

Blurring the lines between working and conservation lands: Bird use of prairie strips in row-cropped watersheds

Abstract: Information collected for this project, along with additional research conducted on the STRIPS project, showed that prairie strips can be a valuable tool for improving ecosystem health in agricultural lands, especially in terms of improving water quality and increasing biodiversity and landscape heterogeneity.

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Can row-cropped agricultural catchments with small amounts of reconstructed prairie support greater native bird biodiversity than row-cropped catchments without prairie? At the scale and location of the STRIPS experiment, the answer was yes; however, it may not be possible for all grassland bird species to be conserved through prairie strips.



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What was done and why?

In 2007, the Science-based Trials of Row-crops Integrated with Prairies (STRIPS) project team at Neal Smith National Wildlife Refuge (near Prairie City, Iowa) initiated an experiment. The central hypothesis of the STRIPS project is that the conversion of small amounts of row crops to reconstructed prairie within agricultural landscapes will provide disproportionately greater than expected environmental benefits (i.e., soil stability, water purification and attenuation, carbon sequestration, insect pest suppression and wildlife habitat provision) based on the area of land converted.

The research objective of this project was to quantify how grassland birds respond to the novel and economically practical STRIPS conservation practice. The PIs tested these hypotheses in relation to bird habitat provision at the STRIPS project study site at the Neal Smith National Wildlife Refuge:

1. Total bird abundance, species richness, and diversity will be greater in catchments with prairie treatments than entirely row-cropped catchments.
2. Total bird abundance, species richness, and diversity will increase in the years following prairie establishment.
3. Total bird abundance, species richness, and diversity will increase as the proportion of prairie increases.
4. Total bird abundance, species richness and diversity will be influenced by landscape context.*

(In this case, species richness is the number of species found within the bird community. Species diversity is a more holistic measure of the bird community, which combines the number of species with the evenness of their abundances.)

What did we learn?

The specific results from the bird biodiversity component of the STRIPS project strengthen the overall message about the conservation benefits of prairie strips. Though soil and water quality may be the primary concerns that attract land managers to adopt conservation practices such as prairie strips, the wildlife habitat provided by a diverse mix of native plants is a benefit missing from many traditional in-field conservation practices. The results from this project may influence Iowans to consider wildlife habitat when choosing agricultural conservation practices for their land.