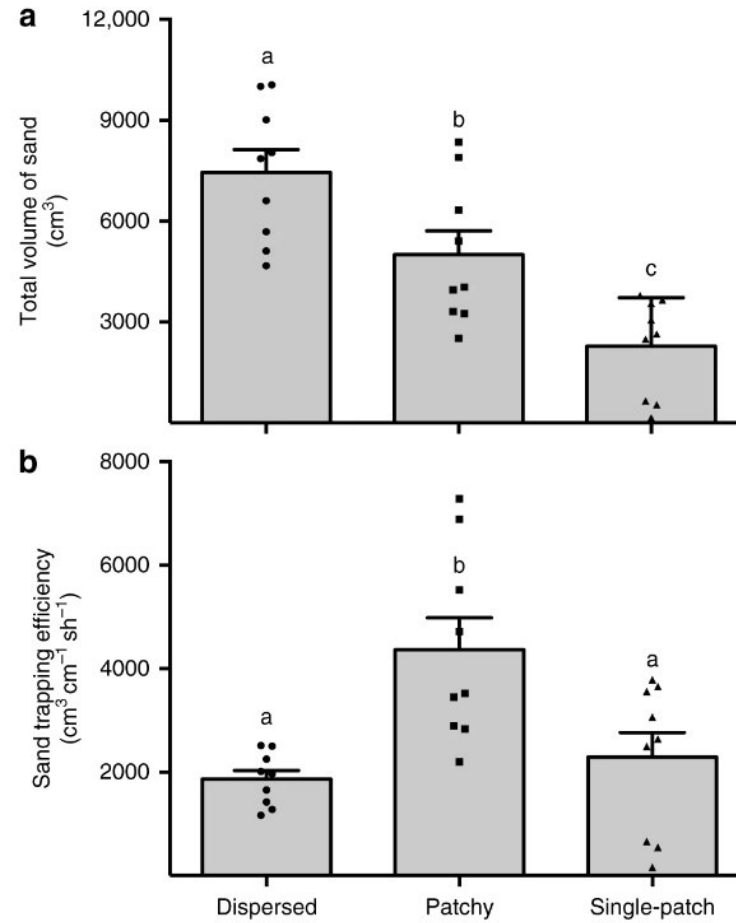
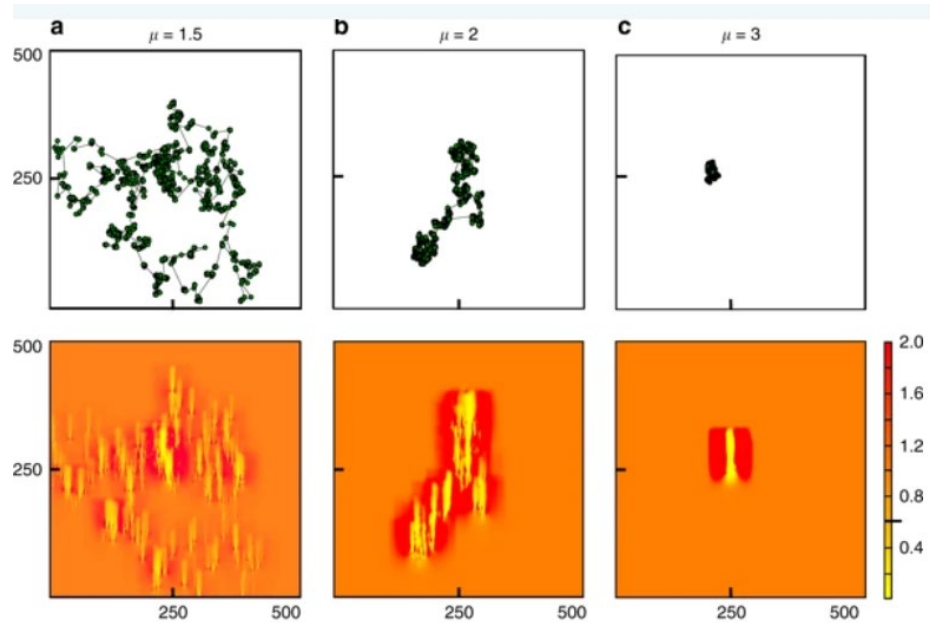
Response of NDVI



