

Mowing frequency and traffic pollution affect soil microbial communities of urban roadside lawns



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Lawns are a common type of urban green space. They are typically exposed to anthropogenic stressors, which often have adverse effects on biodiversity, soil quality, and the ecosystem services they provide.

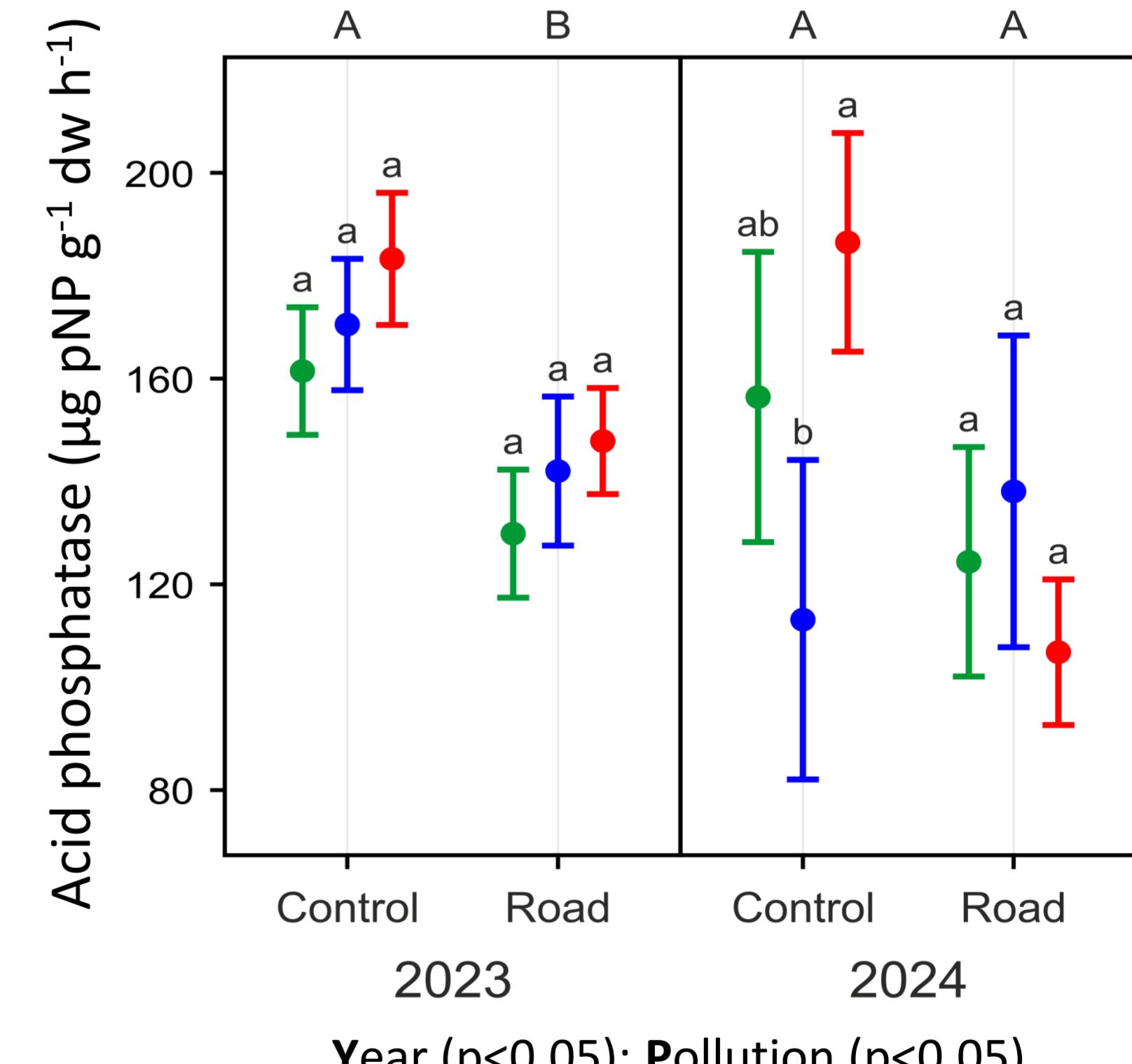
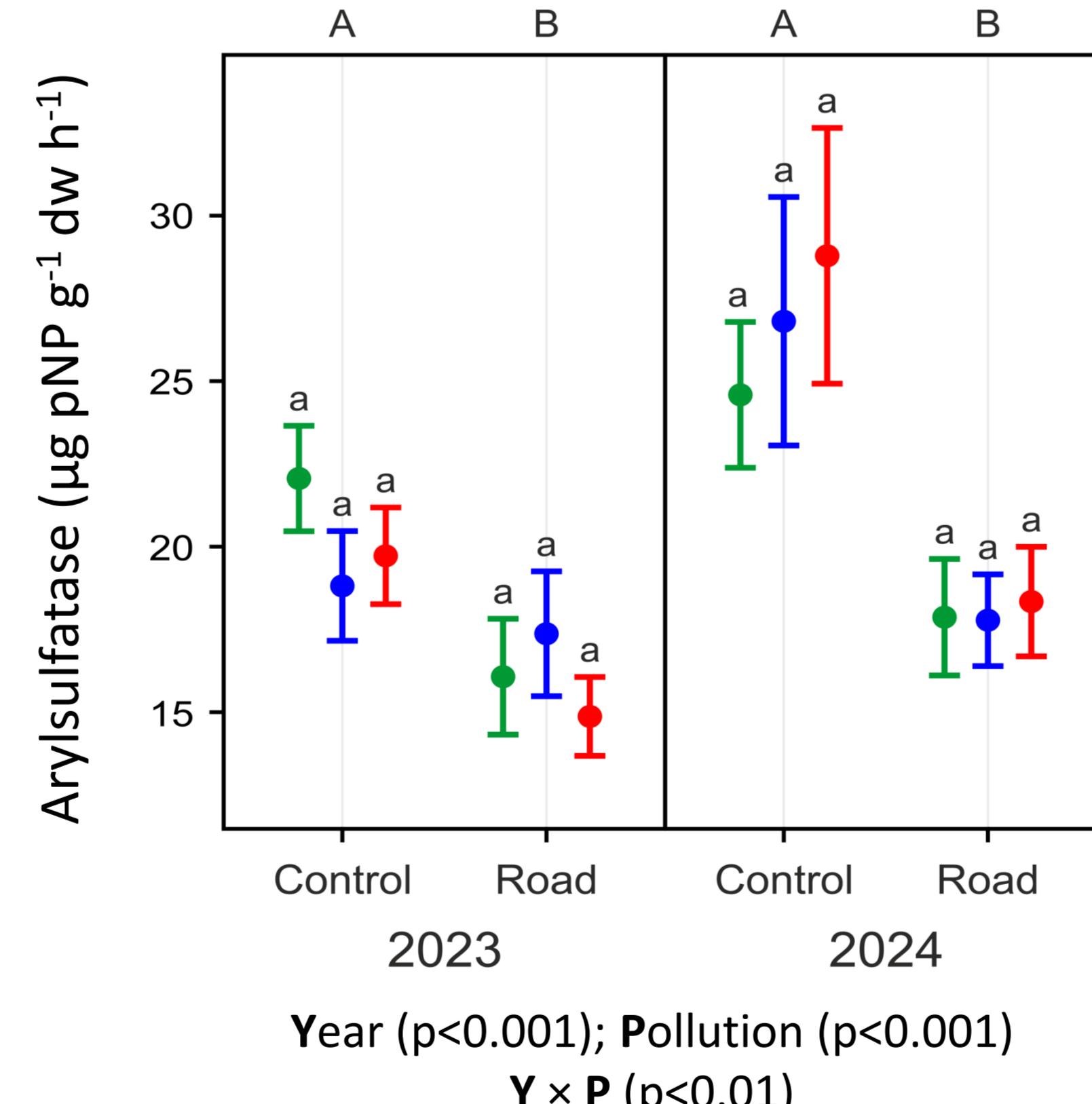
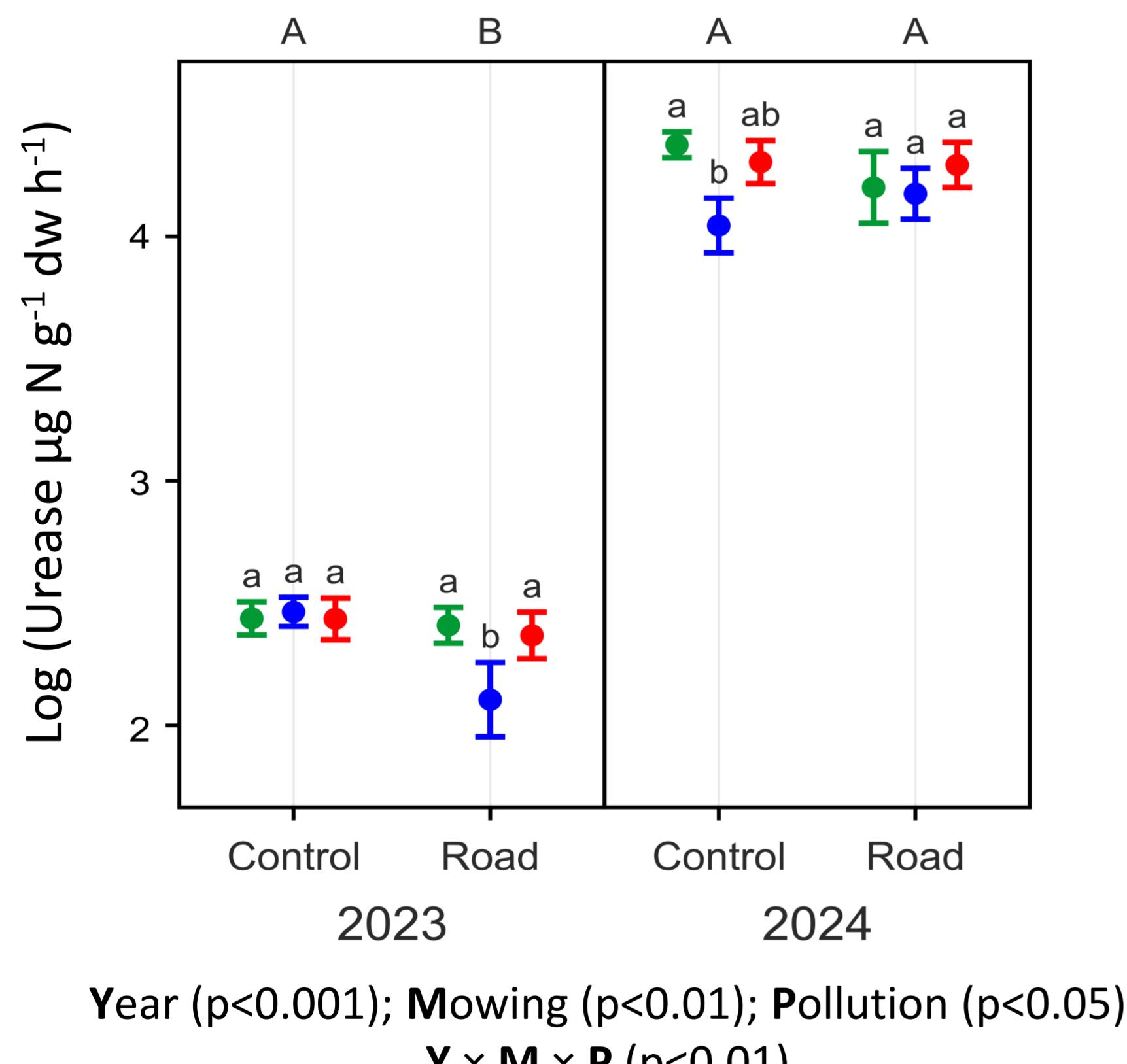
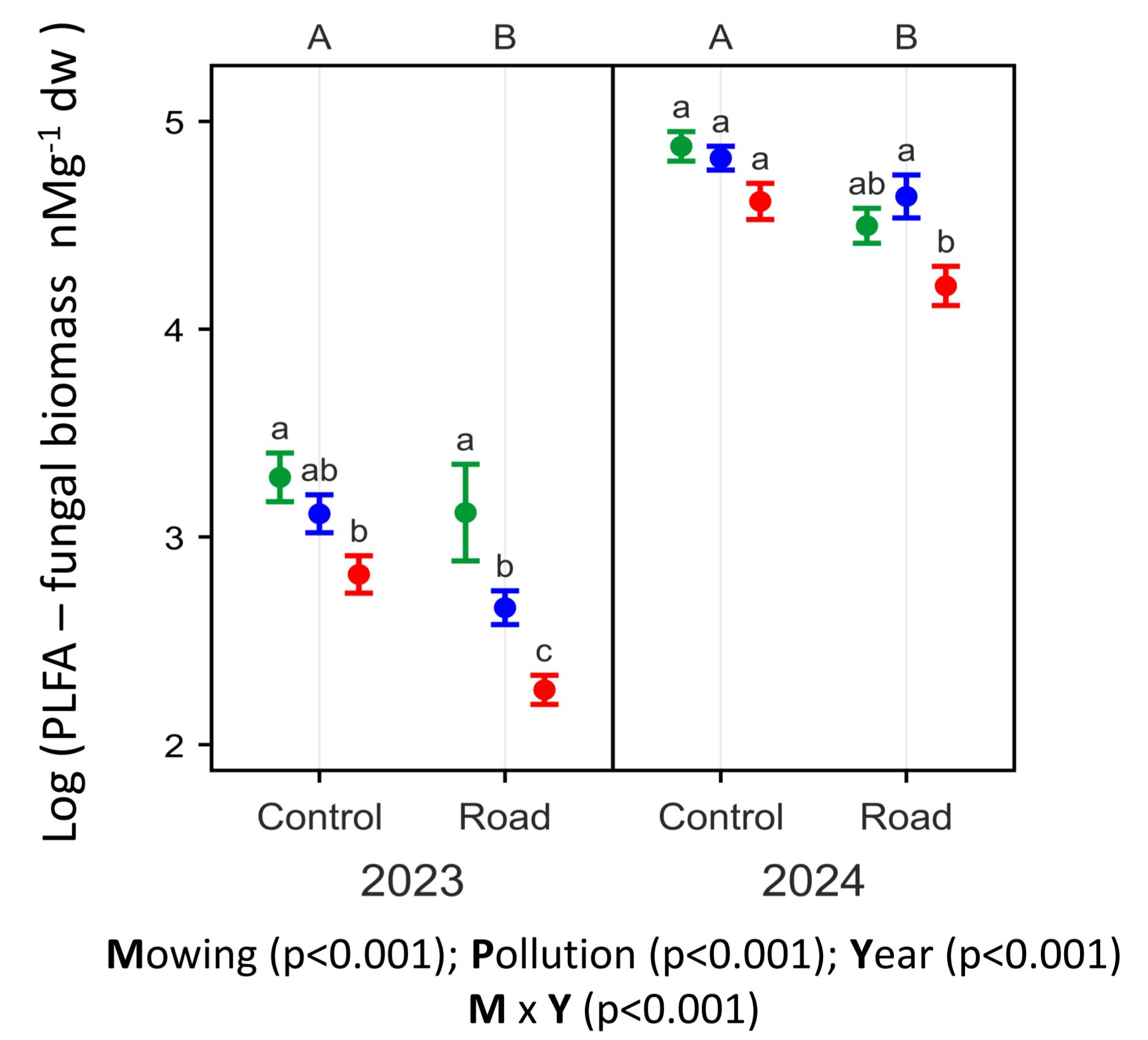
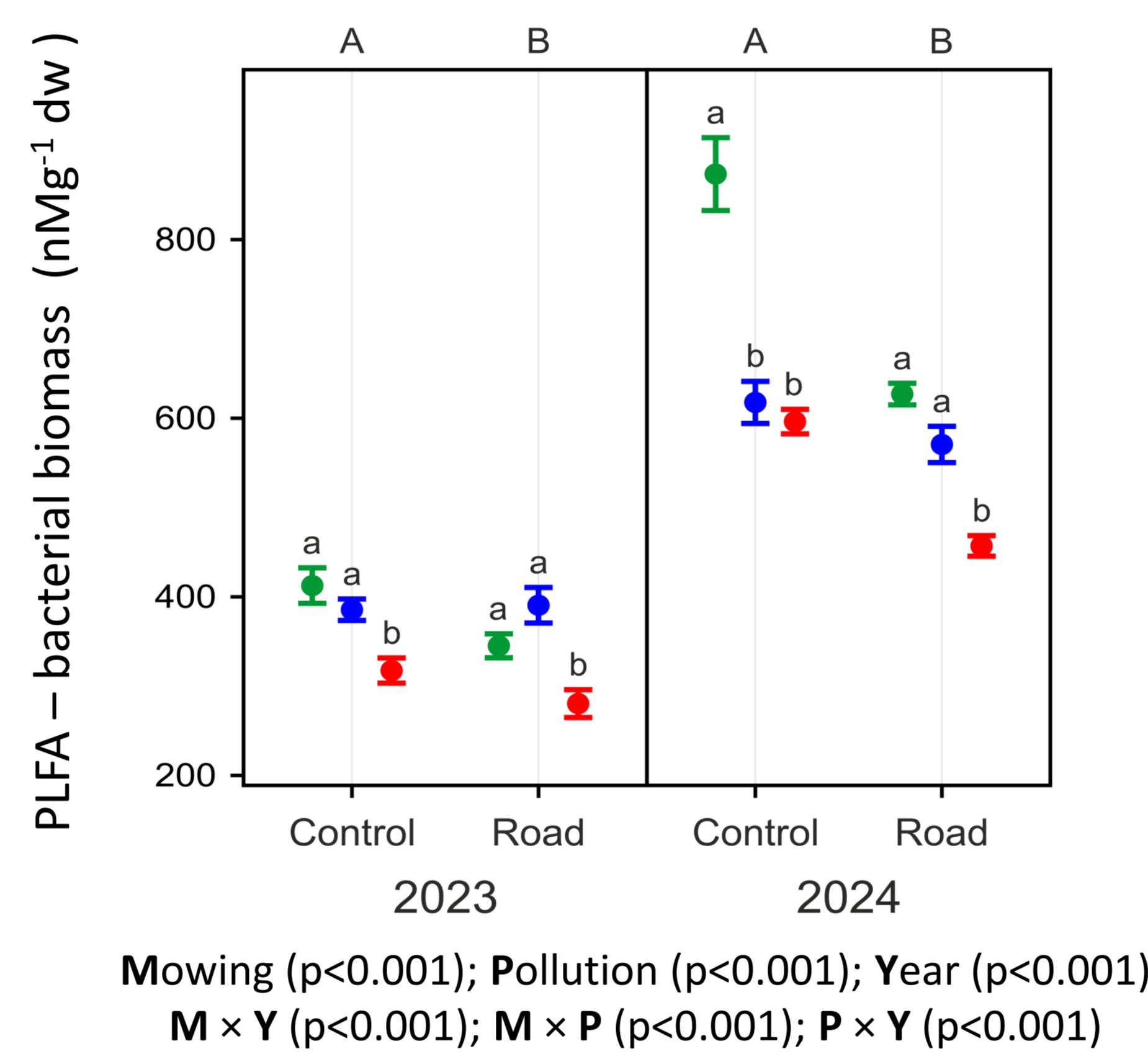
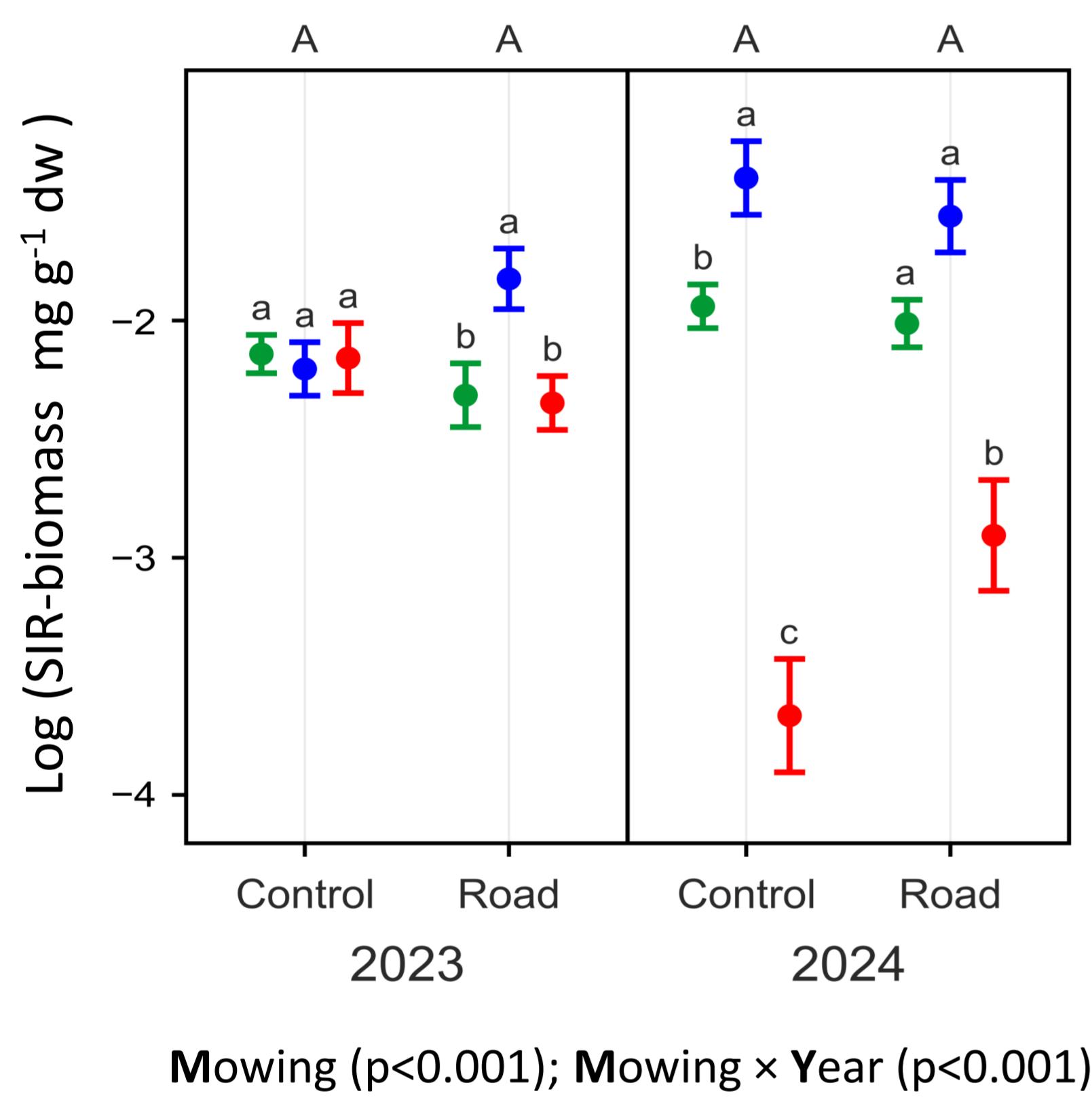
How mowing frequency and traffic pollution affect soil microbial communities?

Experiment & Analyses

- * Two cities in Poland (Kraków and Katowice)
- * 14 study sites
- * Three **mowing frequencies**: **low (1/year)**, **medium (3/year)** & **high (6/year)**
- * Two **pollution levels** (distances): control & road
- * Two **years**: sampling in autumn 2023 & 2024
- * Lab analyses: soil microbial biomass (PLFA, SIR) and enzymatic activity
- * Statistics: Linear mixed effects models



Results & Conclusions



PLFA-biomass and SIR-biomass were strongly affected by mowing frequency. In general, the lowest bacterial and fungal biomass were in lawns with the highest mowing frequency. PLFA-biomass was also affected by traffic pollution. **Enzymatic activity was mainly affected by traffic pollution.** Biomass and enzyme activities were lower in soils sampled closer to the road edge.

Microbial communities in urban lawns are negatively influenced by two anthropogenic factors – mowing and traffic pollution. Appropriate management practices, including reduced mowing frequency, are recommended to support the functioning of urban roadside lawn ecosystems.