

Habitat preferences of and management recommendations for the Pomeranian population

Franziska Tanneberger, Jochen Bellebaum & Martin Flade



Ernst Moritz Arndt
Universität Greifswald



Studienstiftung
des deutschen Volkes



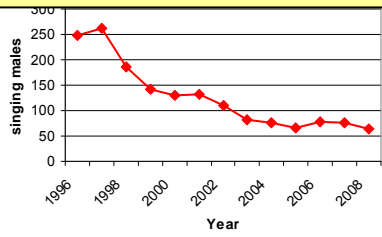
Aquatic Warbler



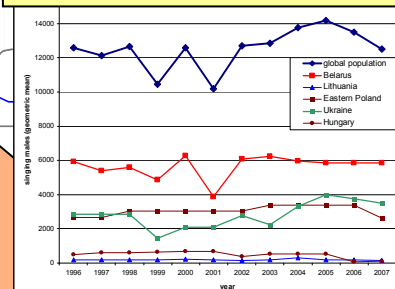
Current breeding distribution
(maximum number of singing males)

- 0-10
- 10-50
- 50-200
- 200-1000
- 1000-5000
- >5000

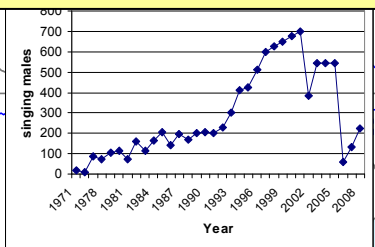
Pomerania: c. 130



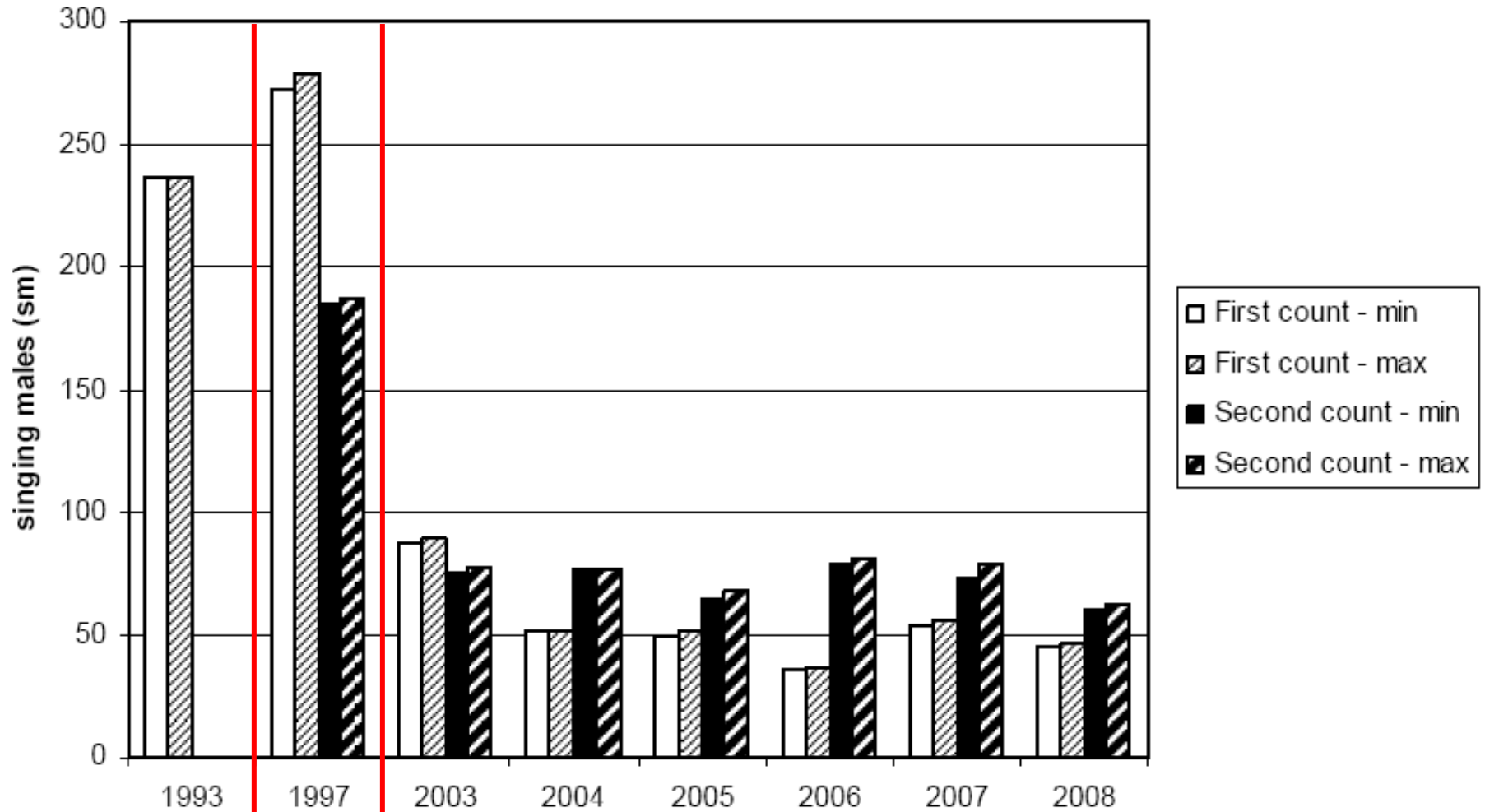
Central Europe: c. 11,700



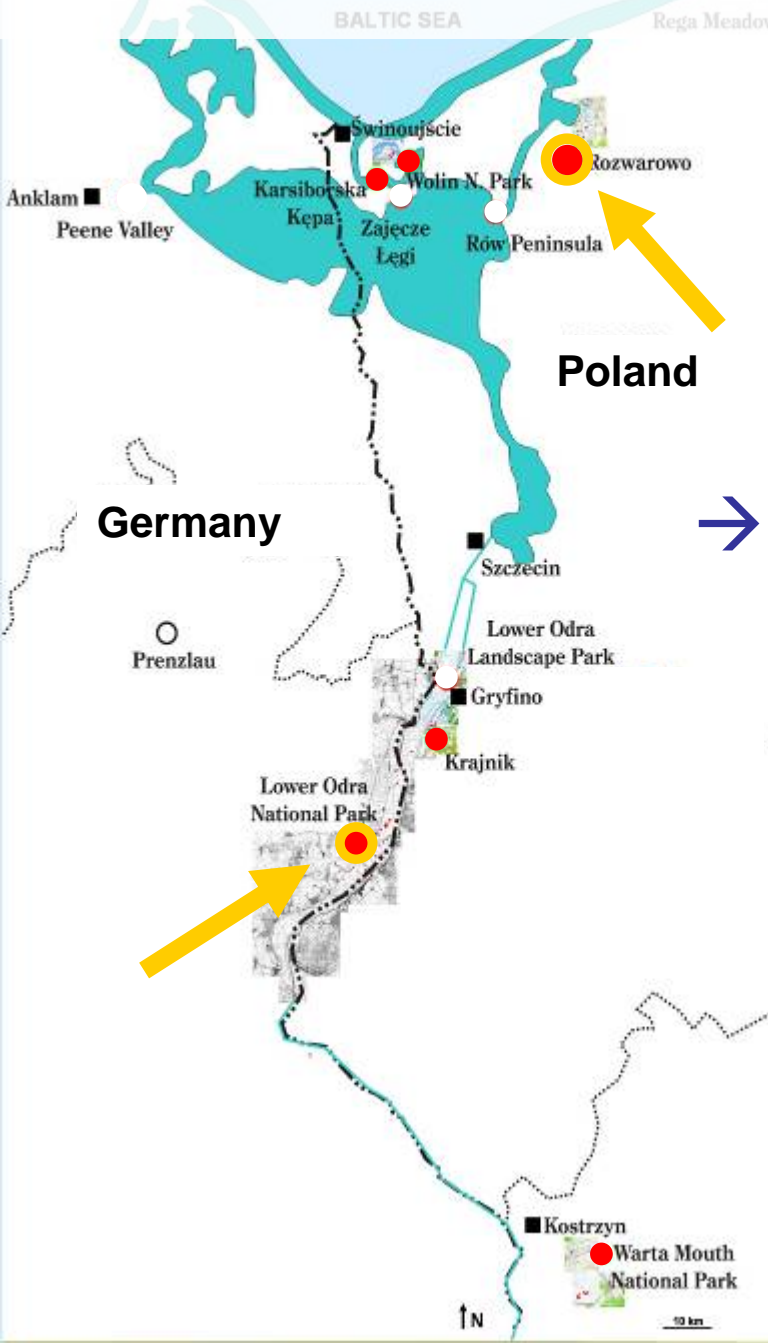
Hortóbagy: c. 500



Population size 1993-2008



The Pomeranian Population



Differences to core population

- ▶ genetics (Giessing 2002)
- ▶ migration (Pain et al. 2004)
- ▶ song (PhD Poznan University started 2008)

