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EFFECTS OF PATCH BURNING AND GRAZING EXOTIC-GRASS MONOCULTURES ON NORTHERN BOBWHITE HABITAT AND PRODUCTIVITY

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ABSTRACT

Buffelgrass (*Pennisetum ciliare*) is an invasive, exotic grass that threatens biodiversity and wildlife habitat throughout the southwest. This is especially true for northern bobwhites (*Colinus virginianus*). Bobwhite populations have decreased over the past century because of a loss in habitat and usable space. Use of exotic grass monocultures by quail tends to be limited to edges adjacent to woody plant communities. We evaluated if creating a mosaic of small prescribed burns followed by intense cattle grazing in exotic-grass monocultures will increase usable space for bobwhites and increase bobwhite abundance in La Salle County, Texas. We randomly assigned a patch burn-graze treatment to 2,200-ha pastures dominated by buffelgrass and randomly selected 2 experimental controls (grazing only) to 2,200-ha pastures. We burned patches totaling 25% of each pasture in January 2010 and allowed grazing after burned grass reached 15 cm in height. Grazing intensity (standing crop removal) was sampled in June and August 2010. Patch-burning and grazing resulted in more heterogeneity in standing crop of buffelgrass ($P < 0.001$). Bobwhites appeared to use exotic grass monocultures in burned patches with a greater abundance of native forbs and woody plants during the first year of study. Bobwhites avoided areas where there was no native vegetation, and their abundance was closely associated with brushy riparian areas ($P = 0.09$). There were no differences ($P > 0.05$) in bobwhite abundance between treatment and control pastures. Severe drought during the first year of study may have affected the results.

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Key words: buffelgrass, *Colinus virginianus,* northern bobwhites, *Pennisetum ciliare*, Texas

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