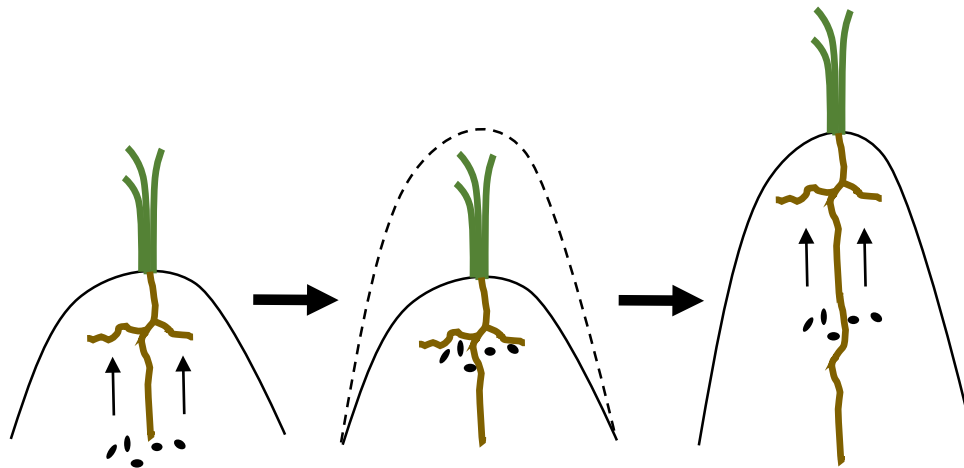
Response of Cover



Also lateral growth



Helm gras – ecologische feedbacks



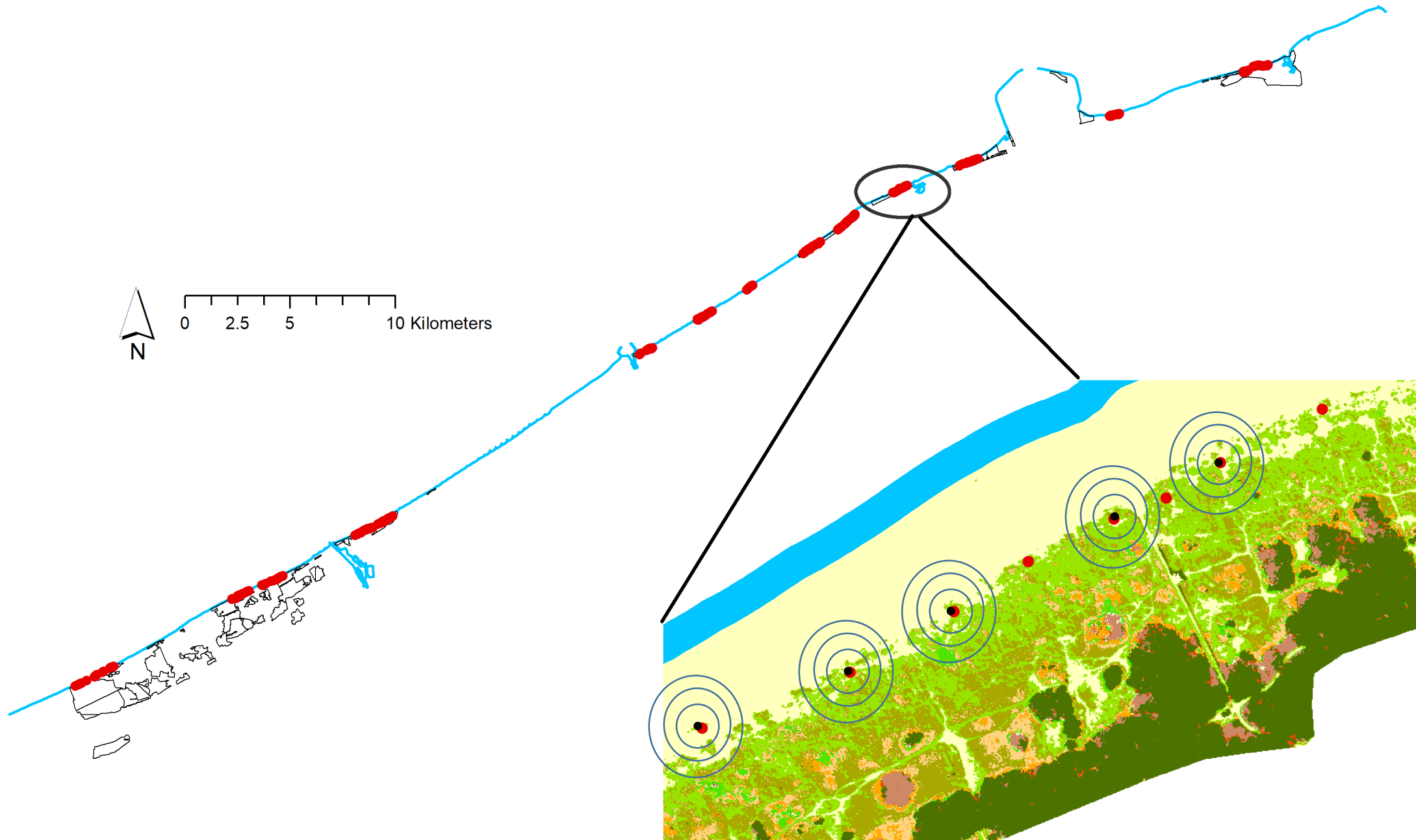


42 000 nematoden geteld

