



Preliminary findings of the PhD research on AW habitat requirements in Western Pomerania

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Current situation of AW in West-Pomerania



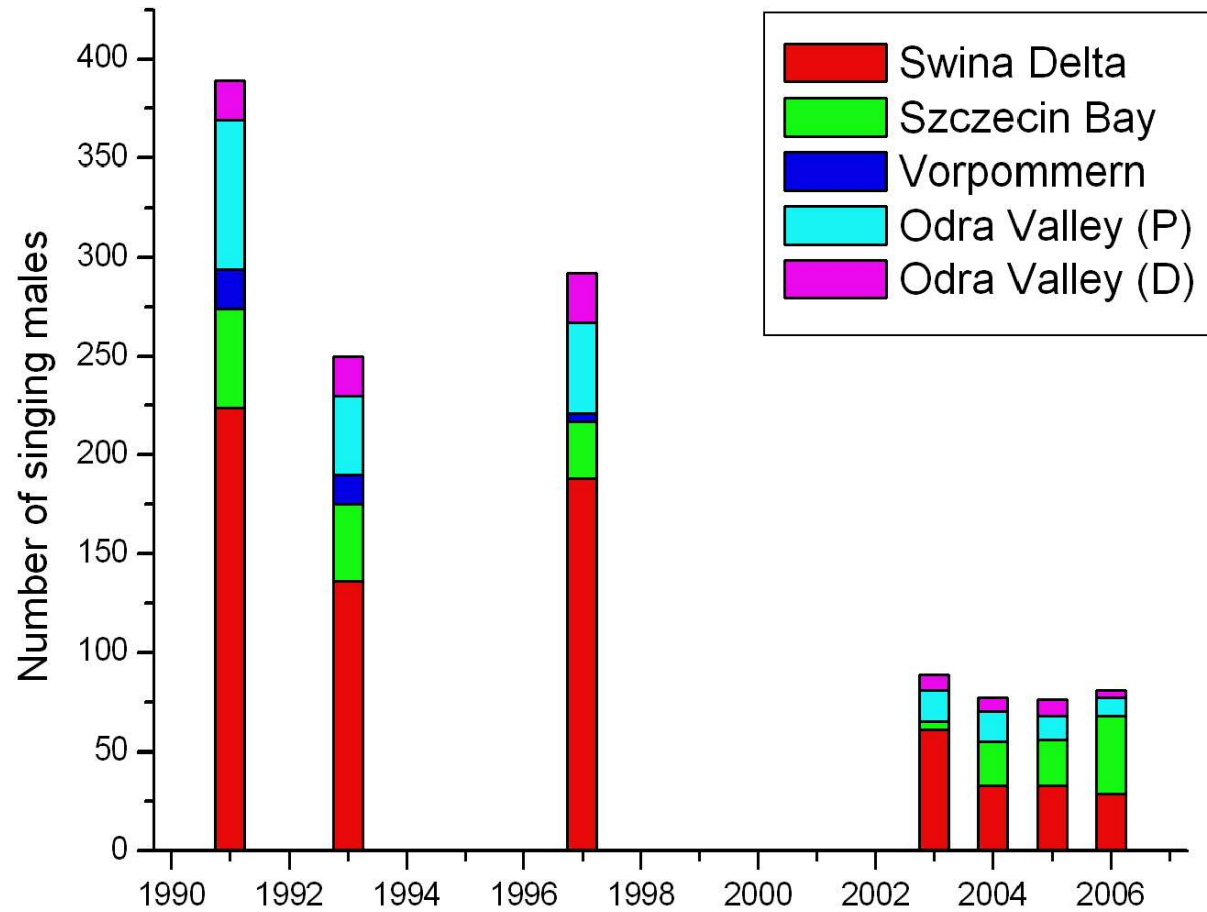
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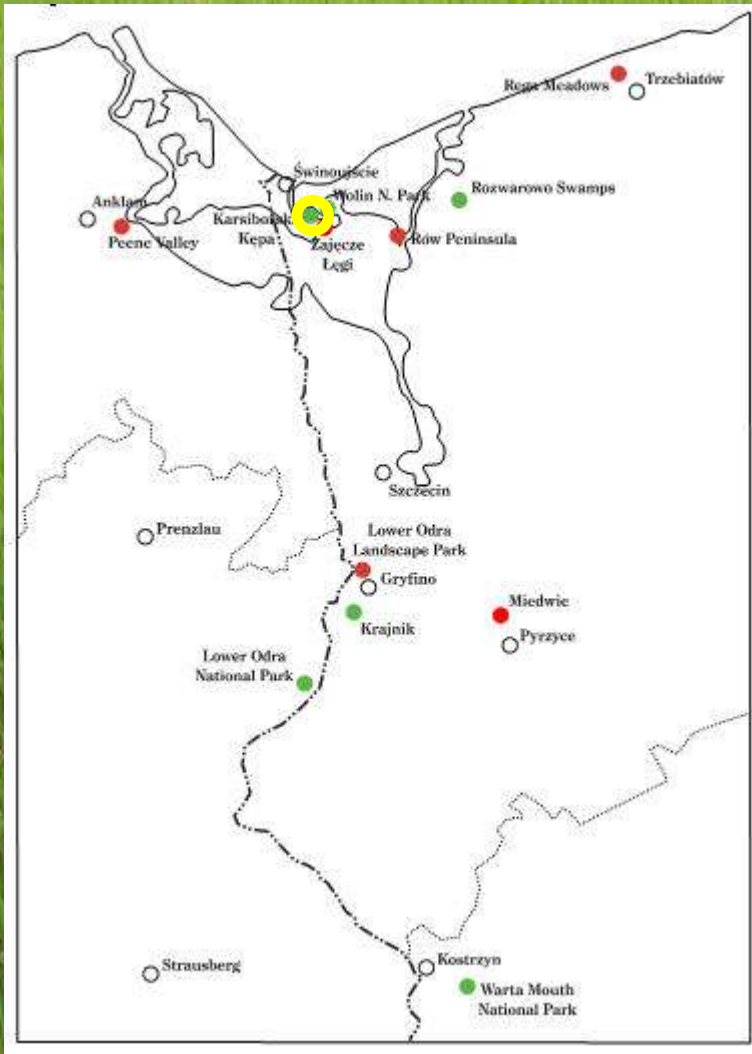


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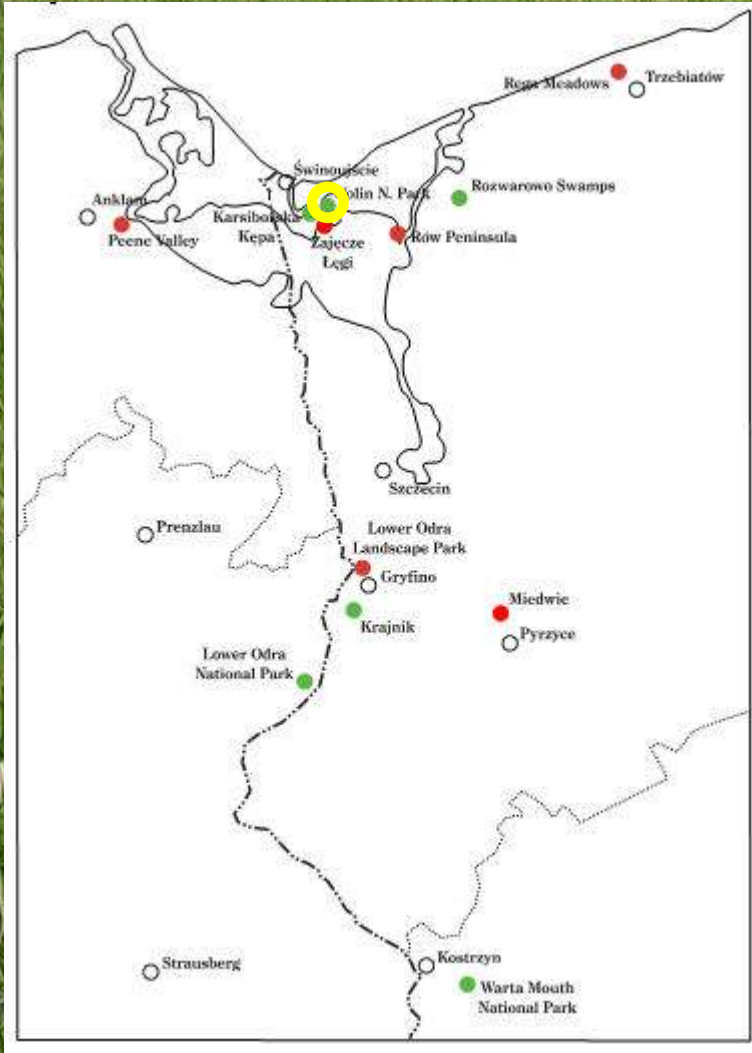
Karsiborska Kępa Island

