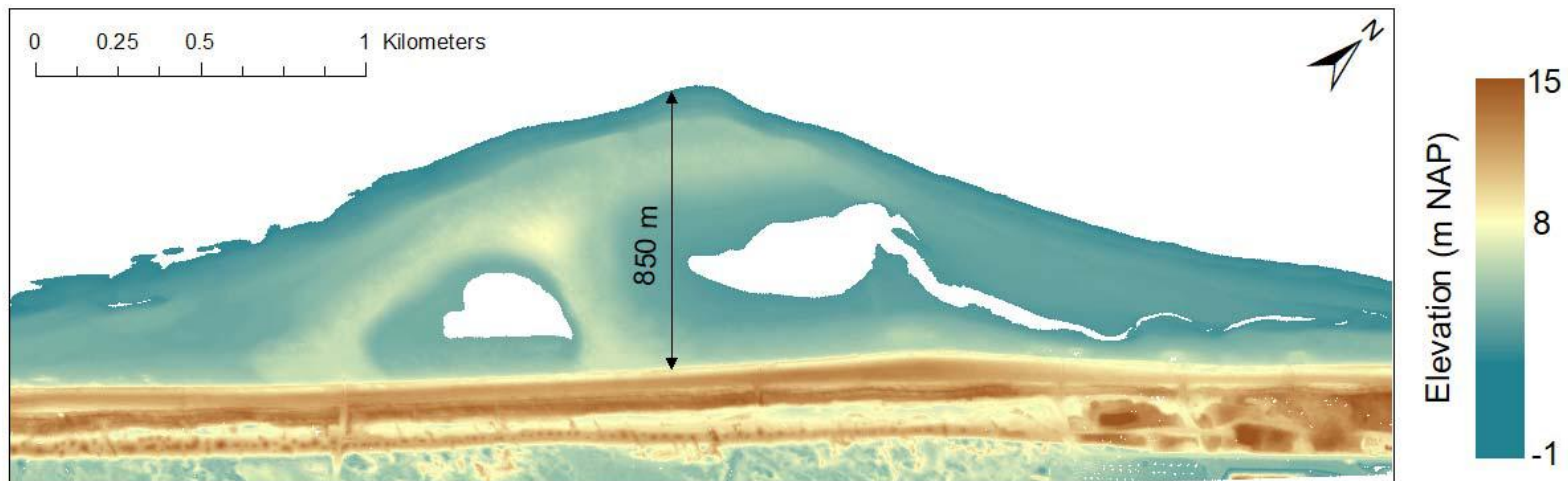


Embryo dune development
on the Sandmotor:
Implications of design

Marinka van Puijenbroek

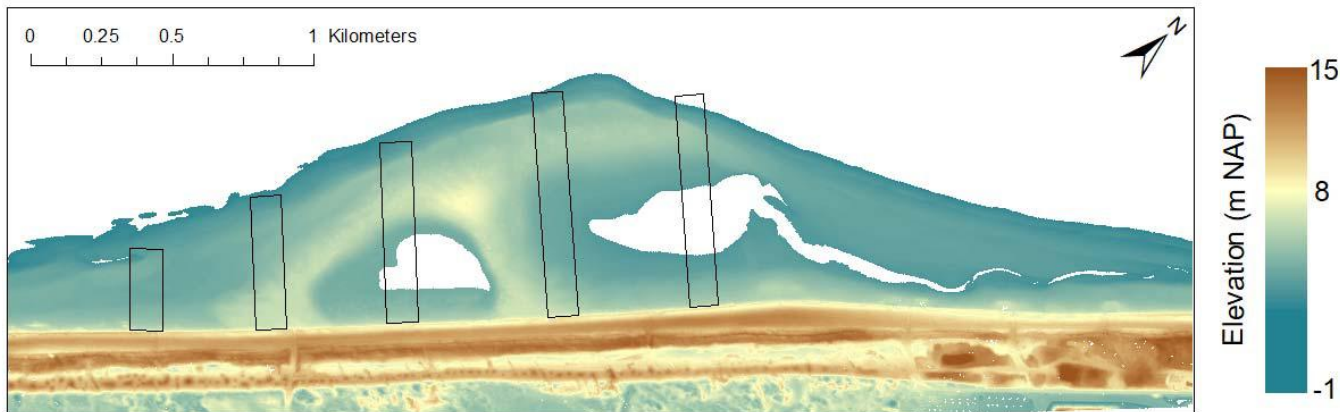
Design characteristics of the Sandmotor

- Wide beach
 - High potential for embryo dune development
- High elevation
 - Low soil moisture
 - Less storm erosion