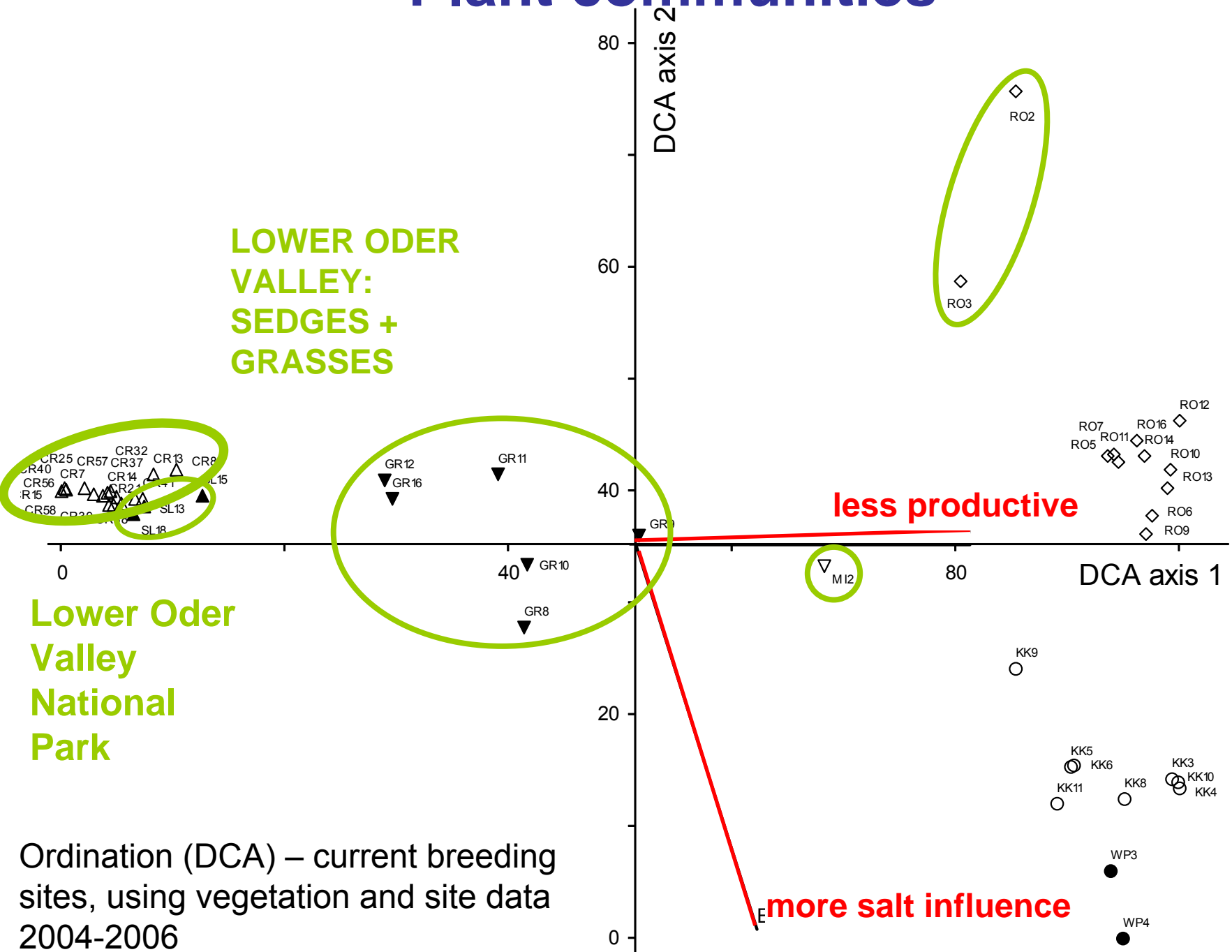
→ important for intraspecific diversity

Decrease – reasons???

Study of :