1991	~100 sM
1997	70 sM
2003	15 sM
2005	15 sM
2006	17 sM



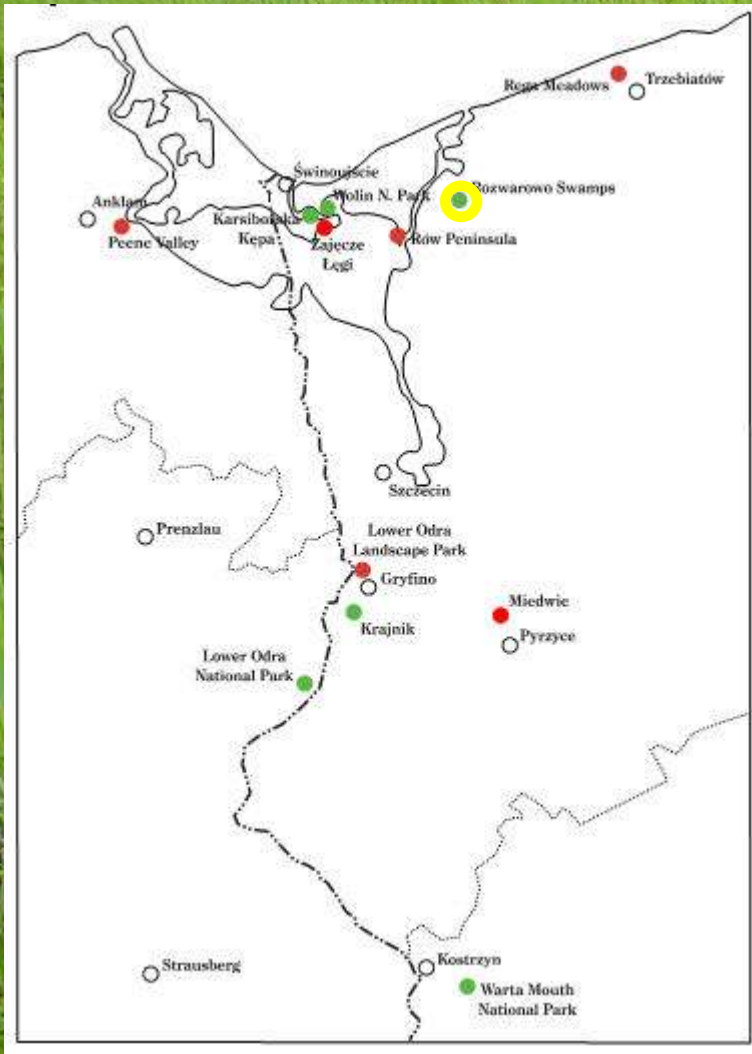
Wolin National Park

1991	52 sM
1997	83 sM
2003	45 sM
2005	18 sM
2006	8 sM



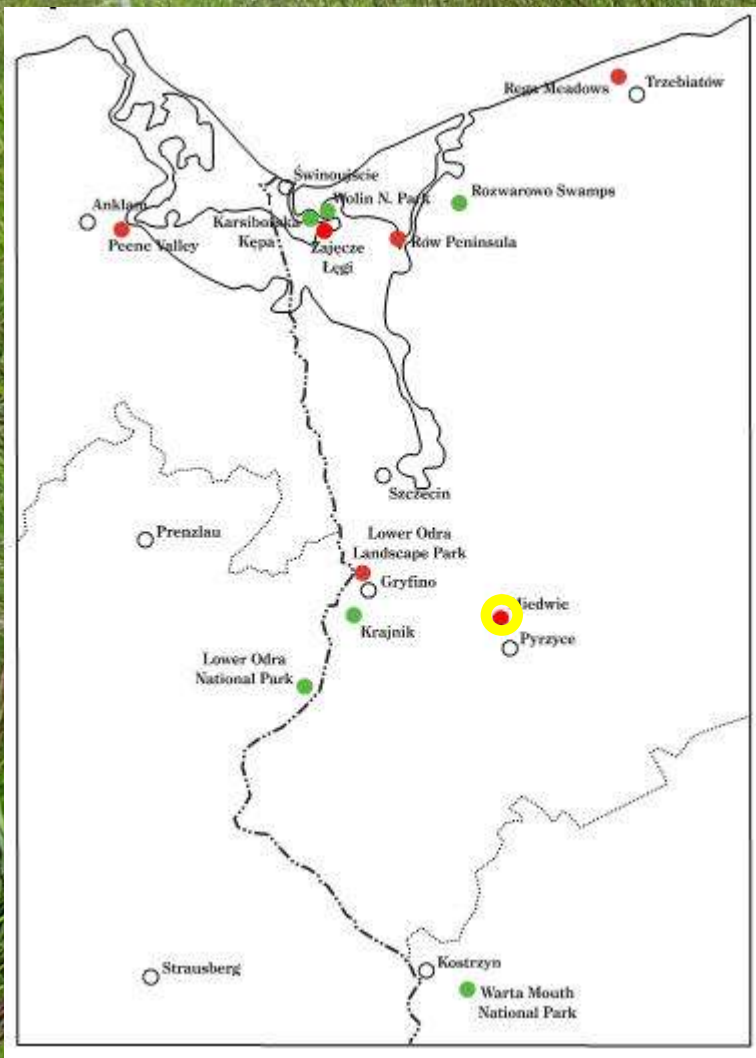
Rozwarowo Marshes

1991	60 sM
1997	28 sM
2003	4 sM
2005	23-25 sM
2006	37 sM



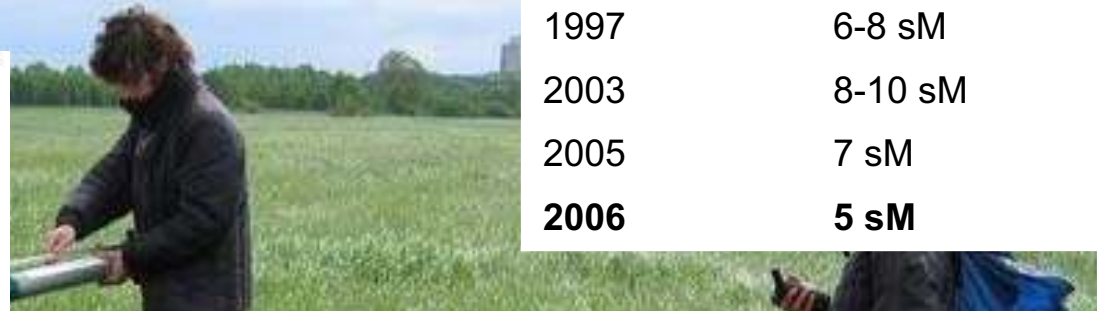
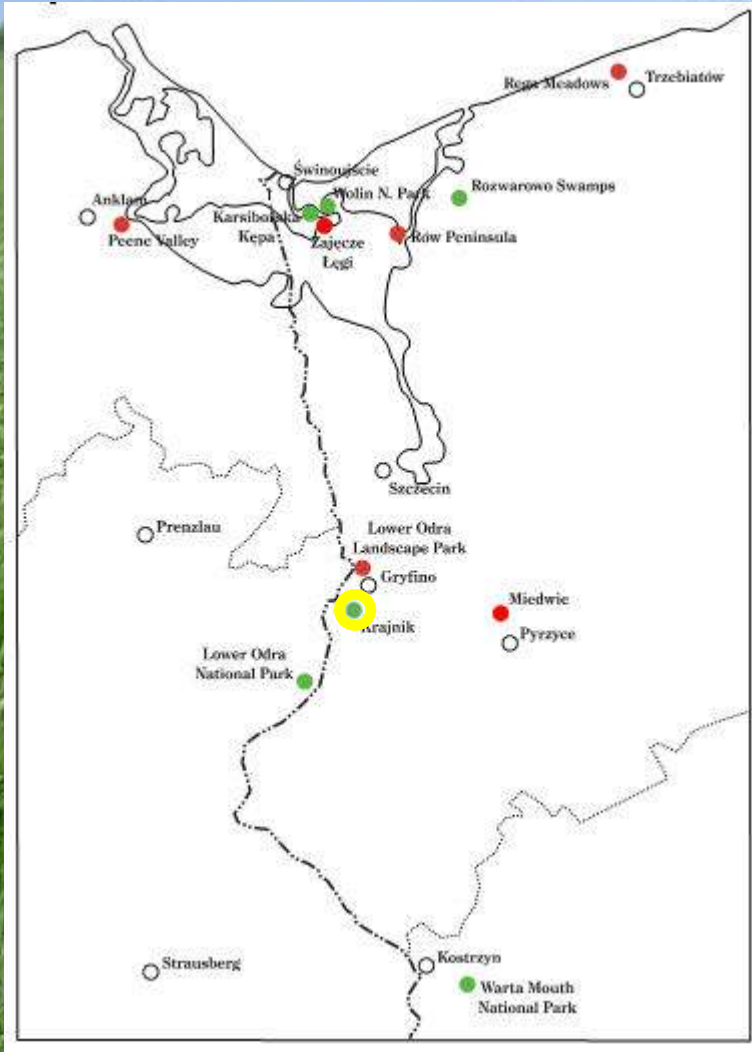
Miedwie Lake