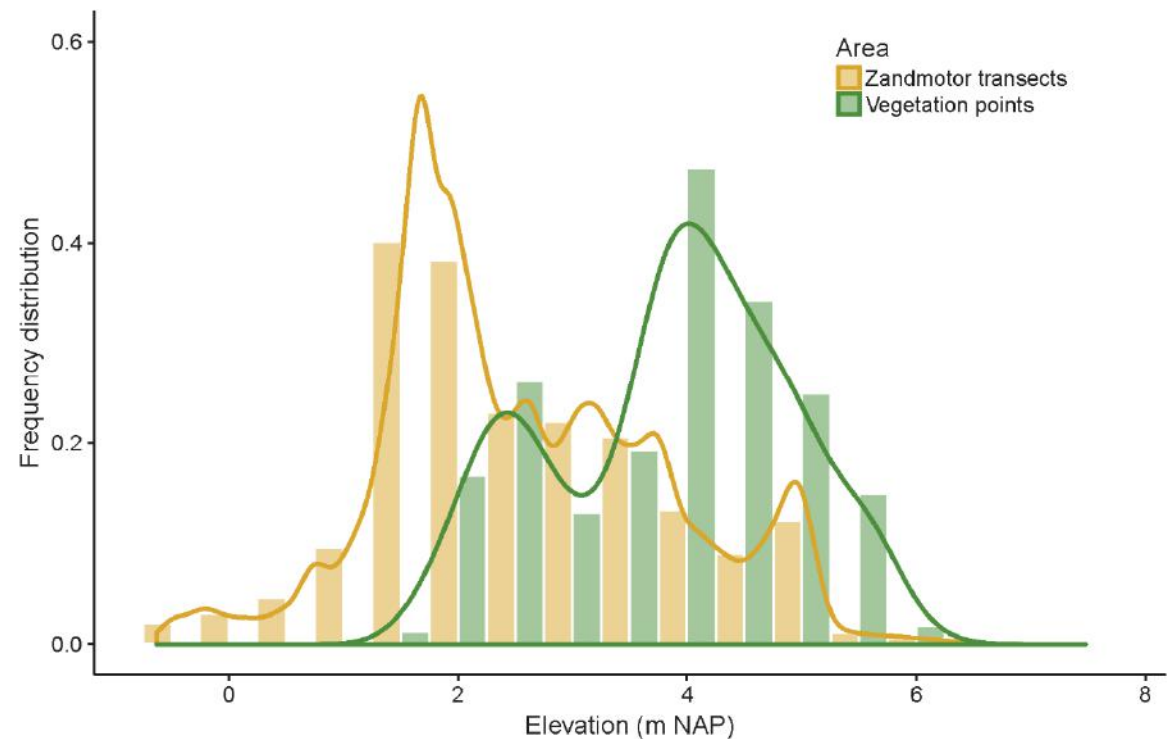
Embryo dune monitoring

- Monitoring data from Bas Arens and Kees Vertegaal
 - Autumn 2013 – Autumn 2015
 - Embryo dune area: 1307 m²
 - Vegetation presence of dune-building species:
 - *Ammophila arenaria* 76%
 - *Elytrigia juncea* 23%



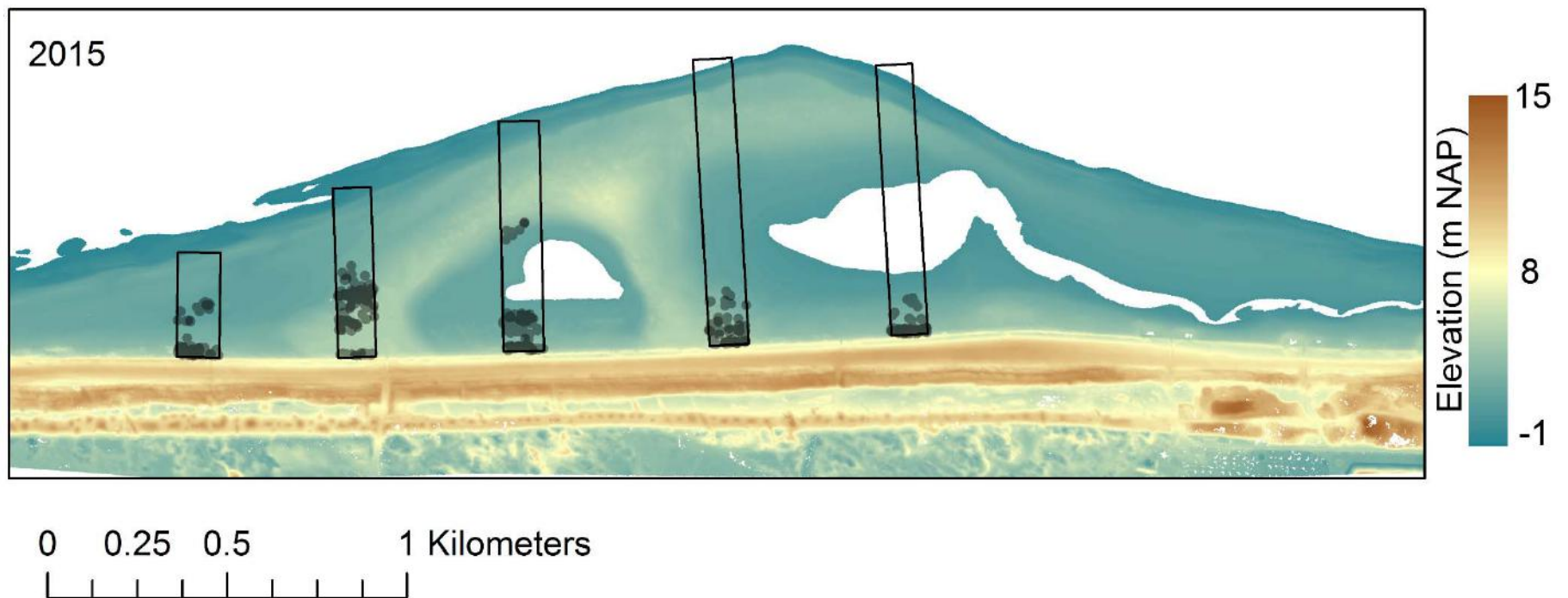
Distribution of vegetation not determined by elevation

