

Habitat selection and breeding success of northern lapwings in relation to Agri-Environmental Schemes and predation

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Nederlandse Ornithologische Unie

FRYSKE



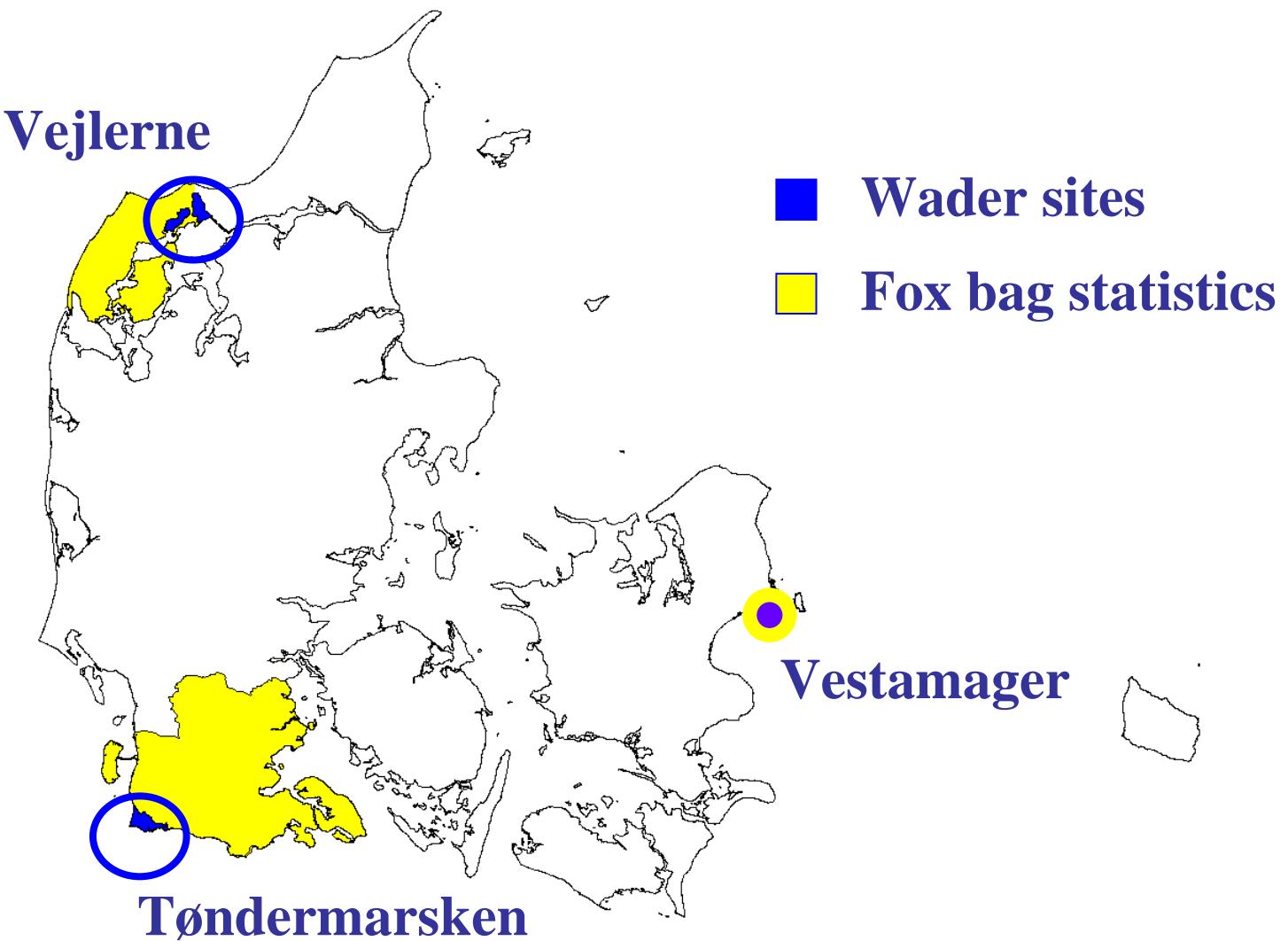
AKADEMY



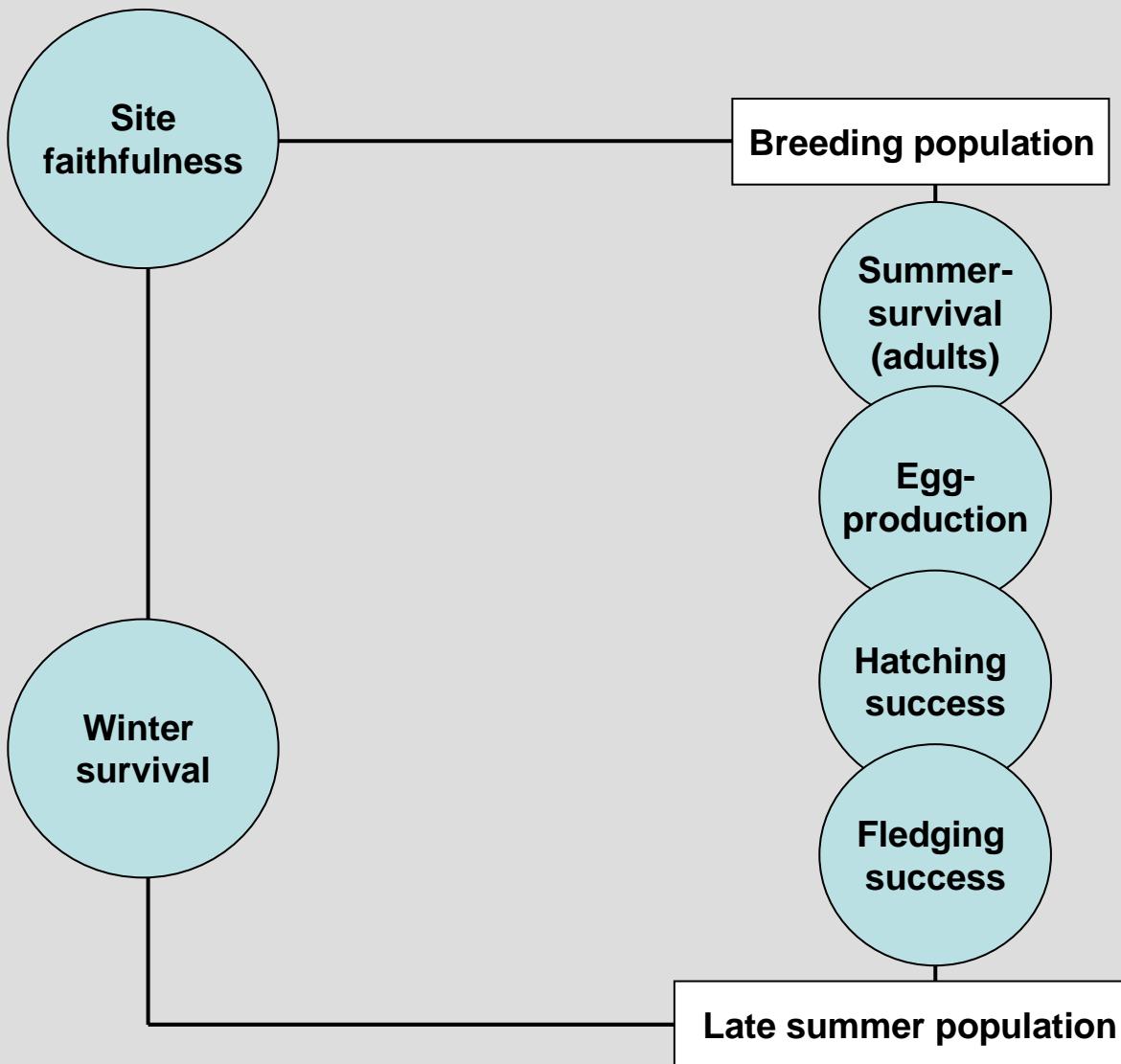
Weidevogels tussen krimp & kramp. Nederlandse Ornithologische Unie & Fryske Akademy, 23 October 2010

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Fox numbers and waders in three sites in Denmark



Population regulation

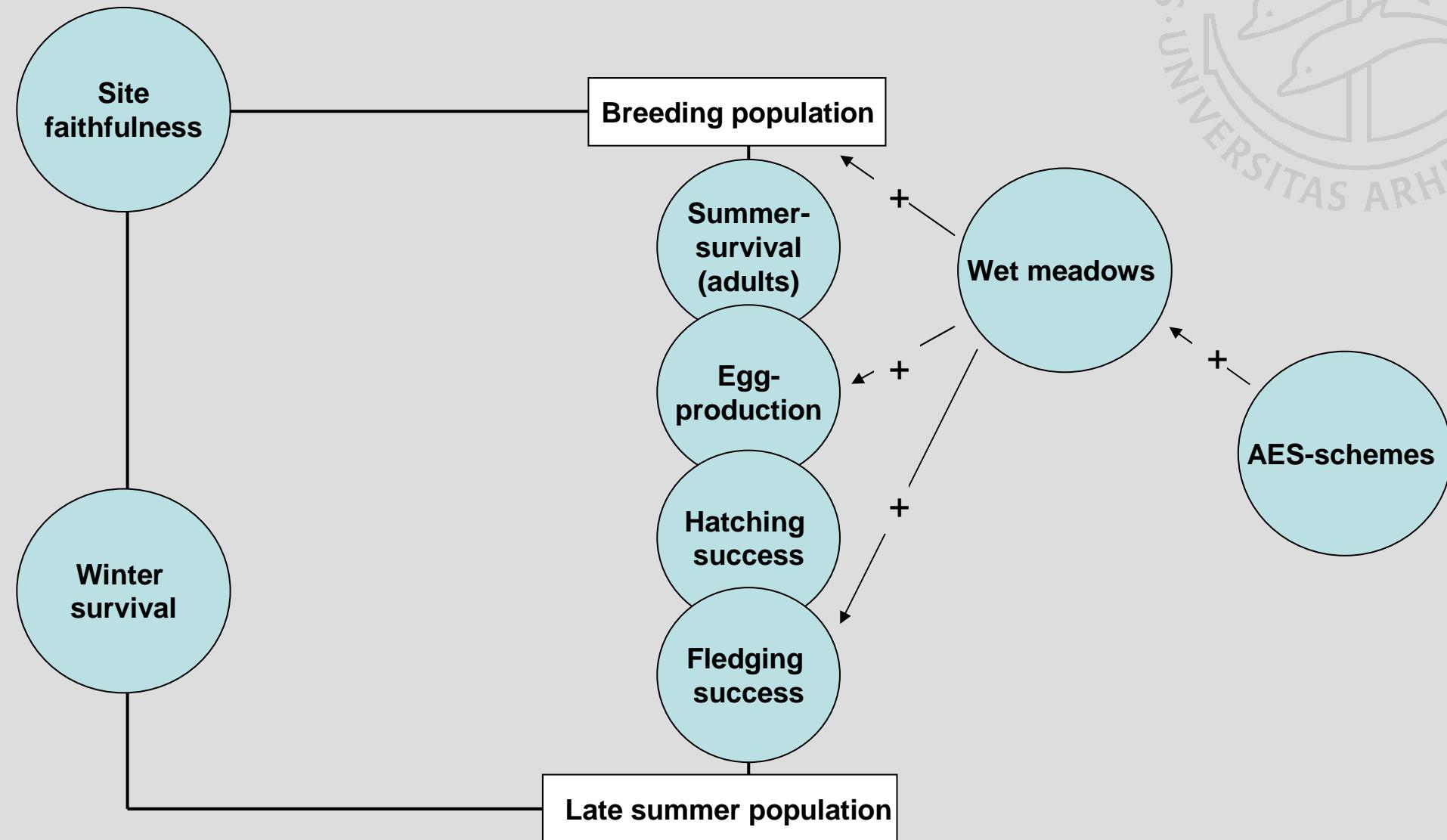


*A simple version
of stages in the
annual cycle,
determining the
size of a wader
population*



