

Emerging arthropods in three key meadow bird areas across different grassland management types

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Meadow birds have been on a rapid decline since the 1970s, coinciding with a decrease in arthropod biomass. Since arthropods are a vital food source for meadow bird chicks, food availability could play a role in their decline. This study aims to determine the effect of long-term grassland restoration on emerging arthropod communities.

Nine grasslands (three per study area) with two emergence traps each. These range from intensive agricultural grasslands, to long-term conservation grasslands. The traps were emptied weekly for twelve weeks from mid-April to mid-July in 2024.

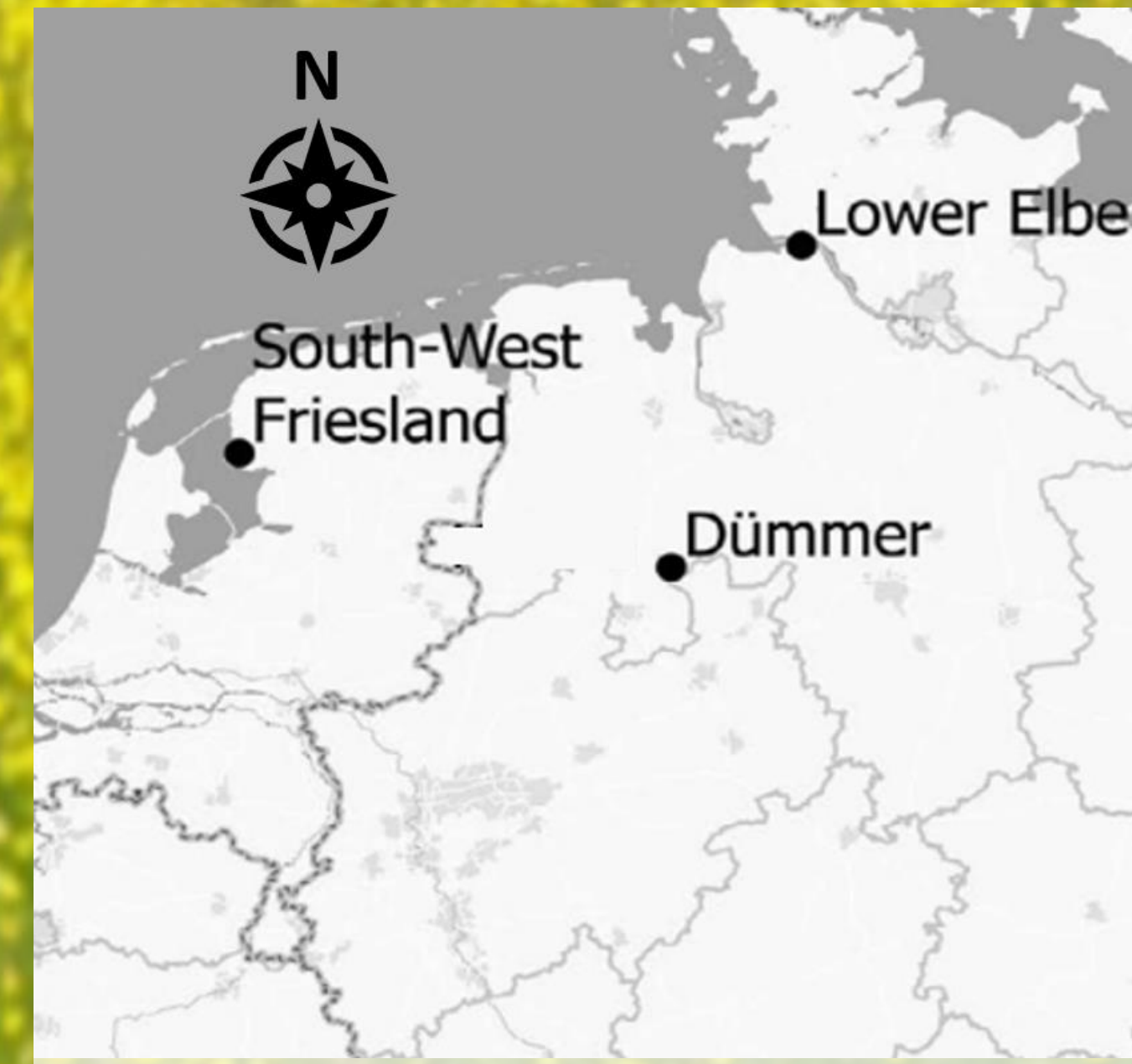


Figure 1: Location of the three study areas.

