



*Deschampsia flexuosa* -  
an expansive species in inland heath  
a new invader in dunes

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# *Deschampsia flexuosa*:

Habitat: Dry acid, sandy material with a mor layer – inland heath and -dunes; birch- and pine-forest

Without management increased dominance on inland heath

After fire Desch. attains dominance a few year – after which *Calluna* regain absolutism.

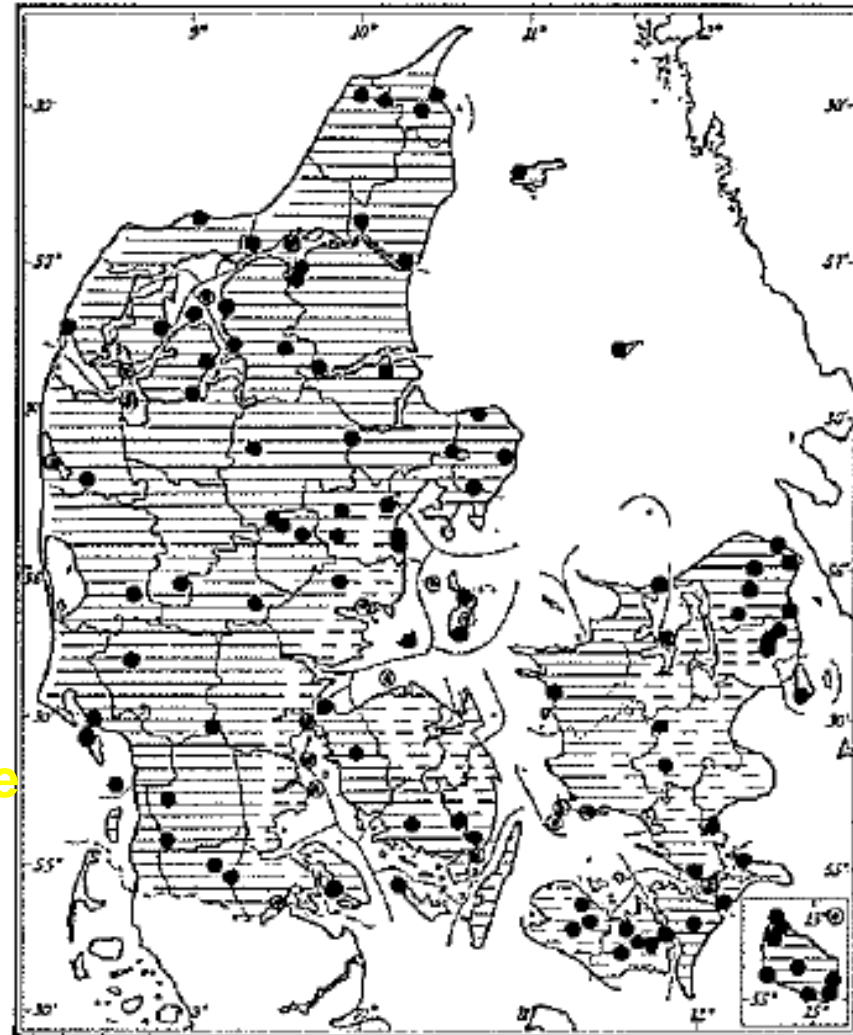


Fig. 46. *Deschampsia flexuosa* (L.) TRIN.