We can help on their way ...1

"Habitatfactors"
known or expected effects

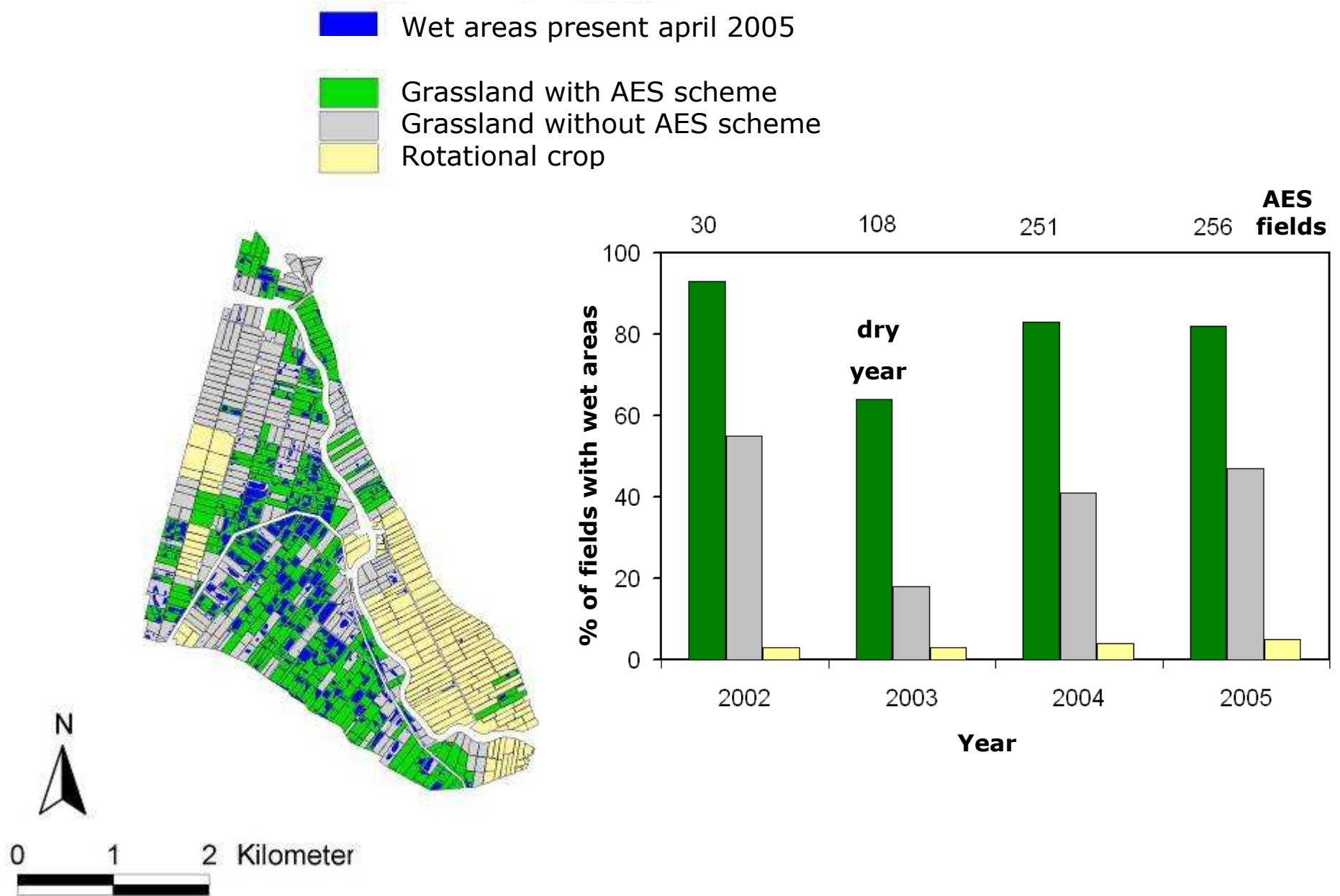


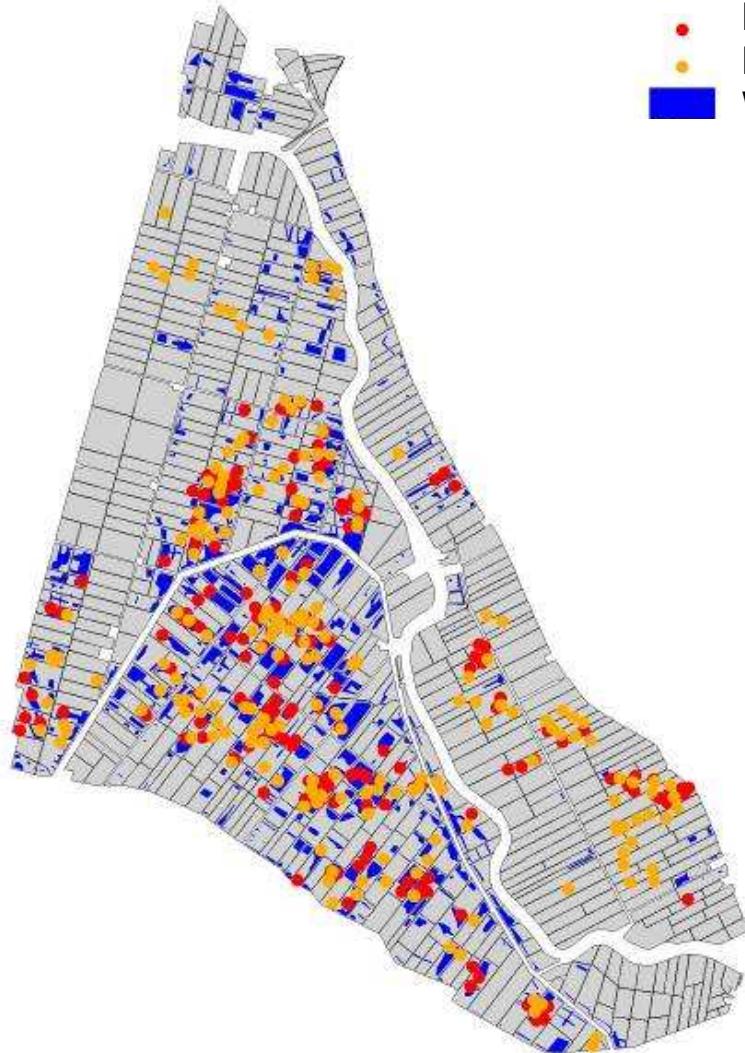
AES for waders in Tøndermarsken, Denmark

AES

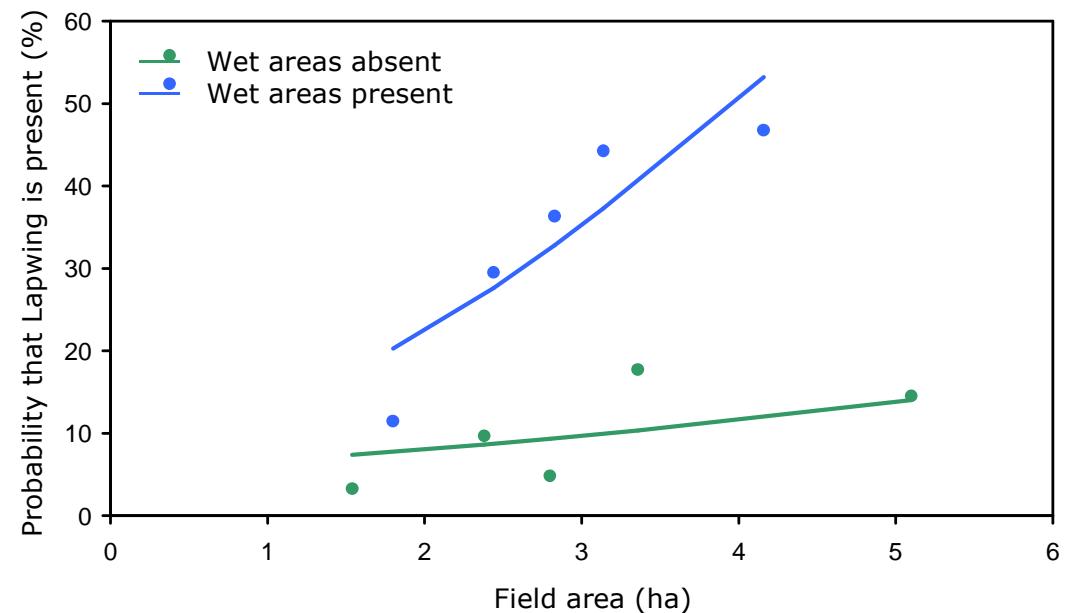
non- AES





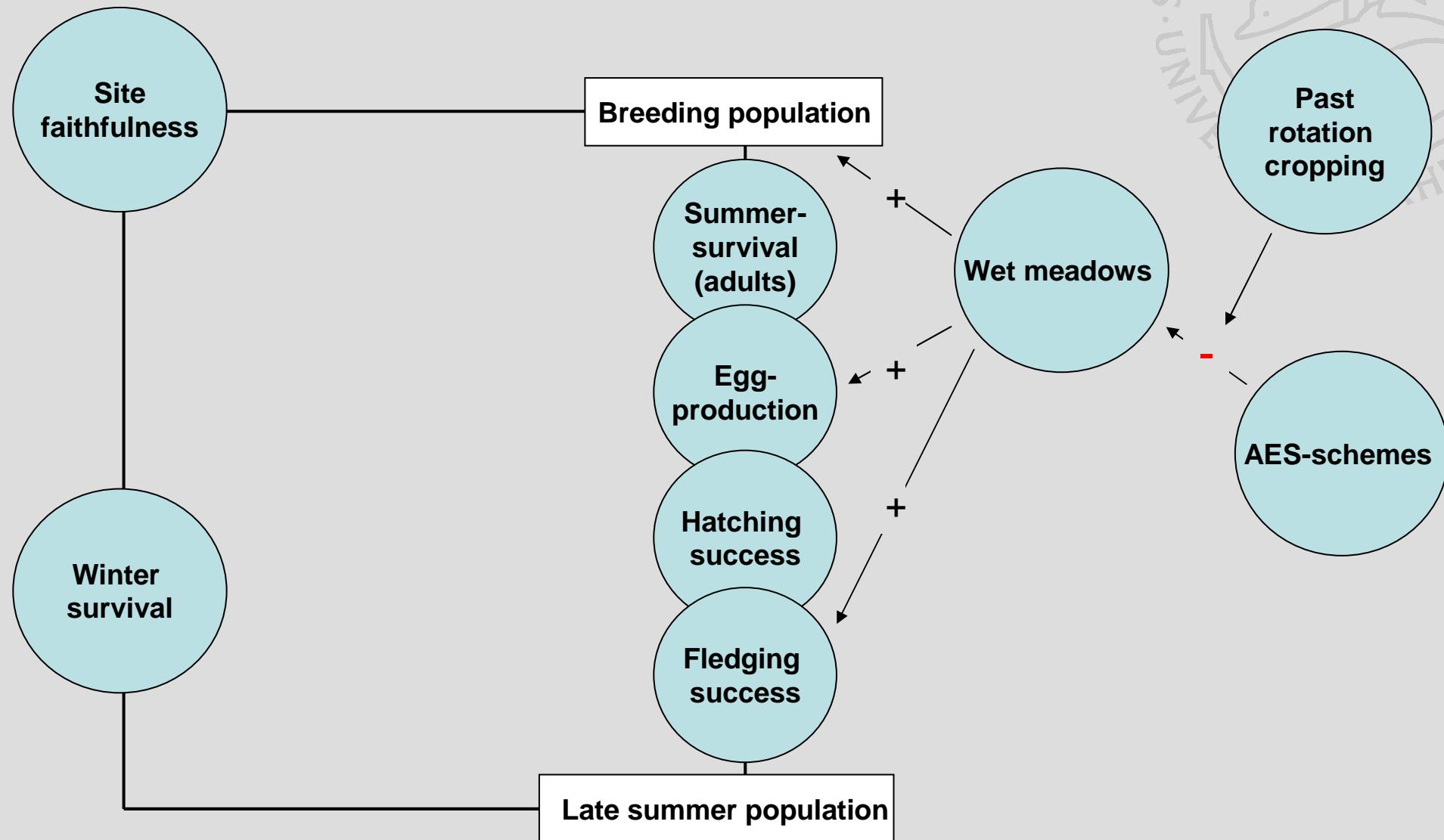


● Lapwing late April
● Lapwing early May
 Wet areas early April



We can help on their way 2

"Habitatfactors"
known or expected effects



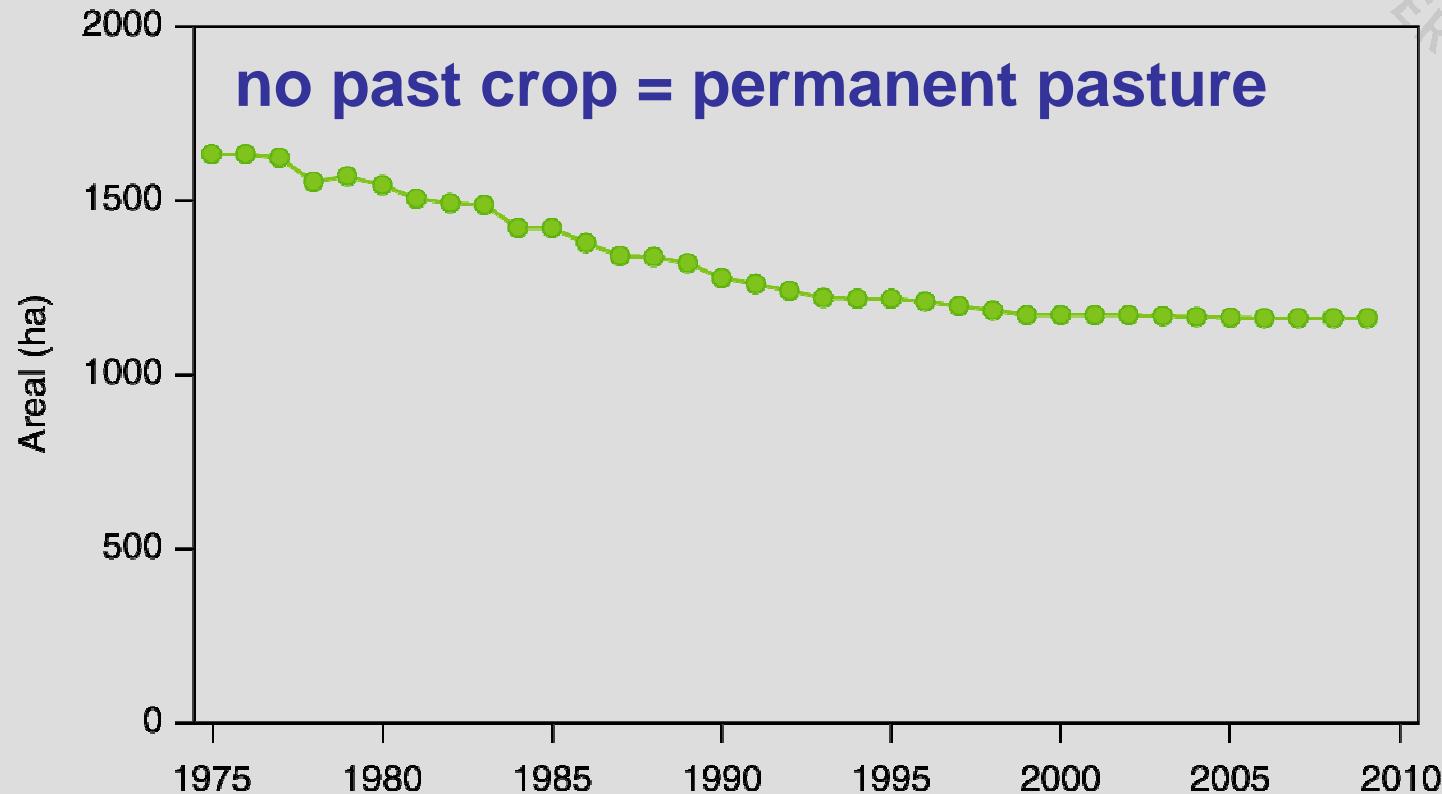
AES for waders in Tøndermarsken, Denmark

