

EXPLAINING EXTRAORDINARY COMMUNITY DIVERSITY AMONG NEIGHBORING TALLGRASS PRAIRIE REMNANTS VIA EXOTIC PLANT INVASIONS

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Abstract: We used ordination techniques to compare the plant community compositions of nine remnant prairies and three post-agricultural reconstructions in the Grand River Grasslands of Ringgold County, Iowa, and Harrison County, Missouri. While previous studies indicate that the differences between remnant and reconstructed communities should be pronounced, we found that mean within-remnant and between remnant-reconstruction distances in ordination space were unexpectedly similar ($0.82, \pm 0.01$ s.e., and $0.86, \pm 0.01$ s.e., respectively). Using site scores as a measure of beta diversity (Canberra distance; 0-1, 0 = identical communities, 1 = dissimilar communities), the mean for remnant prairies (0.82) indicates high levels of variation in community composition. In this paper, we explain this variation in terms of invasion by exotic species – specifically cool-season Eurasian grasses including tall fescue (*Festuca arundinacea*) – and describe how these invasions interact with other factors, such as soil nutrients as well as past and current management, including grazing and fire regime.