- Distribution of dune-building grasses was not explained by elevation
- Vegetation is more dependent on precipitation during the growing season



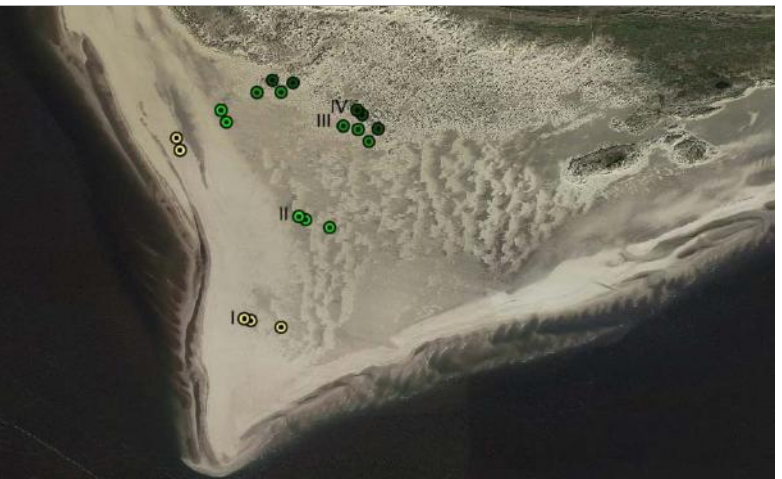
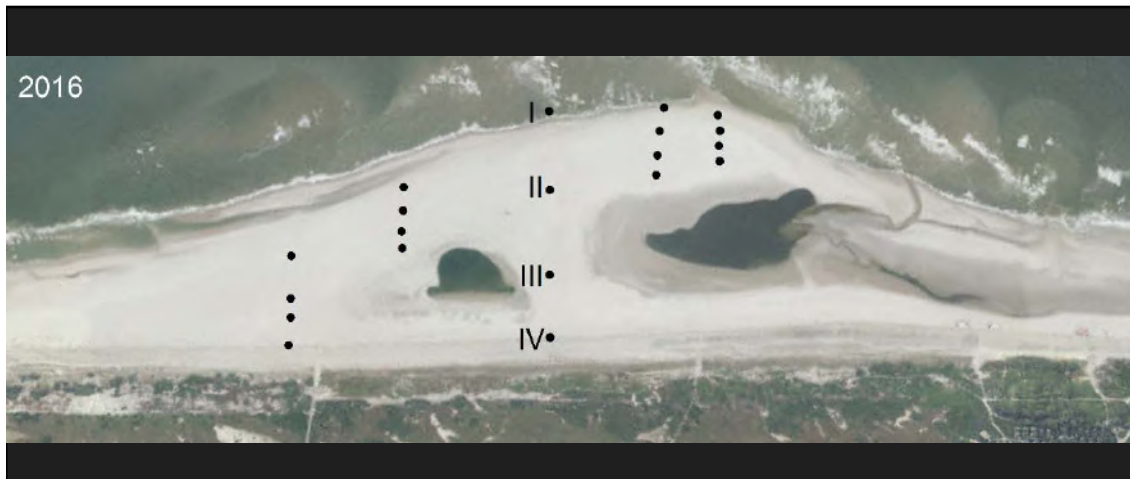
Distribution of dune-building species on the Sandmotor