- Plant communities
- Vegetation structure
- Food supply
- Land use

Plant communities

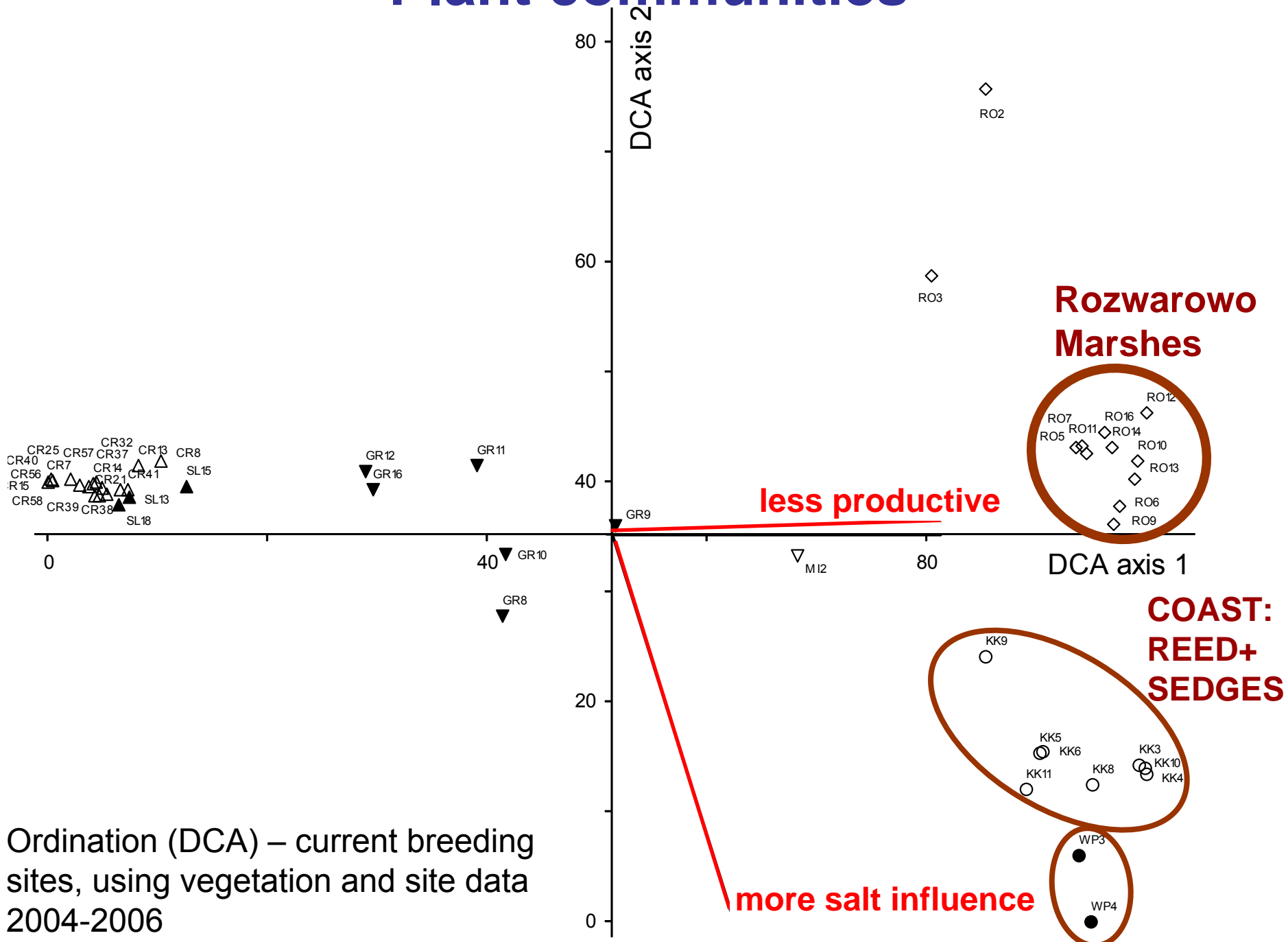


Lower Oder Valley National Park

A wide, flat meadow with tall green grass and yellow wildflowers, framed by trees in the distance and foreground. The sky is blue with light clouds. The foreground is dominated by dense green grass and some yellow wildflowers. In the middle ground, there's a line of trees and a small cluster of purple flowers. The background shows a distant horizon with more trees and a blue sky.

the last breeding site in Germany

Plant communities



Rozwarowo Marshes



different species/communities → similar structure!



the largest Pomeranian breeding site

Vegetation structure



Early May	current	abandoned	test	p
Number of plots	12	15		
Mean vegetation height (cm)	65 ± 7	86 ± 8	t = 6.905	0.005
Cover of herb layer (%)	14.8 ± 10.2	2.6 ± 3.6	t = -3.969	0.005
Thickness of litter layer (cm)	4.4 ± 6.6	10.3 ± 7.3	t = 2.224	0.035
Vegetation density in 60-80 cm height (dm ³ 1000 dm ⁻³)	12.1 ± 11.2	35.9 ± 19.7	t = 3.861	0.005



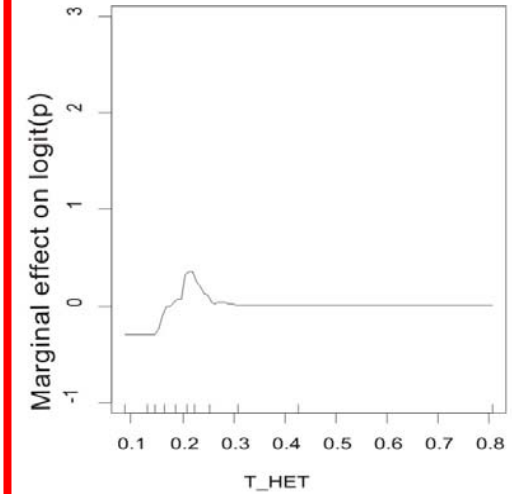
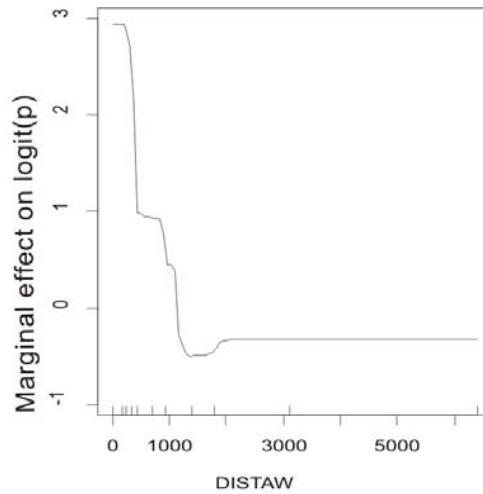
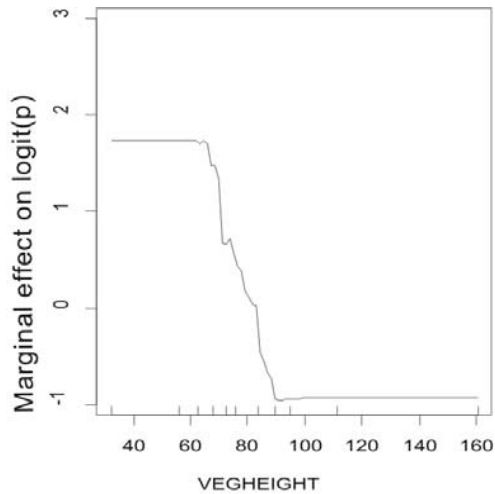
Vegetation structure



