



Ecological recovery and
improved safety of
coastal dunes

Gerben Ruessink

Motivation – Global dune greening

Arens et al., 2013

Coastal dune mobility over the past century: A global review

Jinjuan Gao 

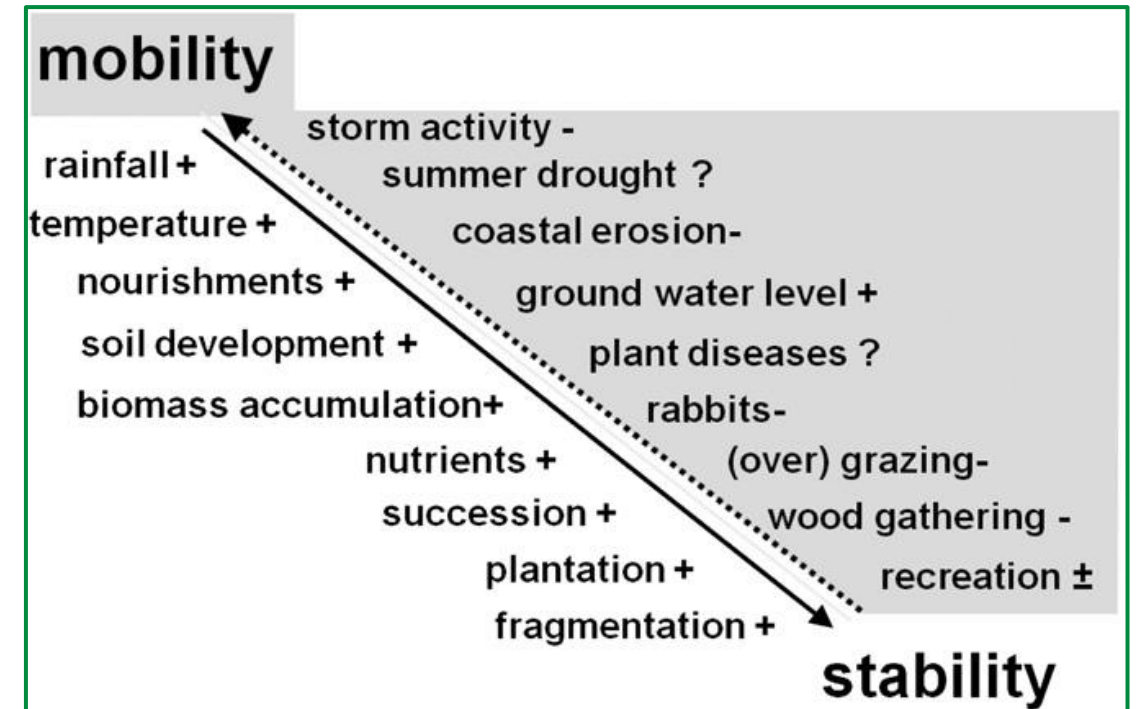
The University of Melbourne, Australia

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Result – Sand dike with green dunes



South of Zandvoort, NL

Pro: safety during storms

Con:

- No sand into backdunes
 - Less habitat types (greening)
- Degraded long-term safety
- Biodiversity loss

Possible solution: notches



Noordwest-Natuurkern, Bloemendaal, NL

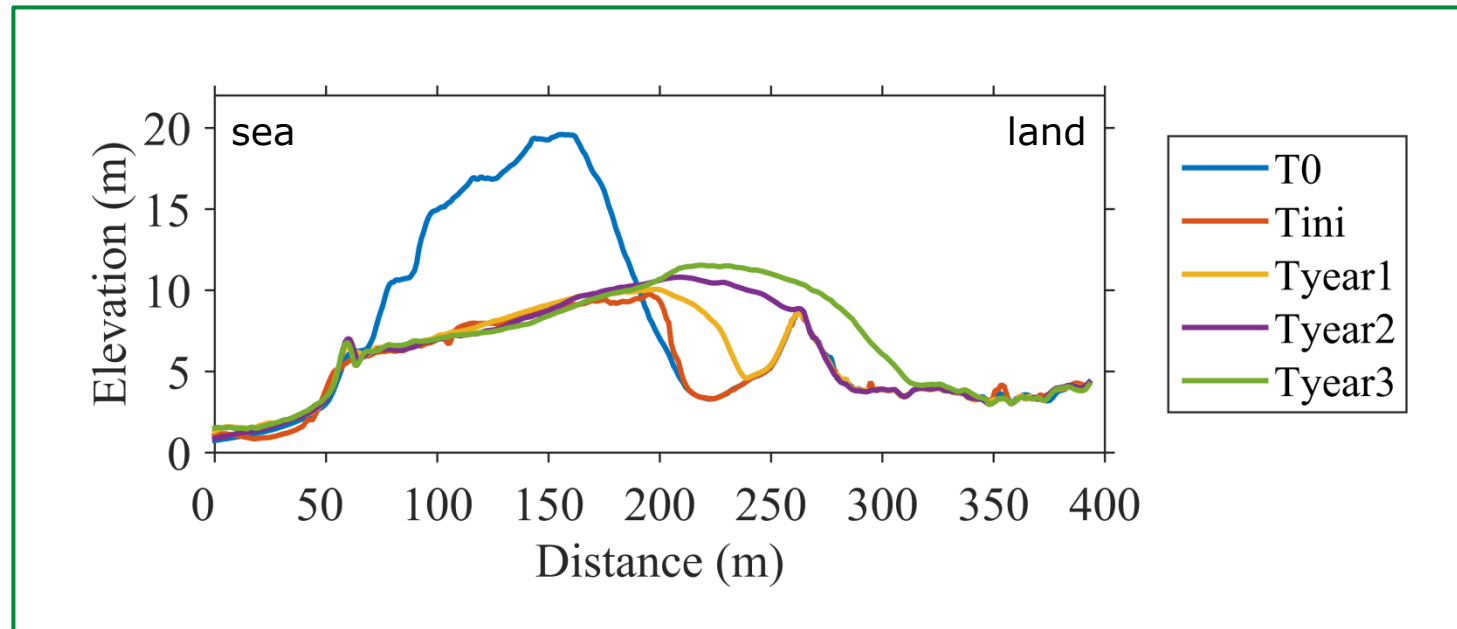
- Trough blowouts
- Corridor for sand
- Aeolian dynamics
- Habitat diversity