past rotation crop

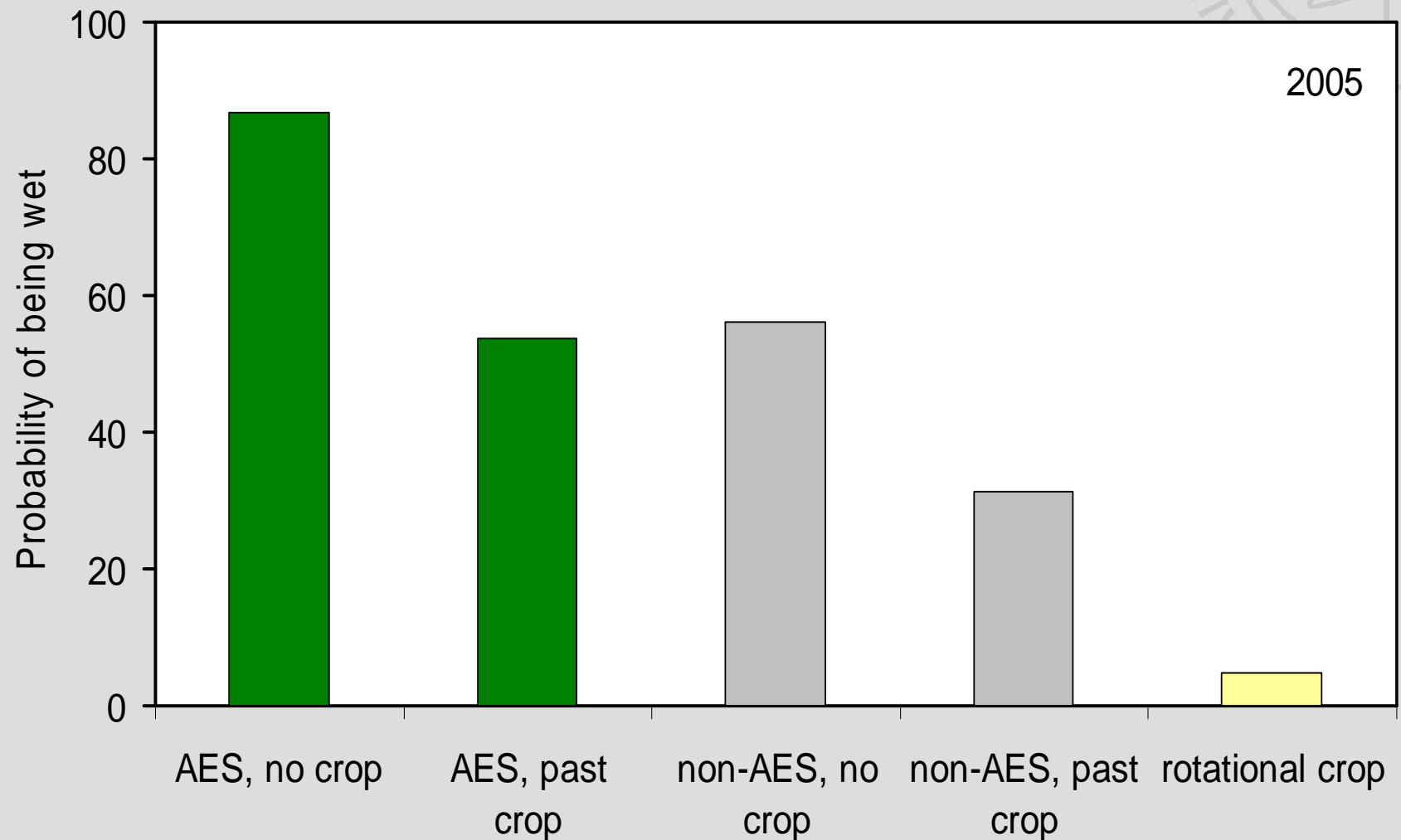
no past crop



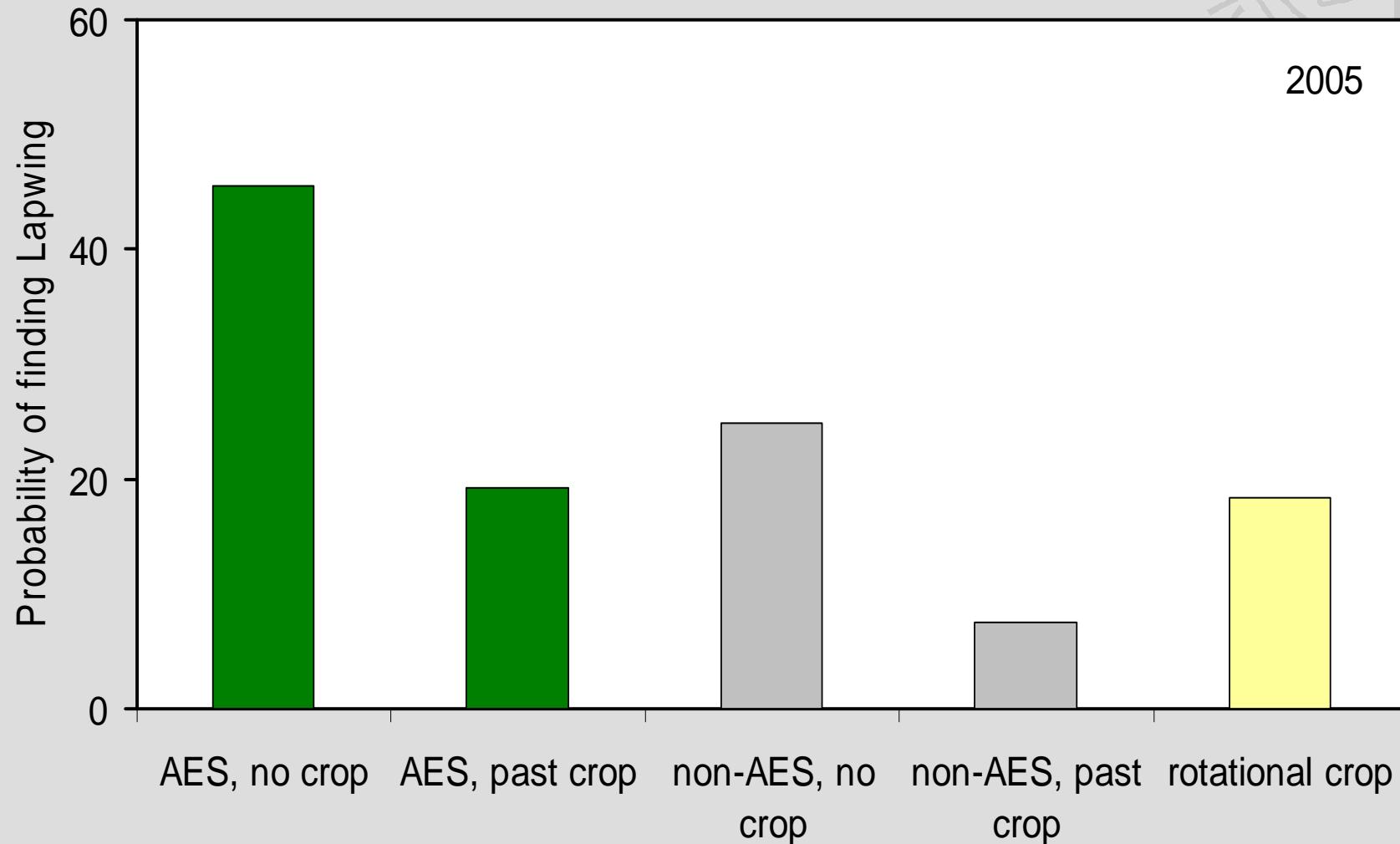
AES for waders in Tøndermarsken, Denmark



Wetness on different fields types, Tøndermarsken



Lapwings on different fields types, Tøndermarsken

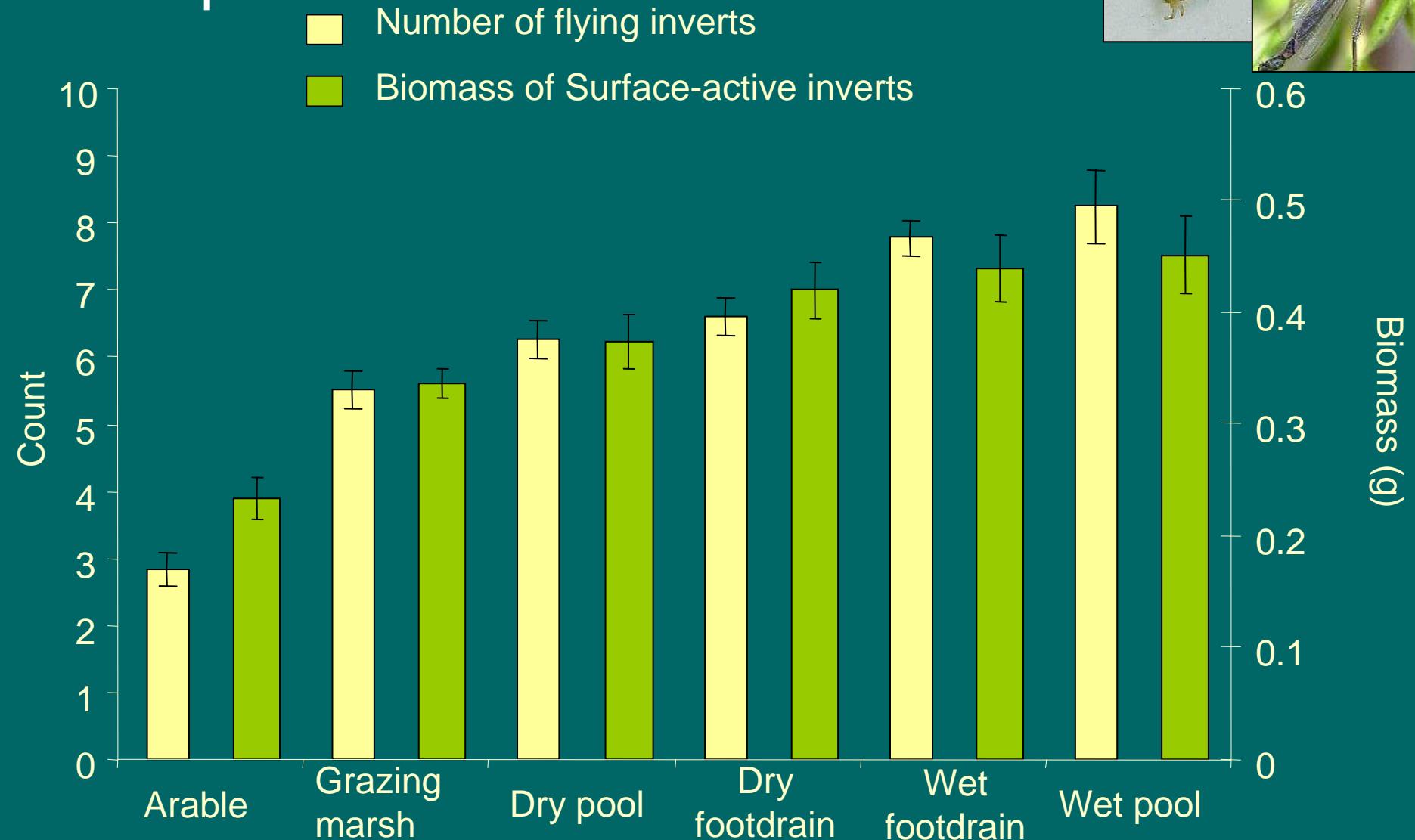


Eglington told us why this is so

Eglington et al. J. Appl. Ecol 2010



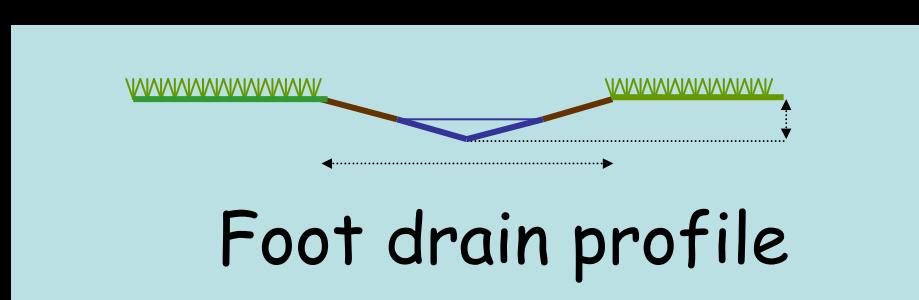
Invertebrate abundance



Peck rate & biomass intake rate of chicks in different habitats on wet grasslands



