



Effects of different cutting regimes on species diversity of rewetted fens

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What is the impact of different land use regimes on species diversity in rewetted fens?



Photo: C.Oehmke



Photo: C.Oehmke



Photo: C.Schröder



land use regimes:

1. Summer mowing

- rewetted fens
- mown 1x in summer

2. Winter harvest

- rewetted fens
- mown 1x in winter

3. Abandoned sites

- rewetted fens
- no utilization

4. Drained & intensively used meadow

- drained, fertilized
- multiple harvests per year

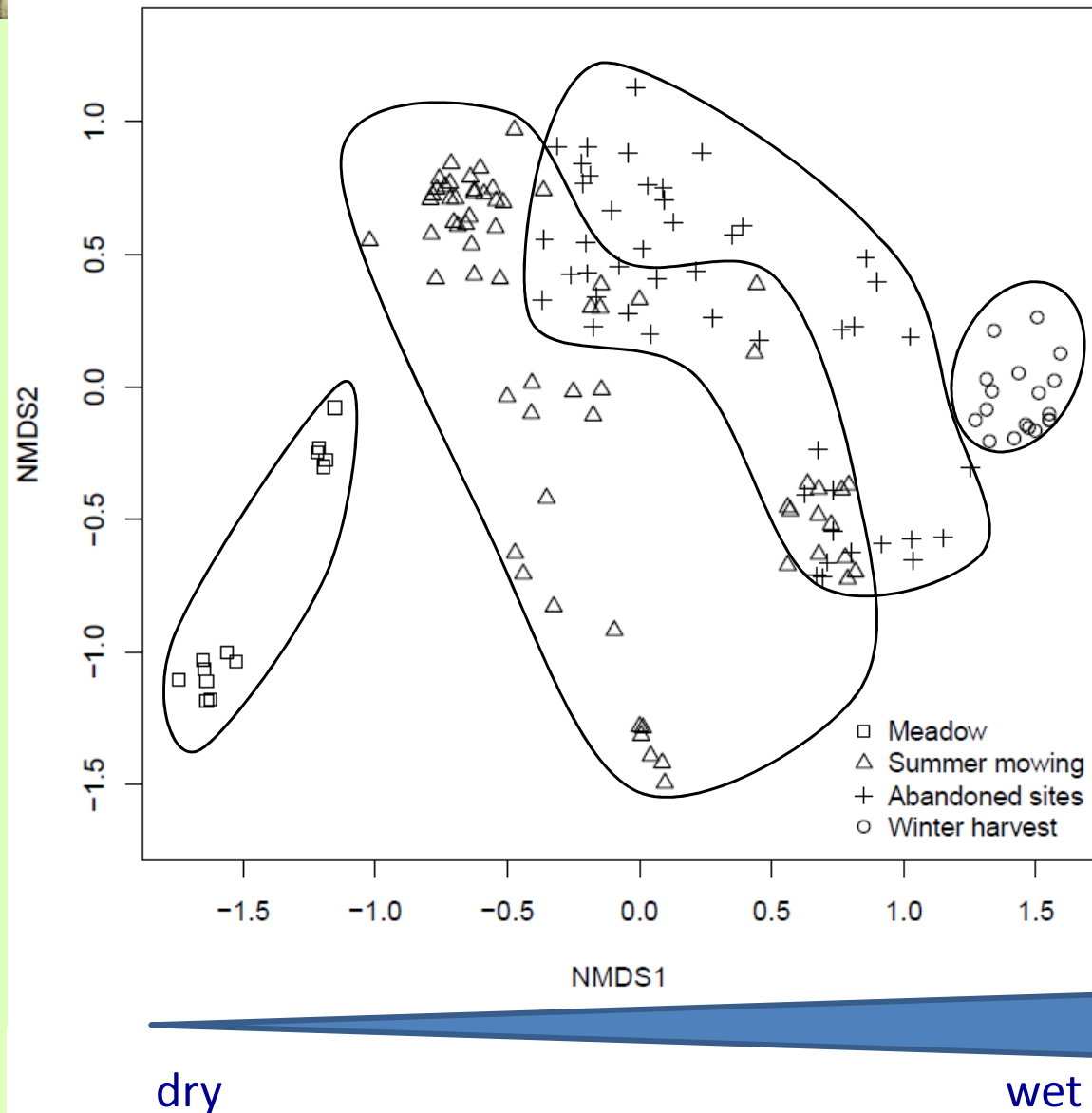


Photo: Artenagentur

Results:

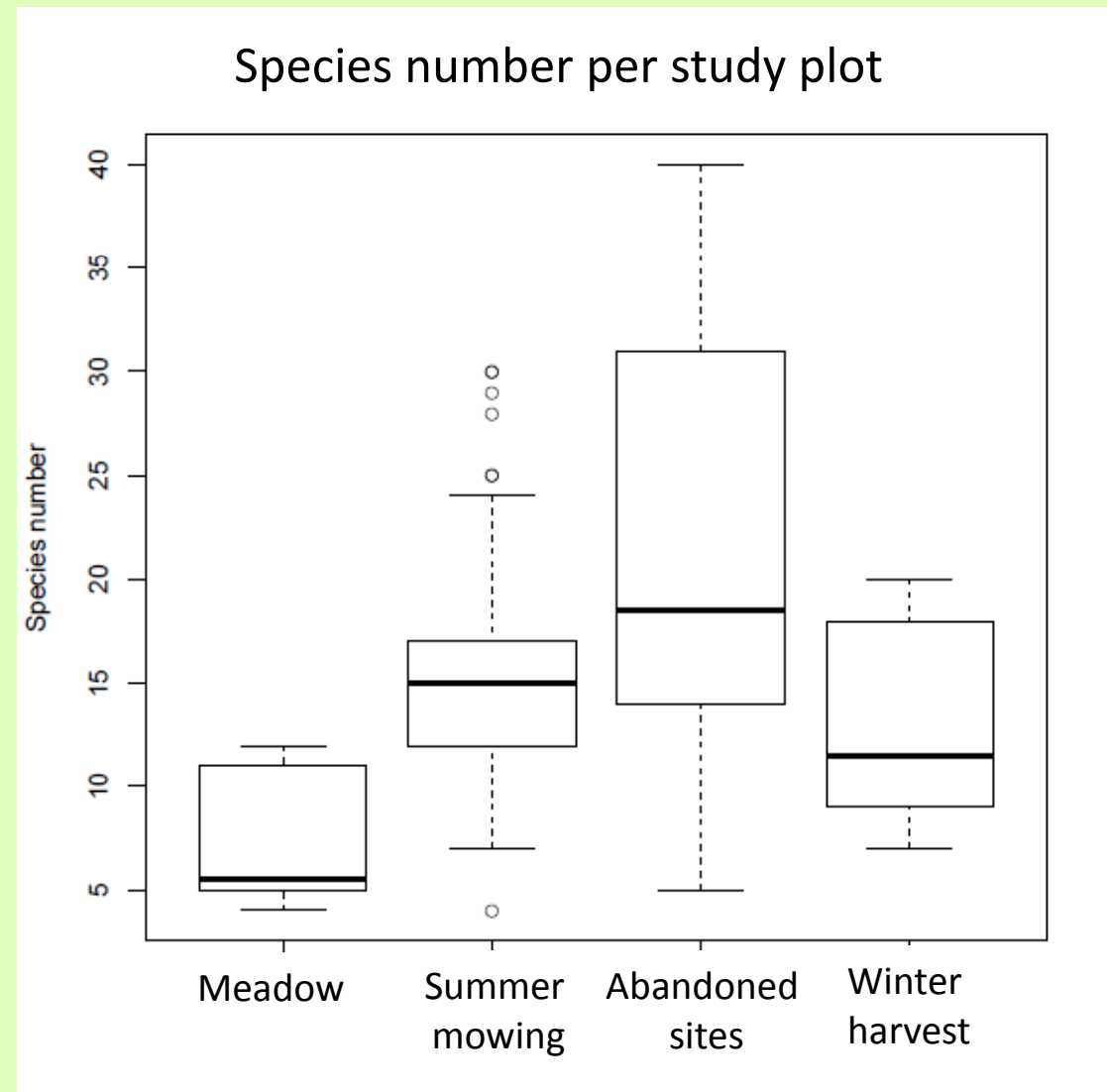
NMDS-Ordination based on species frequency per plot

- Intensively managed meadows separated from the rest
-> different species
- overlap between summer mowing and abandoned sites
-> share many species
- Abandoned sites are the closest to winter harvest sites
-> share some species





