EVALUATION OF FOUR CONSERVATION PRACTICES FOR NORTHERN BOBWHITES AND GRASSLAND SONGBIRDS

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INTRODUCTION

Northern bobwhite (*Colinus virginianus*) and grassland songbird populations have experienced drastic declines over the past 50 years. Habitat loss due to changes in land use is believed to be the primary cause. To restore these avian populations, research is needed to determine exactly what habitat components are required by these species, so that management can be planned accordingly.

In this project, we are investigating the management of field borders, perennial hedgerows, early succession habitat, and native warm-season grasses. These conservation practices are available through the USDA Farm Bill via the Wildlife Habitat Incentives Program (WHIP).

OBJECTIVES

1. Determine temporal changes in vegetative composition and structure in experimental plots receiving a disking or burning treatment to encourage early successional habitat development over 6 growing seasons (plots are currently in their 5th growing season).
2. Determine nest site selection, nest success, and brood habitat use by Northern bobwhites across a complex of woodlands and fields.
3. Determine nest site selection and nest success of grassland songbirds across a complex of woodlands and fields.

PROGRESS TO DATE

Conservation practices being evaluated have all been applied throughout the study area. Field borders have been in place for 5 years and are being maintained with fire and disking to prevent woody encroachment. Perennial hedgerows have been established using Thunburg lespedeza (*Lespedeza thunburgii*). The hedgerows are fertilized annually

in the spring with low/no nitrogen fertilizer. Native warm-season grass plots have been established in the fields. Early successional habitats have been created and maintained over the past 5 years.

The response of vegetation to disturbance is being monitored across 10 fields that have been divided into 60 plots. Each plot is assigned a disturbance treatment of either disking or burning. Disking treatments are divided into 6 time periods throughout the year (January – February, March – April, etc.). Due to the lack of good burn days, treatment times for burn plots are divided into the typical four seasons. Frequency of treatments varies. Frequencies are every year, every other year, and every third year. Vegetation within plots is sampled at the end of each growing season. Starting at a random point, transects are walked though each plot and vegetation measurements are made at 4 sample points along the transect. Daubenmire frames are randomly tossed twice at each sampling point to measure species composition and percent ground cover. Woody stem density is also measured within an 8 m radius of each sample point.

Nest site selection, nesting success, and brood habitat use of bobwhites were to be measured using radio-telemetry techniques. We began trapping quail in early January using standard funnel traps baited with sorghum. Trapping continued into late April for a total of 110 days of effort. No adult quail were captured, possibly due to a poor hatch in 2004 because of wet field conditions. Eight non-target species were captured for a total of 171 birds.

Because we were unable to capture bobwhites, we began conducting whistling cock counts in early May and continued into mid July to determine if adult quail were present at the study site. Two routes were established and conducted simultaneously. One route covered the study plots, and the second covered nearby forested habitat outside the study area. Bobwhites were heard on both routes, but the route containing the study plots consistently produced the most calling males (Study Plots = 0.326 Males/Stop, Forested = 0.182 Males/Stop).

Nest searches were conducted from May-August. No bobwhite nests were found, but two separate broods (n=7 and n=5+ birds) were located within the study area. Nest searches using sticking, stalking, and rope dragging techniques produced 30 nests (see Table 1). Shrub-scrub birds such as the Painted Bunting (*Passerina ciris*) and the Blue Grosbeak (*Passerina caerulea*) made up the majority of identifiable nests found (53%, n=8). Both nest success (nest in which at least 1 egg hatches) and productivity (number of chicks fledged) were very low (see Table 1). The low success rate and production numbers could be attributed to severe weather. On 8 occasions, nests containing eggs or chicks were observed overturned after thunderstorms.

Nest sites were monitored at 2-4 day intervals. We tried to monitor on a 3 day interval, but due to weather and flooded conditions this had to be altered slightly. Once a nest was abandoned or destroyed we conducted vegetation assessment around the nest. At each nest we dropped Daubenmire frames four times to measure species composition and percent ground cover. Vertical structure was measured in four directions at each site

using a Robel pole. Woody stem density was measured by counting all woody stems within 8 m of the nests. Woody stems were classified by species, height, and DBH.

PRESENTATIONS

Heaton, W. C. Evaluation of Four Conservation Management Practices for Northern Bobwhites and Grassland Songbirds. South Carolina High School Teachers Group. Nemours Wildlife Foundation, Beaufort, SC, July 2005.

Heaton, W. C. Evaluation of Four Conservation Management Practices for Northern Bobwhites and Grassland Songbirds. South Carolina USDA Wildlife Services Conference. Hickory Knob State Park Resort. McCormick, SC August 8-10, 2005.

Heaton, W. C. Evaluation of Four Conservation Management Practices for Northern Bobwhites and Grassland Songbirds. Southeastern Quail Study Group Meeting. Kentucky Dam Village Resort. Gilbertsville, KY, August 14-17, 2005.

PUBLICATIONS

None to date.

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