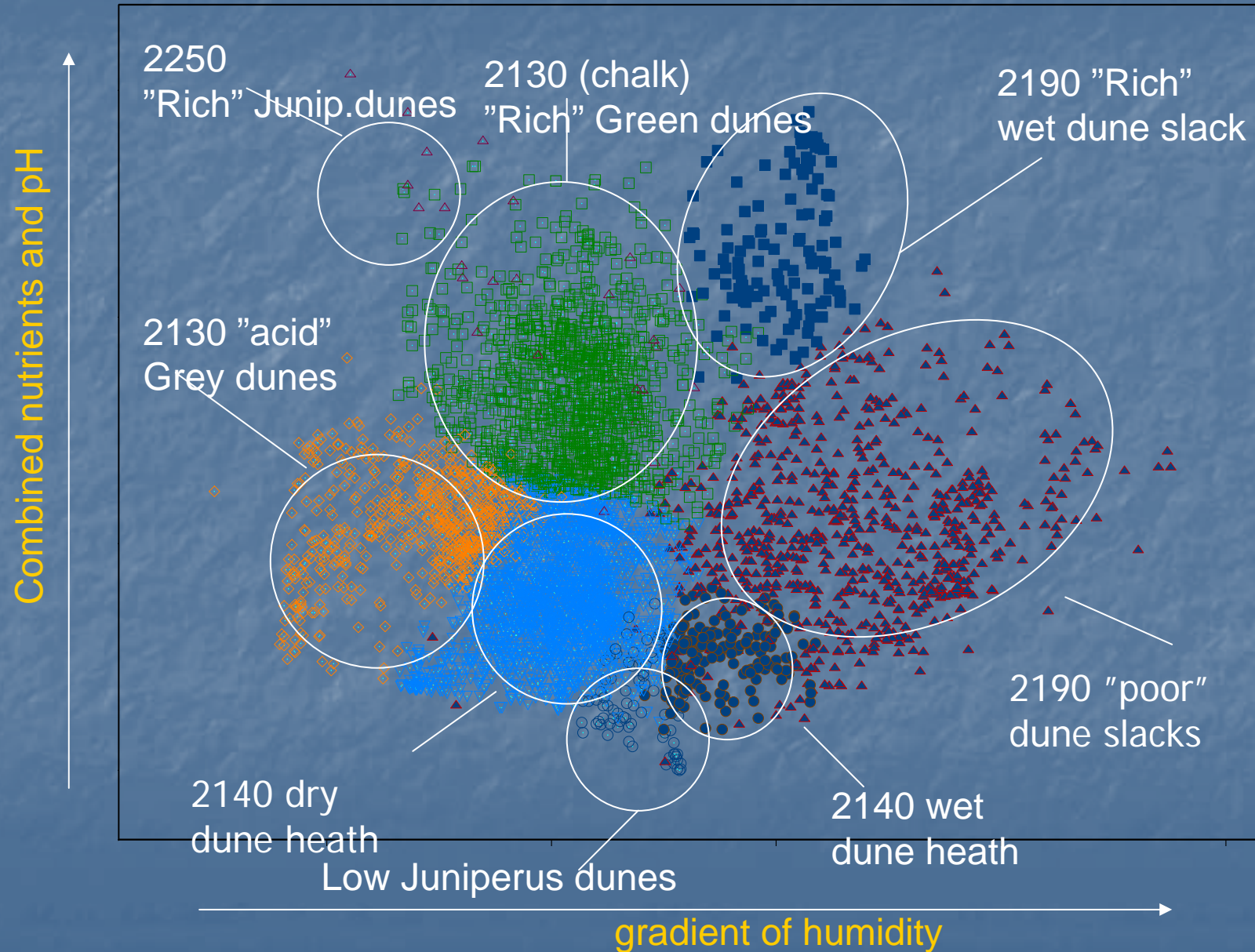
Arfred Pedersen: Gramineernes udbredelse Danmarks Topografisk – Botaniske Undersøgelser; Bot. Tidskr. 68 hft. 3 og 4.

	Lodbjerg	Stenbjerg	Rømø	Fanø
<i>Ammophila arenaria</i>	16	12	3	4
<i>Carex arenaria</i>	25	31	8	33
<i>Calluna vulgaris</i>	16	12	14	21
<i>Empetrum nigrum</i>	25	27	53	15
<i>Erica tetralix</i>	7	16	3	1,3
<i>Vaccinium uliginosum</i>	7	12	10	1
<i>Molinia caerulea</i>	7,5	11	5	1,5
<i>Deshampsia flexuosa</i>	<b>3</b>	<b>20</b>	<b>16</b>	<b>9</b>
<i>Agrostis canina</i>	1	<1	1	13
<i>Pinus mugo</i>	0,6	0	1	14
<i>Campylopus introflexus</i>	0,1	0,6	0,2	3,2