1993	9-12 sM
1997	7-14 sM
2003	2-5 sM
2005	1 sM
2006	0 sM



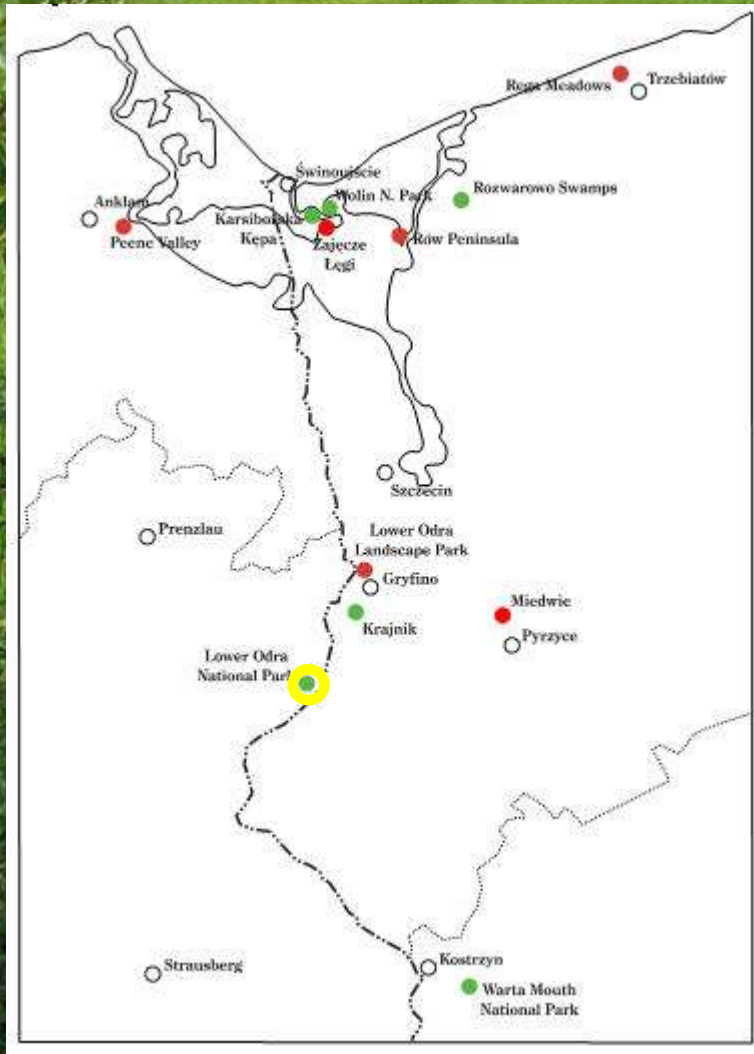
Krajnik Meadows

1991	55-70 sM
1997	6-8 sM
2003	8-10 sM
2005	7 sM
2006	5 sM



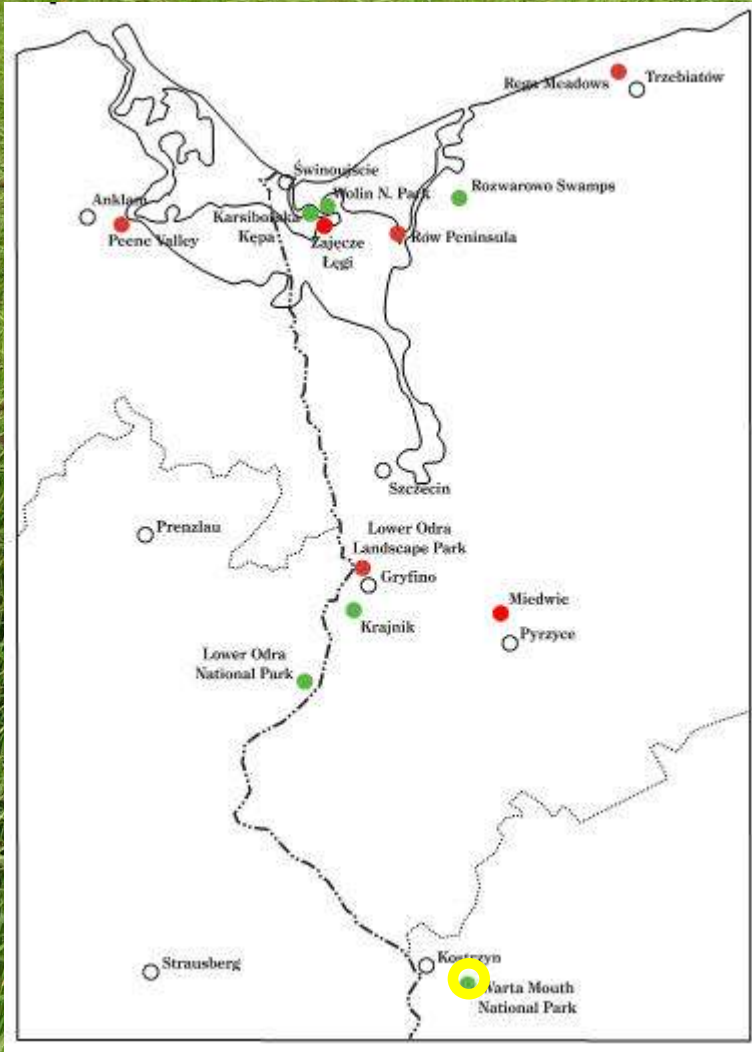
Lower Oder Valley National Park

1991	20 sM
1997	25 sM
2003	8 sM
2005	8-10 sM
2006	4 sM



Warta Mouth National Park

1991	? sM
1997	35-42 sM
2003	1 sM
2005	3 sM
2006	4-5 sM





Methods



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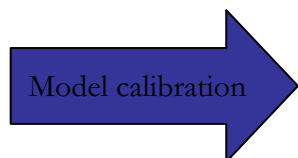
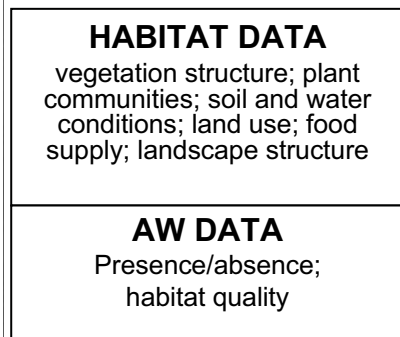
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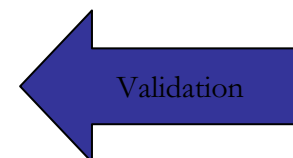
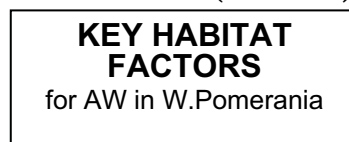
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PhD study outline

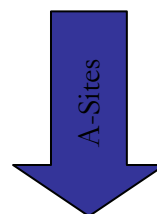
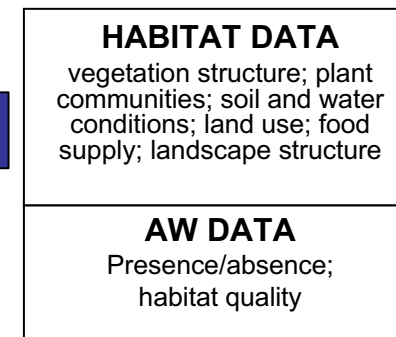
W. POMERANIA



(Potsdam)



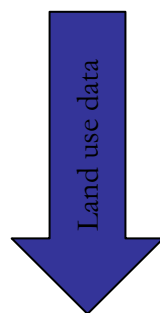
LITHUANIA*



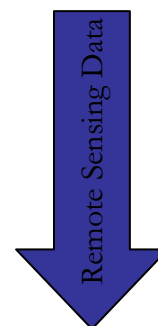
(Minsk)



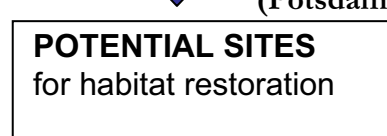
(Poznan)



(LIFE)

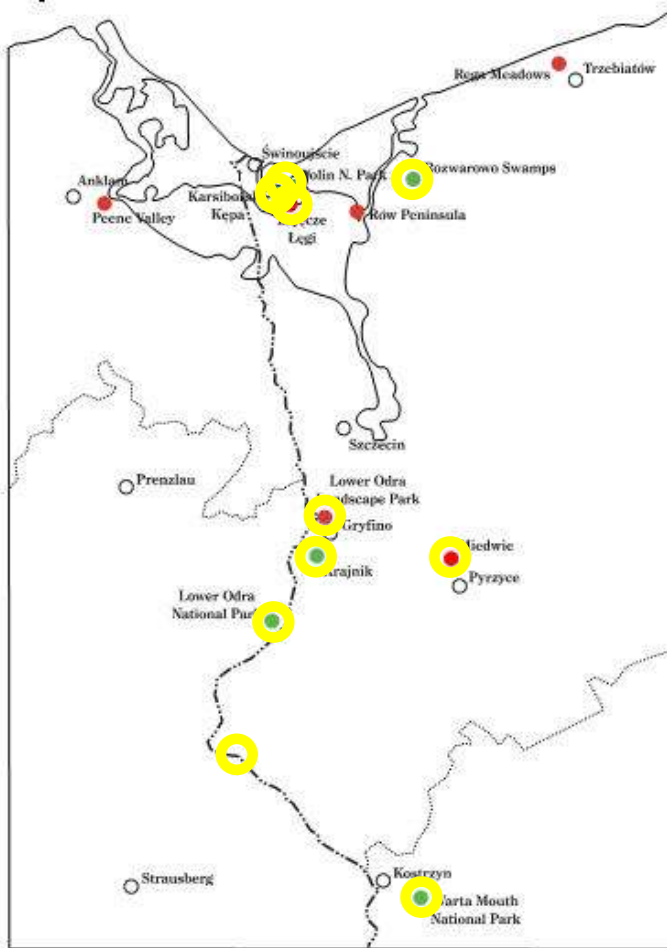


