EXECUTIVE SUMMARY

Developing Decision Support Tools for Optimizing Retention and Placement of Conservation Reserve Program Grasslands in the Northern Great Plains for Grassland Birds

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Background

- The Northern Great Plains has the greatest diversity and abundance of breeding grassland birds in North America.
- Grassland birds are one of the fastest declining groups of birds in North America due to grassland loss and degradation.
- Many grassland birds benefit from CRP land because it provides ecologically relevant cover; however, CRP acres have declined drastically over the past decade.

Objectives

1) Estimate the effect of CRP on breeding grassland bird populations.
2) Develop a spatial decision support tool that can help target CRP retention and enrollment to benefit a suite of declining grassland birds.
3) Develop CRP recommendations, such as management protocol and seed mixes, that will benefit grassland birds.

Methods

- We created density and distribution models for nine grassland bird species using stop-level Breeding Bird Survey abundance data and covariates derived from land cover, topographic, and climatic data.
- Selected bird species are priority species that together utilize the diversity of vegetative conditions that exists on the landscape (i.e., short sparse grass, to tall rank grass). Endemic grassland bird species are on the top row of the figure and more widespread grassland bird species are on the bottom.
- We used the models to estimate the effect of CRP on bird populations by hypothetically converting CRP to crop or a managed grassland, reapplying the models, and recalculating the difference in population between the original model and the model scenario.
- We developed decision support tools based on population percentiles from density and distribution models to guide retention and enrollment of CRP.
• CRP benefited widespread grassland species and Baird’s Sparrow; these species utilize dense vegetative cover that is typical of CP1, the most common type in the study area. CRP had no effect or a weak negative effect on the remaining endemic grassland species.
• If CRP were converted to crop 8.6% of the total population of widespread grassland birds and Baird’s Sparrow in the region would be lost. If CRP were treated as a managed grassland there would be a 5.0% population gain of endemic grassland species.
• Standard CRP delivery will benefit most grassland birds, however in the western region where endemic grassland bird species occur it is important that a CRP management plan is developed to create vegetative conditions are ecologically relevant (i.e., managed native vegetation on working lands).
• A decision support tool can be used to rank competing enrollment applications. A parcel that is in an area that contains a dense nesting population of a target species will be given priority over one that contains lower densities.