## Data from the Danish dune habitats

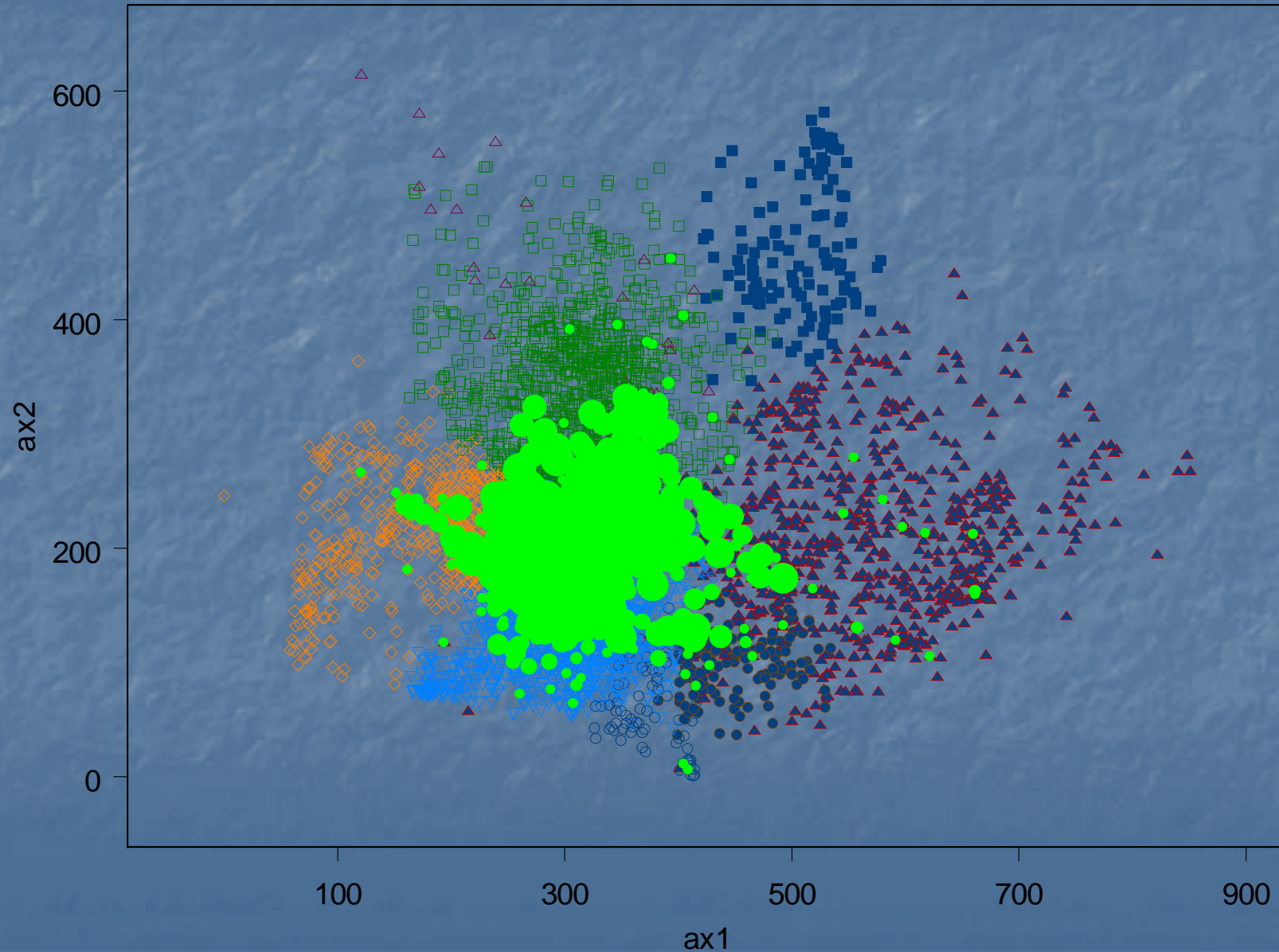
Habitat-type	Sample plots total	Sample plots with <i>Deschampsia flex.</i>
Grey/green dunes	1432	506
Dune heath with <i>Empetrum</i>	1406	596

