

Effects of different land- use intensities on seed production of grassland species



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BIODIVERSITY EXPLORATORIES

The importance of seed production for community assembly

- Number of produced seeds vitally for the persistence of sexually reproducing plant populations
- Critical step in the plant life cycle : demographic transition from adult plant to seedling stage
- What effect does management intensity have on seed production of grassland species?

Methods: Quantification of seed rain

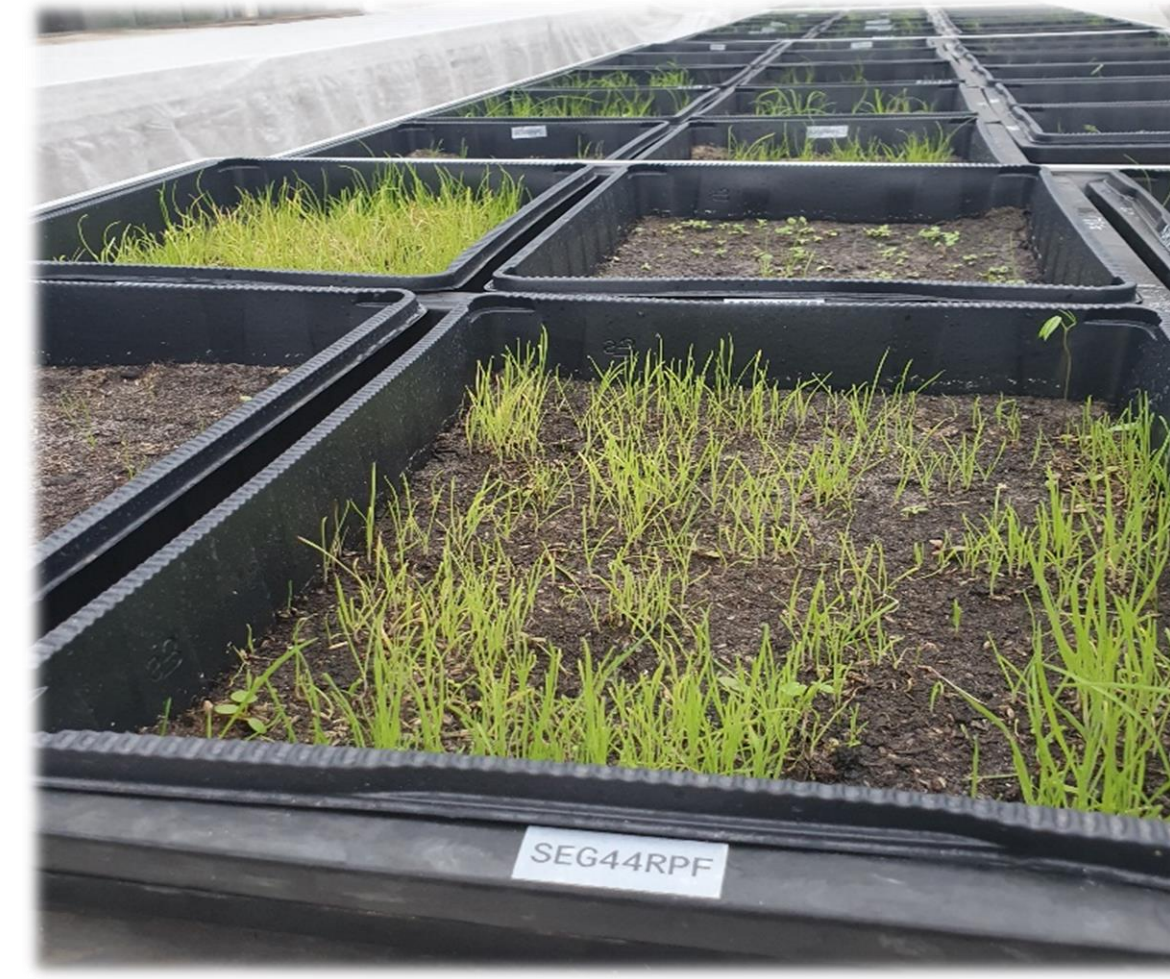
- Seed traps consisting of artificial turf installed on 15 EP-C and RP-C plots in early spring 2023
- 10 traps of 10 x 10 cm size per plot