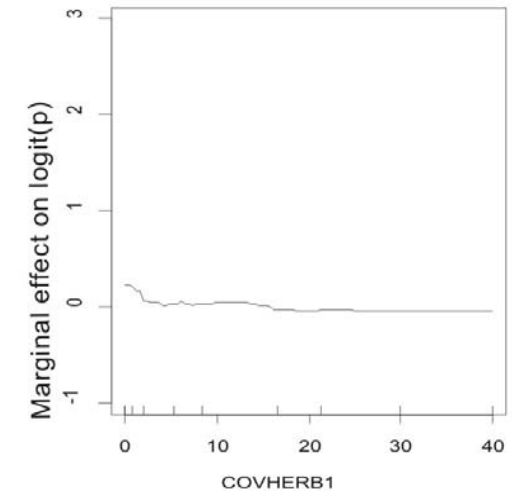
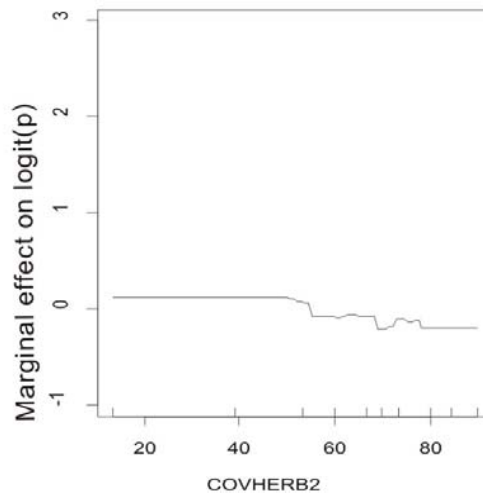
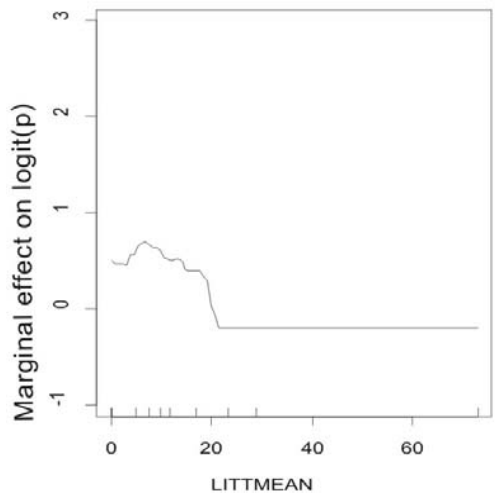
Early May	current	abandoned	test	p
Number of plots	21	20		
Mean vegetation height (cm)	64 ± 5	110 ± 8	t = 6.905	0.005
Cover of herb layer (%)	26.2 ± 13.5	9 ± 6.5	t = -3.969	0.005



Habitat model results

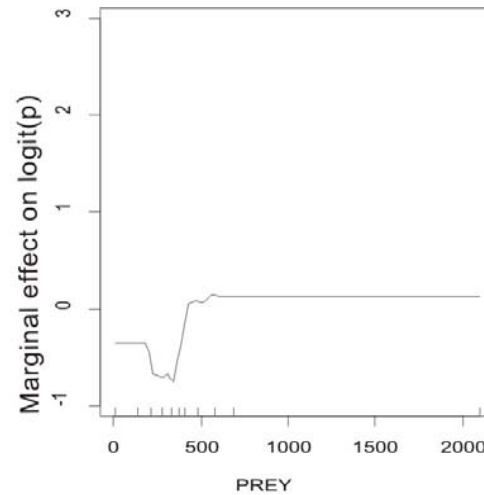


contrast to core population sites

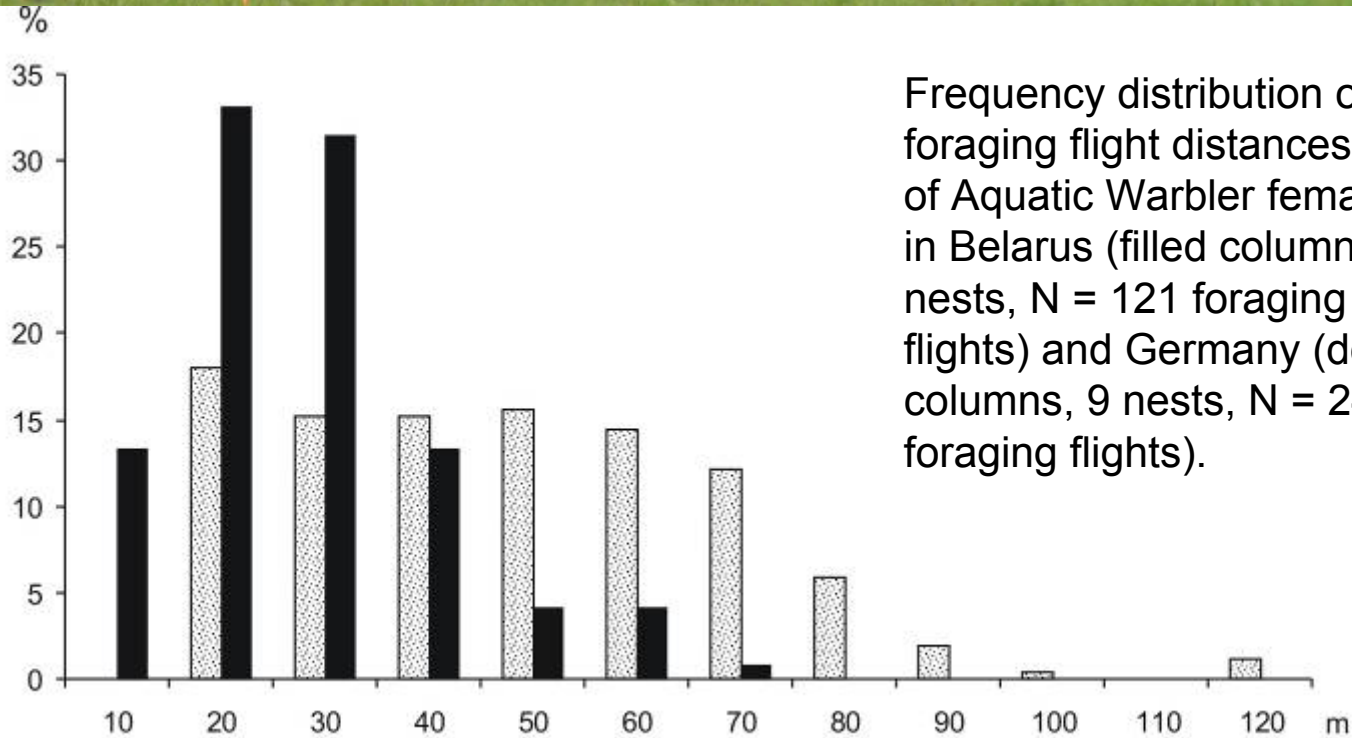


Data: all Pomeranian breeding sites (N=98 plots) 2006, boosted regression tree model

Food supply



another important factor
in the habitat model



Reference

Biebrza (Dyrcz & Zdunek 1993)

Nests

8

Distance

31.7 m

Preference

no

Biebrza (Schulze-Hagen et al. 1989)

17

18 m

no

Belarus (A. Kozulin unpubl.)