(Potsdam)



* most similar habitats outside Pomerania

Study areas



Classes:

- A=currently inhabited by AW
- B=recently abandoned by AW
- C=potentially suitable for AW

Field campaigns 2004-2006:

T1=arrival

T2=1st brood

T3=2nd brood

144 study sites W. Pomerania

62 study sites in Lithuania



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Methods: Vegetation structure



permanent plots



vertical density



stability/stalks



litter and vegetation height



Methods: Diet and food supply



Neck collar & faecal samples

Pitfall traps



Ground photoeclectors



Dipnetting



Preliminary results



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Habitat modelling I

- ▶ GLM/LRM
- ▶ internal validation between years
- ▶ factors in best model:

distance to nearest AW

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area size

thickness of litter layer

vegetation density in 60-80 cm



Habitat modelling II

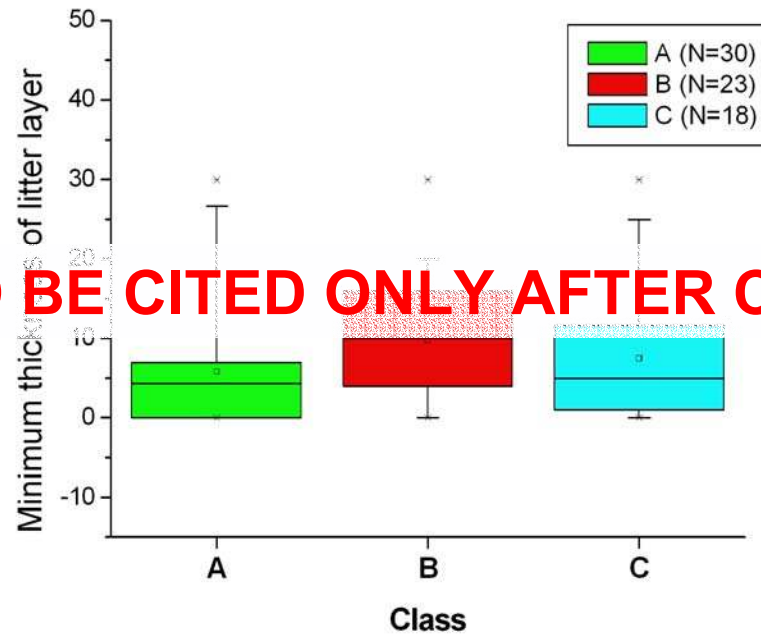
External validation with
Lithuanian dataset:
work in progress