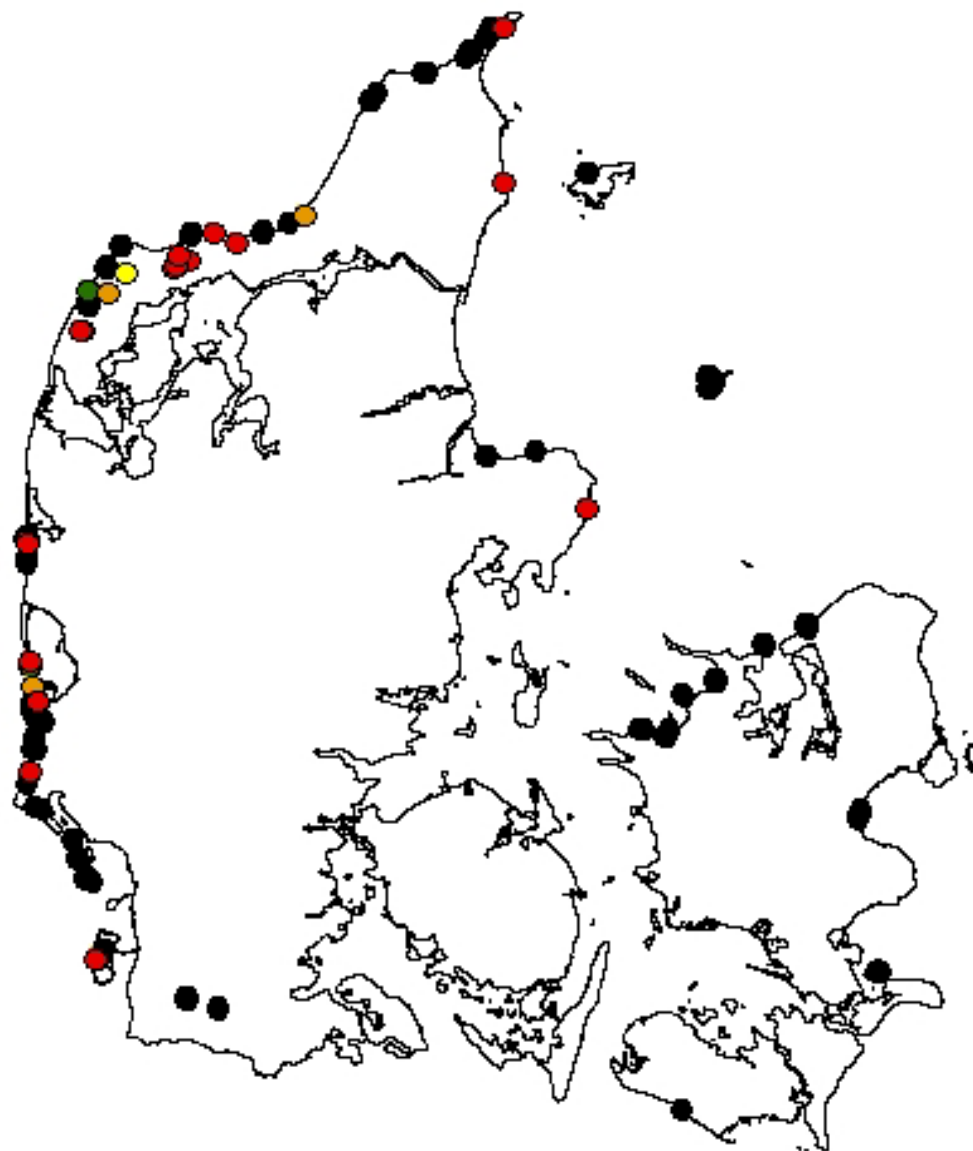
# CLASSIFICATION MODEL FOR DUNES



Subhabitat	Habitat-kode	Station with Desc.	Cover in %
High <i>Juniperus</i> dune heath	2250	3.6	6.7
Low <i>Juniperus</i> Dune heath	2250	0.0	0.0
Green dunes chalk rich	2130	8.5	39.6
Grey dunes acid	2130	9.7	49.0
Dry dune heath <i>Empetr.</i>	2140	15.7	43.9
Wet dune heath Emp.	2140	6.7	23.1
"Low" wet dune slacks	2190	3.8	20.0
"Rich" (fen) wet dune slacks	2190	0.0	0.0

Where does *Deschampsia. flex.* occur in the dune habitats?





## Legend

- NOVANAklitterBBDomin
- NOVANBB9\_12
- NOVANBB5\_8
- NOVANBB1\_4
- NOVANBBFew
- NOVANAklitterUdenBB

**Effects on soil processes due to change from *Calluna/Empetrum* to *Deschampsia***

**Soil under heath:**

- Podzol with sharp boundaries
- no bioturbation
- C/N in mor layer >35
- pH in mor < 4,0
- superficial root distribution
- low rate of decomposition

**Soil under oak (50 yrs) and *Deschampsia f.***

- Brown soil with homogenous
- distribution of roots – and nutrients
- C/N < 20
- pH >5
- high rate of decomposition