and Mike Smart from UK has demonstrated
how to get the footdrains back

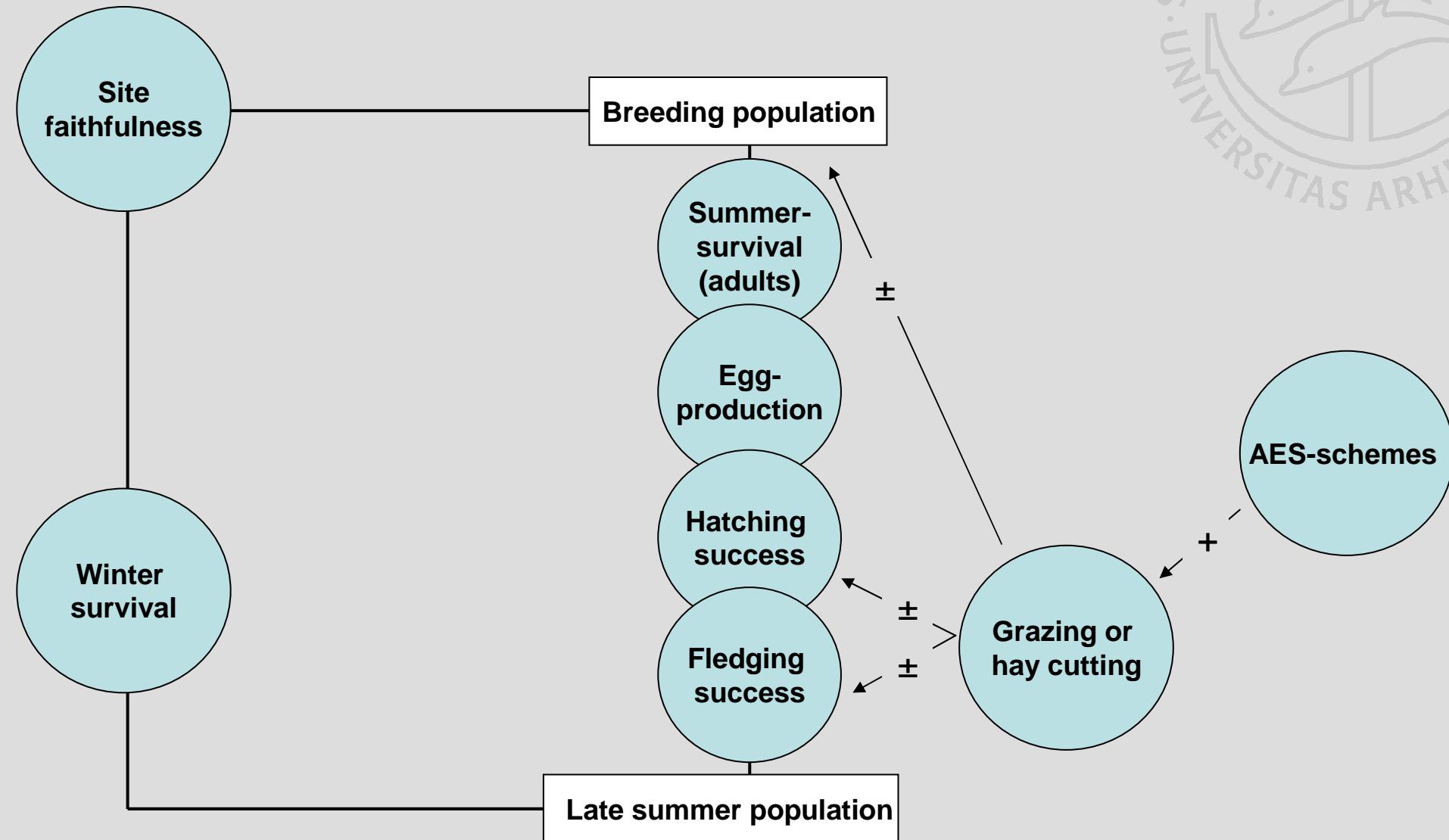


This is what we need ...and it used to be a wheat field



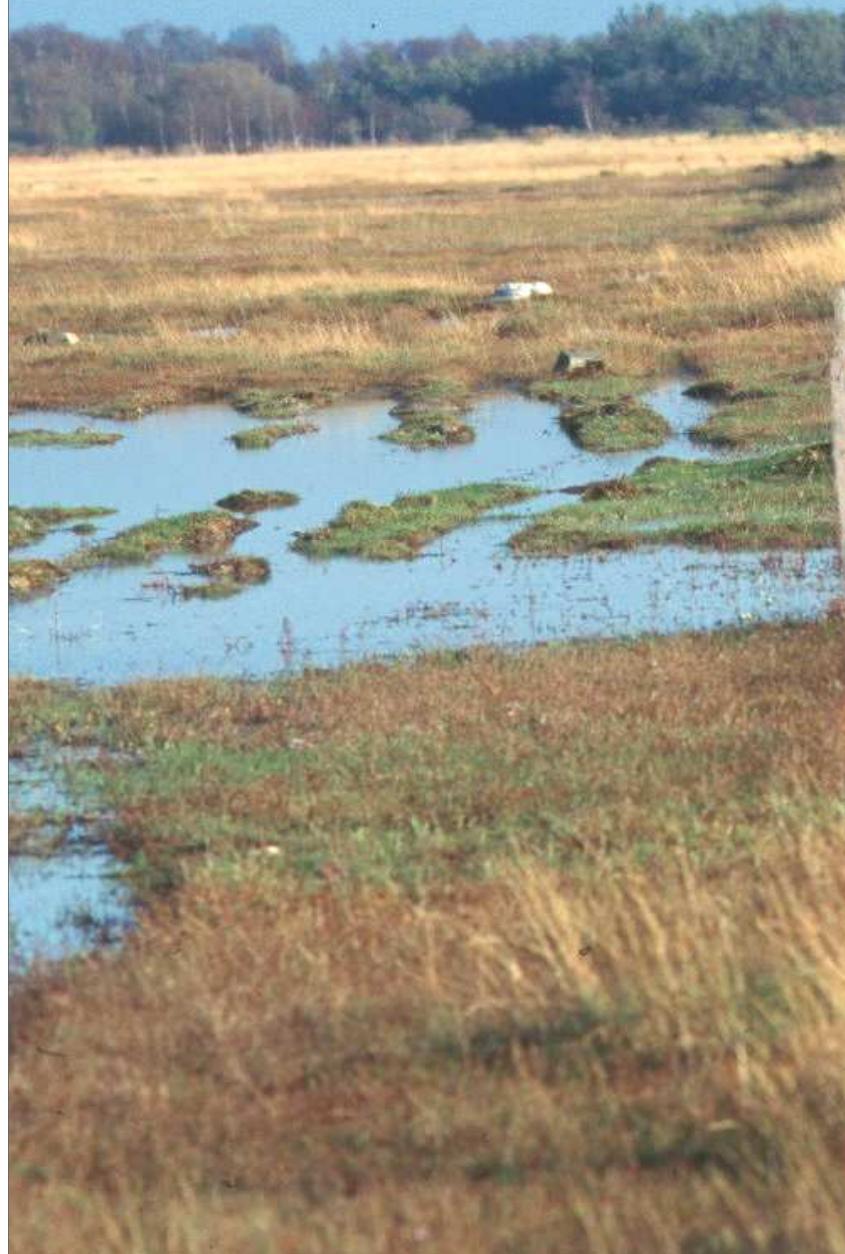
We can help on their way 3

"Habitatfactors"
known or expected effects



Grazing management on Vestamager according to Olsen

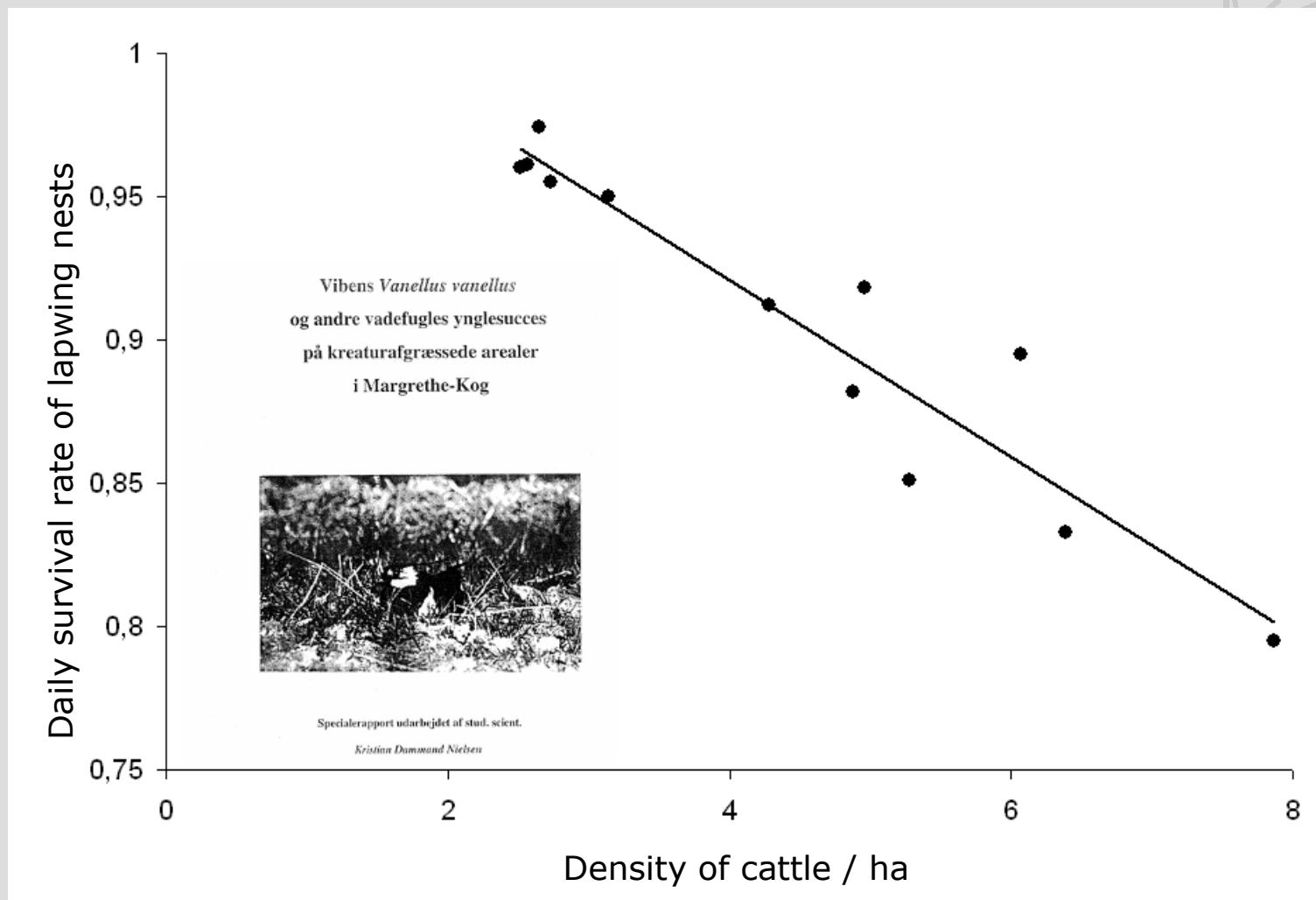
after



before



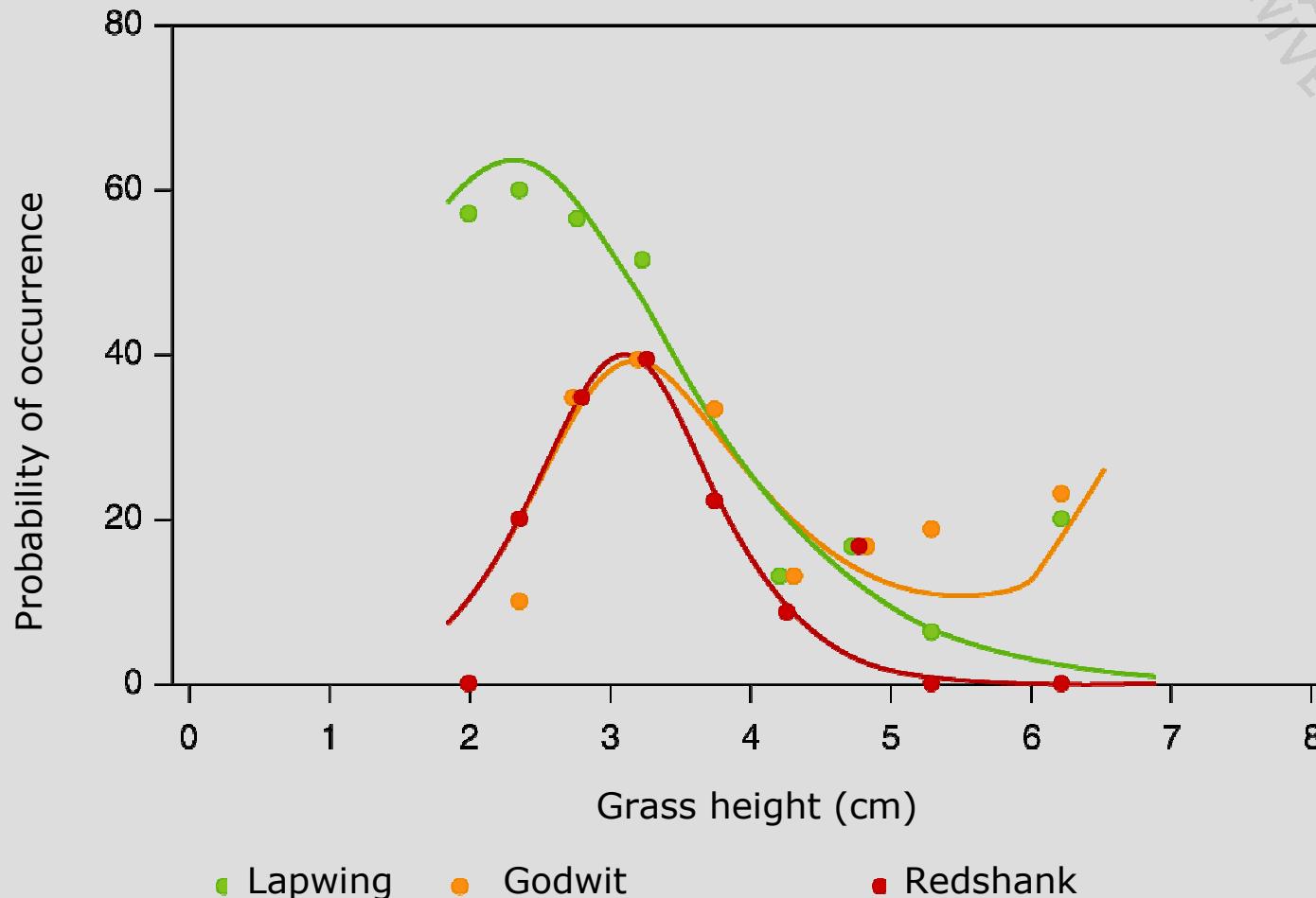
But careful with densities, please ...



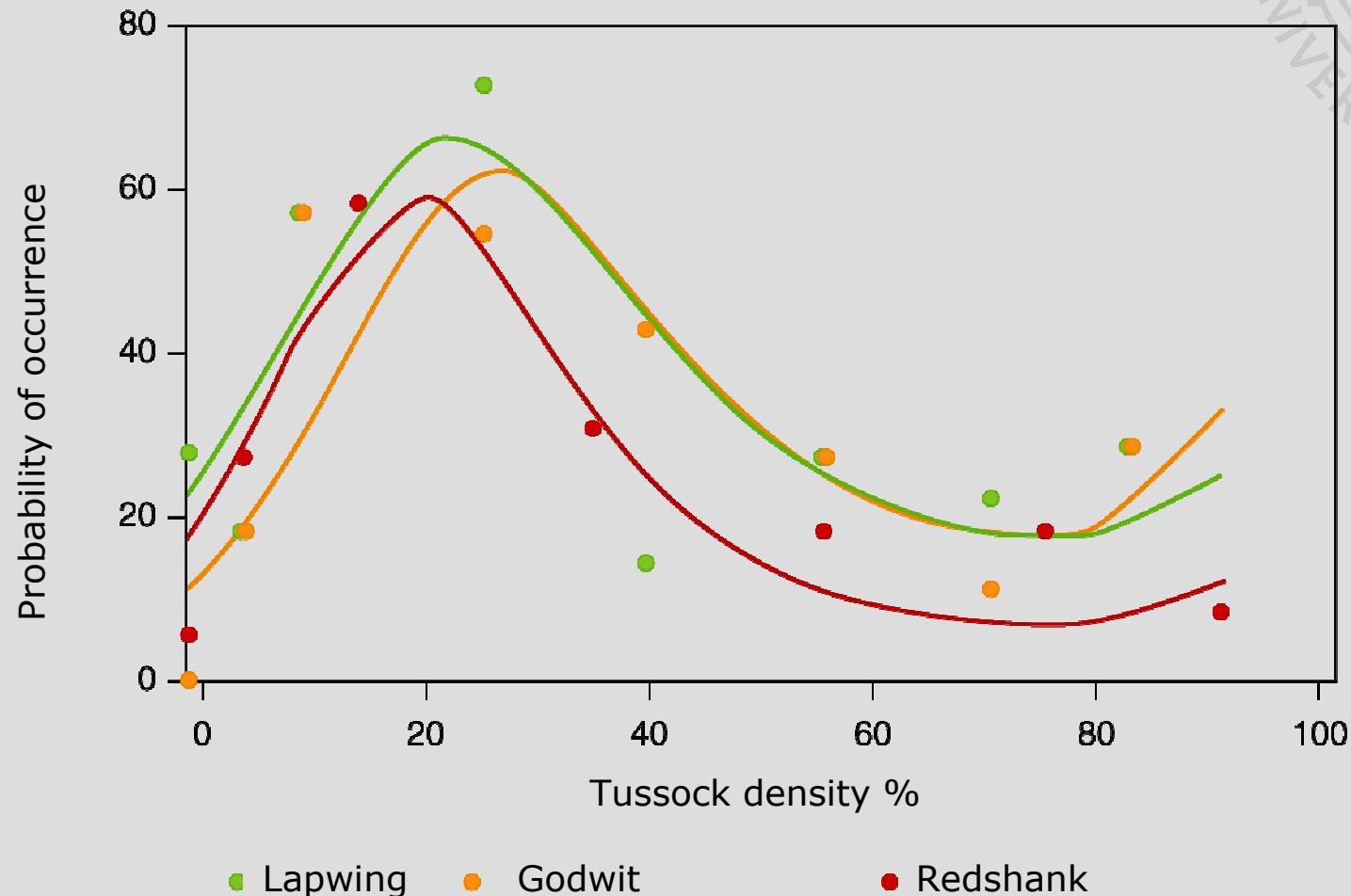
source : Nielsen 1996



But careful with densities, please ...