NEMUNO DELTOS
regioninis parkas

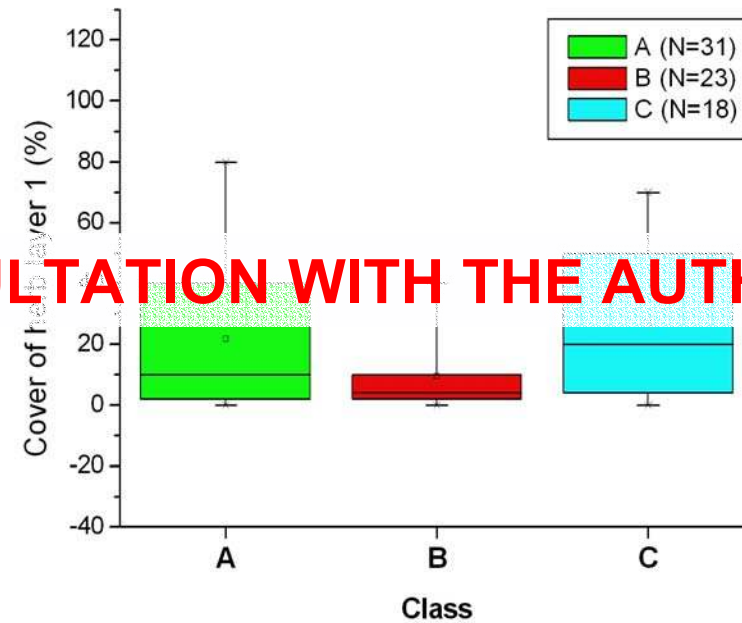


Thickness of litter layer



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Cover of herb layer 1



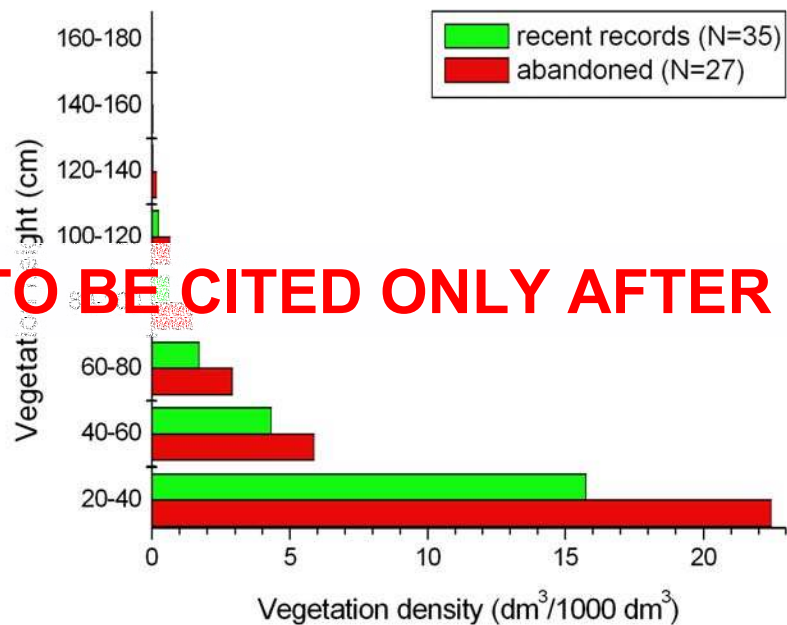
Western Pomerania (May 2005)

Mann-Whitney U-Test $U=248$, $p=0.05$ for A and B

Western Pomerania (May 2005)

Kruskal-Wallis H-Test $\chi^2=7.825$; $p=0.02$

Vegetation density

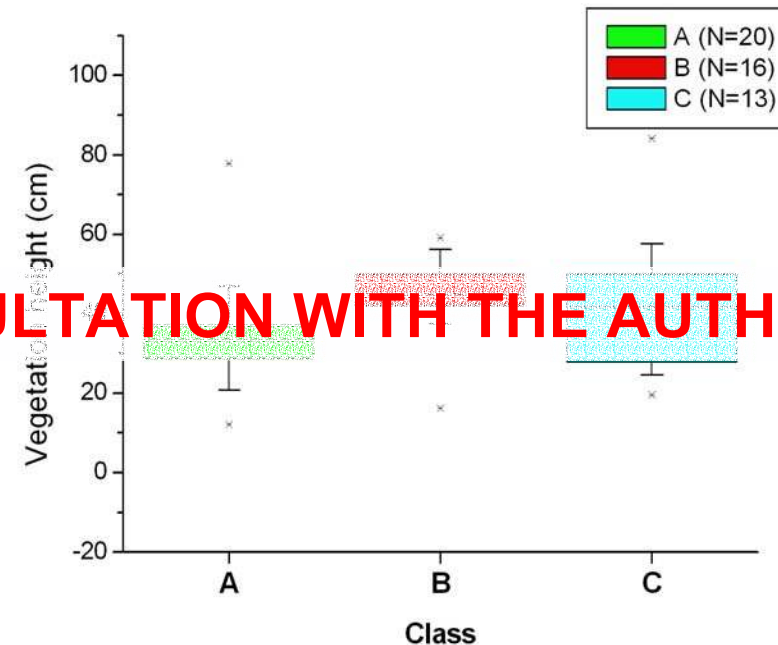


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Western Pomerania (June 2005)

Mann-Whitney U-Test for VEGDENS20-40
 U=254, p=0.02; for VEGDENS40-60 U=318,
 p=0.029; for VEGDENS60-80 U=258, p=0.005