- Seed traps collected in August 2023 to wash out seeds



- Germination in open greenhouse
- Counting and identification of seedlings (more than 85.000 seedlings of 110 different species)

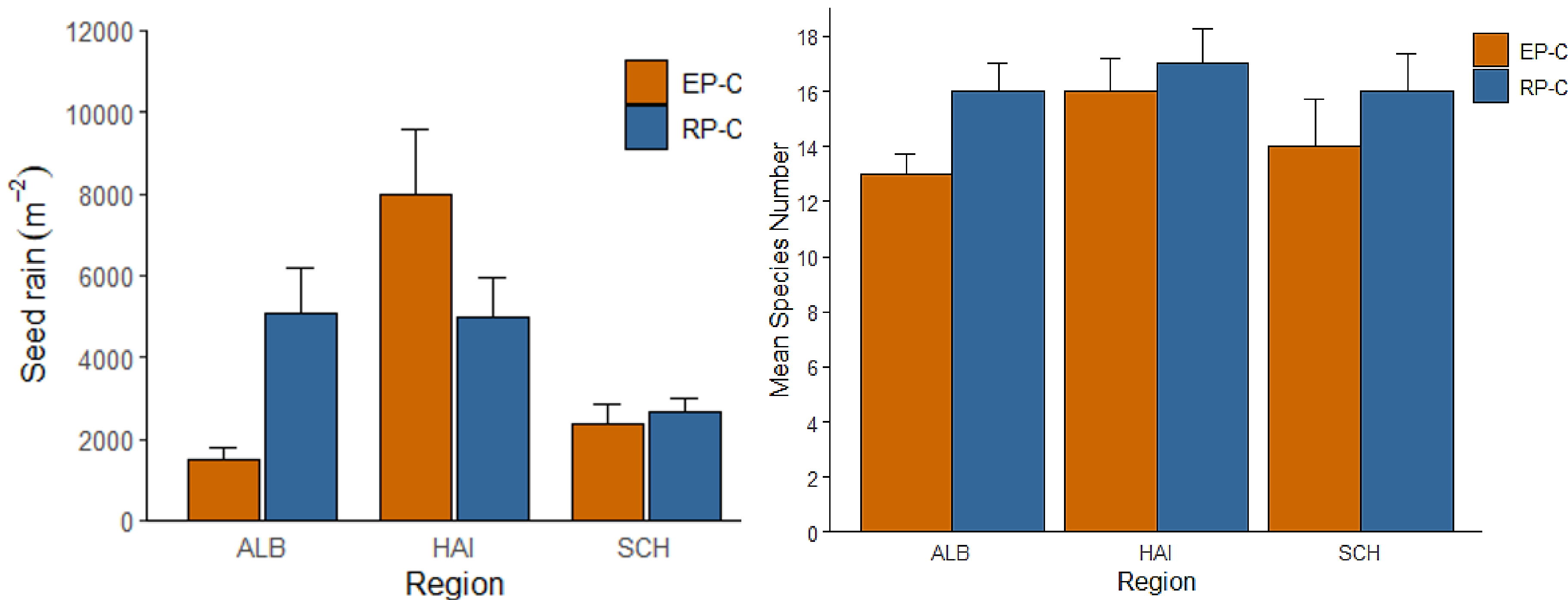


Study site: The Biodiversity Exploratories

- Three study sites across Germany: cover the largest part of the typical land-use types for grasslands
- Study conducted on 15 plots in each region, each plot has two subplots: EP-C and RP-C
- EP-C: Experimental plot, on which regular land-use takes place
- RP-C: Reduced land-use intensity plots, no fertilisation, mowing once a year (end of the summer) since 2020



