

BOBWHITE RESPONSE TO NBCI-BASED HABITAT PRESCRIPTIONS ON RANGELANDS

INVESTIGATOR INFORMATION

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INTRODUCTION

Northern bobwhite populations have declined significantly throughout Florida as a result of tremendous changes in land use. Within peninsular Florida, bobwhite breeding populations declined at an annual rate of 4.3% since 1980 and harvest of bobwhites declined 81% during this period.

Relative to other agro-ecosystems in Florida, the Florida Fish and Wildlife Conservation Commission (FWC) has identified ranchlands as having a high potential for bobwhite restoration under the Northern Bobwhite Conservation Initiative (NBCI). The purpose of our initiative is to restore bobwhite habitats on native rangelands within a focal area in BCR 31 consistent with NBCI guidelines. Within this broad objective we will determine how to implement habitat modifications using funds available through Farm Bill conservation programs and evaluate how much habitat restoration is needed to recover bobwhite and other bird populations on ranches.

The purpose of this project was to develop baseline data on bobwhite abundance on working ranches and to begin to monitor the efficacy of habitat manipulations applied using Farm Bill conservation program funding, such as the Environmental Quality Incentives Program (EQUIP) or Wildlife Habitat Incentives Program (WHIP). Habitat improvements, including increased burning, drum chopping, and grassland conversion, will be assessed at multiple scales. The end product will be information and education for NRCS and other agency managers to improve delivery of wildlife-friendly Farm Bill practices.

OBJECTIVES

- 1.) Determine the magnitude of response of bobwhites in relation to a suite of habitat management practices applied to ranchlands at multiple levels (% of area).
- 2.) Determine the magnitude of response of species of birds associated with prairie habitats, such as common yellow throats, Bachman's sparrow, eastern meadowlarks, and others, in relation to a suite of habitat management practices applied to ranchlands at multiple levels.

- 3.) Determine the efficacy of individual practices, specifically prescribed burning, drum chopping, and grass conversion, for creating suitable habitat for bobwhites.
- 4.) Develop decision support tools that provide Natural Resource Conservation Service (NRCS) and FWC biologists with information needed to identify habitat limitations and prescribe habitat solutions, consistent with the landowner's objectives and interests.

PROGRESS TO DATE

Objective 1---This spring and fall we have continued to monitor bobwhite populations via whistling male counts and fall covey call techniques. Cumulatively to date we have completed over 1,000 of these surveys on random locations within sampling units (i.e. ranches). We intend to derive density estimates of bobwhites using observer detection probability functions. Also, we plan to use occupancy models to investigate how the EQIP practices may affect patch occupancy. The sampling area of our surveys is typically 194 acres. Within this area we can have nested treatments of roller chopping and prescribed burning. A regression approach will be used with information theoretic criterion to explain the explanatory variables that have the most effect on northern bobwhite density.

Objective 2—This year began with initiation of fieldwork on the wintering avian community of the dry prairie. This is a facet of the project that was added after the initial project objectives were formed; we felt that many of short-distance migrant passerines that utilize the central Florida dry prairie as wintering grounds would show a more acute response to prairie habitat conditions. To assess species abundance, we conducted 300 flush transects which were 25m x 100 m, an area covering approximately 0.25 ha. The methodology for these transects followed Fletcher et al. 2000. We conducted two 25m vegetation transects along the length of each flush transect to assess habitat conditions. Monitoring of the breeding bird community also continued in the spring of 2006. We conducted approximately 500 avian point counts; some of these were revisits from points used in 2005, others were new locations incorporated to increase sample size. We monitored vegetation characteristics at each point count location to gauge trends in habitat occupancy. As with the bobwhite, we will derive density estimates based on observer detection probability functions and will also utilize occupancy models to investigate how habitat conditions may affect patch occupancy. We will employ regression techniques within hierarchical models to explain how conditions of the landscape at different levels affect occupancy and abundance by different species. Information theoretic approaches will be used to rate the most parsimonious models.

Challenges: Small amounts of actual practices have been actually implemented on the ground on ranches receiving cost-share funding. This will reduce the number of our samples that will include NRCS practices. We have incorporated another large ranch that is implementing the same practices (i.e. roller chopping and prescribed burning), and we are using these in our study.

