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ABSTRACT-- We studied small mammals in three central Iowa grassland habitat types to test the hypothesis that species diversity and abundances are lower in relatively pure stands of replanted native grasses than in prairie and old-field habitats containing greater proportions of forbs. We found no significant relationships between these habitat types and species diversity or abundances. Because we found no significant habitat effects, we combined data from all habitat types, and grouped the species into guilds of granivores, herbivores, and insectivores. We used Principal Component Analysis to characterize the vegetation data, and then performed multiple stepwise regressions on the significant PC variables. The regression for granivores was not significant. However, regressions for herbivores and insectivores accounted for 27% and 43% of the variation, respectively. For comparative purposes and to determine the appropriate spatial scale at which these species respond to habitat characteristics, we performed a similar analysis after combining all trap stations into a single data set. This analysis was significant for herbivores and insectivores, but explained only 4% and 10% of the variation, respectively.

Key words: prairie, small mammal community, vegetation structure, species diversity.