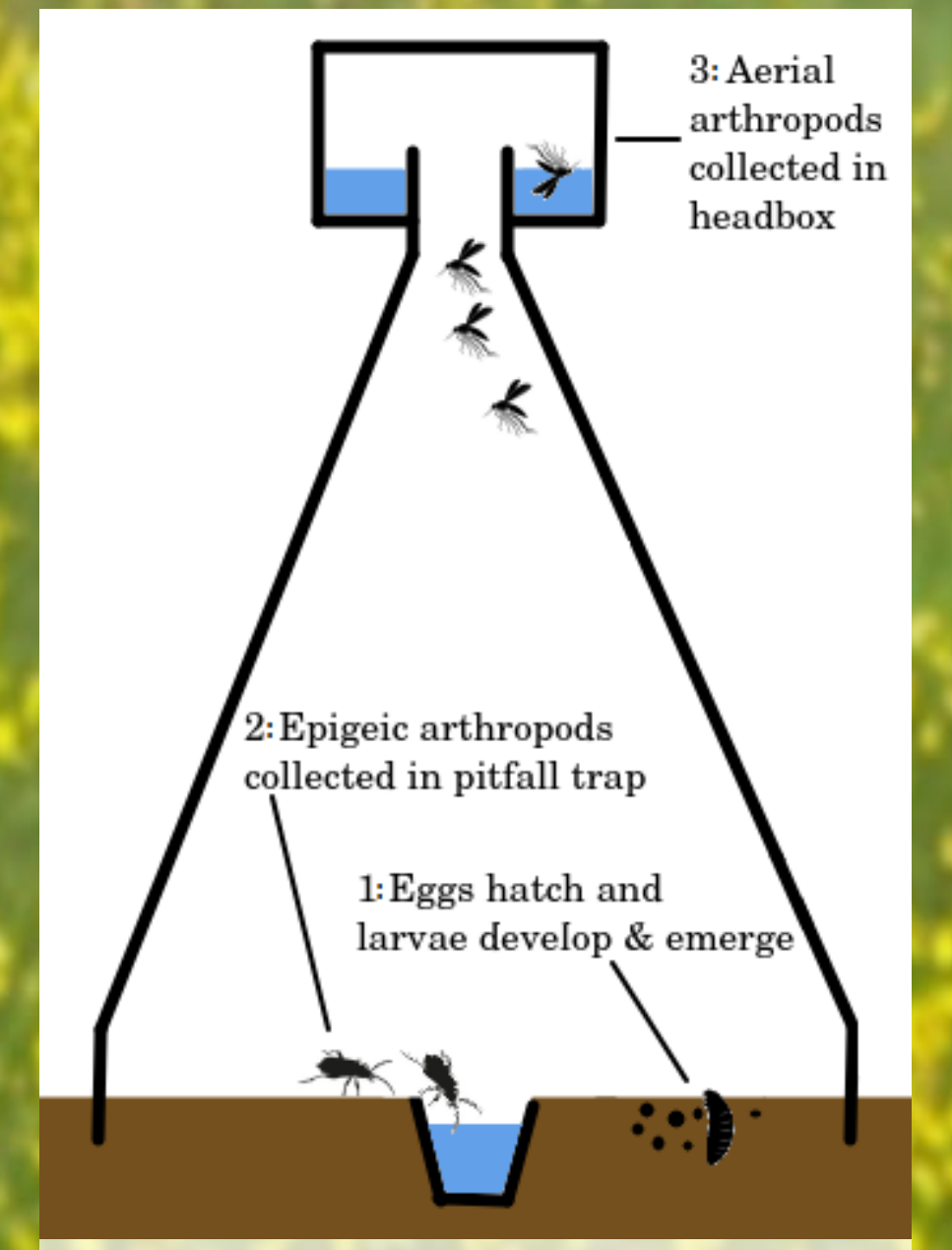


Figure 2: Overview of the emergence trap.

