

Insect Response to Precipitation and Grassland Restoration in Kansas

Jake Huffman and Alexandra Morphey

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Abstract: Flowering plants and grasses play an important role in providing resources for insects, which in turn feed birds and other animals that prey on insects. The precipitous reduction in US grassland habitats (70% since industrialized settlement) is a leading factor in bird and insect declines, but restoration efforts can improve these habitats. In the US, one restoration effort is the Conservation Reserve Program (CRP). In Kansas, restored grasslands use two major CRP seed mixes; one that is primarily native grasses (CP2) and one that is grasses and flowering forbs (CP25), both aiming to provide natural habitats for wildlife. The seed mixes and precipitation gradient in Kansas (drier in the west and wetter in the east) provide a basis for evaluating the health of insect populations, which is important in the proliferation of all life in grassland restorations. Prior studies suggest an increase in insect numbers and vegetation with increasing precipitation due to an increased resource availability, but a practical test of CRP restorations (CP2, CP25) has not been conducted. In this study, analysis was done on data from 108 CRP sites across Kansas with a precipitation gradient of 64cm (25in). Abundance of insects was measured at each site using 40 m sweep-net sampling twice in 2018. Results will be used to examine the response of insects to CRP restorations. We hypothesize that drier sites in western Kansas will have higher insect abundance associated with CP2, whereas wetter sites in eastern Kansas will have higher insect abundance associated with CP25. Our results provide a good basis for improving grassland habitats for wildlife.

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