MULTI-SCALE ASSESSMENT OF WILDLIFE SUSTAINABILITY IN SWITCHGRASS BIOFUELD FEEDSTOCK PRODUCTION. C. Lituma*, P. Keyser, E. Holcomb, C. Kwit, J. Clark. *Center for Native Grasslands Management, University of Tennessee; clituma@utk.edu; Knoxville, TN 37996; 865/974-7962.

ABTRACT:

Switchgrass (*Panicum virgatum*), a native warm-season grass that is the leading model for production of sustainable biomass for biofuel, is forecasted to eclipse >30 million acres in the USA within the next year. At this scale, biomass production could have a substantial impact on imperiled grassland bird populations, but to date, there have been few field studies examining responses of nesting birds to this production system. Therefore, we initiated a study to directly assess differences in avian density and nest success between switchgrass biomass fields, and matrix fields representative of the surrounding landscape. We conducted distance-based point counts and nest searching in 10 biomass and 5 matrix fields in western Kansas, and 10 paired biomass and matrix fields in northwestern Pennsylvania and eastern Tennessee, from May-July 2013 and 2014. In 2014 in KS, grasshopper sparrow (GRSP: *Ammodramus svannarum*) and Cassin's sparrow (*Peucaea cassinii*) never occupied biomass fields, whereas red-winged blackbird (RWBL: *Agelaius phoeniceus*) and dickcissel (*Spiza americana*) always occupied biomass fields. However, in TN in2014, GRSP occupancy was greater ($\psi = 0.56$) on biomass fields than on matrix fields ($\psi = 0.19$). In PA and TN, there was no difference in RWBL occupancy between biomass and matrix fields. In PA, eastern meadowlarks (EAME; *Sturnella magna*) never occupied biomass fields, but nearly always occupied ($\psi = 0.96$) matrix fields. Daily survival rate of songbirds did not differ between biomass and matrix fields, though there were no nests found in biomass fields in PA. Results will inform management for biomass production fields, and their potential impacts on grassland birds.

DESCRIPTION OF PROGRAM: As energy needs continue to grow for the United States, utilizing alternative energy sources through sustainable biomass becomes more important. Switchgrass could provide habitat for declining grassland bird species and pollinators. It is important to understand how the conversion of pasture fields to switchgrass biofuel fields affects imperiled grassland bird species and pollinators.