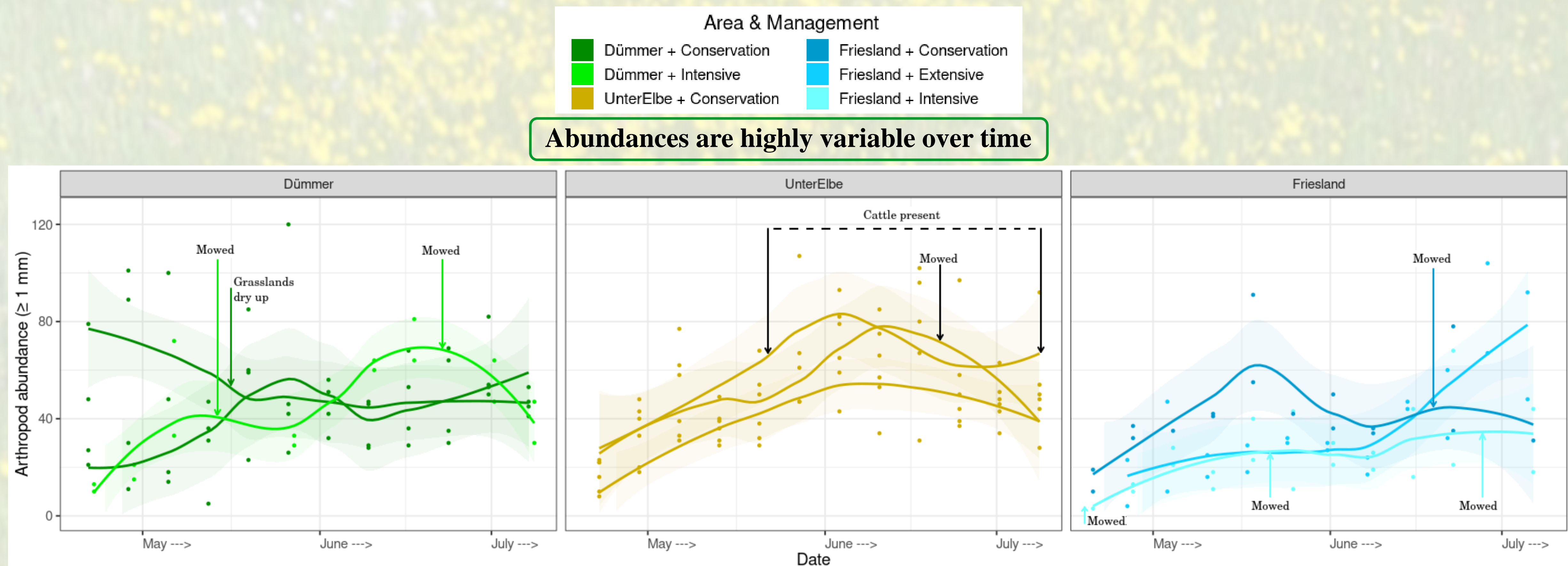


Figure 3: Arthropod abundance over time. Individual traps have been plotted separately.

