

Effect of Drought on Grassland Bird Species in an Urban Reclaimed Landfill

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Grassland bird species are among the most vulnerable organisms in North America due to the reduction of available grassland habitat. Freshkills Park in Staten Island, NY, is an urban reclaimed grassland inhabited by continentally-imperiled specialist species such as *Ammodramus savannarum* (Grasshopper Sparrow) and *Passerculus sandwichensis* (Savannah Sparrow), making it ecologically vital. There is no pre-existing literature detailing the effect of drought on grassland species in urban reclaimed green spaces. More information regarding management practices of areas inhabited by grassland birds under drought conditions is essential for conservation. In this study, we conducted 100-meter transects at four locations throughout the East Mound of Freshkills Park. Every 20 meters, vegetation characteristic data was collected via randomized quadrat sampling. Variables included were: standing live vegetation height, standing dead vegetation height, litter depth, standing live plant percentage, litter percentage, and bare ground percentage. The data were analyzed using t-tests between a non-drought year and a drought year to quantify how drought conditions affected each variable. We used binary linear regression to determine the probability of bird presence given each transect location. Bare ground percentage and litter depth significantly differed between non-drought and drought years. Logistic regression determined that live plant and litter percentages were significant factors in the probability of bird presence. These statistically significant factors negatively affected the target species as the target species are ground nesters. Such results have great implications for the future conservation of endangered grassland bird species.