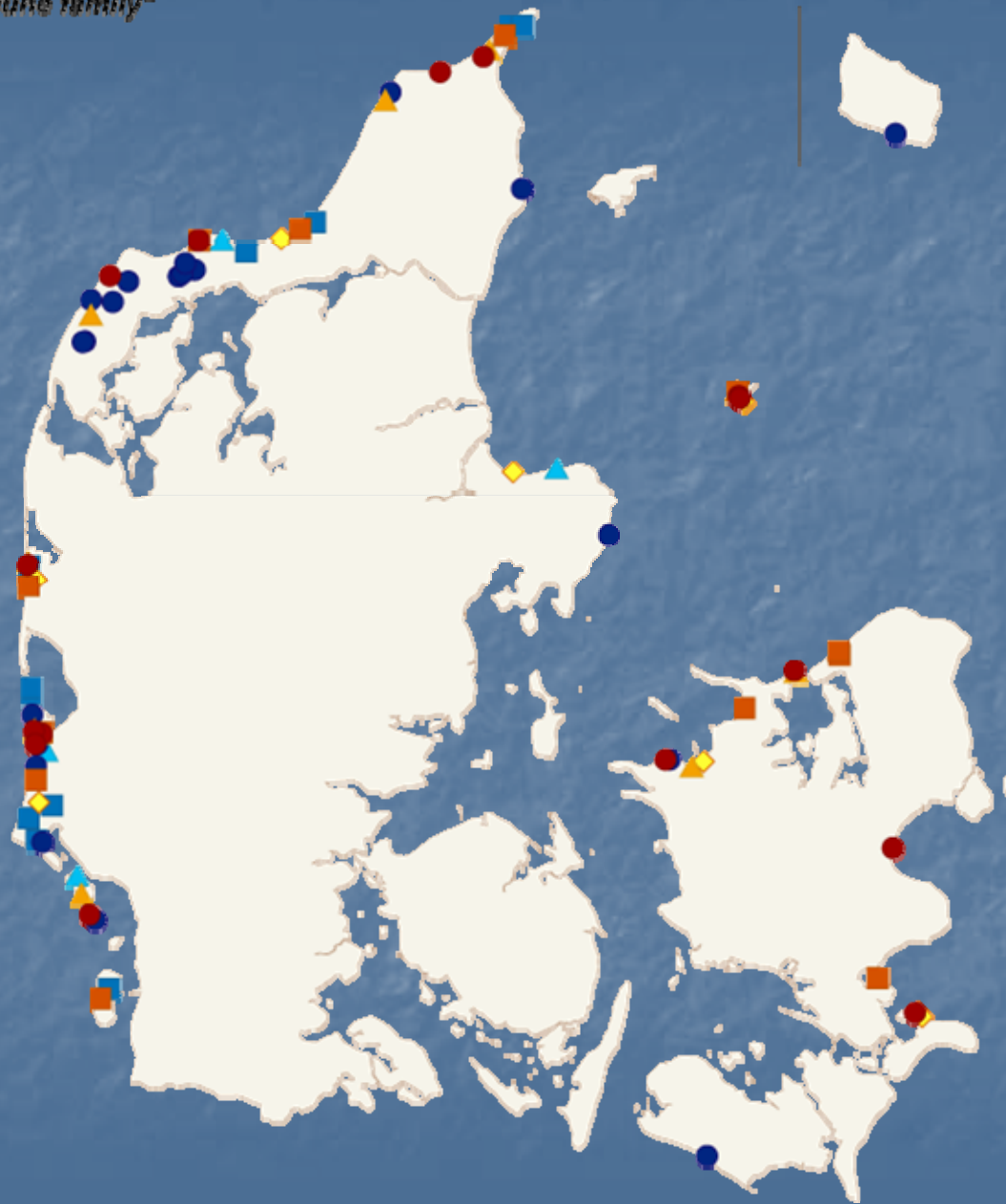
*Habitats monitored within the "dune family"*

Intensive stations

- Grey/green dune (2130)
- Dune heath (2140)
- ▲ Dune slack (2160)
- ◆ Coastal dunes with *Juniperus* (2250)

Extensive stations

- Grey/green dune (2130)
- Dune heath (2140)
- ▲ Dune slack (2160)