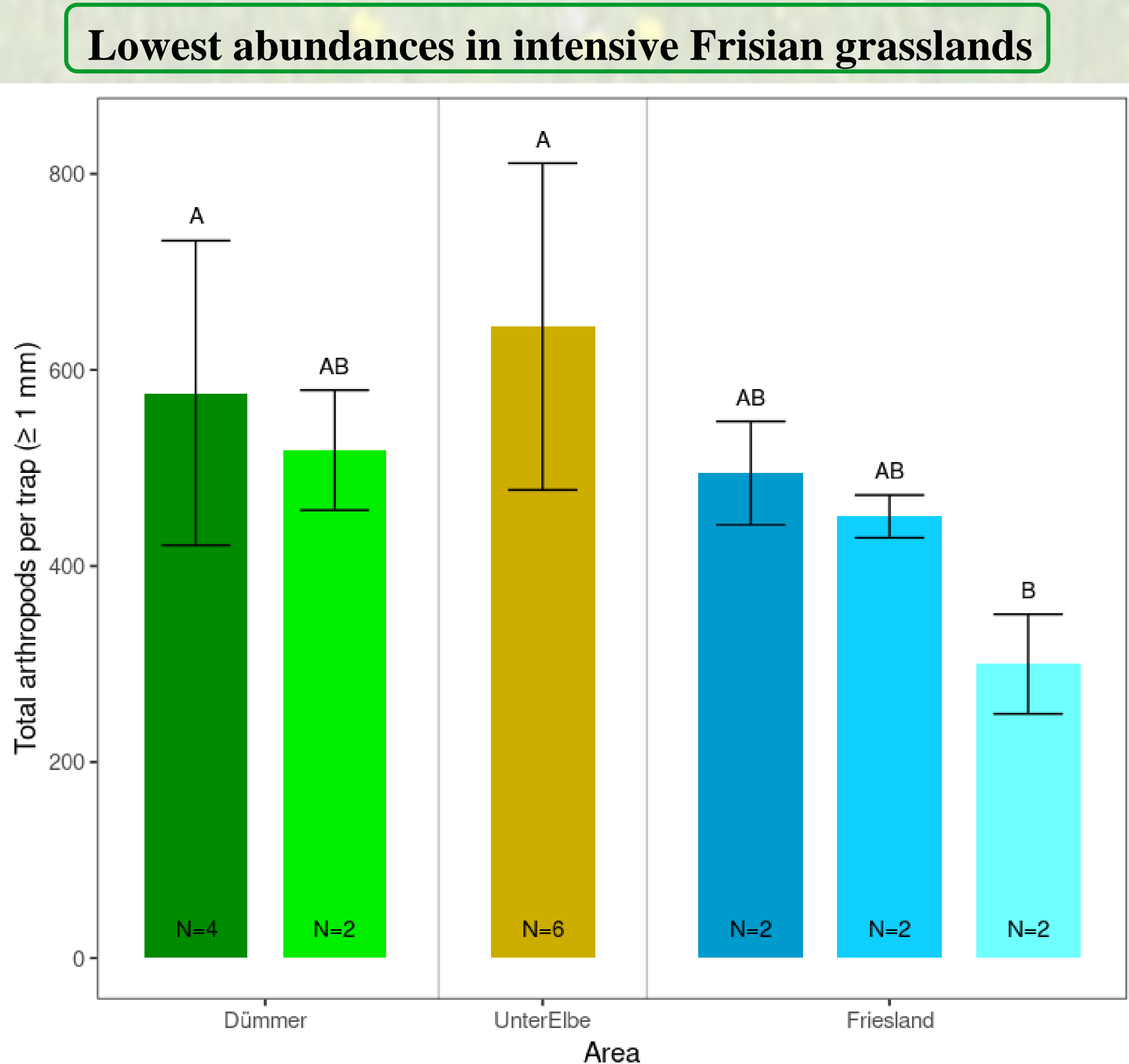


Figure 4: Total abundance of collected arthropods per emergence trap. Letters indicate significant differences, N indicates number of traps.

“UnterElbe + Conservation” ≠ “Dümmer + Conservation” (p=0.042)
 “UnterElbe + Conservation” ≠ “Friesland + Intensive” (p=0.036)