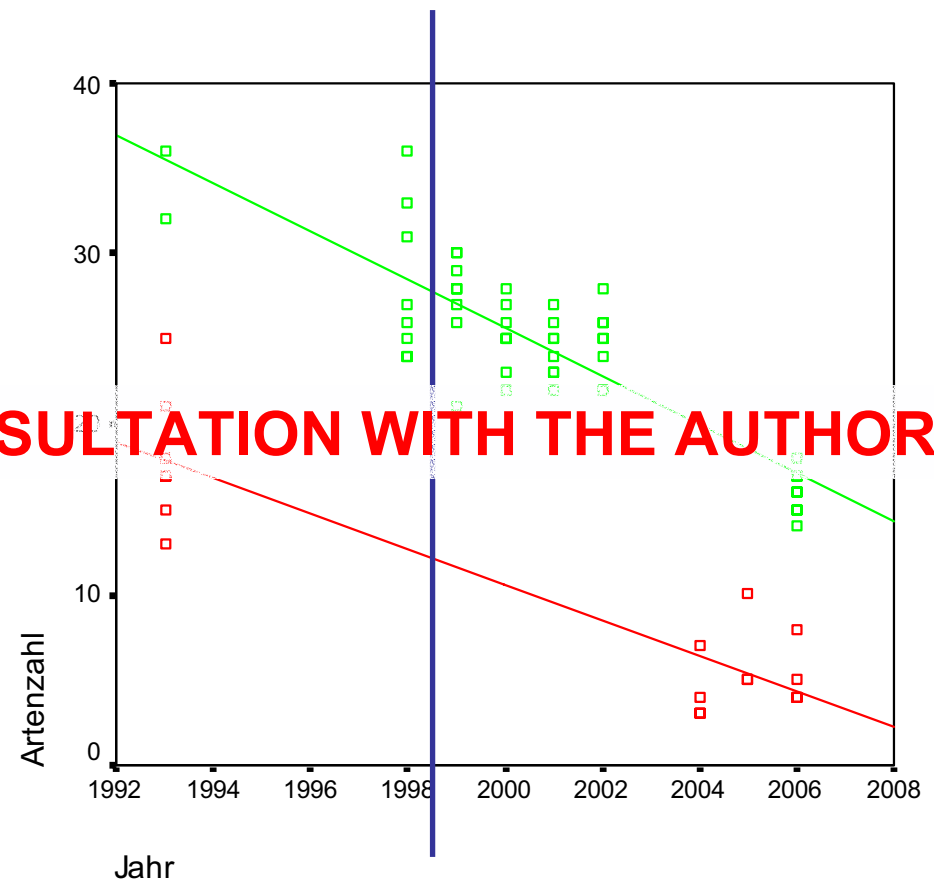
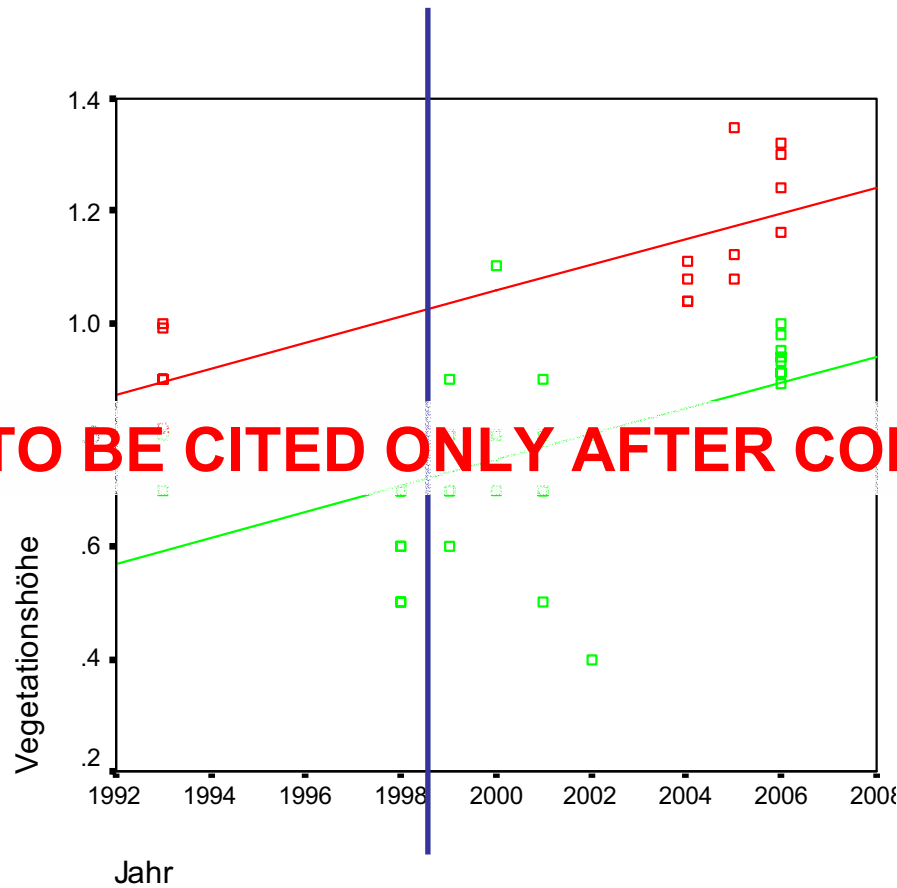
Vegetation height



Western Pomerania (May 2005)

Kruskal-Wallis H-Test $\chi^2=8.598$; p=0.014

1993-2006 vegetation trend on AW sites abandoned by land use



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Study plot Nördliche Dammwiesen in NP Lower Oder Valley

Data from P. Jehle & K. Pankoke, T. Fartmann, F. Tanneberger

Food supply

Taxonomic group	June (1st brood)	July (2nd brood)
Coleoptera	A>B p=0.013	n.s.
Diptera	A>B p=0.001	n.s.
Hemiptera	A>B p=0.074	n.s.
Hymenoptera	A>B p=0.000	n.s.
Orthoptera	A>B p=0.019	n.s.
Prey items total	A>B p=0.001	n.s.

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(Dipnetting results, only 2005 NLP LOV, Mann-Whitney U-Test)

analysis for 2006 in progress (140 samples from 9 sites)



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Other parameters

water level and soil moisture: n.s.; A-sites have
varying minima over breeding season

Mowing in previous year

Class in 2005	2004 mown	2004 not mown
Class A (N=37)	68 %	32 %
Class B (N=50)	14 %	86 %

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AW favourable conditions WP

- ▶ Mean thickness of litter layer 0-15 cm
- ▶ Vegetation in early June:

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- ▶ vegetation height 60-80 cm
- ▶ Sufficient food supply (...)