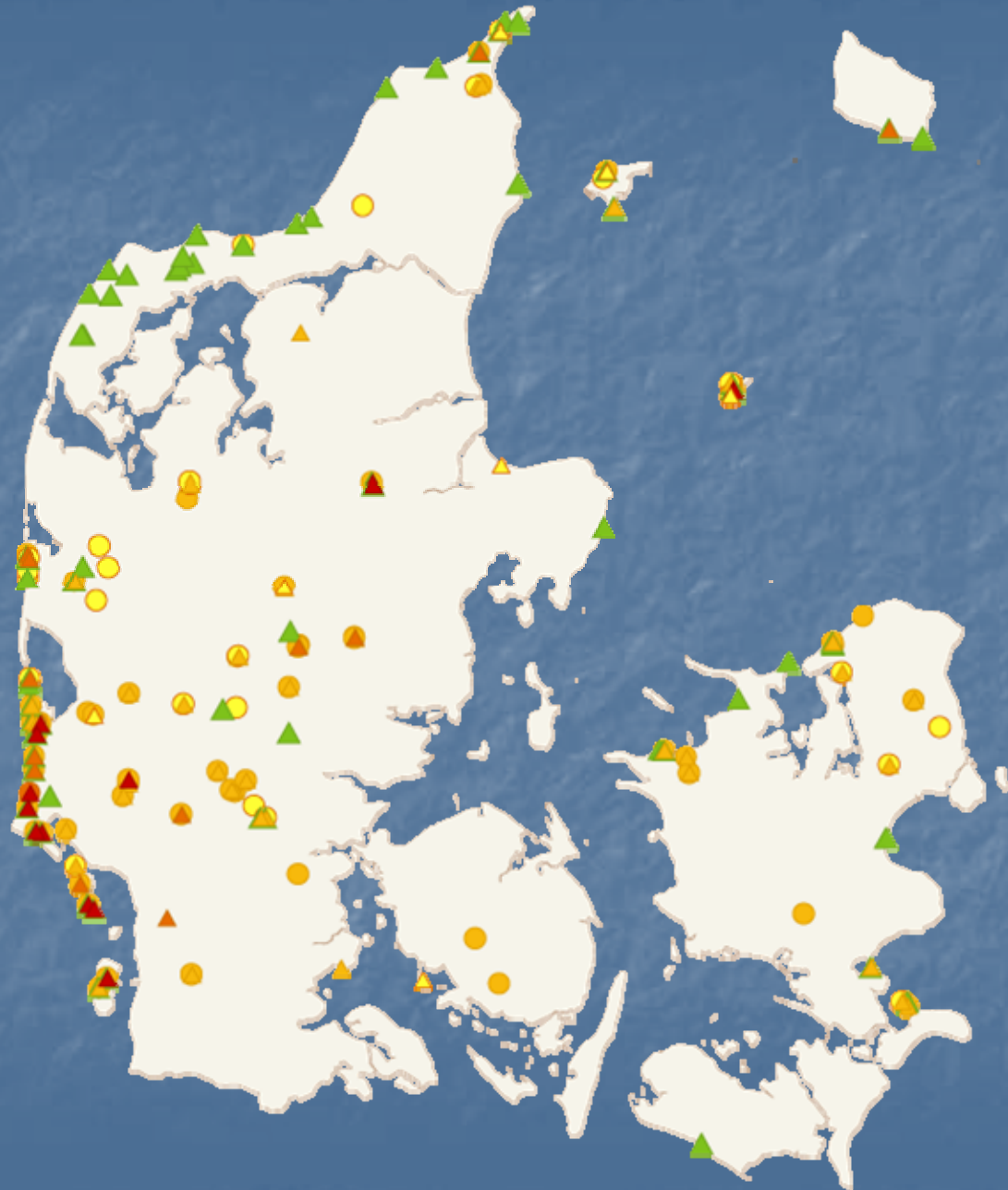
*Campylopus introflexus*

Registration on station

- 1-100 individuals
- <10 % cover
- 10-25 % cover
- >25 % cover

Registration in 5 m circle

- ▲ No presence
- ▲ <1 %
- ▲ 1-10 %
- ▲ 10-25 %
- ▲ >25 %



*Cytisus scoparius* (Broom)