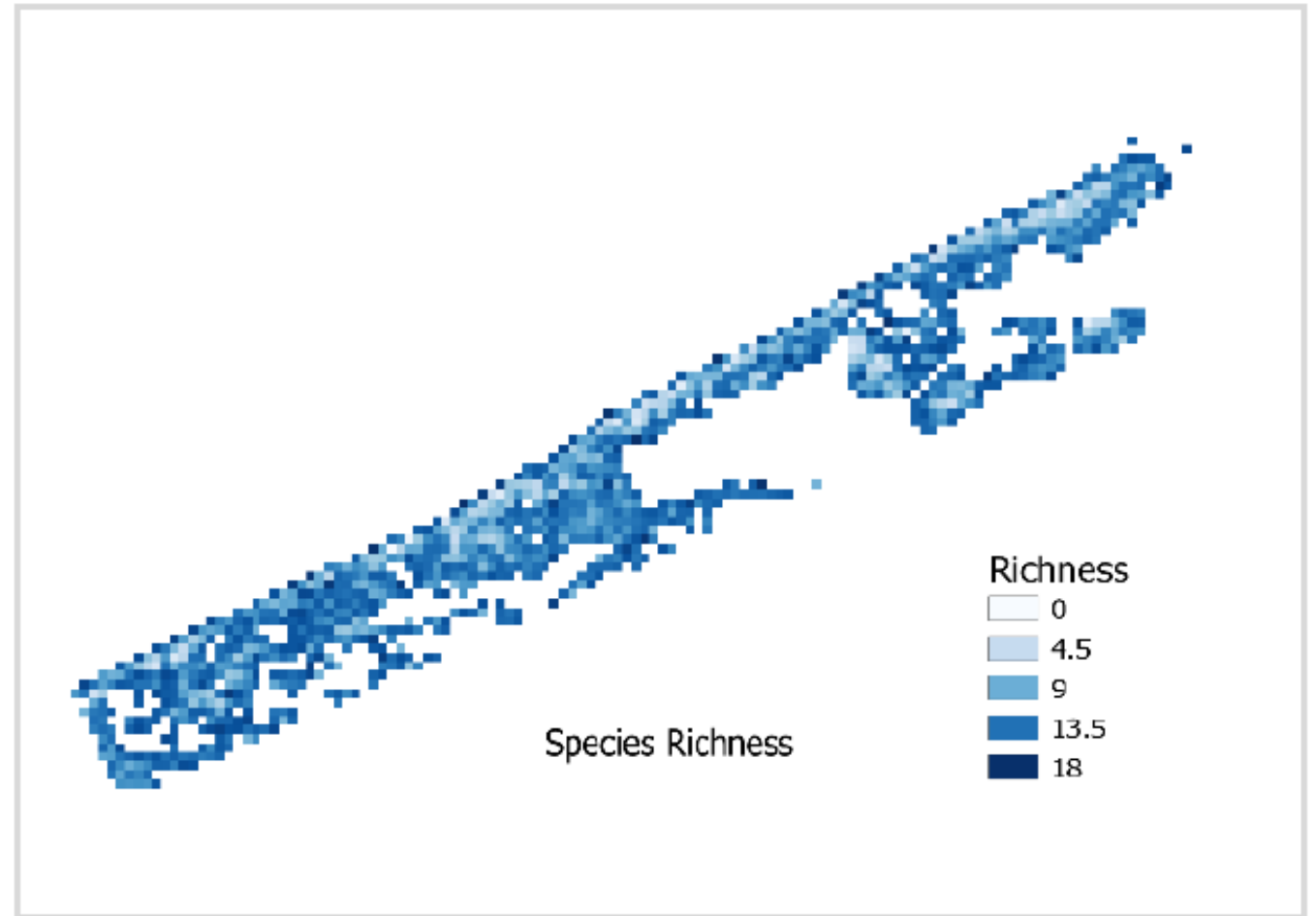
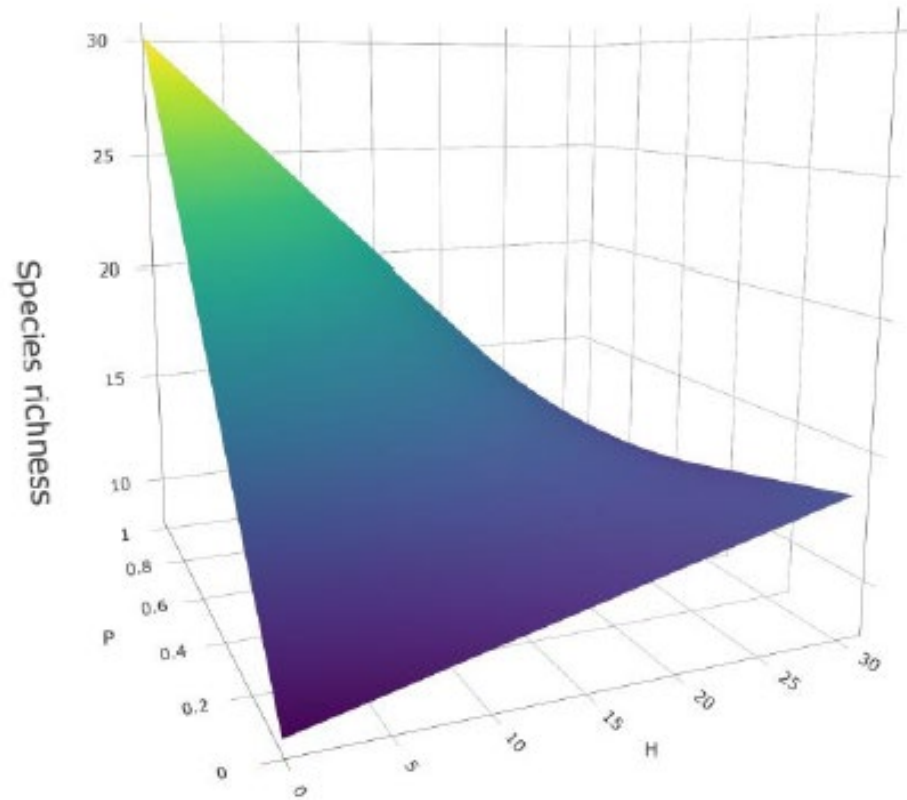
Bovengronds voedselweg

4150 ongeveerwelden

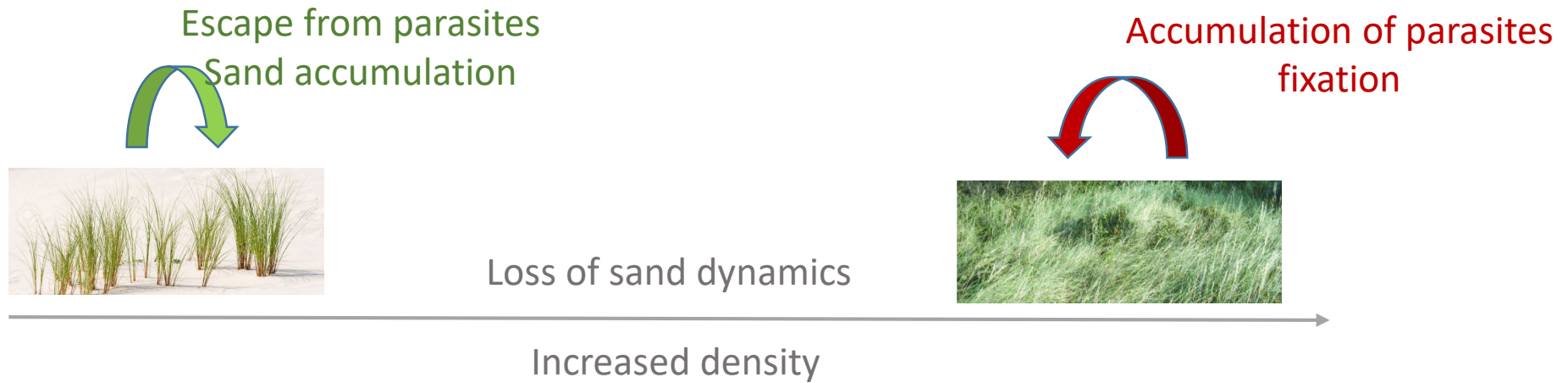
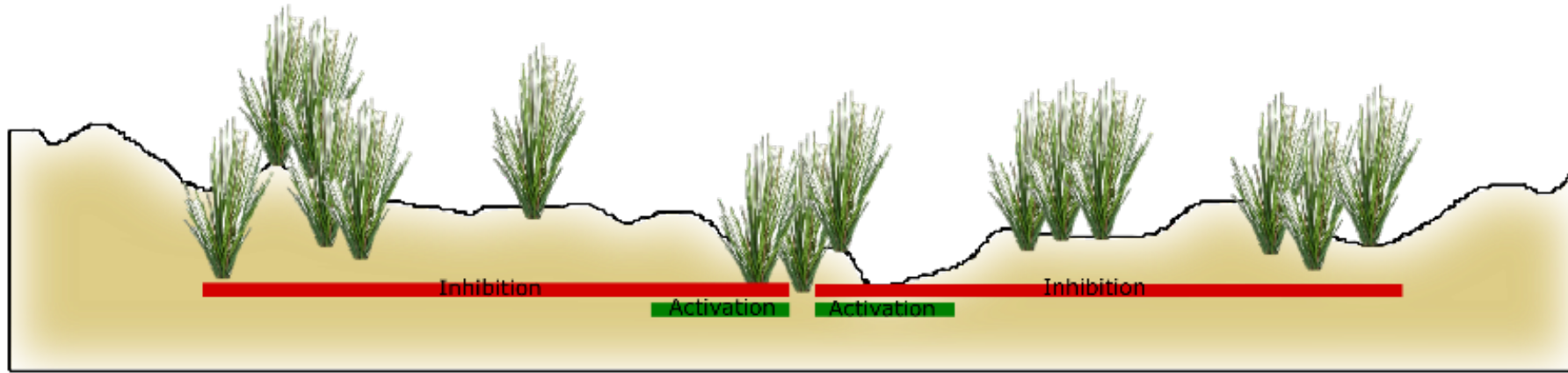




