

The Multiple Benefits of Agriculture

Analysis and Policy Development for Social, Economic, and Environmental Benefits in Agriculture

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Bird Populations and Health in the Watersheds

Breeding Passerines (Songbirds). Issues related to the effects of land use on breeding songbirds are similar in both watersheds with a few exceptions. In the Chippewa, habitat change involves loss of native tallgrass prairie, wetlands, and prairie potholes, both to cropland and to forested areas that historically were grasslands. Wells Creek had more forested areas than the Chippewa in the past, but still the watershed probably supports more forest species than when the area resembled more of a savanna habitat. Increase of cropland in both watersheds leads to direct and indirect mortality of birds. Direct mortality is caused by farm equipment (leading to nest destruction and bird mortality) and ingestion of pesticides. Indirect mortality is caused by loss of nesting habitat, loss of food items (loss of insect abundance by pesticide use, or loss of seeds from herbicide application), increased predation from loss of cover, or lack of nesting or nest success through the small size of remaining habitat patches. Cover and tillage practices affect the number, variety, and nesting success rates of different passerine species.

Game birds. Agricultural landscapes seem to be beneficial to many game birds as long as the landscape still provides a large amount of grassland and areas of cover. Studies show a strong correlation between grassland and pheasant abundance, which provides evidence that pheasants should benefit from an increase in grassland in both watersheds. Weather conditions and competition with pheasants may have a greater effect on partridge populations than the abundance of grassland habitat. However, if grassland

Project Coordinator's Notes

The last few months have been busy with writing and analysis on several of the components of the Multiple Benefits of Agriculture project. We are summarizing the baseline and scenarios, complete with economic, social and environmental data and estimates. Pat Welle of Bemidji State University continues to lead the completion of contingent valuation interviews in the two watersheds and a state wide mail survey. John Westra of the University of Minnesota has completed a baseline for the biophysical data. Jan and Cornelia Flora of Iowa State University have advised us on an analysis of the status and potential for social capital in the watersheds, based on statements made during our spring and summer focus groups. Julie Henry and Bruce Vondracek of the University of Minnesota are analyzing the status and potential for fish and wildlife populations in the watersheds. In this newsletter, you will find initial findings from their work on the effects of agriculture on birds.

- Mara Krinke, Land Stewardship Project

habitat was greatly reduced, we would expect partridge populations to decrease in response. Studies on wild turkeys have shown that they prefer a diversity of interspersed woodland and agricultural habitats. Woodlands used by turkeys are mainly oak and maple-basswood types, and agricultural fields seem to be substituted for woodland openings, as well as a potential source of food. Turkey populations are thriving in Wells Creek where forest cover is available but they are considered a nuisance by some farmers.

Policy in Focus - Bird Responses to the Conservation Reserve Program

The Conservation Reserve Program (CRP) is a way to preserve land, reduce erosion and nutrient losses, and to create habitat for birds and other wildlife. For bird populations, early responses to CRP compared to row crop habitat are positive. For example, populations of ring-necked pheasants and many other species of grassland nesting birds increase significantly in response to grassland establishment (Mueller, Kimmel and Haroldson 1998). If CRP lands are dedicated in areas with more than 70% cropland, pheasant populations will tend to increase, but benefits are reduced to zero if the county is less than half in crops (Riley, 1995).

However, there are drawbacks to CRP due to the lack of management common under the program. The quality of grassland habitat gradually declines after 3 to 5 growing seasons without maintenance such as burning, grazing, or disking (Mueller, Kimmel and Haroldson 1998). Benefits decline further within ten years without maintenance needed to remove litter and rejuvenate the vegetation. The potential for CRP fields to provide winter cover for pheasants is positively correlated with maintenance and was rated poor or fair in over 70 % of fields but good to excellent in only 27% of fields.

A more continuous management may take place under grazing or other grassland schemes. A comparison of CRP fields with pasture for grassland bird species diversity and abundance found more species on CRP land, but at lower abundances. This suggests that CRP fields provide marginal habitat for a wide array of avian species, whereas pastures are more suitable habitat for a smaller suite of species (Klute and Robel 1997).

Sources:

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News and Notes from the Multiple Benefits of Agriculture Project



How has life changed on the river?

Mike Berven, living with his family on a three-generation family farm along the Chippewa River, made this comment about land values, farming and the quality of fishing and swimming waters of the river. "*Land values seem to be connected to big changes in the river. When I was a kid, I spent every day fishing the river. Erosion really accelerated with increases in land values in the early eighties. Draining wetlands was common with the high land values at that time. However, due to these changes, we can no longer fish in the river and the bottom is really muddy.*" With changes in agricultural practices that will decrease runoff, erosion, and reduce nutrient losses into the river, we think that the quality of the water in the Chippewa River can be improved, thus improving fish habitat.

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In This Issue: Research on birds in the Wells
Creek and Chippewa River watersheds.



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