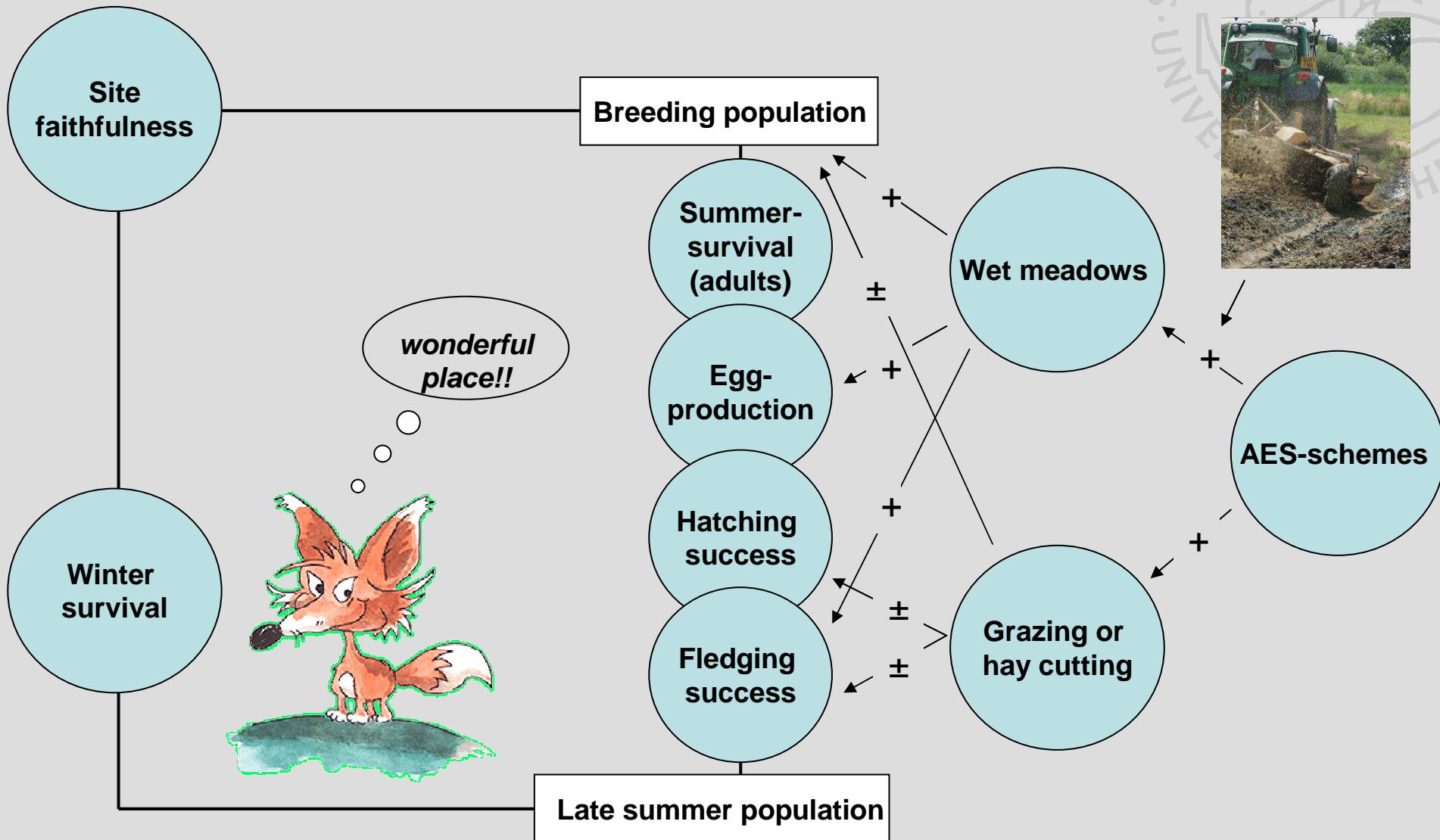


But careful with densities, please ...



"Populationfactors"
known or expected effects

"Habitatfactors"
known or expected effects



Predators in the Tøndermarsk landscape

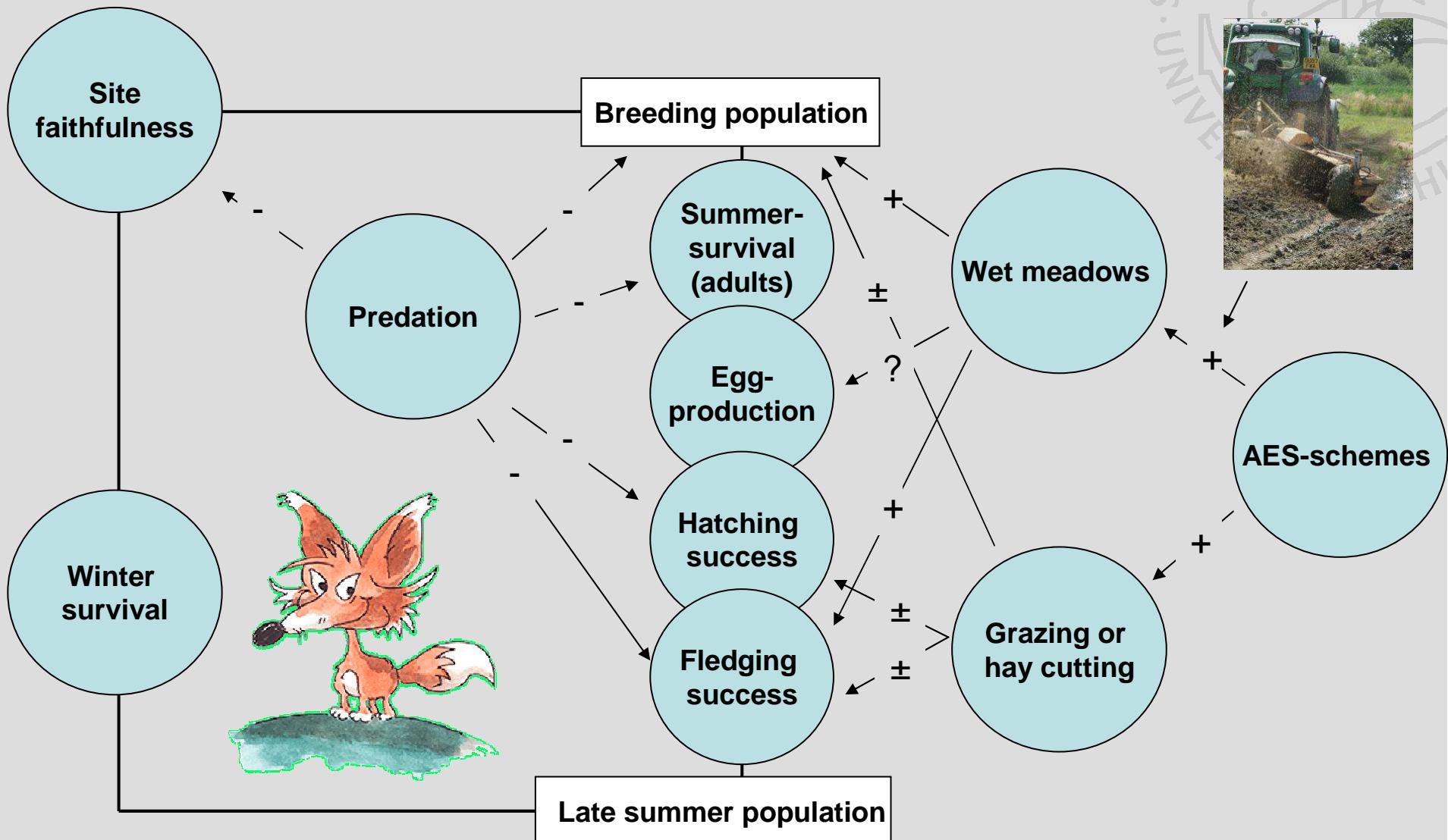


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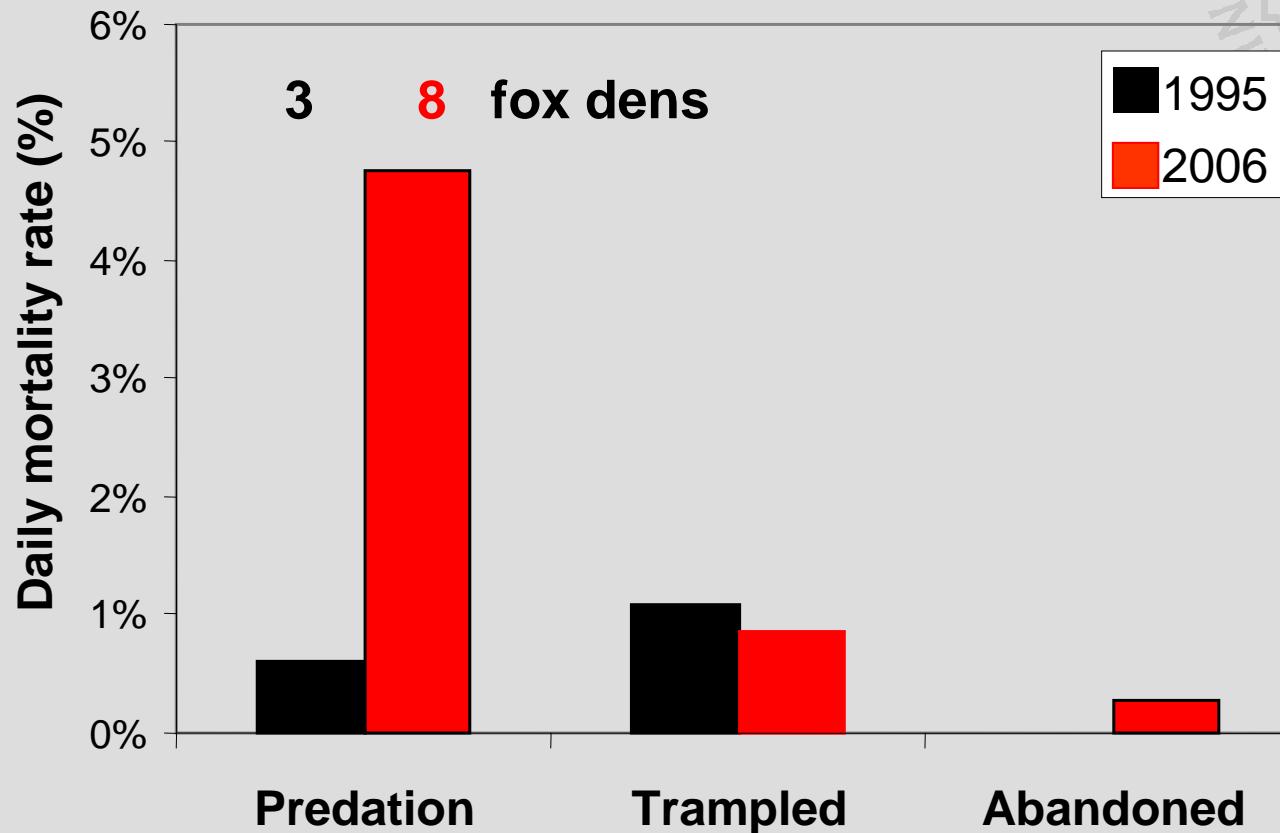
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"Populationfactors"
known or expected effects

"Habitatfactors"
known or expected effects



Survival of Lapwing nests in Tøndermarsken



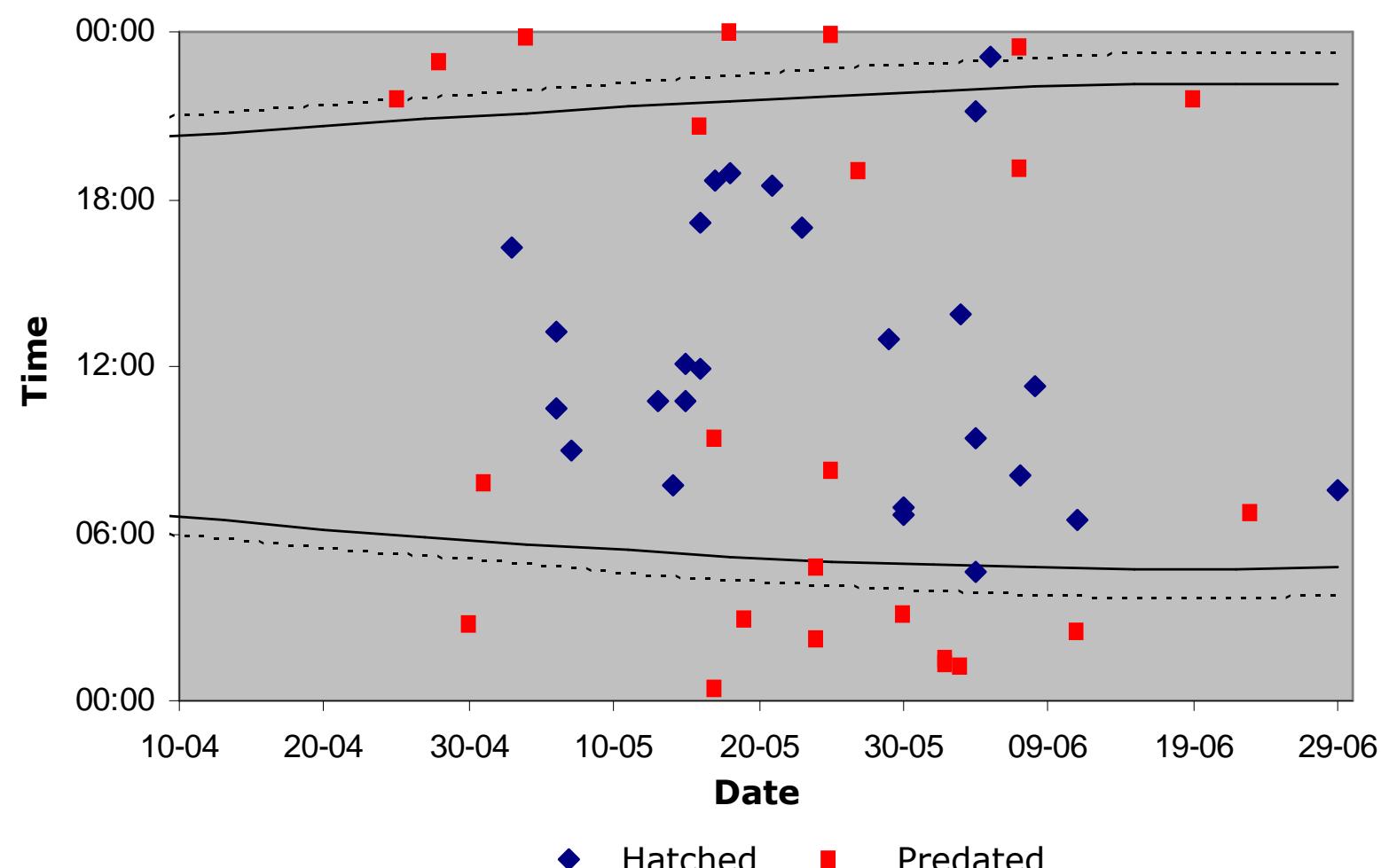
Mayfield calculations:

Daily survival rate: $0.982^{32 \text{ days}} = 56.0\% \text{ hatching success}$

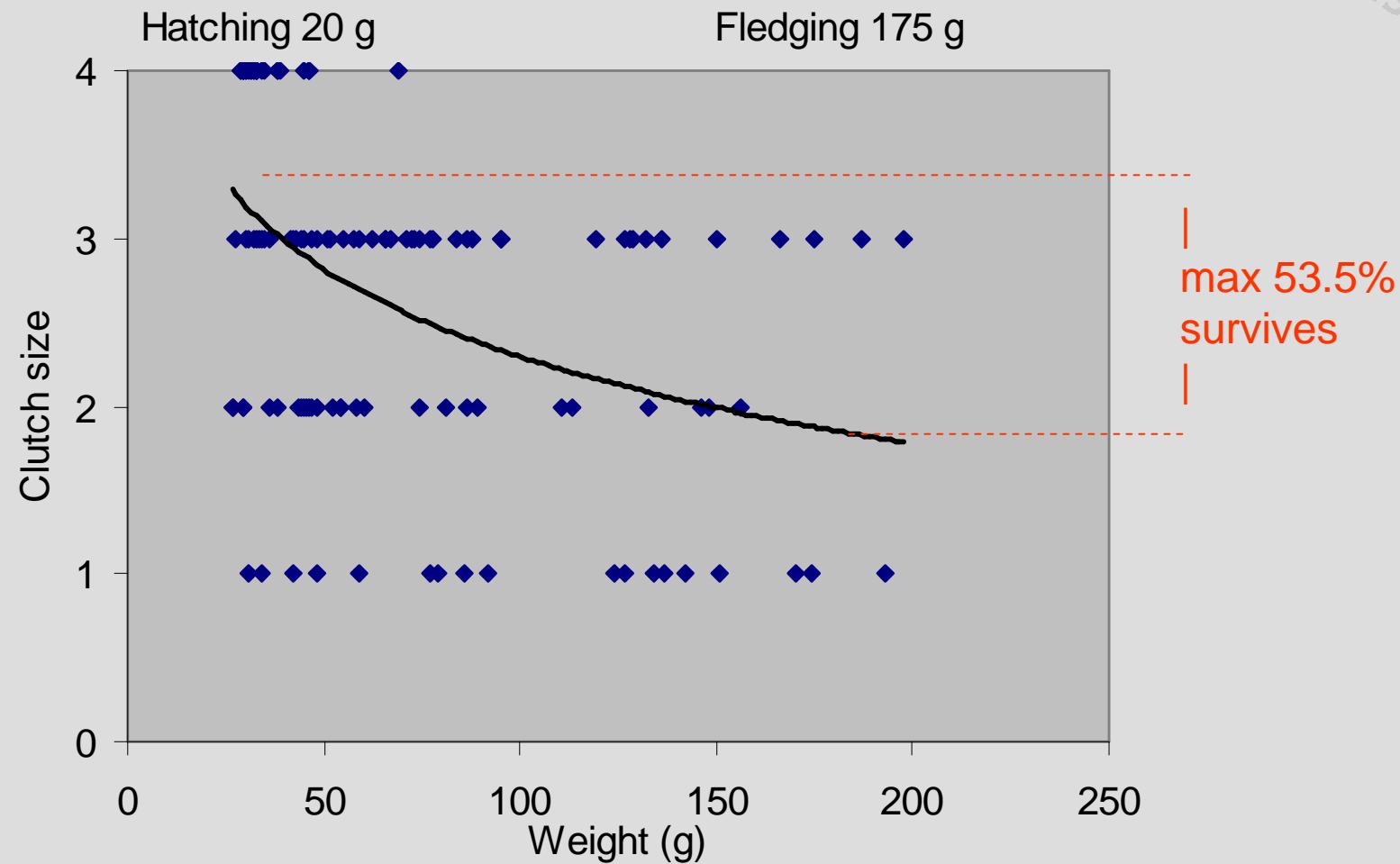
Daily survival rate: $0.941^{32 \text{ days}} = 14.3\% \text{ hatching success}$



Survival of Lapwing nests in Tøndermarsken



Survival of Lapwing chicks in Tøndermarsken



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Survival of Lapwing chicks in Tøndermarsken

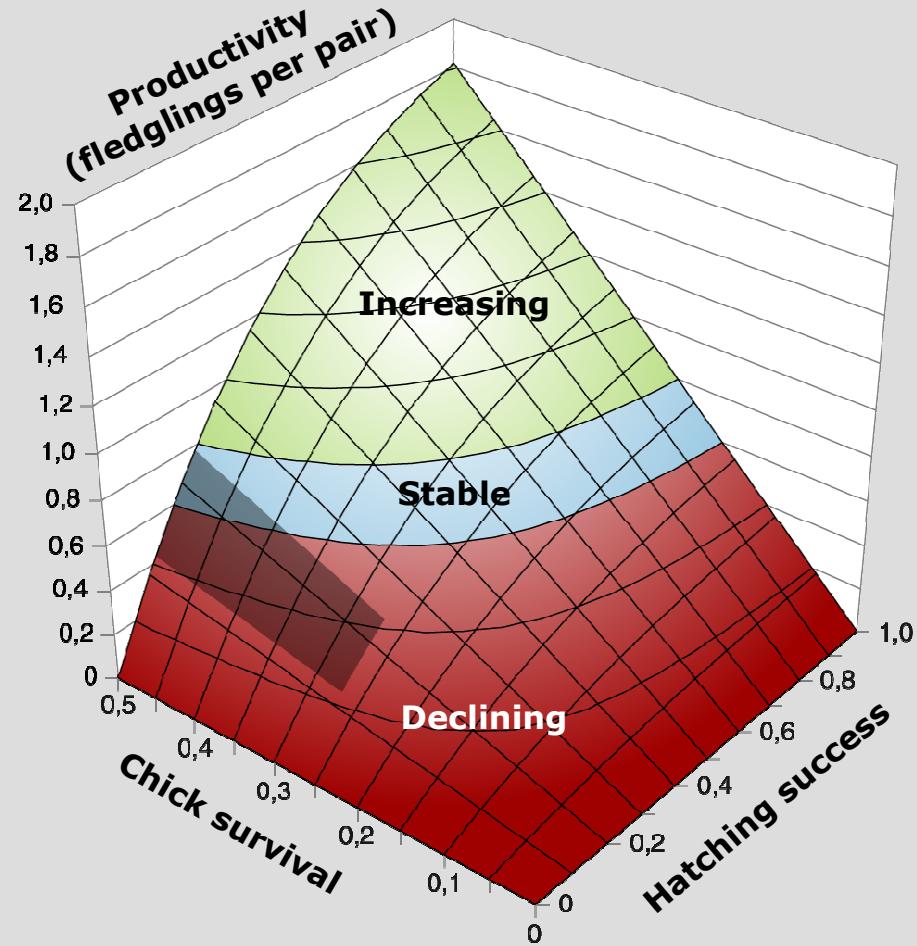
Weight (g)	20	175	Survivors	Mortality
Clutch sizes				
2005	3,51	1,87	53,46%	46,54%
2006	3,92	1,98	50,58%	49,42%
2007	4,22	1,22	28,92%	71,08%



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Prospects for our lapwing population

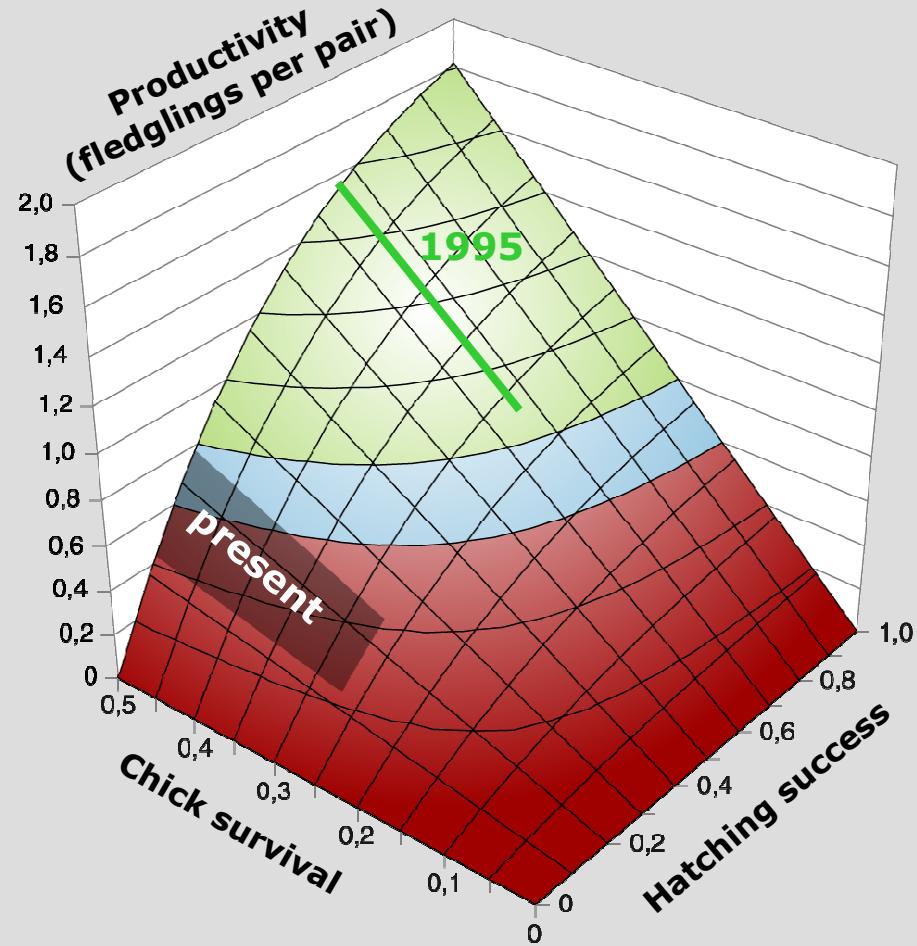


modified from MacDonald & Bolton 2008 in *Journal of Ornithology*



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Prospects for our lapwing population



modified from MacDonald & Bolton 2008 in Journal of Ornithology

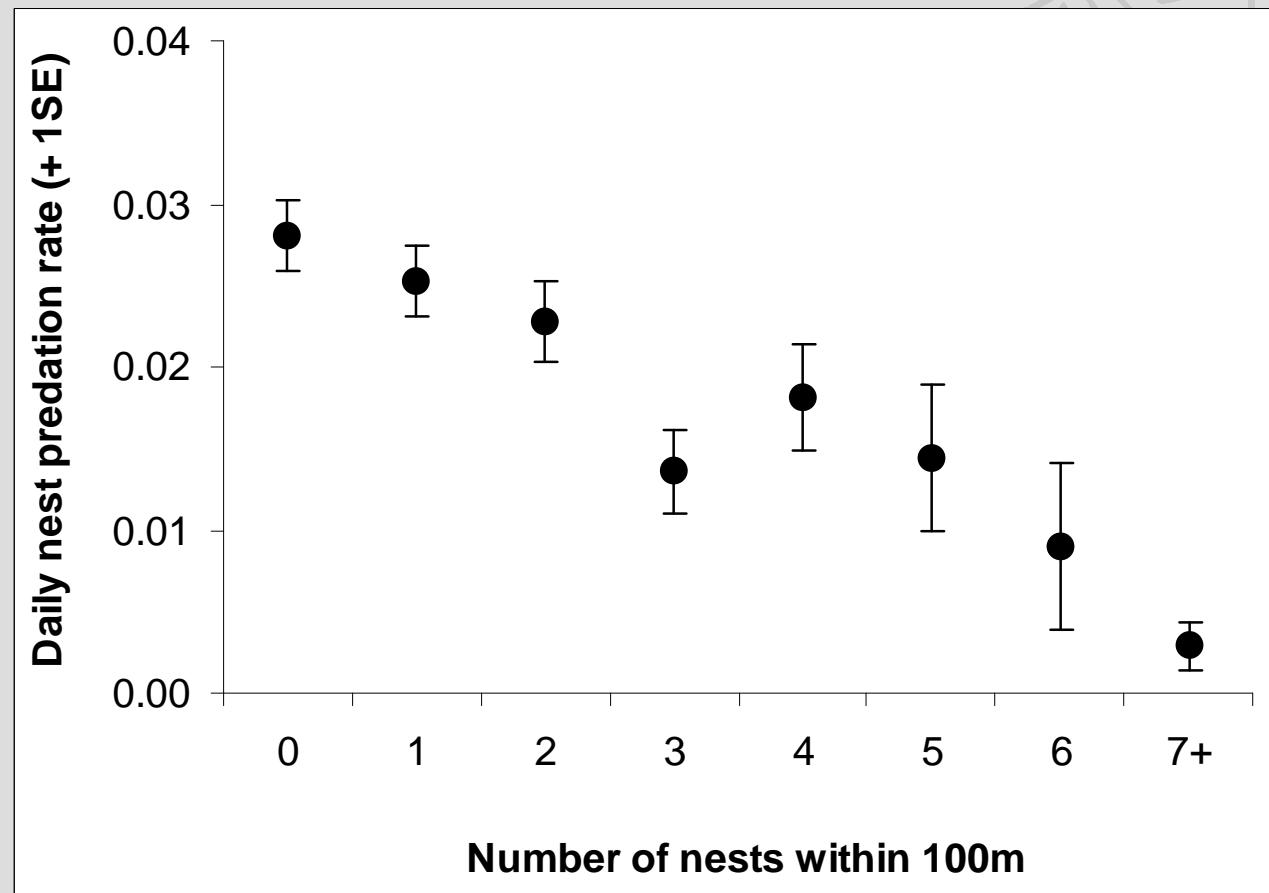


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Dense populations breed better!

