

## **EVALUATION AND INTERPRETATION OF SPATIAL PATTERN OF GRASSLANDS IN THE LOESS HILLS**

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*Abstract:* Half of Iowa's remnant prairie lies within the Loess Hills of western Iowa; yet, development, woody encroachment, and agriculture continue to impact the size, shape, and quality of grassland habitat in the region. Given the limited resources available to manage grassland acres, prioritizing restoration expenditures and efforts to areas of greatest conservation potential is critical. To this end, we developed a conservation priority index (CPI), based upon proximity to remnant prairie and corn suitability rating, to identify cropland with the greatest potential to promote connectivity of grasslands. Evaluations were carried out at two scales: over the 650,000 acre landform and within 12 previously prioritized Special Landscape Areas (SLAs). Metrics show that grassland habitat is more abundant and physically connected in the northern half of the Loess Hills. The second most northern SLA, had a high value of total area and cohesion, and the lowest nearest neighbor distance between grassland cover types. The southern-most SLA, shows nearly the opposite scores. Within SLAs, 83% of cropped acres scored in the top 30 percent of the CPI and would account for 93 percent of the increase in connectivity and 92 percent of the decrease in edge density if converted to grassland. The CPI furthermore identified large portions of cropland within SLA's with low overall production potential. If converted to native vegetation these areas would significantly add to the total amount and connectivity of grassland habitat in the region.