

TITLE: Short- and Long-term Effects of Haying on Breeding Birds in CRP Grasslands in the Northern Great Plains

ABSTRACT: Long-term, large-scale studies of breeding bird use of CRP fields are rare. In 1990, researchers at Northern Prairie Wildlife Research Center initiated a long-term, regional effort to evaluate breeding bird use of several hundred CRP grasslands in nine counties in four states (Montana, North Dakota, South Dakota, and Minnesota) in the northern Great Plains. Management disturbances of these CRP grasslands generally are not allowed unless authorized to provide relief to livestock producers during drought and other natural disasters (i.e., emergency haying and grazing) or to improve the quality and performance of the CRP cover (i.e., managed haying and grazing). Attaining the long-term conservation benefits associated with the Conservation Reserve Program require information on the effects of repeated disturbance events. Although CRP grasslands may not be hayed or grazed during the primary bird nesting season, these disturbances may have short-term (1 year after disturbance) and long-term (2+ years after disturbance) effects on grassland bird populations. Surprisingly very few studies have evaluated short-term effects of haying on breeding birds, and none have studied long-term effects. We assessed the short- and long-term effects of haying on 20 grassland bird species in 483 CRP grasslands in 9 counties of 4 states in the northern Great Plains between 1993 and 2008. We compared breeding bird densities in idled and hayed fields to evaluate changes 1, 2, 3, and 4 years after haying. Haying of CRP grasslands had either positive or negative effects on grassland birds, depending on the species, the county, and the number of years after the initial disturbance. Some species responded positively after haying, and others responded negatively. The responses of some species changed direction as the fields recovered from haying. For example, densities for Common Yellowthroat, Sedge Wren, and Clay-colored Sparrow declined the first year after haying but increased in the subsequent 3 years. Ten species showed Treatment \times County interactions, indicating that the effects of haying varied geographically. This long-term evaluation on the effects of haying on breeding birds provides important information on the strength and direction of changes in bird populations following a disturbance. Results from this study can help guide management of CRP grasslands, as well as inform future agricultural programs that emphasize biomass energy production.