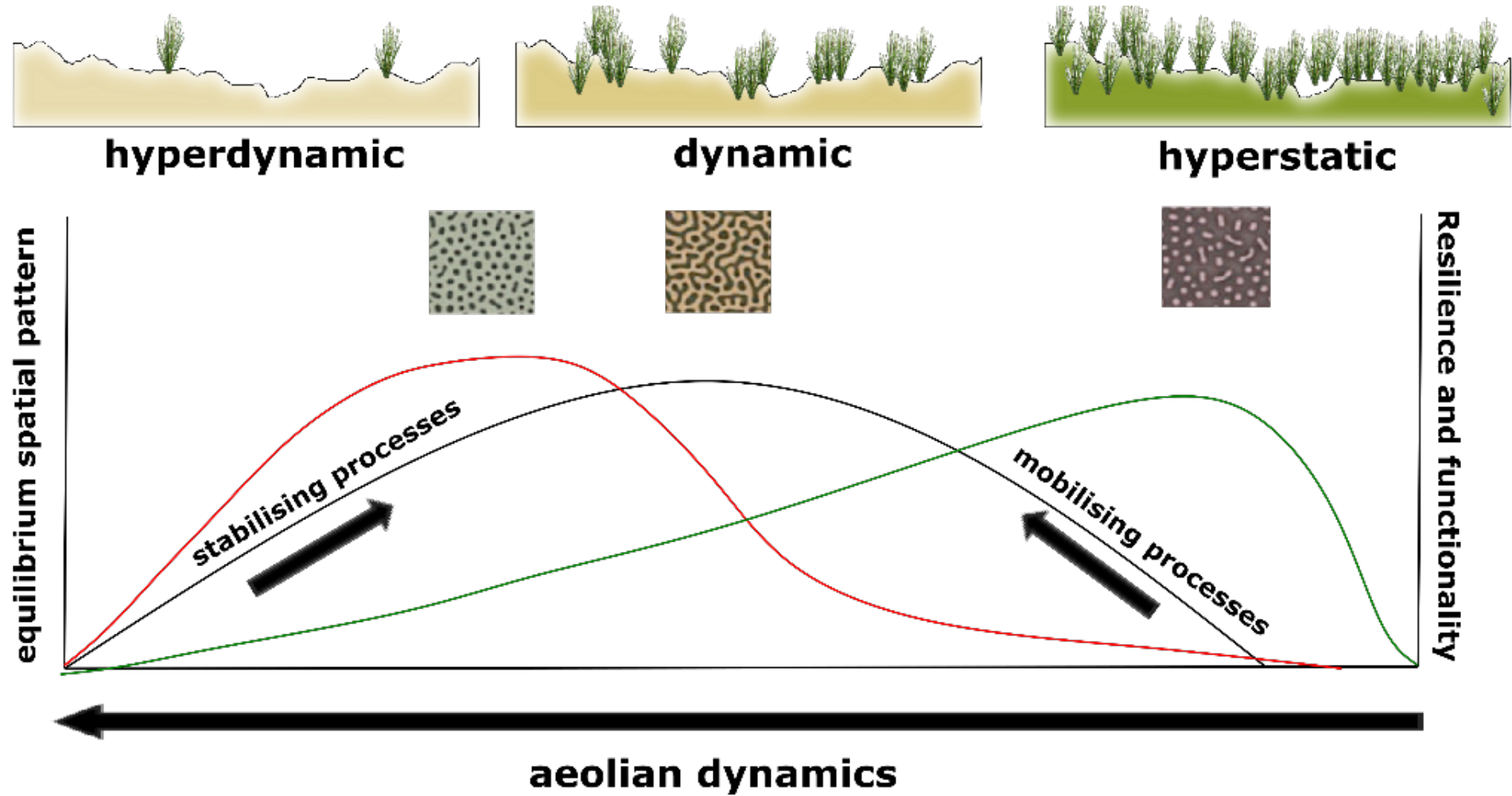
* Voorlopige resultaten



Helm gras – ecologische feedbacks



Ruimtelijke zelforganisatie



Zelforganiserende duinen

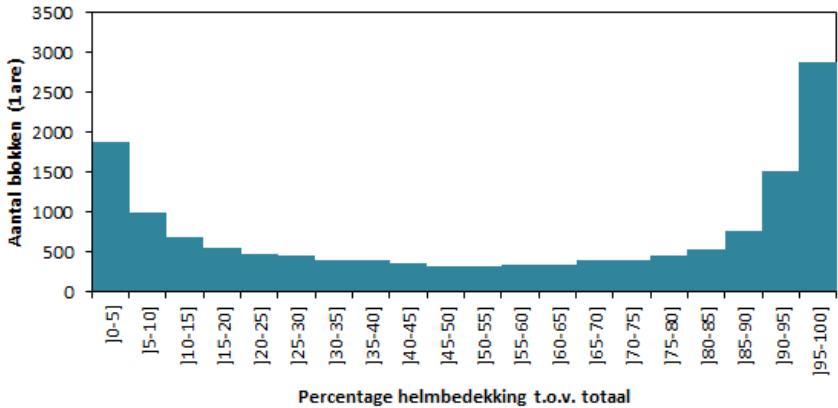
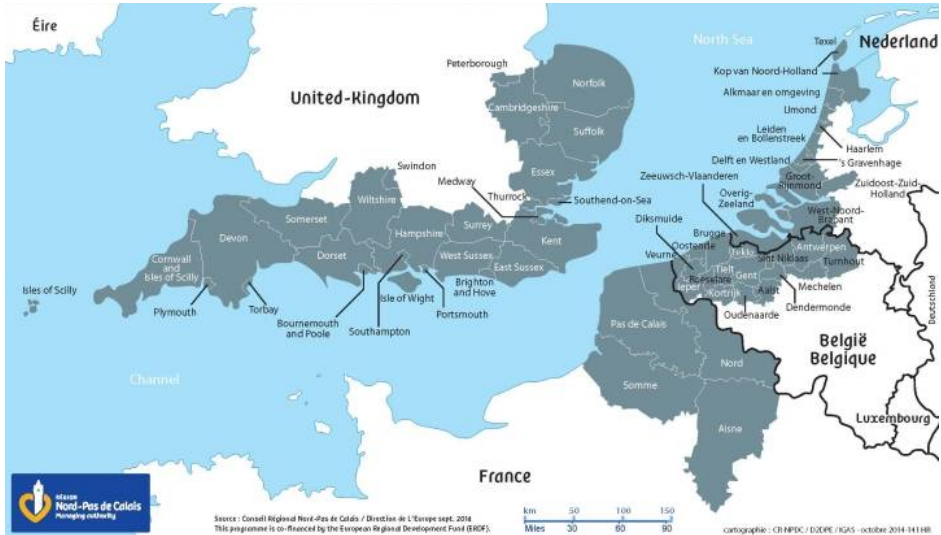
