

# **Mulching experiment on fens in Slovakia – first results**



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## Mulching experiment in National Nature Reserve Belianske lúky

- established in 2007

### Aim of the experiment

- to test effect of regular mulching on fen grasslands comparing to conventional mowing
- to test effect of mulching on fen grassland vegetation

## Design of the experiment

- blocks of permanent plots set up in three types of fen vegetation
- the whole blocks are mulched by mulching machine in the summer
- six plots in the block (three plots with removal of mulch after mulching, three plots without removal)
- one control plot per each block with no mulching is situated nearby the block
- removal started in 2008, in 2007 only mulching without differentiation of treatments



## **Willows (block W)**





**Reed (block R)**





## **Birches (block B)**

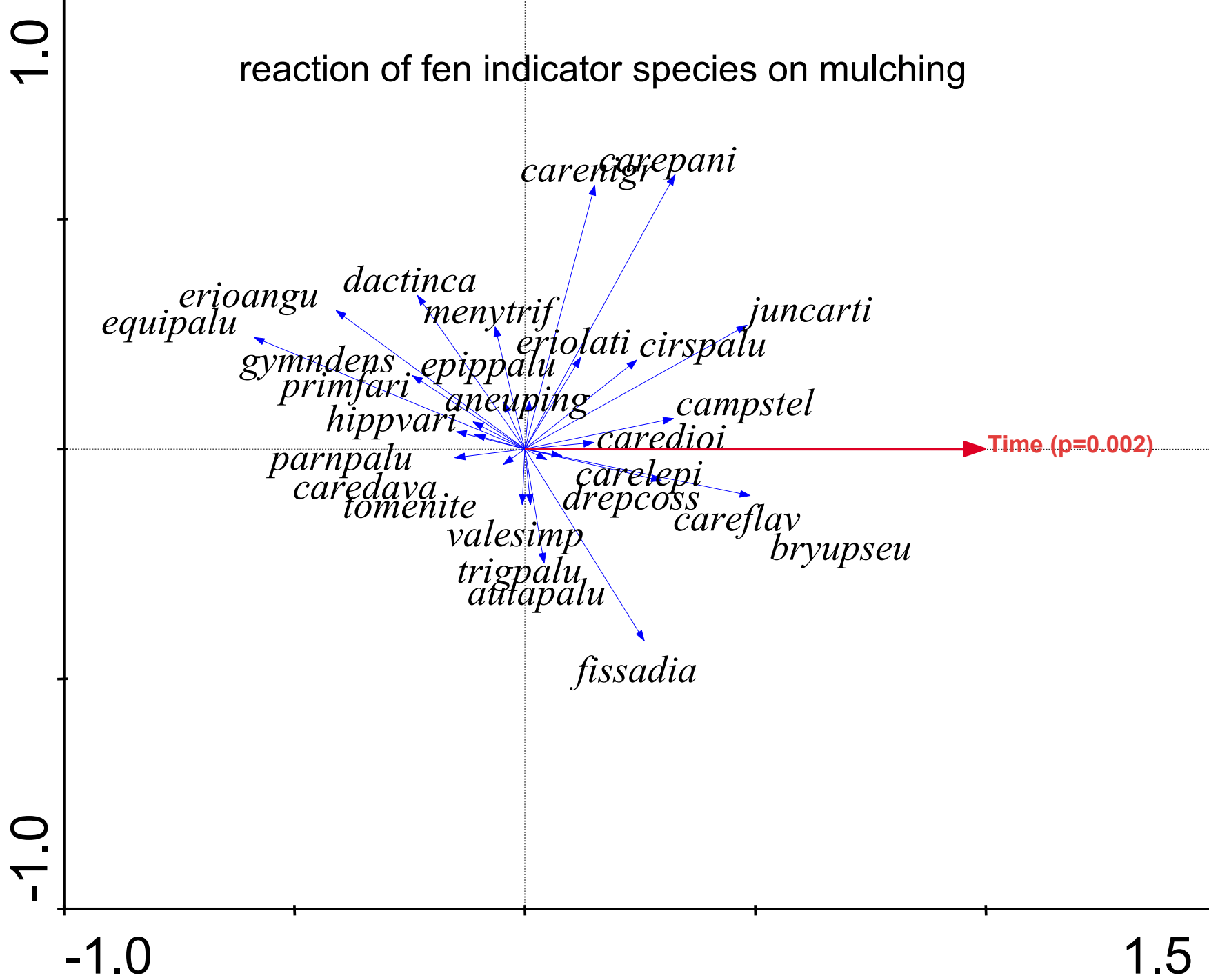




## Changes of species composition after mulching in 2007

- logarithmically transformed covers of species in the plots 3 x 3 metres
- RDA analysis, standardized by sample norm
- permutations under 3 blocks

