# Burning and disking Midwestern flood plains benefit ground nesting birds

Disking midwestern flood plains dominated by reed canarygrass or invasive woody plants can increase their conservation value to ground-nesting birds, a study by Iowa State University (ISU) indicates.

Riparian areas, those transitional habitats situated between dry upland and primarily aquatic habitats, have been a major focus for the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) and its conservation partners in the Midwest since the 1990s.

The Agency has used a suite of programs to restore or maintain riparian ecosystems since that time, including establishing long-term wetland easements on thousands of acres of flood plains.

NRCS partnered with ISU researchers and managers from the Iowa Department of Natural Resources and U.S. Fish and Wildlife Service to assess wildlife responses to management of riparian easements. Specifically, researchers assessed plant, insect, and breeding bird responses to burning and disking fields on the Iowa River flood plain.

In 2001 and 2002, researchers selected 50 fields in the flood plain, from 20 to more than 100 acres in size. Included were 30 wet sites, primarily dominated by reed canarygrass, and 20 mesic (moderate moisture) sites with established stands of native grasses and forbs.

Effects of burning on vegetation were short-lived, disappearing by the second growing season. Disking substantially altered vegetation structure and composition by decreasing coverage of grasses, woody plants, litter, and standing dead vegetation.

"Disking produced increased coverage of forbs and total plant species richness," says Thomas Benson, who conducted graduate research on the project. Vegetation density was decreased by disking in wet fields and total vegetation cover was increased by disking in mesic fields.

Changes in insect numbers were related to burning and disking effects on vegetation characteristics, especially forage coverage and plant species richness. Increased insect food resulting from disking was associated with increases in the abundance of all birds and overall bird conservation value in wet, but not mesic fields.

"Management of midwestern riparian areas is needed to maintain their attractiveness and productivity for ground-nesting birds," says Dr. Bill Hohman, a biologist with the NRCS.

A disturbance cycle of 3 to 4 years is recommended for established herbaceous plant communities. More frequent disturbances may be necessary in fields with newly established plantings, extensive coverage of aggressive invasive plants such as reed canarygrass, or at risk of rapid encroachment by woody plants.

Disking of diverse stands of native grasses and forbs is not recommended; however, disking reed canarygrass-dominated sites to thin plant density, encourage broad-leafed plants, and control woody invasion will enhance use of treated sites and adjacent habitat by some species of conservation interest.

The Iowa River Corridor study was aided by a grant from the NRCS Agricultural Wildlife Conservation Center (AWCC).

The AWCC, located in Madison, Mississippi, is a fish and wildlife technology development center.

*NRCS photo by Lynn Betts*

**Prescribed burning**

Summary of:

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