Learning-by-doing projects in
NW-Europe and New-Zealand

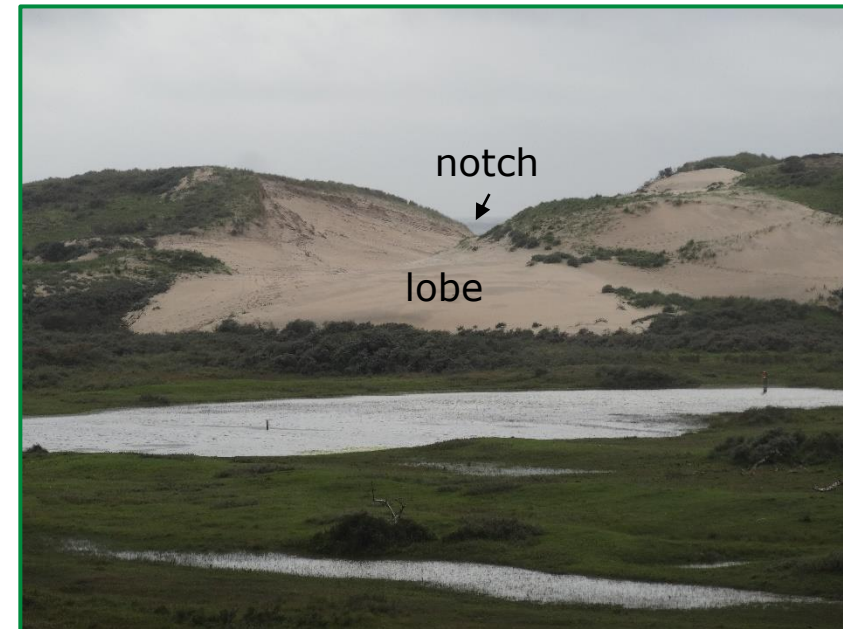
First results

Geomorphic response

- Unprecedented aeolian activity and geomorphic dynamics
- Notches function as major corridors for sand

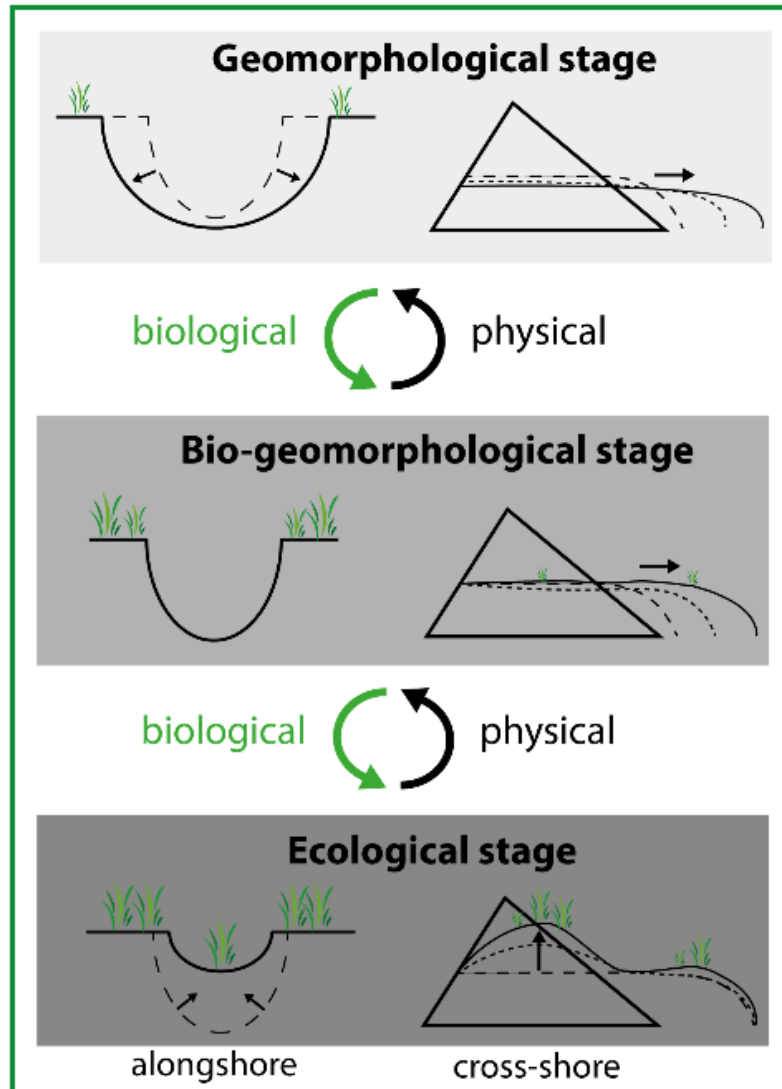


Ruessink et al., 2018



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Expectations and knowledge gaps



- Time scales
- Biophysical interactions
- Thresholds
- Habitat diversity and biodiversity
- Predictive tool/model
- ...

Implementation and upscaling

- System knowledge and design guidelines
- Monitoring and adaptive management
- Multi-stakeholder vision
- Institutional embedding
- Success criteria and uncertainty
- Capacity building