# reaction of fen indicator species on mulching

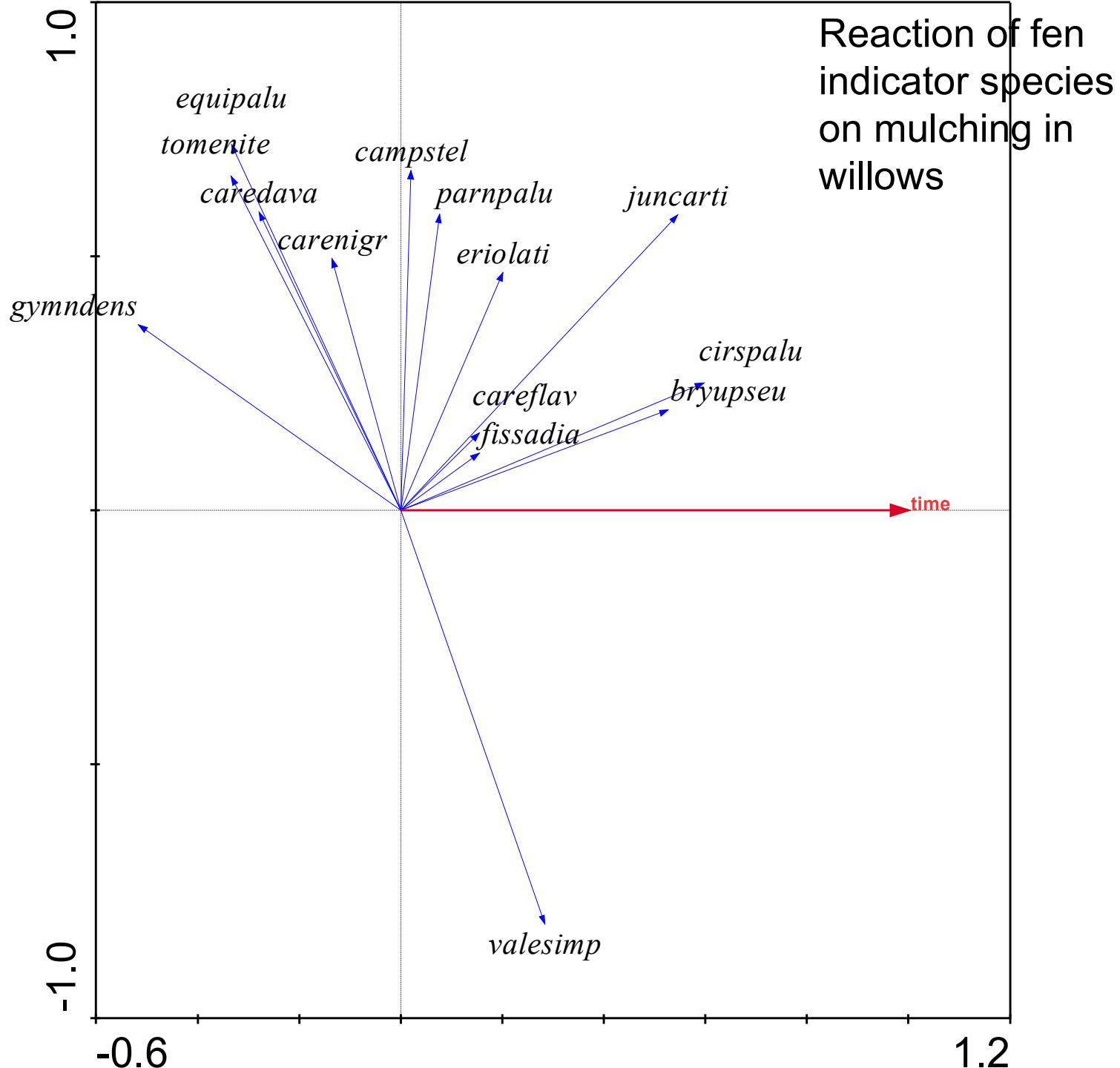




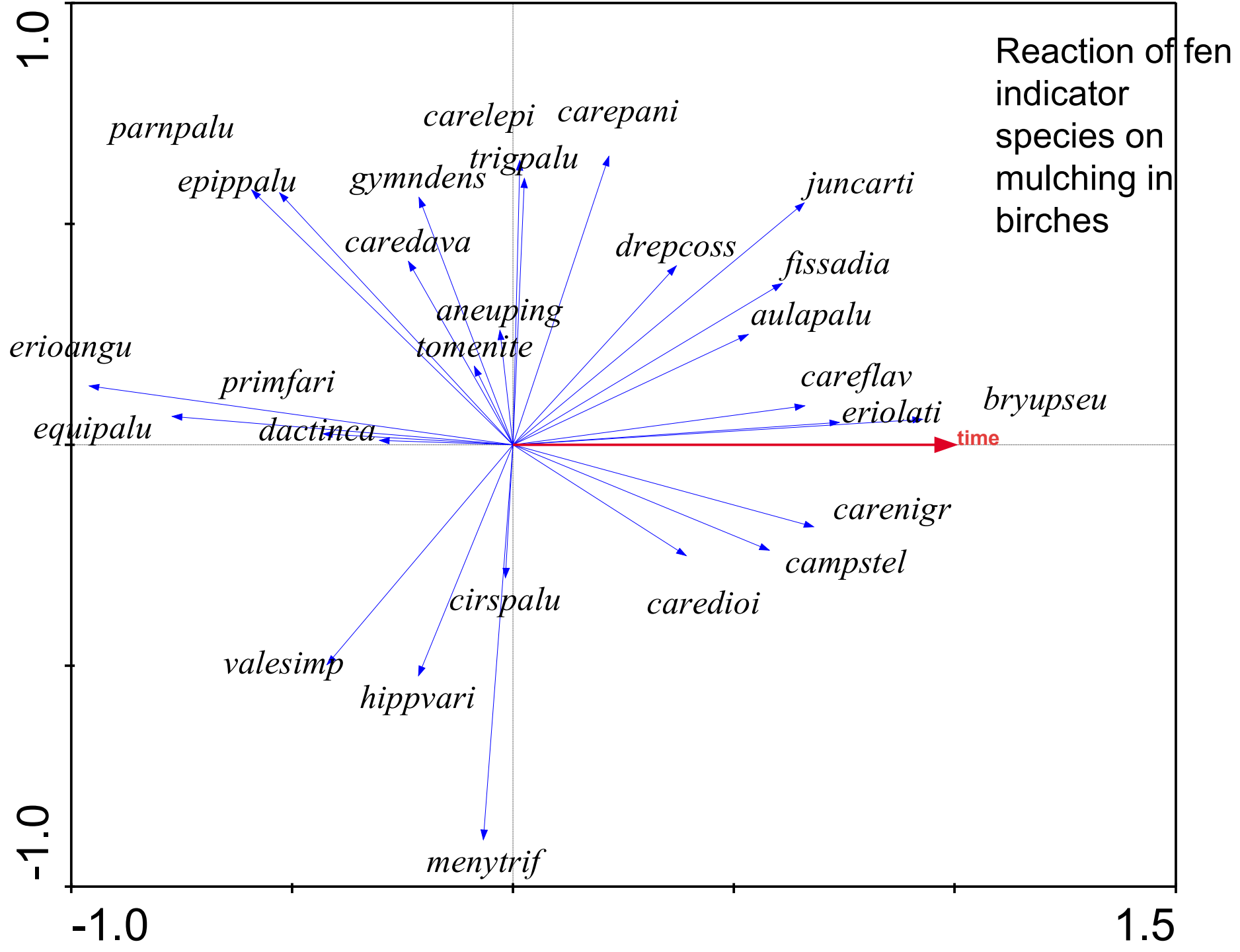
# Changes after mulching in different vegetation types

3 partial RDA analyses for 3 vegetation types (blocks)

Type	Time (p-value)
Willows	0.002
Reed	0.29
Birches	0.002







## Effect of mulch removal – one year after start of removal

- overall RDA analysis by blocks
- then 3 partial analyses

Analysed set	Time x Removal (p-value)
Overall	0.128
Willows	0.378
Reed	0.474
Birches	0.068



## Conclusions

- mulching is relatively efficient method how to remove shrubs and trees from overgrown fen grasslands
- its effect on fen indicator species is differentiated
- on one side it improves light conditions, on the other hand, some species may be limited by thick layer of mulch
- in relatively well-preserved fens, increase of moss layer was observed
- plots with removed and unremoved mulch do not differ significantly after one year of treatment application, but difference is nearly significant in part Birches (lower tolerance of well-preserved fens to long-term mulching?)