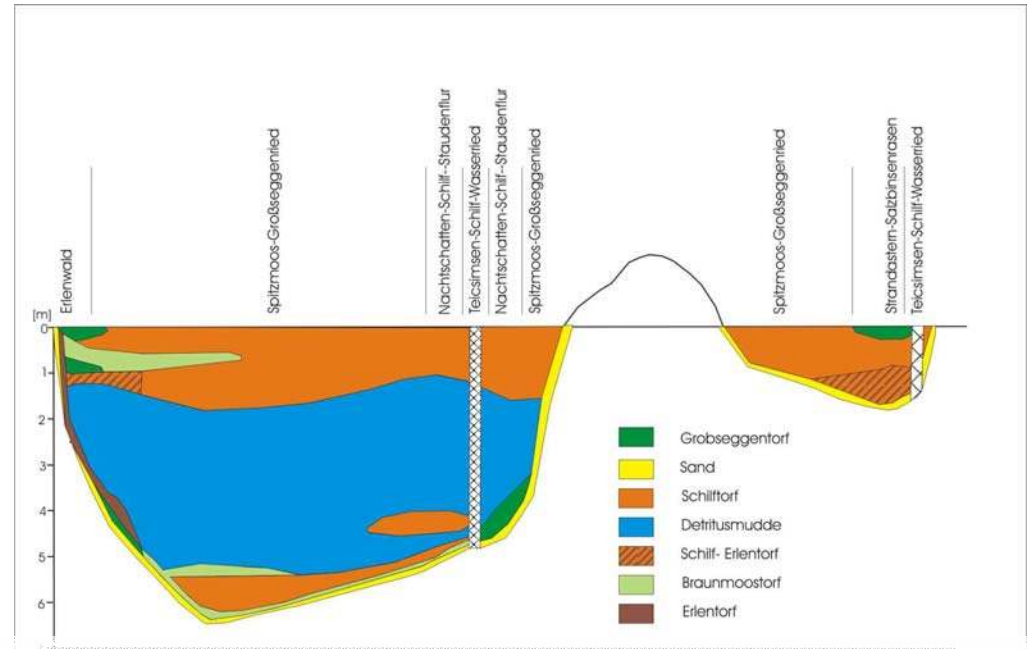
improve using LIFE monitoring data



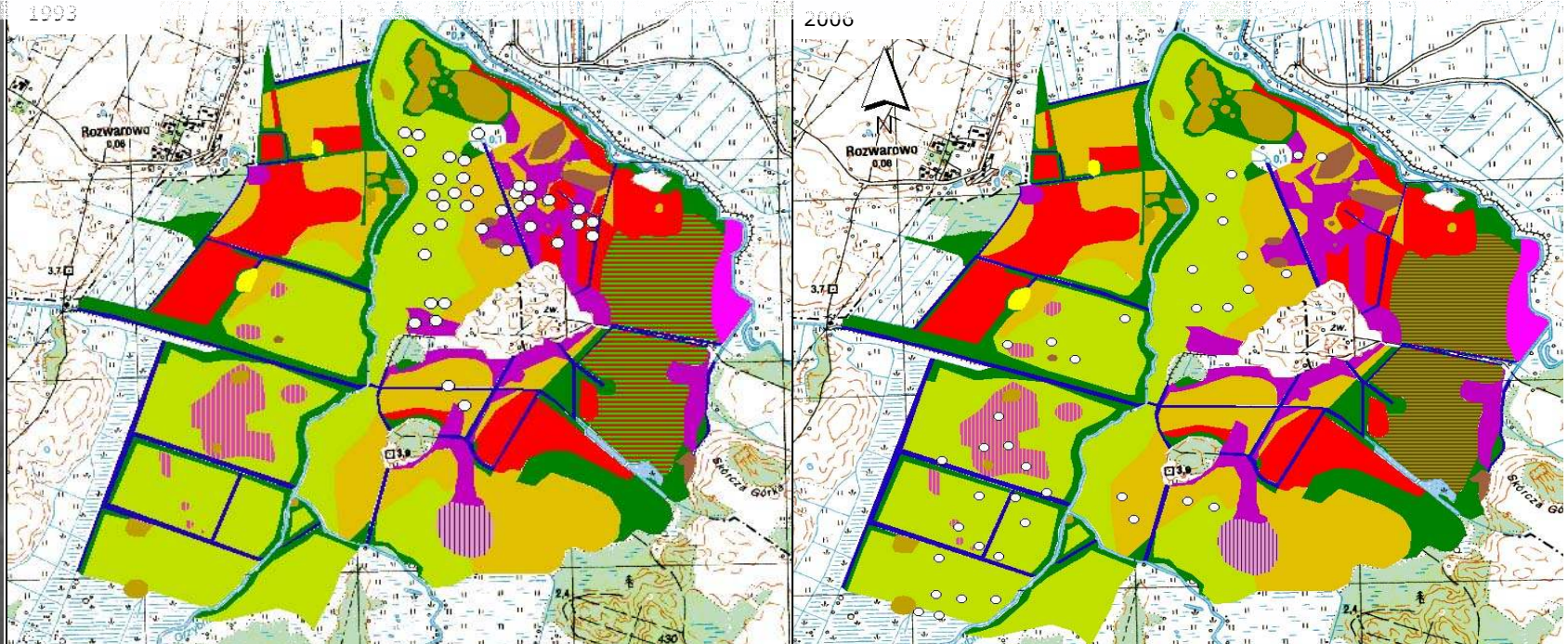
Rozwarowo

MSc Study 2005/2006

Greifswald University



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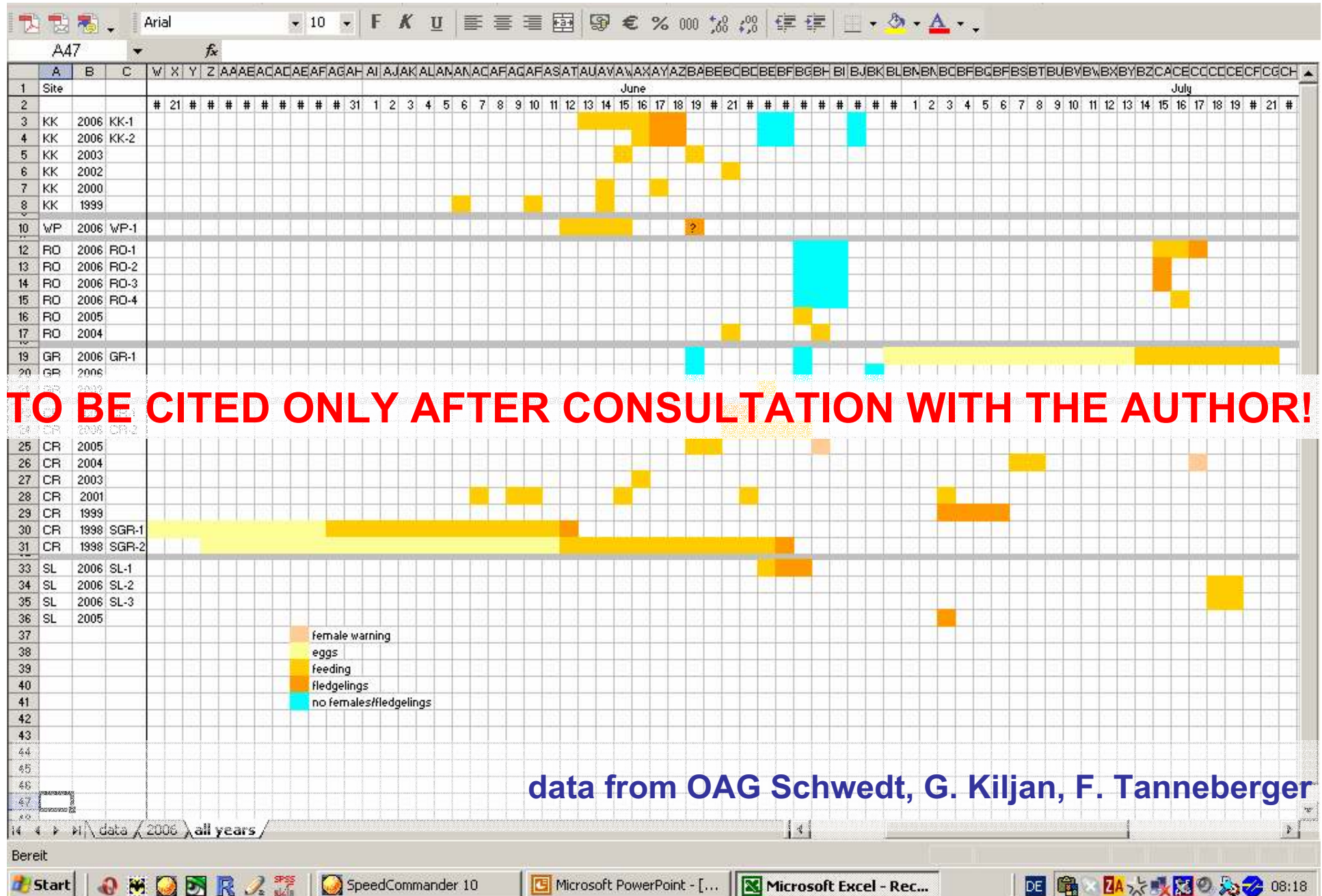
Diet and foraging behaviour