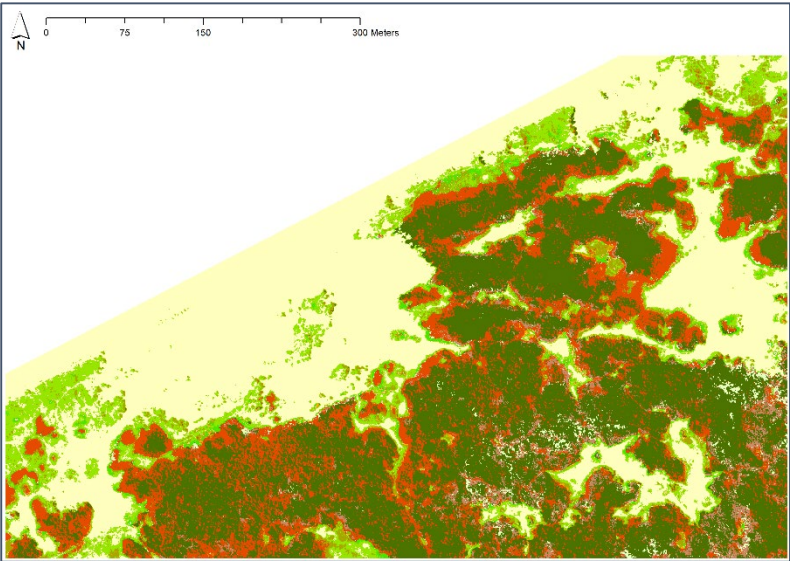
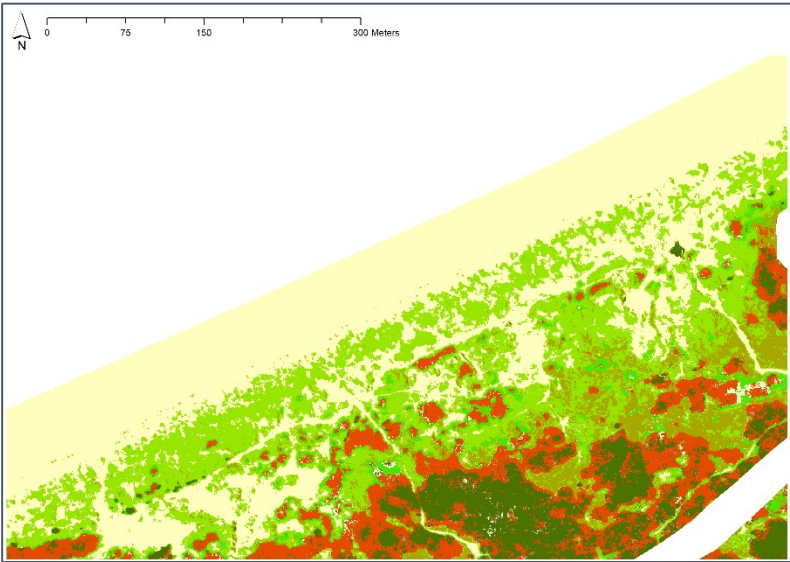
- Feedbacks enkel kwalitatief geweten
- Nood aan kwantitatieve ecologische aanpak om duin resistentie en stabiliteit te voorspellen