Registration on station

- 1-100 individuals
- <10 % cover
- 10-25 % cover
- >25 % cover

Registration in 5 m circle

- ▲ No presence
- ▲ <1 %
- ▲ 1-10 %
- ▲ 10-25 %
- ▲ >25 %



*Pinus Mugo*

Registration on station

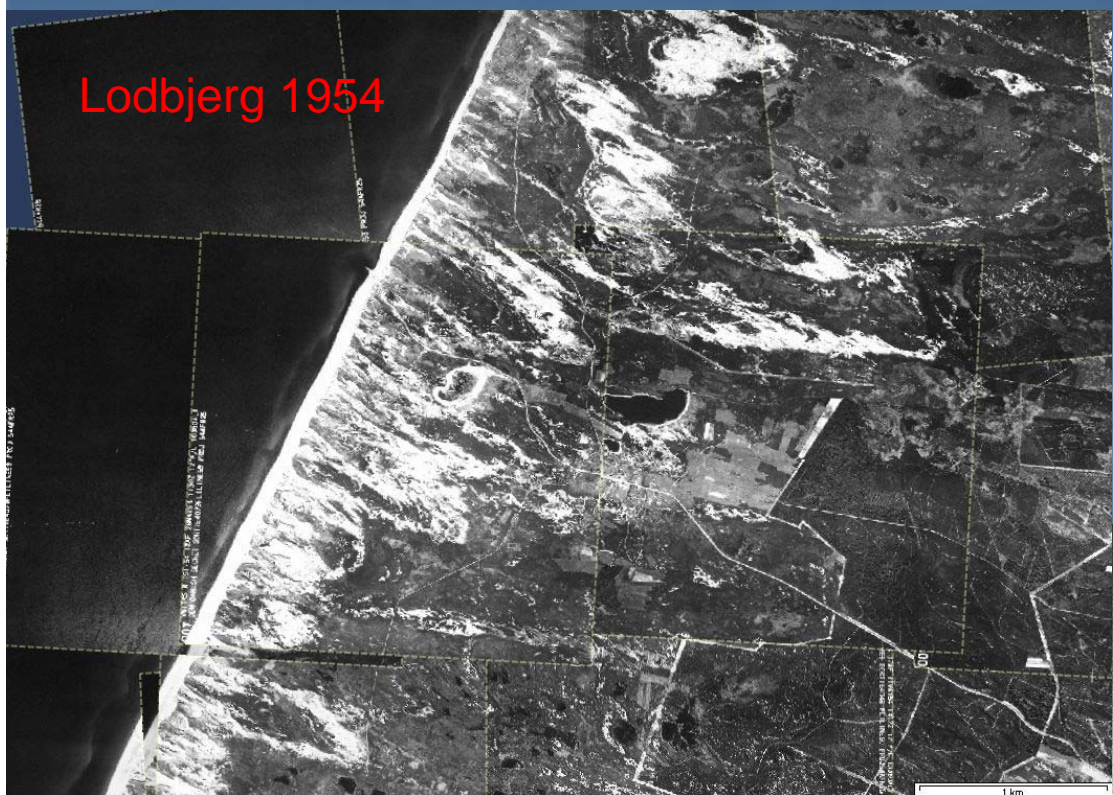
- 1-100 individuals
- <10 % cover
- 10-25 % cover
- >25 % cover

