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1. Introduction

Loss and degradation of habitats but also increasing habitat fragmentation have caused a strong decline of plant diversity in Germany. Despite possible limitations due to their vicinity to motor traffic, roadsides could be valuable habitats for many plant species for several reasons: They are ubiquitous, consist of different habitat types and seem to be well connected along the road network. The aim of this study was to evaluate the value of roadsides for plant conservation in Northern Germany.



Left: common species-poor roadside.

Right: species-rich roadside with several endangered species.

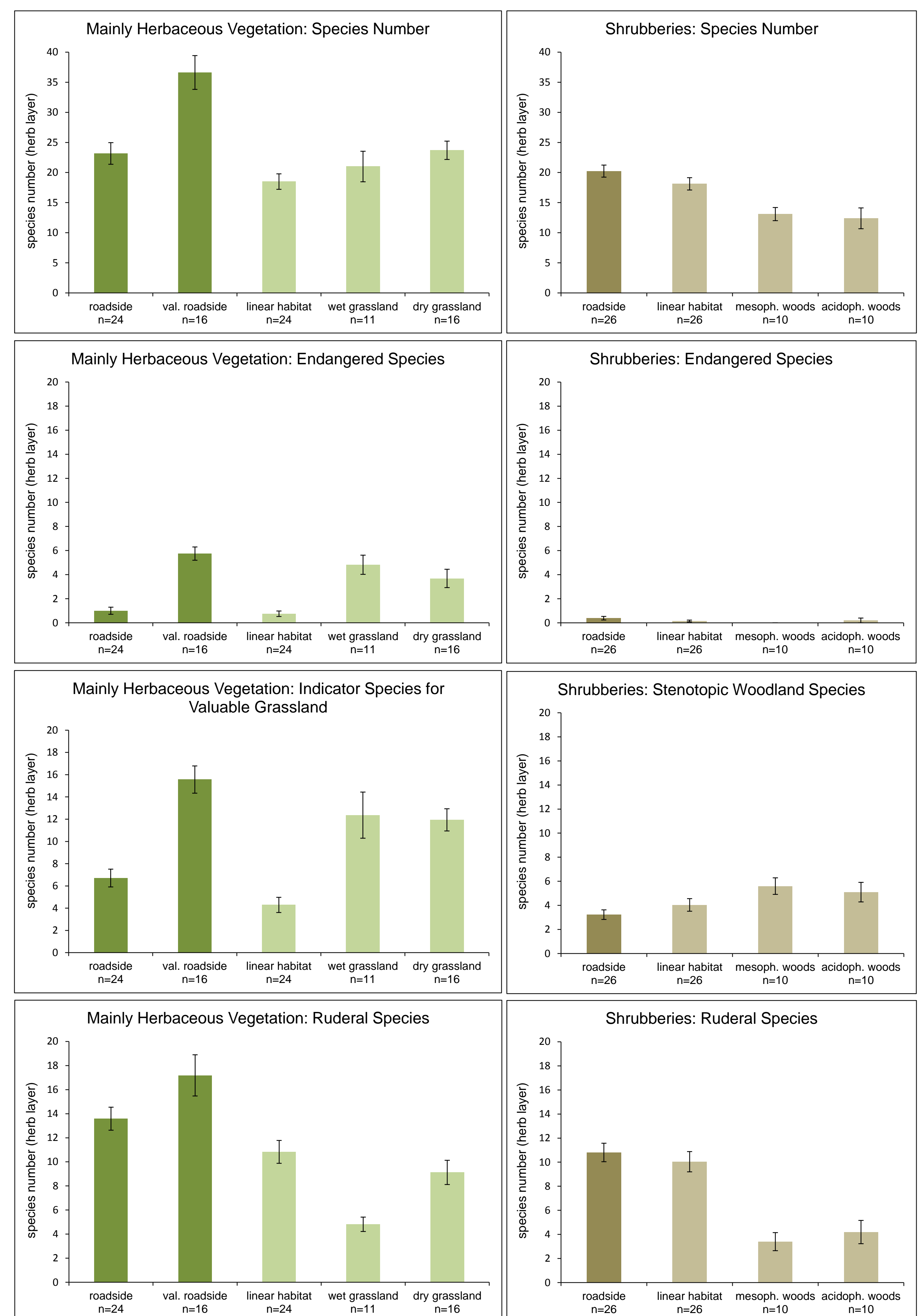
2. Methods

We investigated the plant species richness and composition of roadside vegetation along motorways and main roads. We assigned the roadside vegetation into two types: 1. mainly herbaceous vegetation and 2. shrubberies. To assess the value of roadsides for plant conservation, we compared fifty randomly selected roadsides to habitats without roads in their immediate vicinity: Herbaceous roadside vegetation was compared to herbaceous linear habitats and to selected species-rich grasslands, road shrubbery was compared to linear habitats rich in shrubs and to selected valuable forests. For herbaceous vegetation, we also specifically searched and examined valuable roadsides.

3. Results

Our results show that randomly selected roadsides and linear habitats away from roads had a similar species richness and composition. While species richness of mainly herbaceous roadside vegetation was comparable to species richness observed in species-rich grasslands, plant species richness of road shrubberies was even higher than species richness in the selected “valuable” forests. Despite the high species richness in roadside vegetation, the number of threatened and specialized species was comparatively low, whereas high numbers of ruderal species and several neophytes could be found.

Specifically-searched valuable roadsides also showed high amounts of neophytes and ruderal species, but could reach higher proportions of threatened and specialized species than randomly selected roadsides. However, based on a general view along more than 600 km of roads we estimate that no more than 1 % of verges of German motorways and main roads can actually be classified as valuable.



Total species number and species number of different species groups of roadsides and habitats without roads in their immediate vicinity. (val.=valuable, mesoph.=mesophilic, acidoph.=acidophilic)

4. Conclusions

According to our results, we conclude, that present roadsides play a minor role as alternative habitats for threatened and specialized plant species in Northern Germany, although the potential for plant species conservation could be increased significantly through purposeful design and management.

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