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Bird nesting on rotationally grazed warm- and cool-season grass paddocks in southern Iowa

Abstract: Bird nesting patterns were studied under various grazing regimes in southern Iowa.

Question & Answer

Q: Can farming in Iowa can be compatible with successful grassland bird populations?

A: Yes, grazing lands, in particular, can be compatible IF there are areas that are undisturbed during the grassland bird nesting season (particularly May and June) and the grazing lands are diverse, both in terms of species (warm-season grasses, cool-season grasses, a variety of forb species, including legumes and composites) and in structure (some bare ground, clumps of tall dead standing grasses, etc.). While some refuge areas of ungrazed areas (like diverse CRP) are still necessary, careful management of grazing lands through rotational grazing of cool-season and warm-season grasses will allow grassland bird populations to persist.

attractiveness of warm-season grass paddocks will be influenced by the forb content of the grass stand, the amount of litter residue on the ground, standing dead vegetative residues, and the overall patchiness of the stand. Areas adjacent to the grazing system, such as Conservation Reserve lands, may be necessary to help bolster species populations.

Central questions for this project: how will the warm- and cool-season grass paddocks accommodate grassland birds, and how do these paddocks compare to adjacent warm- and cool-season grass Conservation Reserve Program (CRP) fields?

Approach and methods

The project was conducted on the Adams County Research and Demonstration Farm managed by the Southern Iowa Forage and Livestock Committee. A pilot study was conducted in 2005, followed by a full study in 2006-2007. Birds were observed in all fields once per week over a nine-week period in 2006 and 2007 to assess bird use of the area. Three systematic nest searches were conducted each year on each field using a light chain with suspended weights to cover the fields and flush birds, followed by a search for nests. Vegetation characteristics and grass stand composition were measured periodically.

Results and discussion

Short-duration rotational grazing systems can accommodate a wider spectrum of grassland nesting birds by incor-

Background

In a management intensive grazing system, warm-season grass paddocks can be used for summer (July and August) forage and to provide viable nesting habitat to grassland birds during the spring (May and June) nesting season. Ideally, these warm-season grass paddocks would comprise between one-quarter and one-third of the area of the whole grazing system, with cool-season grass paddocks using the remaining area. This system can attract a variety of species to use and nest in the warm-season grass paddocks, but nesting success in all grazed paddocks may be low because of trampling losses. The

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Budget:
\$31,093 for year one



Using modified cable-chain drag method to flush birds and search for nests (Photo by Dan Wehmeyer)

Conclusions

The future of grassland birds in the agricultural landscape is not a promising one as the loss of CRP lands removes potential bird habitat. Ligno-cellulosic ethanol production on grasslands represents a new management challenge that has the potential to hasten the decline of many grassland animal species. Finding economic ways to utilize lands without decimating grassland bird populations poses a continuing challenge for ecologists, conservation professionals, producers, and landowners alike. Managed short-duration grazing systems can meet some of the needs of grassland birds, but they cannot be all things to all species. There will always be unmet needs that will require large undisturbed and diverse areas to maintain and preserve grassland nesting birds on the landscape into the future.

Another major concern is the possible conversion of CRP land to corn production for ethanol. Properly managed CRP land can serve as a buffer to provide for unmet habitat needs and to serve as a habitat cushion against yearly fluctuations in vegetative structure within the grazing system. The conversion of CRP land to row-crop production will mean lower bird abundances, fewer nesting bird species on acres covered in permanent vegetation, and a reduction in the amount of perennial grass on the landscape.

Impact of results

The impact of the study results is limited by the fact that the majority of the study was conducted only for a two-year period. Several more years of data may be needed to sort out the environmental variables. While most of the project objectives were achieved, the lack of robust sample sizes for nests leaves specific questions regarding nesting unanswered.

Future research should be devoted to investigation of the forage and grazing potential of mixed cool-season and warm-season grass stands that are managed by using the “flash grazing” method in early spring. This method is attractive to producers because it allows for additional utilization during the “flash grazing” period, compared to pure warm-season grasses, which would only be grazed in July and August.

porating warm-season grass paddocks over one-quarter to one-third of their area. These grazing systems will not meet all the needs of all species, especially in drought cycles, and idled land such as the land in CRP still will be required to help contribute to population sustainability. These idled lands still will require some form of managed disturbance to be applied to break up monotypic grassland stands, creating openings that will allow forbs to germinate and grow, and preventing suppressive layers of litter from smothering out the vegetation.

Rotational grazing systems that utilize warm-season grasses should be managed so that their warm-season grass paddocks are saved for summer forage between July and August. Early spring flash-grazing to control cool-season grasses in the warm-season grass stand should be both very early and very brief so it does not destroy too much standing dead vegetation. This management system creates a window between May and June for undisturbed grassland bird nesting. To attract insects and provide seeds for food, legumes and composites (plants in the Compositae or “sunflower” family, including coneflowers, goldenrod, and many others) should be added to the stand. Grazers will benefit from the legumes because of the nitrogen they fix into the soil. Bird species will benefit from the insects and their larva that the forb diversity attracts. Managers of warm-season grass stands should be aware that there needs to be a substantial amount of clumped, standing dead residue in order to provide usable grass structure for aboveground grassland nesters, who build their nest in vertical vegetation. To maximize the benefits to grassland birds and producers, a commitment to management and some form of monitoring will be necessary to provide continued feedback on the system.

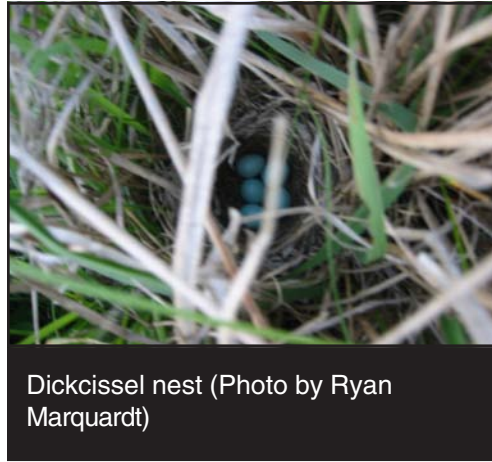
High-density stocking management intensive rotational grazing systems are gaining favor in some grazing communities. This system allows for more animal impact and a longer rest period between grazing events. It may provide large enough rest windows (as much as 90 days) to be viable for some grassland birds to set up territories, build a nest, incubate eggs, and fledge young.

Education and outreach

Three publications are in progress based on the project results. An ISU Extension publication will help landowners learn about and better manage grassland bird species. A master's thesis for Ryan Marquardt is based on the project, and one chapter will be submitted to the *Journal of Range Management*.

The Southern Iowa Forage and Livestock Committee hosted four field days in 2006 and 2007 at which the project was presented to 170 people. Many of the attendees were producers and government agency employees.

A poster about the project was displayed at the 2007 and 2008 Practical Farmers of Iowa annual conferences. Other posters have been shown at the Iowa Forage and Grassland Council annual conference, Pottawattamie County Pheasants Forever banquet, and USDA/NRCS meetings. Project findings were presented at the December 2007 Midwest Fish and Wildlife Conference in Madison, Wisconsin and to ISU Extension field specialists in March 2008.



Dickcissel nest (Photo by Ryan Marquardt)

Leveraged funds

The project leveraged additional funds from other sources: Iowa State University College of Agriculture and Life Sciences (\$5,000), Southern Iowa Forage and Livestock Committee (\$5,000), NRCS (\$6,850), and the U.S. Department of the Interior (\$18,129).

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