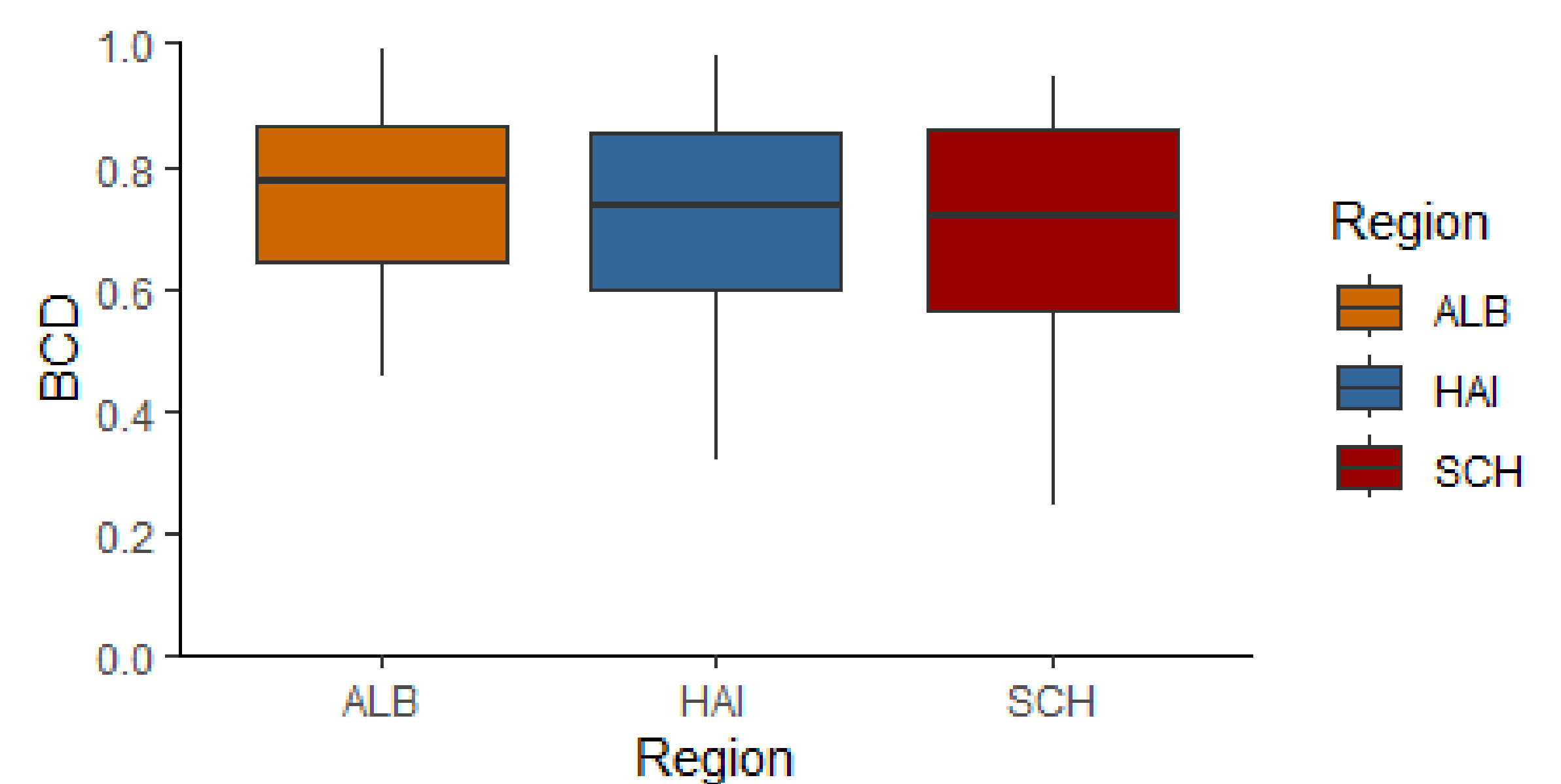
Mean seed rain density is higher in RP-C plots in two regions, mean species number is higher in RP-C plots in all three regions