Lower predation rates on nests with higher numbers of close neighbours

Most predation occurs at night



MacDonald & Bolton 2008 in *Journal of Ornithology*

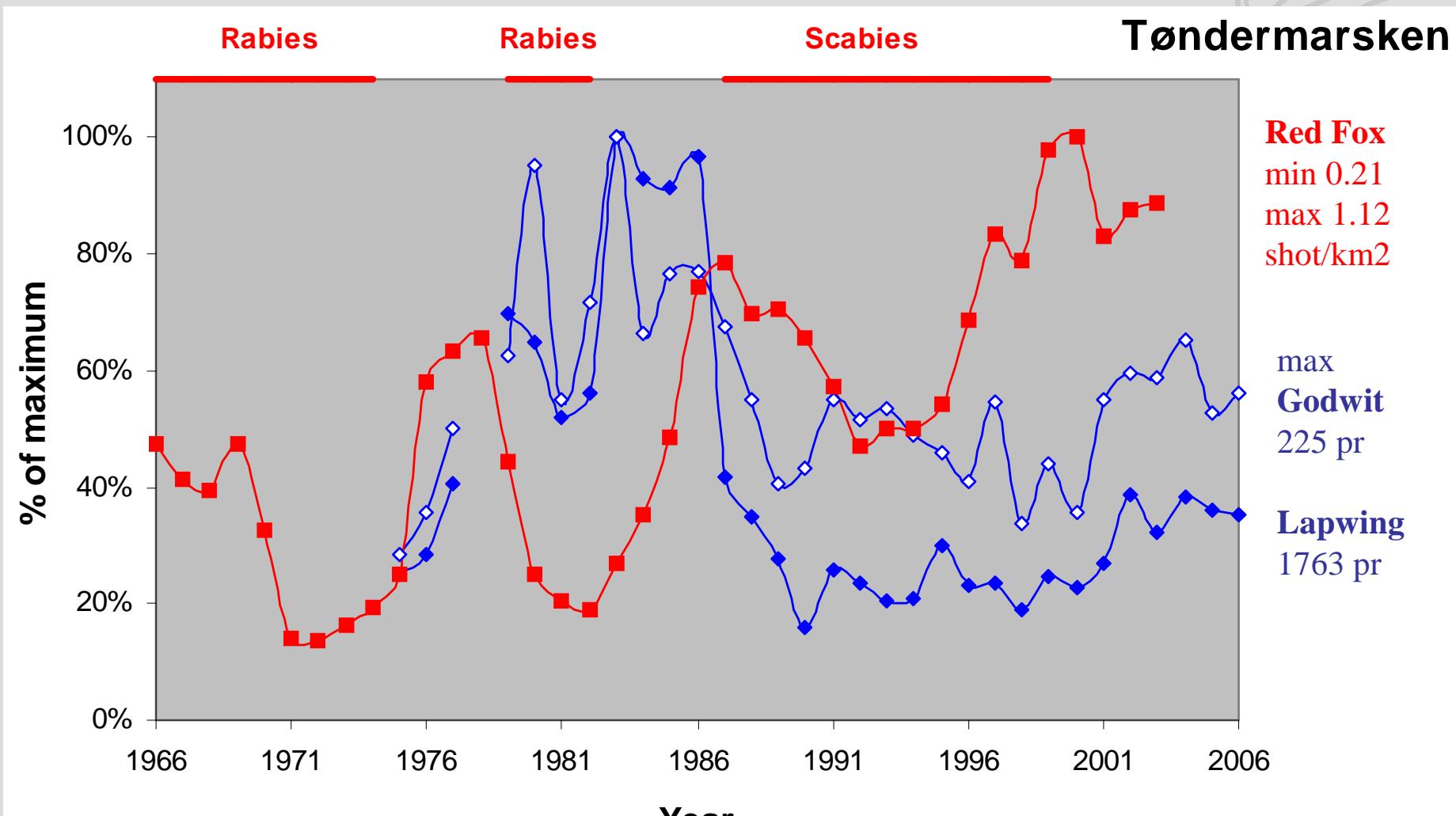


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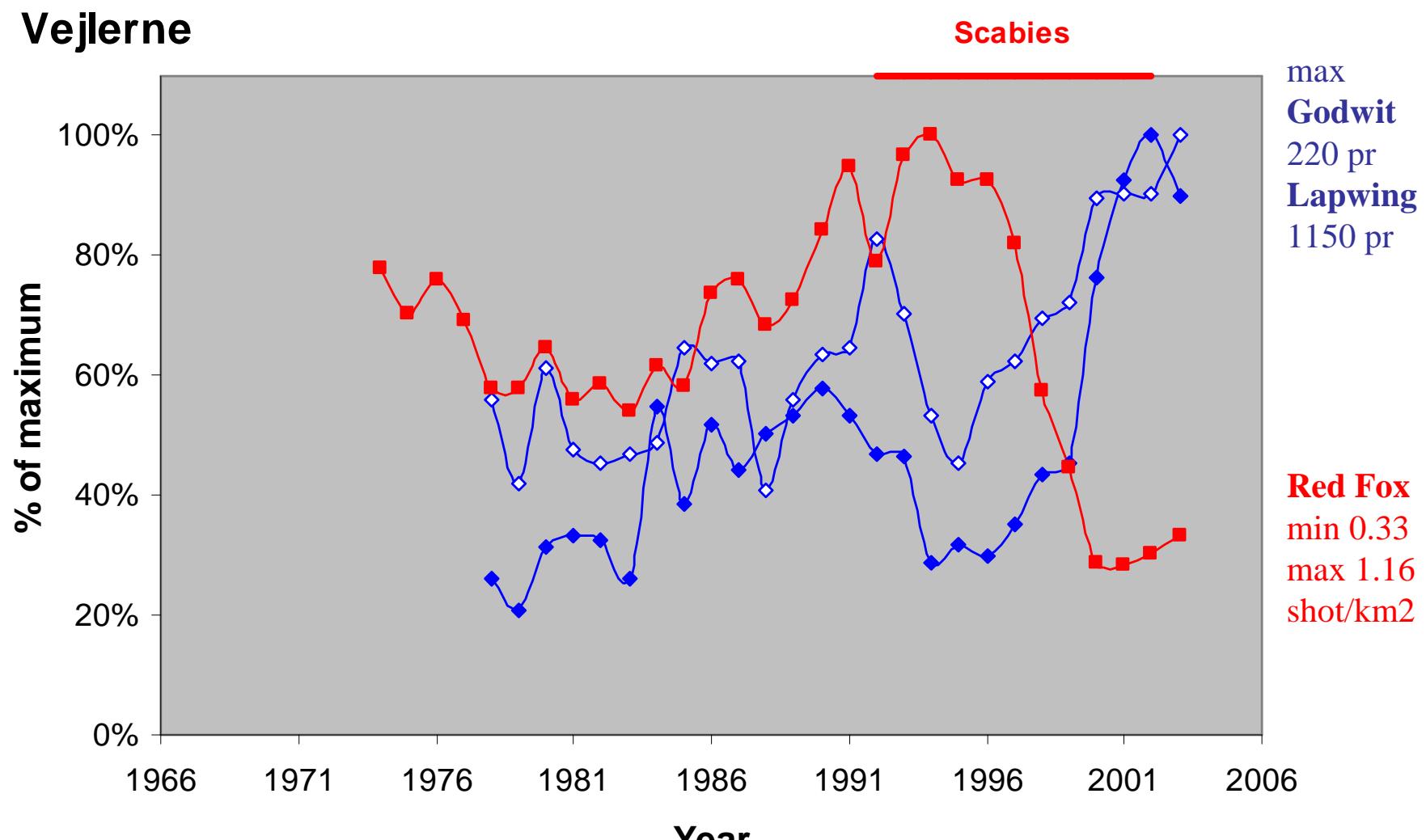
But does it mean anything to numbers? or is it just theory?



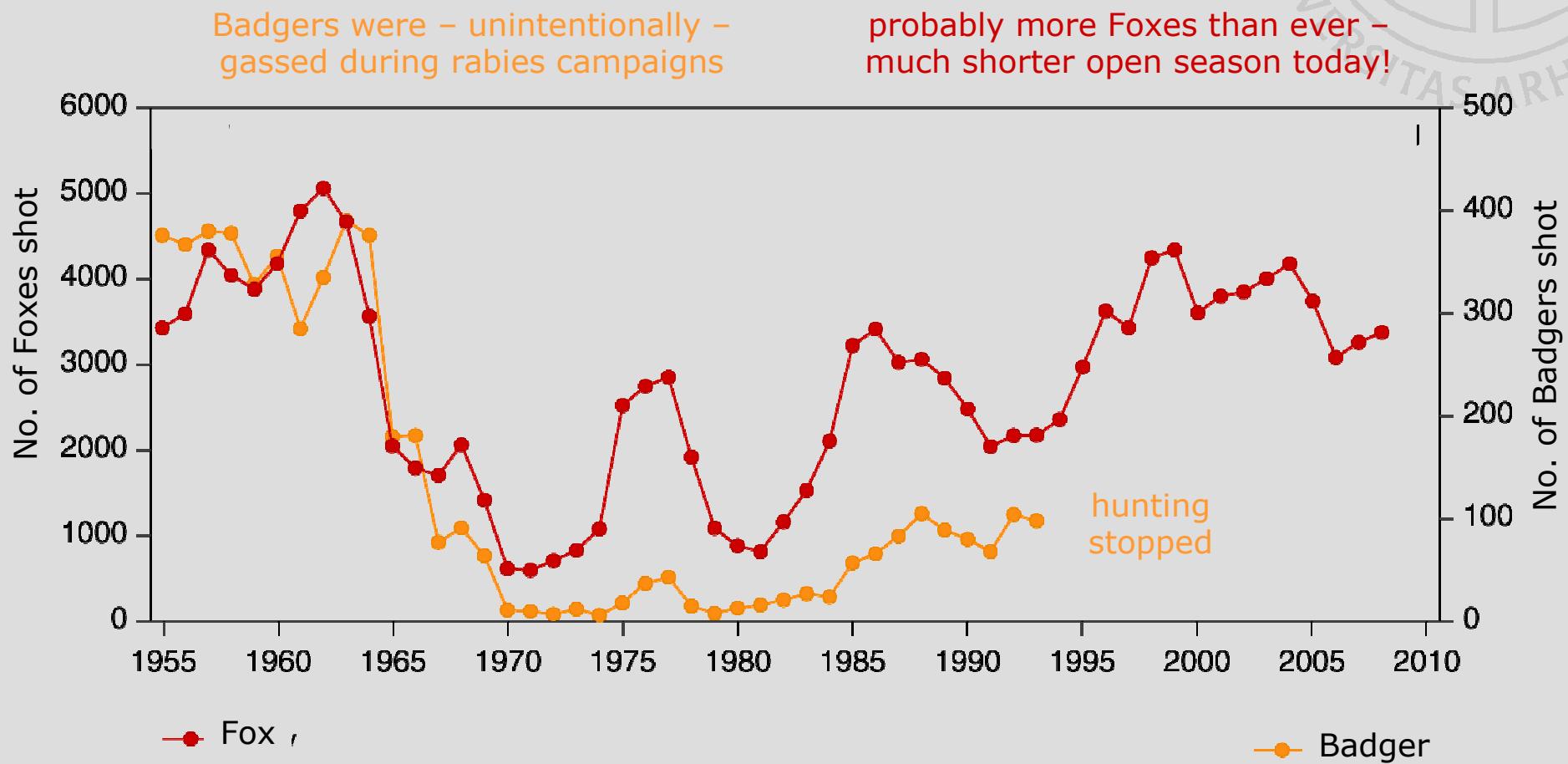
Fox numbers versus wader numbers



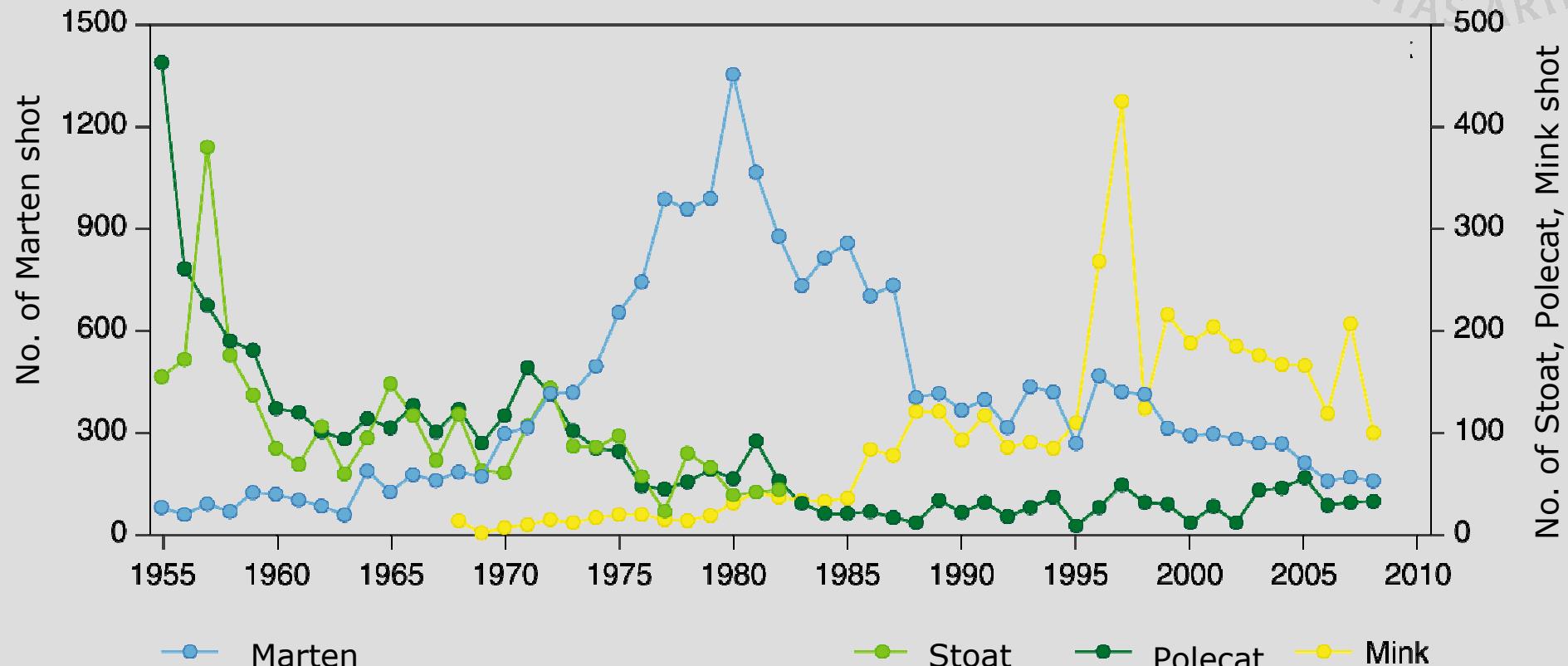
Fox numbers versus wader numbers



Are Foxes and other mammalian predators just coming back to normal?