Communities differ among Area & Management

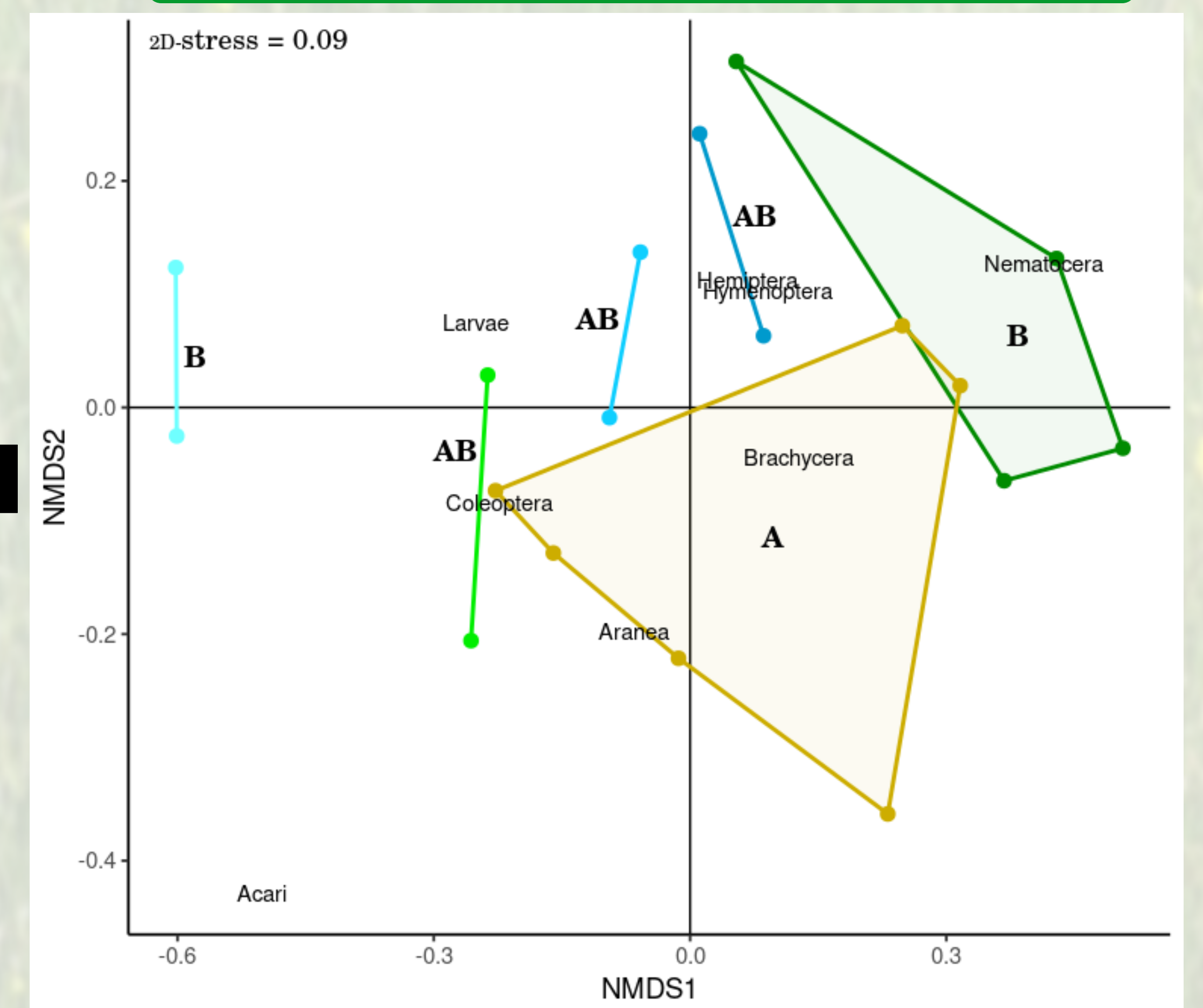


Figure 5: NMDS of the community composition of emerging arthropods. Each point represents all arthropods collected in a single trap pooled over the whole season. Bold letters indicate significant differences.

Abundances and communities of arthropods which emerge from grasslands are affected by management intensity and long-term restoration efforts. Unlike studies using sticky- or pitfall traps which quantify arthropod presence, this work offers insight into their local production. It is part of a larger study and will as such contribute to elucidating the effects of different management regimes on food availability for meadow bird chicks in grasslands in Germany and The Netherlands.

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 Background picture by: Rudi Zwier