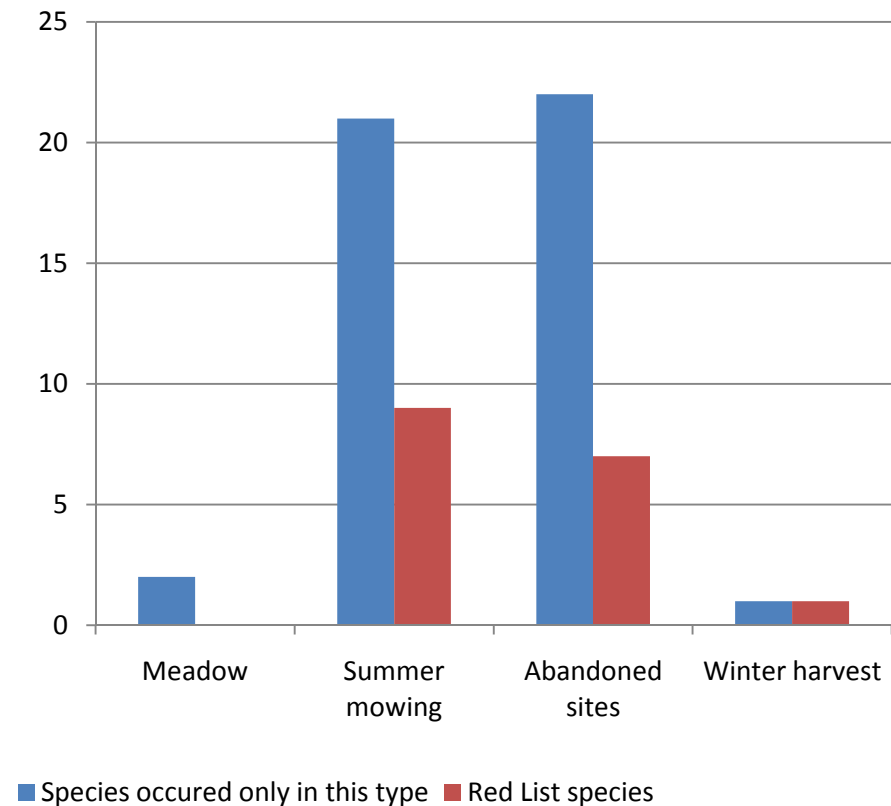
- Abandoned sites contain the highest species number but also highest variability in species richness
- Summer mowing and winter harvest are similar
- Meadows show the lowest number of species





Exclusive and Red List Species

summer mowing and
abandoned sites
show similar pattern
despite the difference in
species richness



* Only species considered with an occurrence in at least 3 plots



Meadow

- artificial
- regularly and often mown
- poor in species

Most frequent species:

Alopecurus pratensis

Meadow Foxtail

Lolium perenne

English Ryegrass



Photo: rbgsyd.nsw.gov.au

Photo: Walter Obermayer

Photo: S.Raabe



Summer mowing

- Strong reduction of *Phragmites*
- higher species number, especially low-growing species
- rare species
- nutrient removal



Most frequent species:

Cardamine pratensis
Cuckoo flower

Carex hirta
Hairy sedge



www.wildbienen.info



Photo: erick.dronnet.free.fr



Most frequent species:

Phragmites australis

Reed



Photo: S.Raabe



Photo: <http://siera104.com/bio/ecotrip.html>

Winter harvest

Phragmites dominated
repress other species (light limited)
only tall and highly competitive species



Photo: Sebastian Görn



Abandoned sites

- more reed than at summer mowing sites
- highest species number
- more endangered species as on mown sites
- mosaic of few dominant, tall species (e.g. Phragmites, Typha, Phalaris, Glyceria)





Abandoned sites

- more reed than at summer mowing sites
 - highest species number
- es as on mown sites



Photo: Armin Jagel



Most frequent species:

Eupatorium cannabinum
Hemp-agrimony

Carex rostrata
Bottle sedge



Photo: F. Sievers



Conclusions:

In general: rewetted sites show a higher species diversity than drained & intensively used meadow

Possible reasons for higher alpha & beta diversity on abandoned sites:

- cutting tolerant & light-demanding species of wet sites still have to immigrate
- better starting potential for species of wet, unused sites (survived at e.g. ditches)
- habitat for wild boars -> small scale disturbance
- problem here: no long-term cutting on rewetted sites up to now



Photo: S. Raabe

Thank you for your attention!