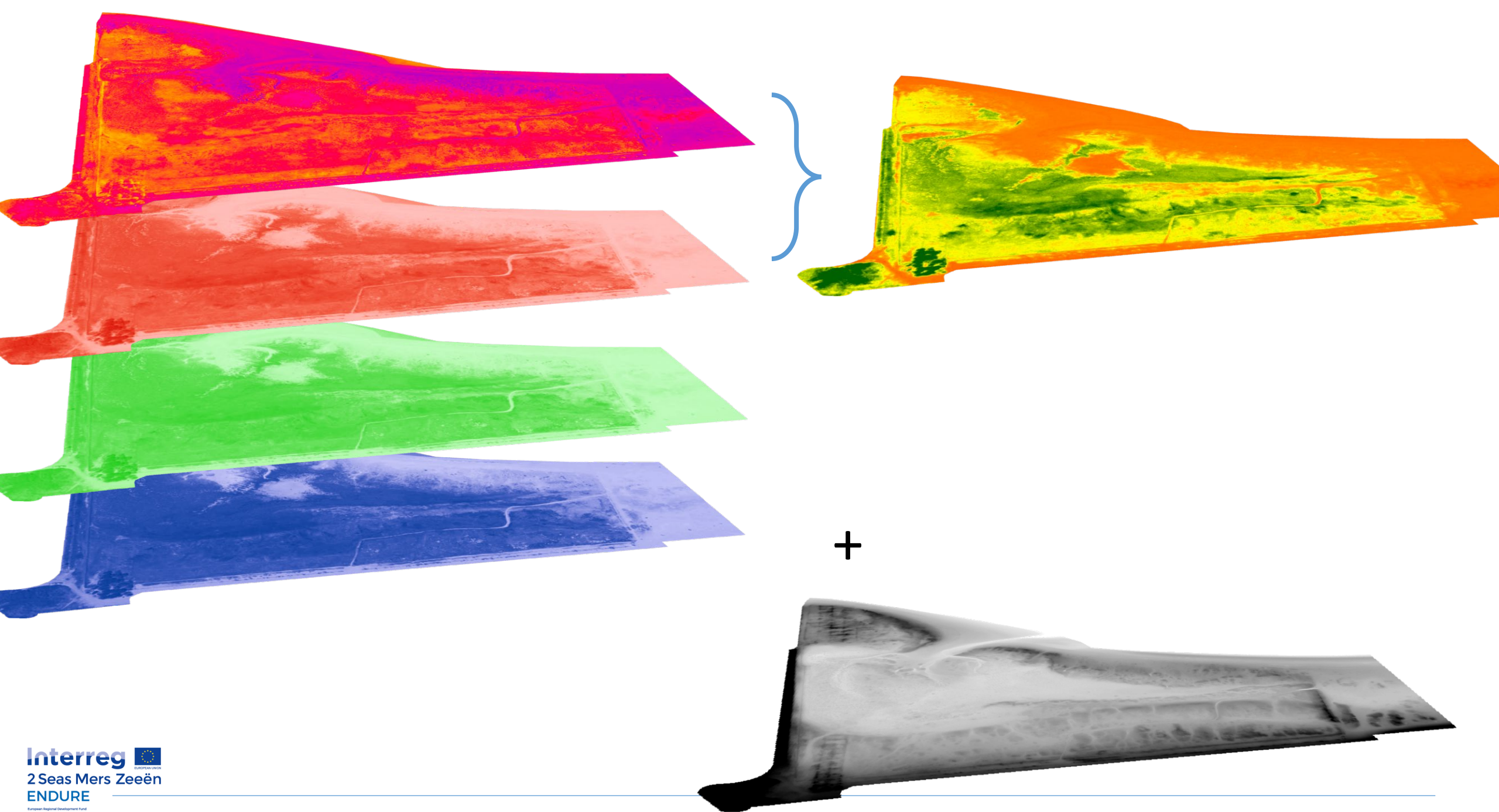


Stability and resilience

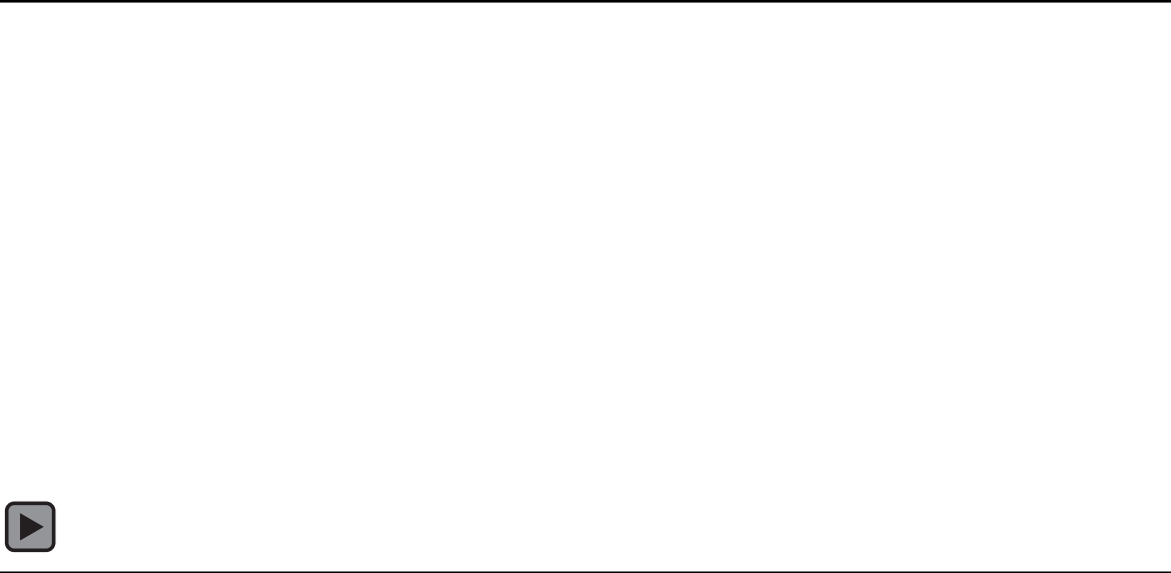


Mappen van de voorduin

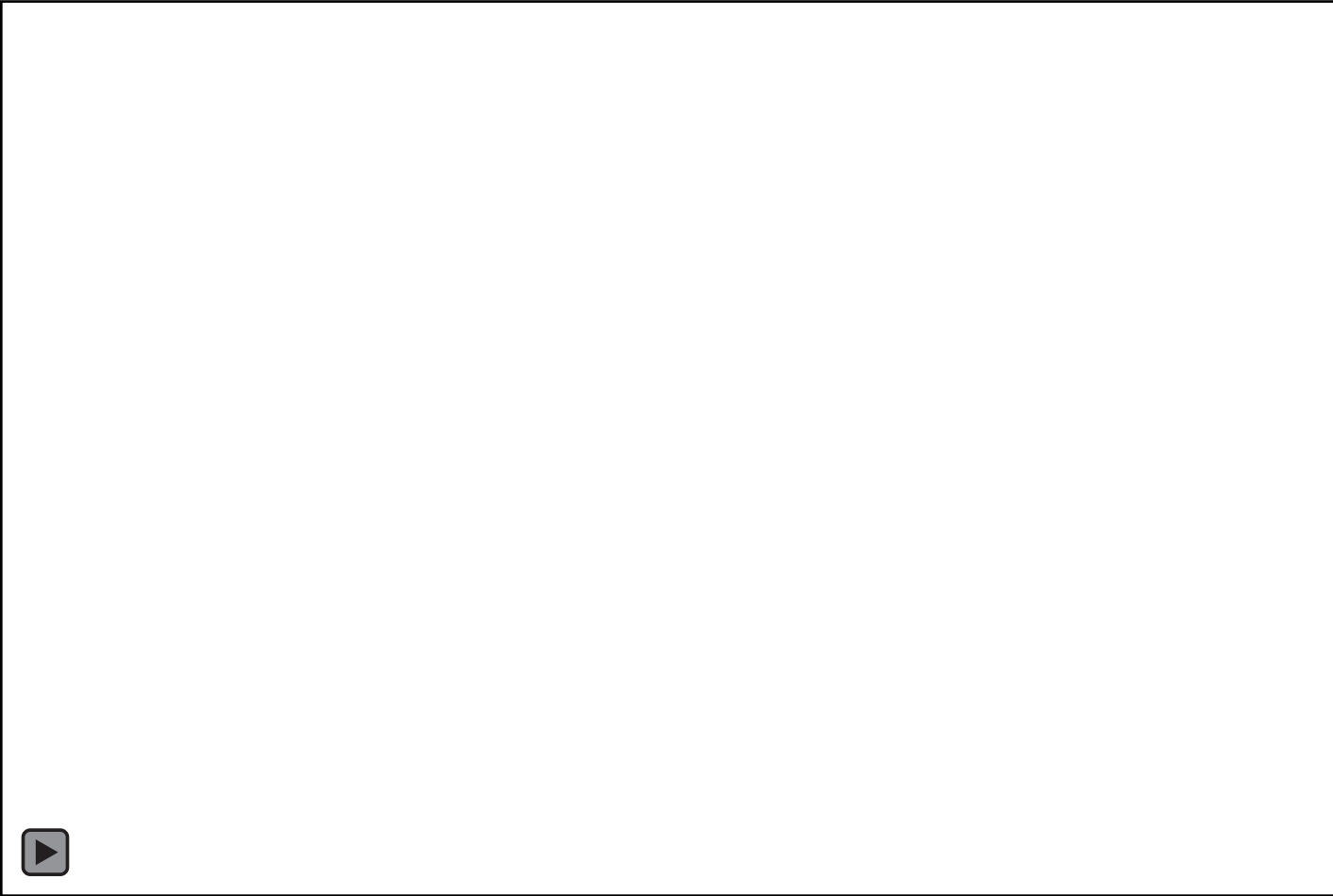




Numerieke simulatie duindynamiek



Numerieke simulatie duindynamiek



The first rows of coastal dunes function as a natural barriers against floods following sea level rise. Marram grass is here-in a keystone species as its ts matted roots help to stabilise sand dunes and allowing them to grow up. Exotic plant species are currently invading our coastal dunes, and have a negative impact on the performance of this highly beneficial grass.

<http://endure.eu.com/invasives/index.html>

The ENDURE project

Marram grass and dune development

Report these invasive plant species:

By clicking the links, you will be immediately redirected to a registration page from waarnemingen.be. You do not need to login to continue with reporting



Senecio inaequidens

South African ragwort or narrow-leaved ragwort is indigenous to southern Africa. It is a perennial