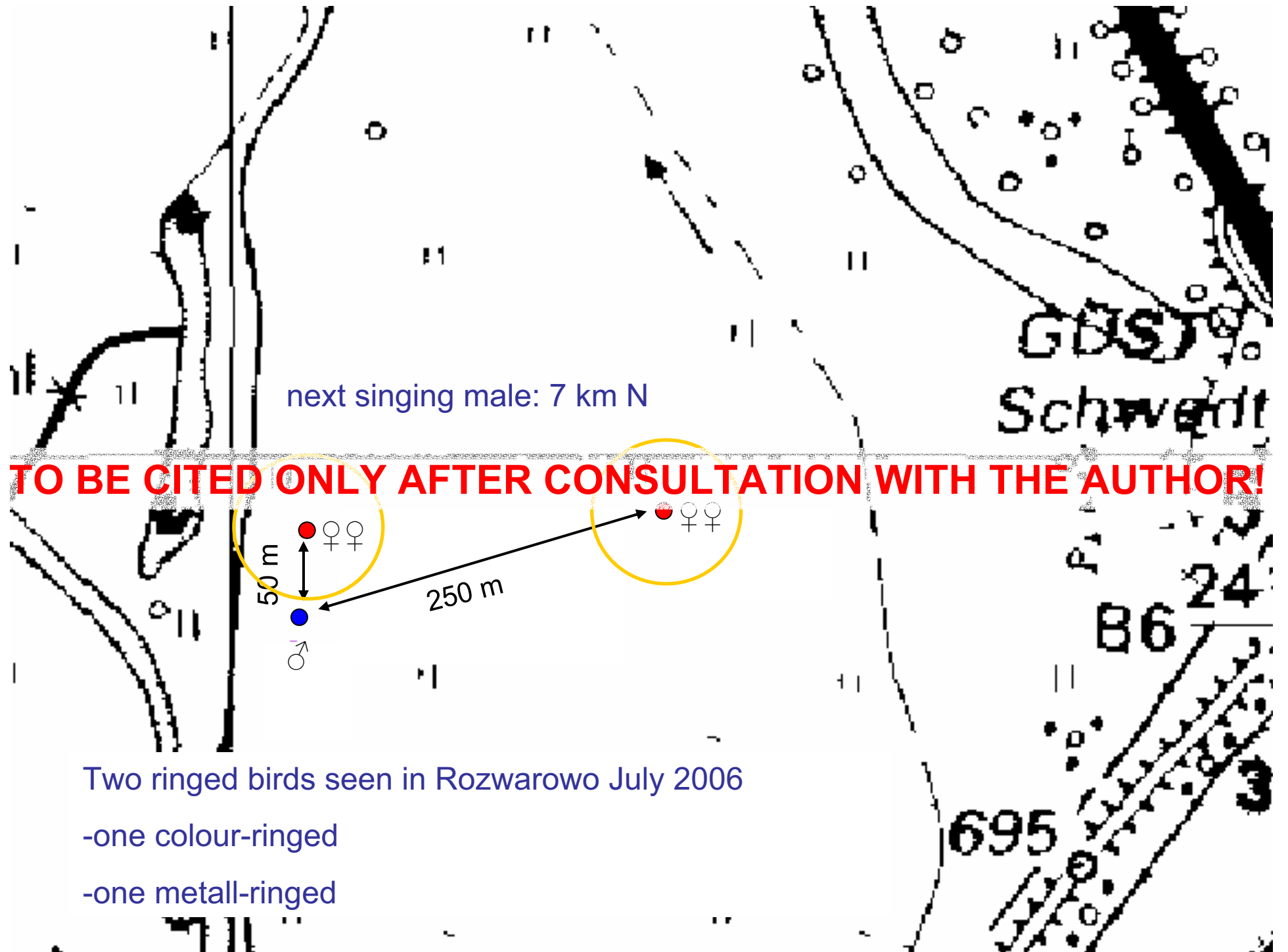


- ▶ Diet data analysis (2005)
 - 10 nests Sedge Warbler
 - 5 nests Reed Bunting → approximation of AW diet using data from Belarus (2000-2005) and Dittmann (1986) – in progress
- ▶ Foraging behaviour (2006)
 - 9 nests Aquatic Warbler
 - 9 nests Reed Bunting
 - 8 nests Sedge Warbler



AW phenology in Pomerania





Two ringed birds seen in Rozwarowo July 2006

-one colour-ringed

-one metall-ringed

Foraging behaviour AW



70-80 cm 35 m



90-100 cm 60 m



120-130 cm 20 m



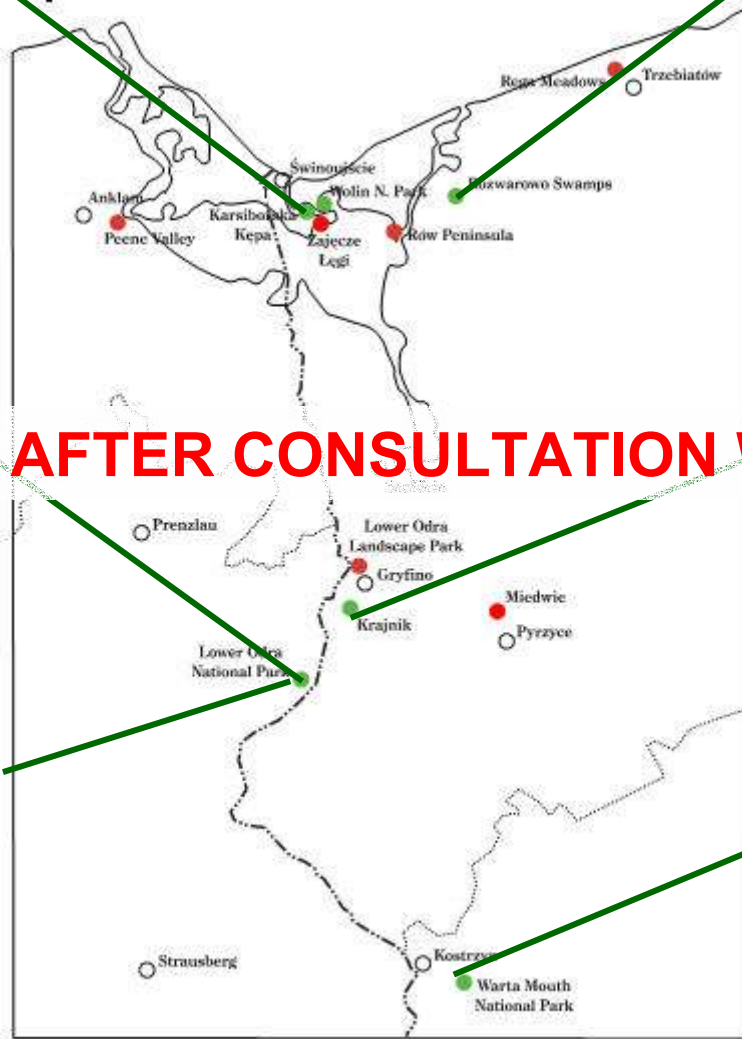
60-70 cm 63 m



70-80 cm 35 m



60-70 cm 60 m



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7 nests: youngs left nest



Flight distances

reference and method	distance	preference
Dyrcz & Zdunek (1996) mean	31.7 m	no
Schulze-Hagen et al. (1989) mean	19 m	no
Kozulin, A. (pers. comm.) mean median	25.5 m 25 m	no
this study - mean this study - median	48.55 m 60 m	yes

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Preliminary management recommendations



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Conclusions for AW conservation

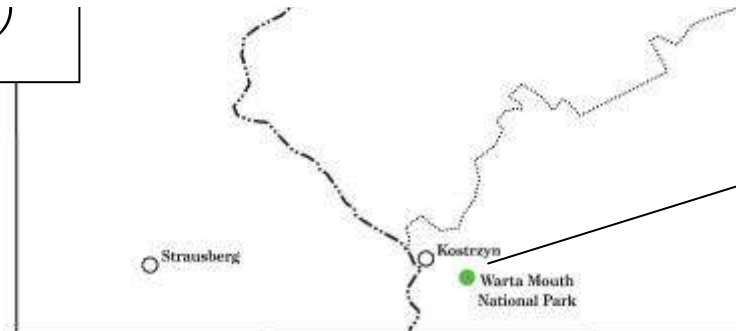
Mowing/
grazing (LIFE)



Mowing,
awareness (LIFE)

long-term strategy for biomass removal???

(water management)



Mowing
(Park, AES)



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Prey is crucial!

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Females show preference for certain structural habitat features with regard to foraging

-mowing edges (cf. *A. melanopogon*)

-moister places with lower vegetation

→ higher prey abundance

→ **provide such places**



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