

Restoration of abandoned grassland

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Introduction

Central European permanent grasslands are secondary vegetation formations. After cessation of management botanical composition has been changed rapidly and secondary succession subsequently has occurred. The results of four year experimental works aimed at restoration of 15 years abandoned grassland are presented.

Materials and Methods

The experiment was established at Liptovská Teplička (990 m a.s.l.)

An effect of eight different grassland management methods on botanical composition was investigated.

Management methods are as follows:

- 1 Untreated control
- 2 Mowing once a year
- 3 Mowing once a year – biomass remain on the plot
- 4 Mowing twice a year
- 5 Mulching once a year
- 6 Alternate utilisation – mowing, mulching, mowing, mulching
- 7 Mulching and mowing aftermath yearly
- 8 Mulching in the first year and in subsequent years mowing once a year

Botanical composition

Changes in botanical composition were analysed by indices of qualitative (IS_J) and quantitative $IS_{J/G}$ similarities.

Results

Figures 1 – 8 show changes between initial botanical composition of abandoned grassland and after four years of utilisation, expressed as index of qualitative similarity. Results of index quantitative similarity changes are given in Table 1.

Green colour – plant species recorded in initial botanical composition

Different colours – new plant species immigrated after four years of utilisation

Mixed colours – common plant species

Figures 1 – 8 Indices of qualitative similarity (IS_J). Values refer to common species (%)

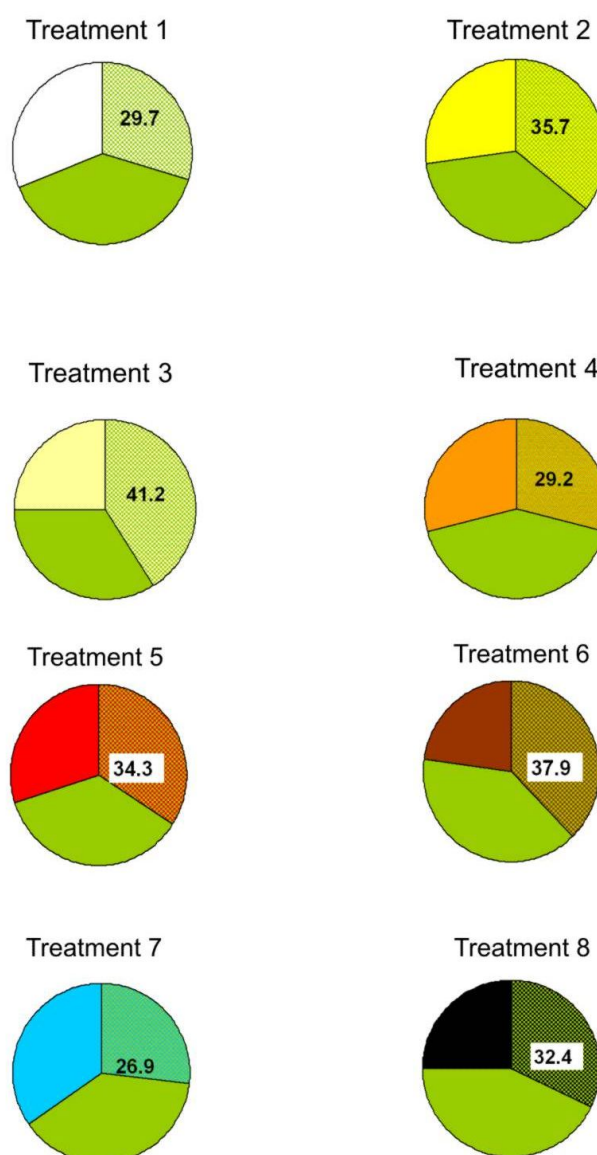


Table 1 Index quantitative similarity

Treatment	1	2	3	4	5	6	7	8
$IS_{J/G}$	76.9	85.7	87.2	84.2	79.2	86.2	83.0	74.4

Conclusion

After four years changes in botanical composition in each treatment have been observed. Changes in botanical composition are well-documented by the both similarity indices. In this experiment, higher utilisation frequency underlined more radical changes in botanical composition of abandoned grassland. Low similarity on the unmanaged treatment shows continuous succession.