

# NORTHERN BOBWHITE POPULATION RESPONSE TO INTENSIVE MODIFICATION OF A FARM LANDSCAPE IN MIDDLE GEORGIA

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## ABSTRACT

Region wide population declines of northern bobwhite (*Colinus virginianus*) are well documented and believed to be primarily associated with landscape level changes in land use patterns across the southeast. While these declines have not occurred in the traditional "plantation belt" of southwestern Georgia, they are certainly evident throughout much of the rest of the state. In an effort to test the effectiveness of intensive bobwhite management techniques outside their traditional area, we used radio-telemetry, GIS, replicated whistling cock counts, and a fall covey census to monitor population response on one such typical middle Georgia farming landscape that is being intensively modified to benefit quail. Whitehall Plantation is a 3,734-ha farm in Laurens and Bleckley counties, Georgia whose history mirrors that of most of middle Georgia as well as much of the southeast. After many years of high populations and good quail hunting through the 1970s, most of the old fencerows were cleaned up to make way for bigger farm equipment. This was followed by a population decline throughout the 1980s that was made worse when the property was cleaned up even more to make way for center-pivot irrigation. The early 1990s marked a low point in the quail population with the landowners records showing only 10 coveys on the 567-ha core study area (1 bird/4 ha). The property at this point was made up of approximately 55% crop fields, 40% unmanaged woodlands, and 5% houses/pasture/ponds. Efforts to rebuild the population began in 1995 when all the dry land crop acreage was planted into longleaf pines, 15-m borders were developed around all the irrigated crop fields, and no-till farming practices were initiated. These efforts intensified in 1998 when the Albany Quail Project became associated with the property. At this time, all the agricultural fields were divided up with 15-m terraces, fall disking for brood range was initiated, and all the woodland acreage was silviculturally treated as needed. The goal was to make as much of the uncultivated acreage as possible usable space for quail. This has resulted in a landscape that is now 22% agriculture, 21% managed woodlands, 21% planted longleaf, 12% hedgerows and old fields, 10% mature hardwoods, 9% houses/pasture/pond, and 5% fallow land. In addition to these landscape modifications and habitat improvements, a year-round supplemental feeding and nest predator trapping program were initiated. Response to these efforts has been dramatic. Replicated whistling cock counts in June have increased 191% and a fall covey count census now shows approximately 45 coveys on this same 567-ha (1 bird/ha), a 400% increase. Year-round monitoring of a cumulative total of 440 radiomarked birds began in fall 1998 and has provided insights into the mechanisms behind this population response. A majority of the winter covey ranges, nest sites, and brood ranges are in planted longleaf, managed woodlands, or field borders/hedgerows, all habitats that did not exist five years ago. Kaplan-Meier survival estimates for Fall-Spring (58%), Spring-Fall (36%), and annual (21%) are well above those reported for similar southeastern landscapes and rival those of the intensively managed woodland hunting plantations farther south. Landowner satisfaction is high, as his perception is that his quail population and hunting success are as good now as they have been in his lifetime.

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