Registration in 5 m circle

- ▲ No presence
- ▲ <1 %
- ▲ 1-10 %
- ▲ 10-25 %
- ▲ >25 %

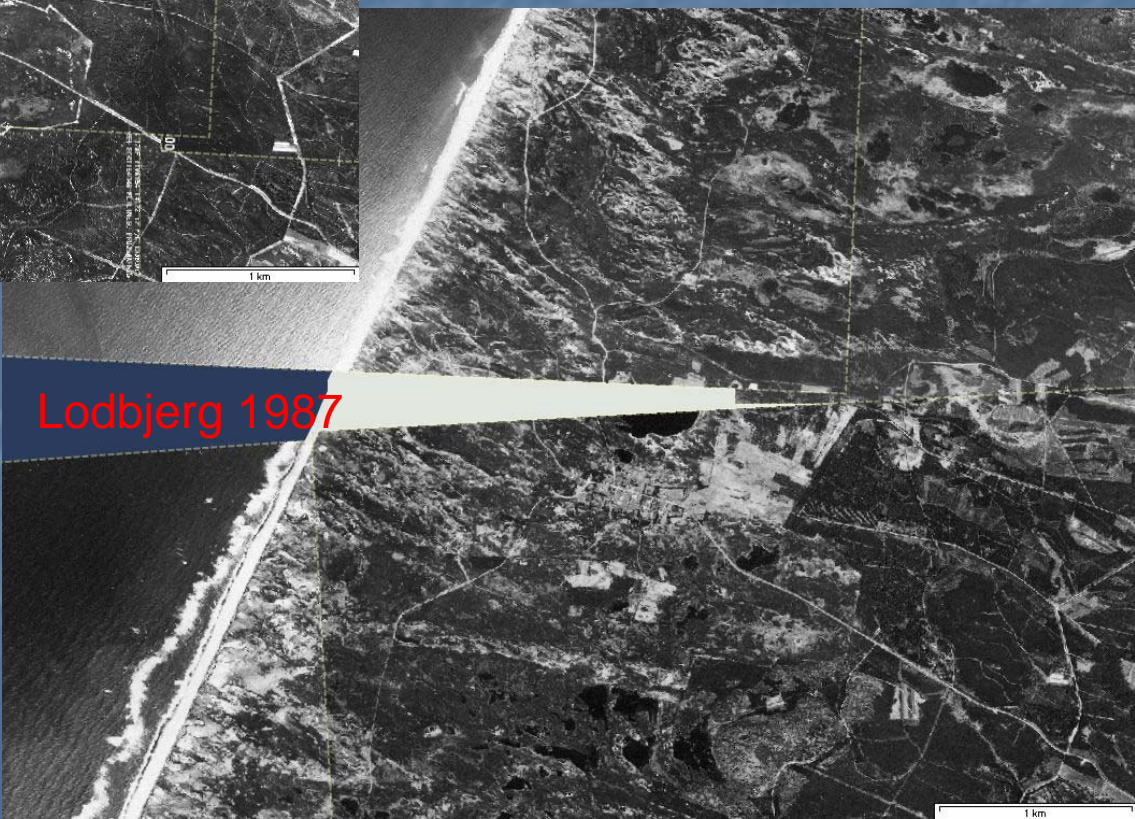


Lodbjerg 1954



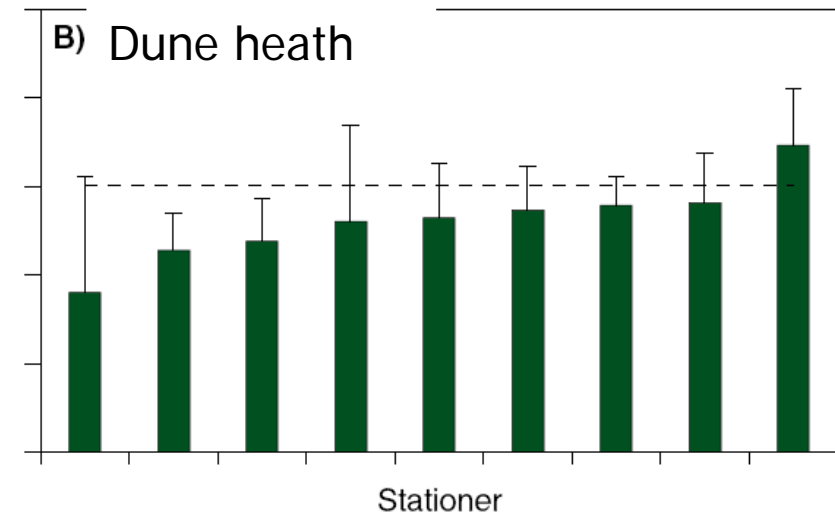
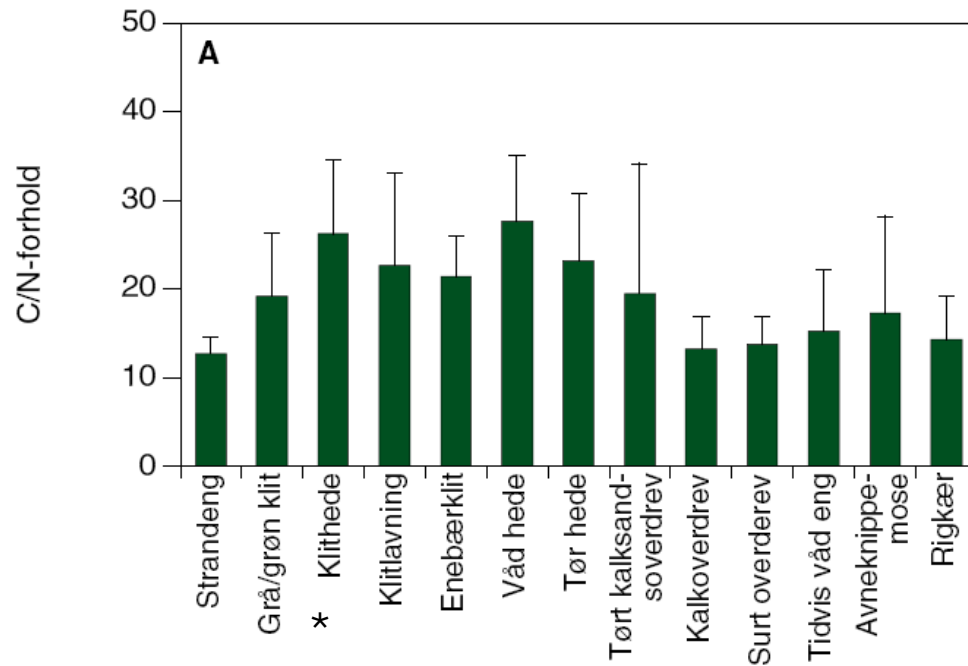
Landuse changes  
Climate – wind intensity, precip.  
Deposition

Lodbjerg 1987



# C/N-ratio

A) overview of habitattypes    B) dune heath



## Conclusion - In each end of the humidity scale:

### *Deschampsia flexuosa*

Expansive in inland heaths, acid forest types.  
Invasive traits in Grey/green dune and in Empetrum dune heath.

### *Molinia coerulea*

Expansive in "Wet heath", acid fens  
Invasive traits in dry heath and in raised bogs

The expansion of both grasses shows pronounced changes in conservation status – *area – structure and function and characteristic species.*

This finding show the importance of quantitative data