12

25.5 m

no

Pomeranian Population

9

60 ± 12 m

yes



1. Mowing edges

2. Mown areas



Reference	Nests	Distance	Preference
Biebrza (Dyrcz & Zdunek 1993)	8	31.7 m	no
Biebrza (Schulze-Hagen et al. 1989)	17	18 m	no
Belarus (A. Kozulin unpubl.)	12	25.5 m	no
Pomeranian Population	9	60 ± 12 m	yes

Food supply

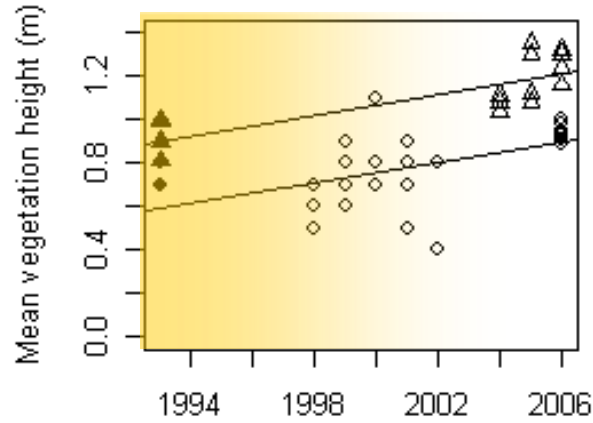
Site type	N	Median	Quartiles
Mown/grazed sedge vegetation	44	474.59 mg	358.74 - 556.23 mg
Unmown/ungrazed sedge vegetation	41	298.87 mg	160.33 - 377.11 mg
Mown/grazed reed vegetation	32	345.77 mg	172.98 - 567.91 mg
Unmown/ungrazed reed vegetation	4	54.72 mg	44.54 - 88.67 mg

→ differences between sedge and reed vegetation and influence of mowing/grazing!

Influence of land use

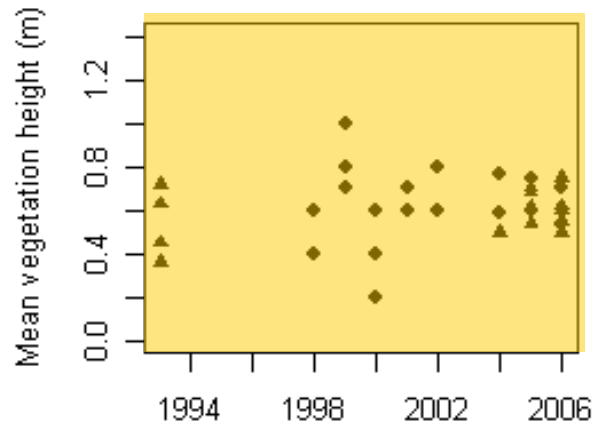
o plot centre: $r = 0.858$, $n = 21$, $P < 0.001$; $y = 0.872 + 0.024x$
Δ plot margin: $r = 0.518$, $n = 50$, $P < 0.001$; $y = 0.567 + 0.023x$