Are Foxes and other mammalian predators just coming back to normal?



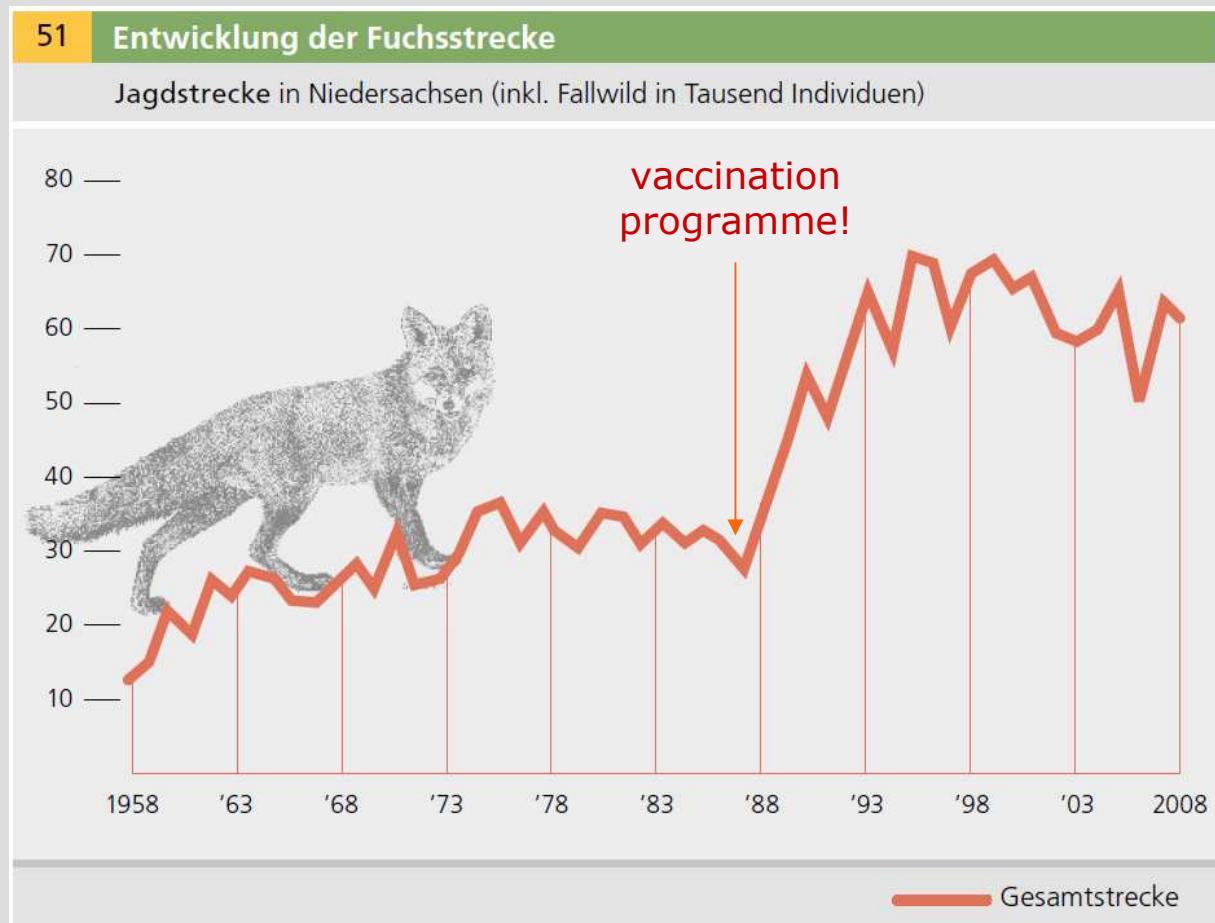
Future challenges - this is Sisyfos work!



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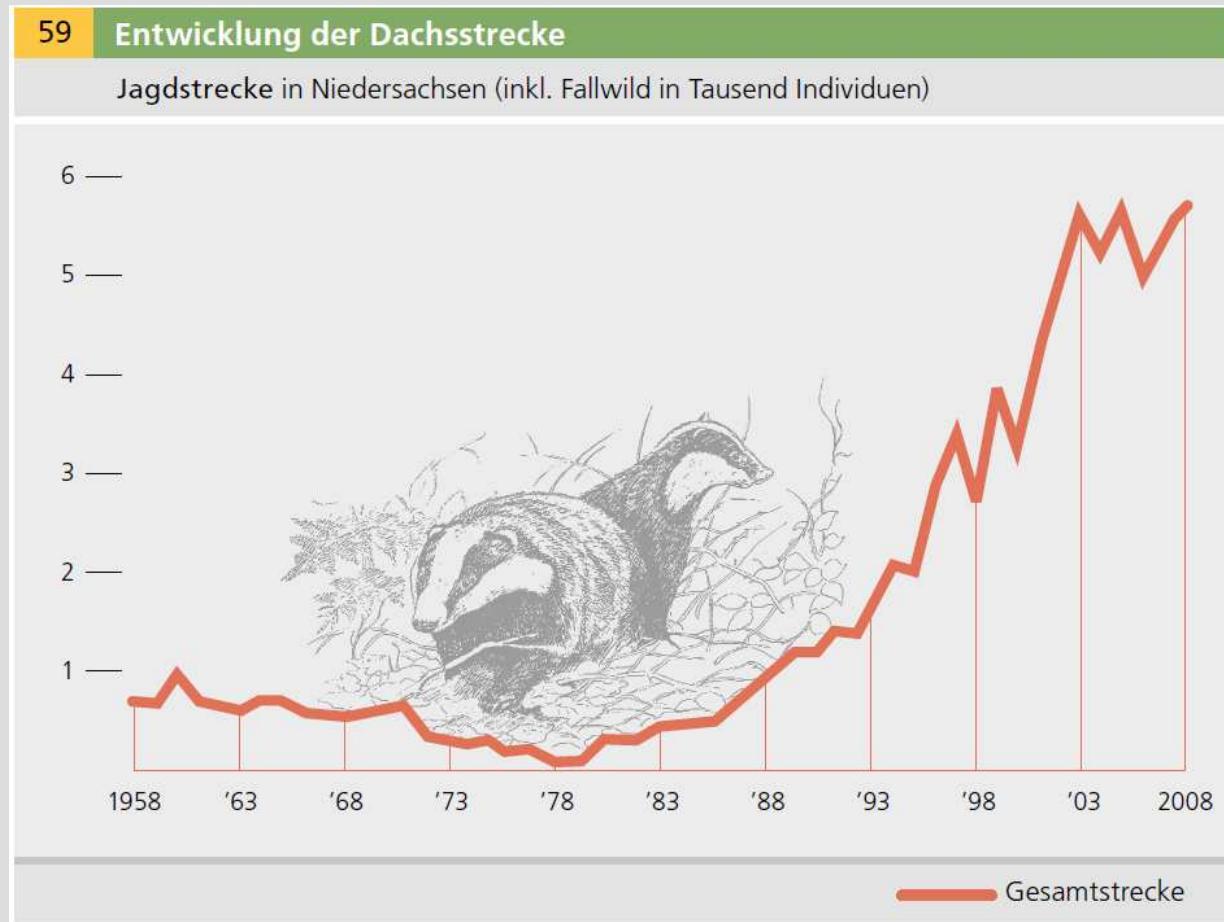
Same story in Niedersachsen

- except that the rabies outbreaks started c. 10 years earlier than in Denmark



Same story in Niedersachsen

- but Badgers were also heavily hit by rabies control campaigns

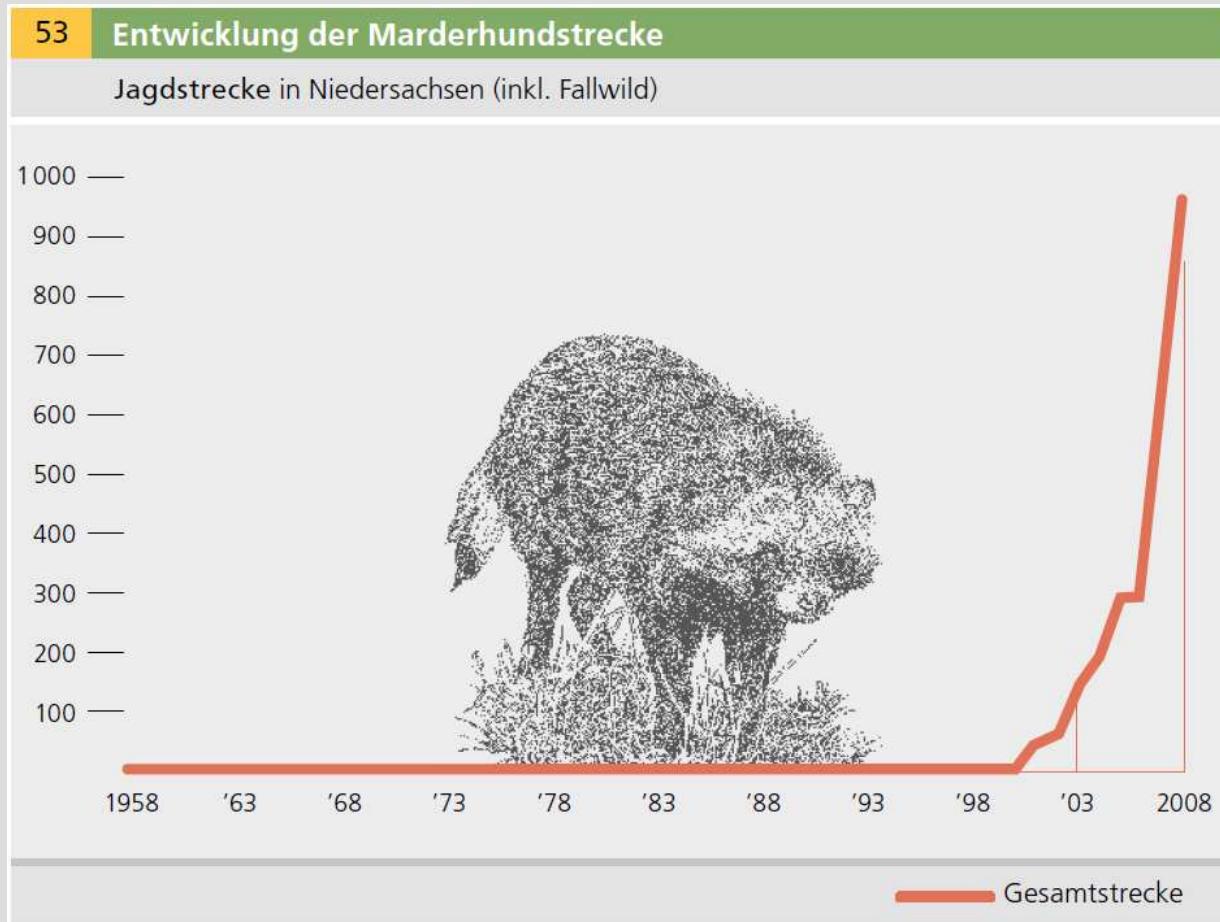


and invasives are coming in: Racoons



and invasives are coming in: Raccoon dogs

- > 17.000 were shot last year in Mecklenburg-Vorpommern!



Lessons learned: if we want waders !

waders need

- wet meadows
- grazed/hay-cut meadows
 - under controlled conditions
- predator control
 - temporarily at least
 - probably permanent

and people must learn

whether farmers like it or not
city-folks must pay for this
else cattle will stay inside
whether we like it or not
ignoring this may be the end for
the waders

Not one of the – all of them!





References:

- major sources for this presentation

- Clausen, P. & Kahlert, J. (eds.) 2010: Ynglefugle i Tøndermarsken og Margrethe Kog 1975-2009. En analyse af udviklingen i fuglenes antal og fordeling med anbefalinger til forvaltningstiltag. Danmarks Miljøundersøgelser, Aarhus Universitet. 206 s. – Faglig rapport fra DMU nr. 778. <http://www.dmu.dk/Pub/FR778.pdf>
- Kahlert, J., Clausen, P., Hounisen, J.P., Petersen, I.K. 2007. Response of breeding waders to agri-environmental schemes may be obscured by effects of existing hydrology and farming history. - Journal of Ornithology 148, Suppl. 2: 287-293.

- other sources

- Eglington, S.M., Bolton, M., Smart, M.A., Sutherland, W.J. Watkinson, A.R. & Gill, J.A. (2010). Managing water levels on wet grasslands to improve foraging conditions for breeding northern lapwing *Vanellus vanellus*. - Journal of Applied Ecology 47: 451–458
- MacDonald, M.A. & Bolton, M. 2008. Predation of lapwing *Vanellus vanellus* nests on lowland wet grassland in England and Wales: effects of nest density, habitat and predator abundance. - Journal of Ornithology 149: 555-563.
- Nielsen, K.D. 1996. Vibens *Vanellus vanellus* og andre vadefugles ynglesucces på kreaturafræssede arealer i Margrethe Kog. – M.Sc. thesis, Institut for Zoologi, Afdeling for Populationsbiologi, Københavns Universitet. 68 pp.