- Dispersal limited?
 - Rhizomes
 - Seeds

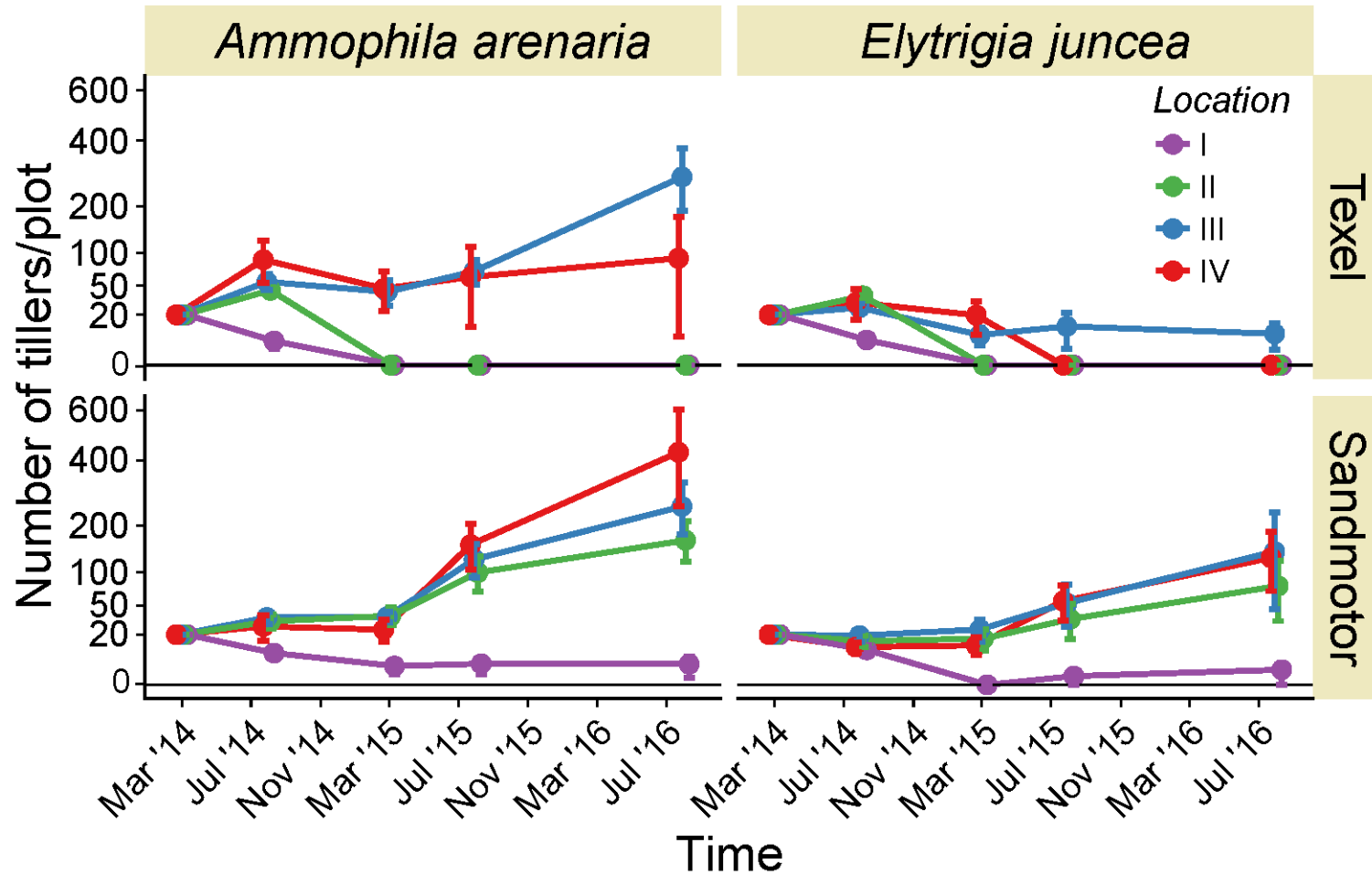


Field experiment dune-building grasses

- Sandmotor
- Natural coast: Texel (Hors)
- Planted dune-building grasses
March 2014
- Monitored plant growth for 2.5 years



Vegetation protected against storms on the Sandmotor



Dunes developed on the Sandmotor



Design implication of the Sandmotor

Design options	Embryo dune development
Beach width	Wide beaches: large potential for embryo dune development
Beach elevation	+ 4 m NAP = no storm erosion
	+ 2 m NAP = low soil salinity
	Affects dependency of vegetation on precipitation
Sand transport	Positive for embryo dunes
Presence of vegetation	Can act as a seed source
Recreation	High recreation pressure could reduce vegetation establishment

Thank you for listening!

