** The Distribution of Bison Wallows in the Mixed Grass Prairie of North-Central Montana (Poster)

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As ecosystem engineers, plains bison (*Bison bison bison*) shape their environment and increase overall landscape heterogeneity through intensive grazing and wallowing. Wallowing is when bison roll on their backs and sides, creating bare depressed patches of soil. The subsequent wallows have been shown to provide habitat for many organisms including insects, amphibians, and flowering plants. Despite their importance to landscape heterogeneity, it is not well understood what factors influence their distribution across landscapes where bison are present. Our study took place in two fenced bison pastures in north-central Montana managed by American Prairie, which focuses on the restoration of bison to private nature reserves. We collected drone imagery from 45 randomly selected 500x500 meter plots across the two pastures. We annotated the imagery in ArcGIS Pro to identify locations and characteristics of wallowing sites. The drone imagery was then used to calculate bison wallow density. We analyzed the relationships between wallow density, environmental characteristics, and bison movement behavior. The environmental characteristics included presence or absence of other mammal species, slope, and land cover. We estimated bison intensity of use with a dynamic Brownian bridge movement model from over 100 GPS ear tagged bison. These results improve our understanding of where wallows are distributed across the landscape. By uncovering the relationships between bison wallows, environmental characteristics, and bison behavior, we can better predict where and to what extent bison reintroductions will impact landscape heterogeneity.