Regulation of reed encroachment for nature conservation purposes by grazing water buffalos

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Outline

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1.1 Salt marsh grassland in the south baltic and reed encroachment

- Along the brackish coastal lagoons in the south Baltic reed stands prevail
- Under continuous grazing reed is replaced by grazing-tolerant salt marsh plants
  ➔ shift towards a short-stature salt marsh grassland vegetation
- Cattle induced compaction of the soil leads to development of “Salzwiesentorf”
- Abandonment or under-utilisation leads to reed encroachment
  ➔ loss of biodiversity and habitat function
2. Site Description

2.1 Location

- 28 ha large tidal island “Schmidts-Bülten”
- Mineral core with several flushing field activities
2.2 Hydrology and Vegetation

- The mean high tide of the Bodstedter Bodden (1990-2010) is 49 cm
- Typical grassland vegetation on the mineral core, red beds and salt grassland on the adjacent wet areas
- Until 1982 remarkable population of ground nesting birds and waterfowls, then severe reed encroachment
3.1 Methods

- In October 2011 and 2012 we recorded the reed distribution on the island using a D-GPS device (Laica GX 1230)
- We analyzed existing aerial photographs to reconstruct changes in reed distribution
- We resurveyed 24 vegetation plots based on records by Paulson and Raskin 1993
- We investigated the land use history of the island
- Finally we analysed the influence of land use on reed distribution
4. Results

After 5 years of grazing with 2 LU ha\(^{-1}\) Heifers

Legend
- Tall
- Intermediate
- Short stature
- Mown
- Disturbed
- Sparse

After 12 years of grazing with 1.4 LU ha\(^{-1}\) Suckling cows
4. Results

After 2 years of grazing with 0.6 LU ha\(^{-1}\) Highland cattle

Legend
- Tall
- Intermediate
- Short stature
- Mown
- Disturbed
- Sparse

After 1 year of grazing with 1 LU ha\(^{-1}\) Water Buffalo
4. Results

After 2 years of grazing with 1.3 LU ha\(^{-1}\) Water Buffalo

Legend:
- Tall
- Intermediate
- Short stature
- Mown
- Disturbed
- Sparse

After 3 years of grazing with 1.1 LU ha\(^{-1}\) Water Buffalo
4. Results

Grazing-effect in 2011 after 2 years of water buffalo grazing (1.3 LU ha$^{-1}$)
4. Results

![Graph showing % change in mean coverage from 1993 to 2012 for various species.]

- Phragmites australis
- Juncus gerardii
- Trifolium repens
- Agrostis st. ssp. maritima
- Festuca rubra
- Poa trivialis
- Sagina procumbens
- Poa subcoerulea
- Holcus lanatus
- Glaux maritima
- Aster tripolium
- Juncus maritimus
- Schoenoplectus tabernaemontani
- Cirsium arvense
- Puccinellia distans
- Puccinellia maritima
- Agropyron repens

\( \Delta \) mean coverage 1993 vs. 2012
5. Conclusions

- The fact that water buffalo started to transform dense reed stands at a stocking rate similar to or lower than that of the cattle previously used, may confirm their greater affinity for wetland plants.
- Their natural behavior makes them particularly suitable for landscape preservation in salt marsh grasslands.
- Reed beds have little understorey trampling damages only avoidable to a certain degree.
- We concluded that at suitable stocking rates and under proper management, water buffalo have the potential to reconcile the interests of landscape preservation and avian conservation.
Thank You for Your attention!