Seed rain density (mean + se/m²) per treatment in all regions

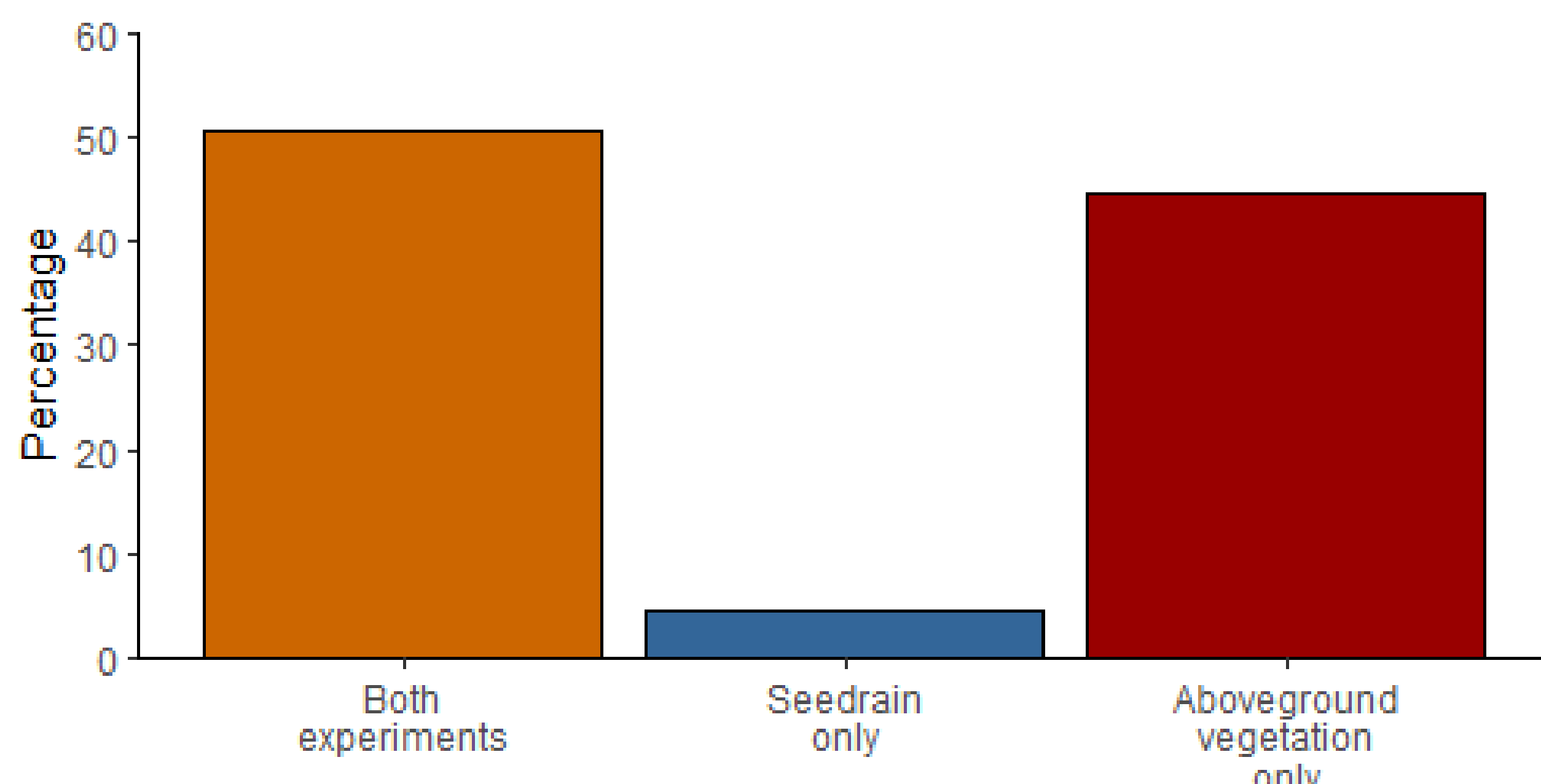
Species number (mean + se) per treatment in all regions

Species composition (Bray Curtis Dissimilarity) between EP-C and RP-C of one plot shows greatest variation in Schorfheide



Differences in seed rain species composition (Bray Curtis Dissimilarity) between EP-C and RP-C treatment of one plot (15 plots per region)

50 % of the recorded plant species were found in both seed rain and aboveground vegetation



Percentage of how many of the in total recorded species were found in both seed rain and aboveground vegetation, seed rain only and aboveground vegetation only

Important questions to be adressed

- What effect does management intensity reduction have on the different functional groups?
- How does the land-use intensity of single plots affect seed production within one and across regions?
- What long-term effect does the land-use intensity of previous years have on seed production?