Abandoned by aquatic warblers

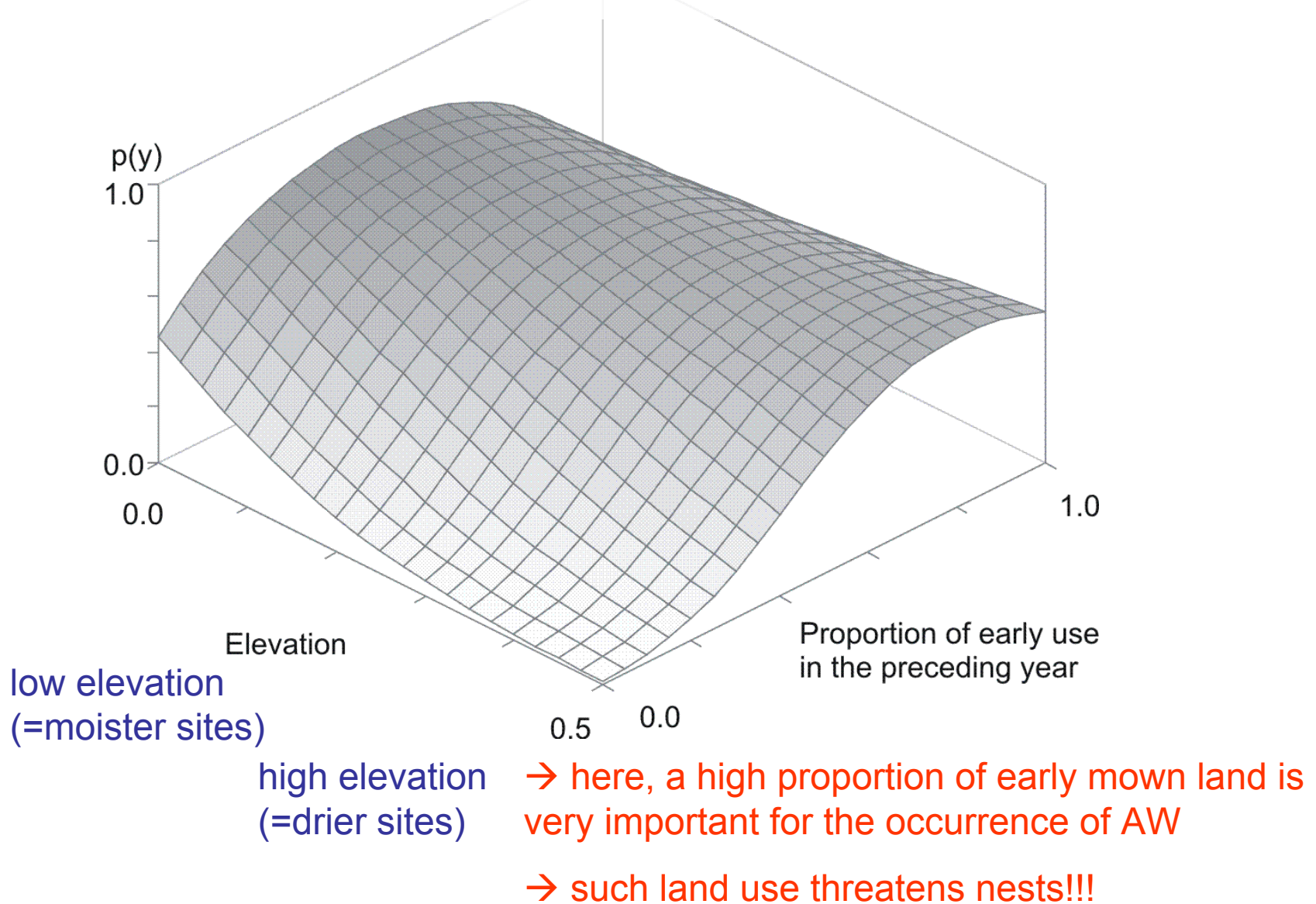


Intensity of mowing/grazing

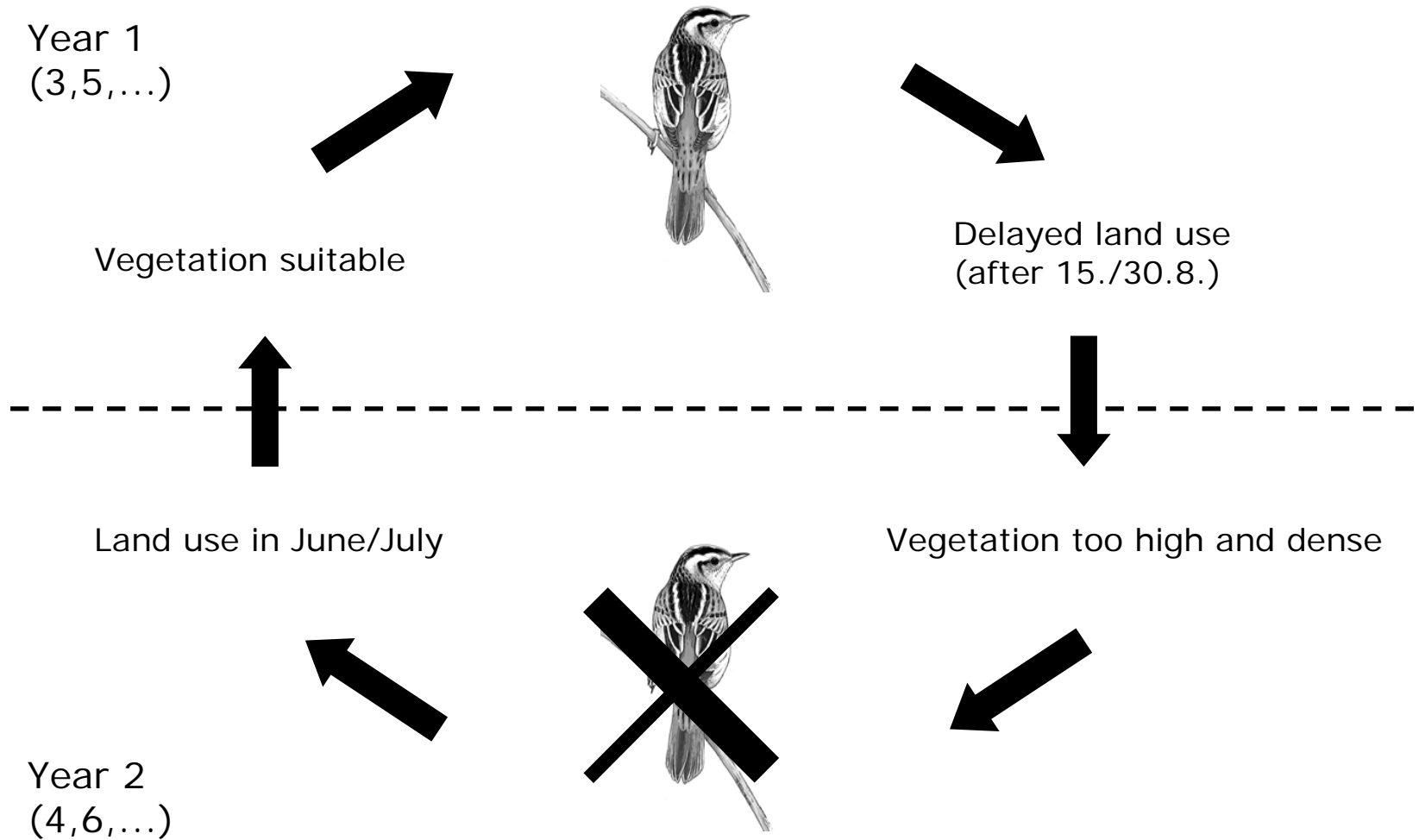
Occupied by aquatic warblers



Importance of early summer mowing



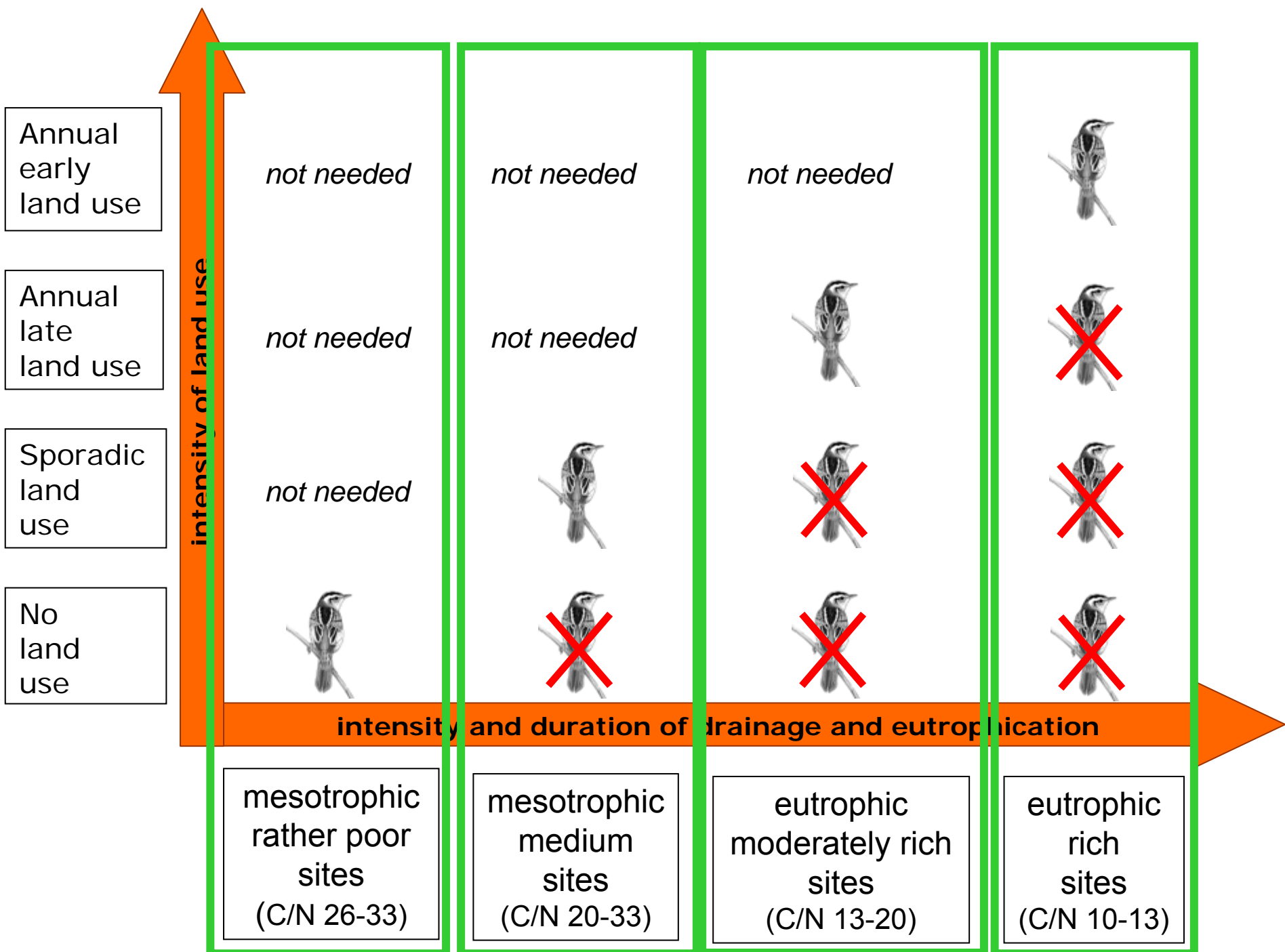
Alternating land use on more eutrophic sites



Summary and conclusions

- more vs. less productive sites (Oder Valley vs. coast)
- optimal conditions: low, sparse vegetation (as further east)
- contrast to core population: sites drier; low litter layer and heterogenous habitats preferred → probably connected to food supply (better) → therefore longer foraging flights to specific foraging habitats

more productive sites with AW	early summer land use with nest protection → mosaic, alternating land use
more productive sites without AW	early summer
less productive sites with AW	late (winter), monitoring of potential vegetation succession!
less productive sites without AW	late (winter); in case of reed overgrowth: early summer



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Ernst Moritz Arndt
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