

163. Bird use of switchgrass fields harvested for bioenergy in the Midwestern U.S.

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Abstract: Growing and harvesting switchgrass for use as bioenergy may impact grassland bird populations in the Midwestern United States. Because the harvest of switchgrass can be conducted during the fall and winter when most bird species have migrated or have completed their breeding cycle the harvest does not have direct effects on breeding birds. The change in habitat structure and the habitat composition of the landscape from growing and harvesting switchgrass, however, can have strong influences on grassland bird use of the fields. A study of bird abundances in switchgrass fields in Iowa showed that the influence of a bioenergy harvest on birds in switchgrass varied by species' habitat preferences. Generalist species, such as common yellowthroats (*Geothlypis trichas*) and red-winged blackbirds (*Agelaius phoeniceus*), were nearly equally abundant in harvested and nonharvested fields. Grasshopper sparrows (*Ammodramus savannarum*) were more abundant in the shorter, sparser vegetation of harvested fields than in nonharvested fields. Grasshopper sparrow abundance, however, was much lower in the second year of the study than in the first year likely because of increased management of the fields to increase yield. Other species (i.e., sedge wrens [*Cistothorus platensis*]), however, preferred the tall, dense vegetation of nonharvested fields. The dense cover of nonharvested areas also provided nesting areas for a state-endangered species, northern harrier (*Circus cyaneus*). In conclusion, while planting and harvesting switchgrass fields in Iowa might increase the abundance of some generalist species and slightly improve the population status of grasshopper sparrows, bird diversity in these fields is generally low. In addition, maintaining nonharvested areas of switchgrass on the landscape seems necessary to support breeding populations of northern harriers if large scale production of switchgrass for bioenergy becomes a reality.

Keywords: bioenergy, biomass, birds, grassland, switchgrass