Objective 3--At each survey location we assess vegetation conditions using the line-point intersect method. Therefore, our vegetation surveys are in patches that should be treated with fire or roller chopping. We do not plan on investigating the efficacy of the practice for creating a desired condition, but to develop rule sets to evaluate micro-site conditions for optimal bobwhite

habitat. The University of Florida is conducting dovetail project to evaluate roller chopping, prescribed fire, and mowing as means to achieve desired plant conditions. We are cooperating with this study on locating study areas and incorporating it into the overall South Florida Quail Project.

Objective 4—Little progress on this objective has been made because of its nature. We will incorporate our findings into a Bayesian Belief Network that will provide a quantitative framework for management decisions. Also, our landscape models and occupancy models will be used to create a GIS database that can be used to identify important areas for bobwhite management in BCR 31.

Challenges: Relative to the original acreage goals of this EQIP project, small amounts of practices have been actually implemented on the ground on ranches receiving cost-share funding. This has reduced the number of our samples that will include NRCS practices. To help offset this problem, we have incorporated other ranches that are implementing the same practices (i.e. roller chopping and prescribed burning) as the EQIP program provides cost-share. The momentum of the associated EQIP project has slowed down dramatically over the first year sign up of 17,000 acres. We are concerned about the level of landowner participation in government programs in the state of Florida. For example, typically there are over 1,000 applicants for EQIP annually in Florida, but this year there has only been 300 applicants despite direct mailings to landowners. We have begun to address this situation with NRCS and the Florida Wildlife Commission. However, in the timeline of this project we feel only a moderate amount of progress will be made. We will continue to make this an issue and strive to promote these programs while conducting our research. Bobwhite management and its associated habitat conditions need to be brought to a forefront and remain there within NRCS for the state of Florida. We developed a website that allows NRCS and FWC employees to submit comments on how to improve the EQIP project (<http://gallus.forestry.uga.edu/sfqp/>), but have seen only minimal interest (3 respondents).

PRESENTATIONS

Martin, J. A. The Missing Bobwhite. 2006. Kiwanis Club Meeting, Hardee County, Florida.

Martin, J. A. Thinking and Looking Large: What you should think about (and why) when managing for bobwhites. 2006. NRCS Soil Conservation Society Meeting. Quincy, FL.

Martin, J.A. Implementing the NBC on Florida Rangelands using Farm Bill Programs. 2006. Southeastern Partners in Flight Annual Meeting. Tallahassee, FL.

Martin, J.A. South Florida Quail Project: Integrating Research, Management, and Monitoring. 2006. 6th Gamebird Conference. Athens, GA.

Martin, J.A. South Florida Quail Project: Integrating Research, Management, and Monitoring. 2006. TWS Conference. Anchorage, AL.

Butler, A.B. The effects of landscape context, patch size, and micro-site characteristics on the avian community of the south Florida dry prairie. 2006. Southeastern Partners and Flight Conference. Tallahassee, FL. (**Poster**).

PUBLICATIONS

Martin, J. A. South Florida Quail Project: Integrating Research, Management, and Monitoring. Abstract submission. 2006. 6th Gamebird Conference. Athens, GA.

Martin, J.A. Barbwire and Bobwhites. 2004-2006. See attached copy of this newsletter.

PARTICIPATING AGENCIES AND LANDOWNERS

Myakka State Park, Florida Department of Environment. Public lands study site.

Tommy Hines. Small Game Program Leader, FWC. Primary agency contact. Assists with study implementation, funding, in-kind support and landowner contacts.

Chuck Mckelvy. Private Lands Program Coordinator, FWC Assists with study implementation and landowner contacts.

Landowners. Carlton Family (2x4 Ranch), Hall Family (Hall Pine Island Ranch), Paul Family (Tipton Bay Ranch), Longino Family (Longino's Ranch), John Panning (4-wheeler Ranch), Johnston and Ingram Family (Escape Ranch). Landowners who provided study sites.

NRCS INVOLVEMENT

Greg Hendricks. State Conservationist, Environmental Services Section. Greg was the primary NRCS contact for developing EQIP program for ranchlands. He remains involved as a primary contact to the state offices and assists with monitoring progress of EQIP programs.

Pete Deal. Rangeland Management Specialist, Environmental Services Section. Pete assisted with vegetation monitoring protocols and advises on improving extension materials to both NRCS employees and ranch owners. Pete provides insights into the information needs of NRCS employees and range managers.