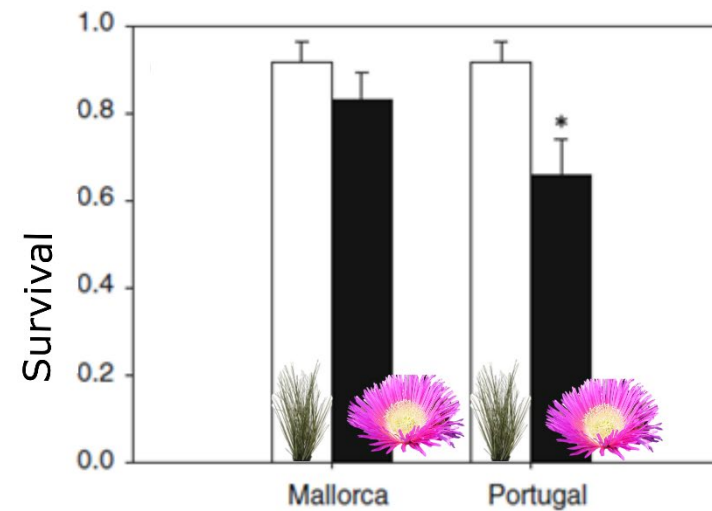
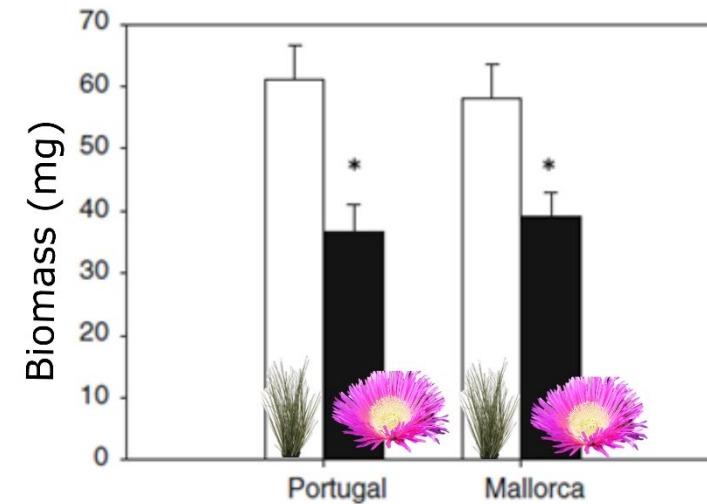
Yucca flaccida

The yucca is also called palm lily, and is originally found in North and Central America. The plants have

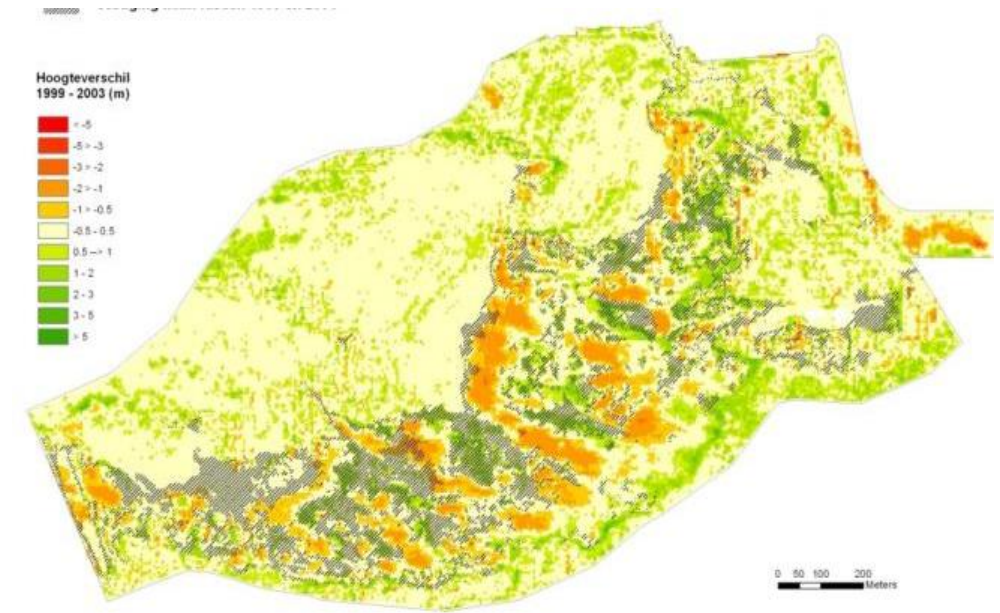
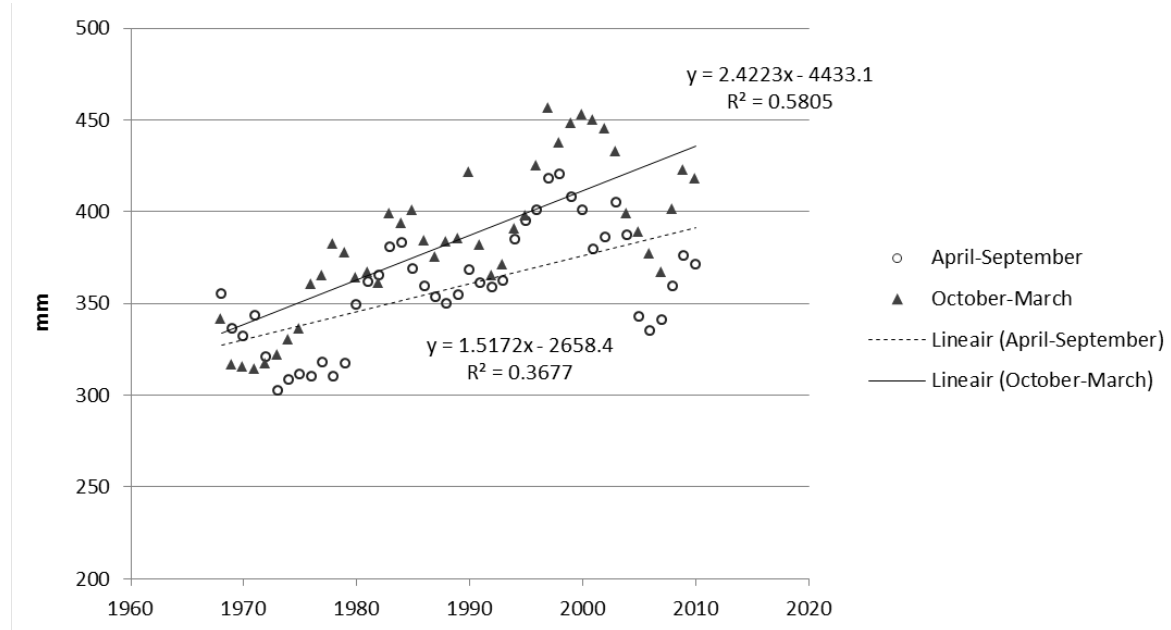


Carpobrotus edulis

The hottentot fig belongs to a family of succulents and comes from South Africa. It is adapted to dry



De toekomst? – verhoogde neerslag



De toekomst? – verhoogde neerslag

