

# HABITAT SELECTION OF NORTHERN BOBWHITE COVEYS ON TWO INTENSIVE AGRICULTURAL LANDSCAPES IN EASTERN NORTH CAROLINA

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## Abstract

Little information is available for home range size and habitat use of northern bobwhites (*Colinus virginianus*) on modern agricultural landscapes in autumn. Therefore, we monitored radiomarked bobwhite coveys from September–December 1998 on farms in Wilson and Tyrrell counties, North Carolina. The Tyrrell County farm was a 6084-ha area recently developed for commercial production of corn and soybeans. Dispersed throughout crop areas were forested and fallow blocks at differing stages of succession. The Wilson County farms had small fields ( $\bar{x} = 1.8$  ha, SE = 0.12) planted in cotton, soybeans, corn, and tobacco and were surrounded by mixed pine and hardwood blocks of differing ages. Mean home range size at the Tyrrell County farm was 33.2 ha (range 4.5–128.5 ha) ( $n = 10$ ). The two largest home ranges, 70.7 and 128.6 ha, were disproportionately large due to large movements from harvested crop fields to permanent forested cover. Covey home ranges were not established at random ( $\lambda = 0.124$ ;  $\chi^2_4 = 20.18$ ;  $P < 0.001$ ). Road and canal edges were selected significantly more than any other habitat followed in rank by soybean fields, corn fields, forested, and fallow blocks. Road and canal edges provided necessary cover for moving between habitat types, especially from forested and fallow blocks to crop fields. Within home ranges, coveys did not allocate their time at random ( $\lambda = 0.336$ ;  $\chi^2_4 = 10.89$ ;  $P < 0.05$ ). Habitats were ranked in the order of forested blocks, fallow areas, soybean fields, road and canal edges, and corn fields, but no significant differences were found between habitats. In Wilson County, average covey home range was 17.4 ha (Range: 4.9–37.6 ha) ( $n = 11$ ). Coveys did not establish their home range at random ( $\lambda = 0.407$ ;  $\chi^2_2 = 9.87$ ;  $P < 0.05$ ), selecting forested blocks over crop fields ( $T_g = 3.02$ ,  $P < 0.012$ ). Within home ranges coveys did not allocate their time at random ( $\lambda = 0.1319$ ;  $\chi^2_5 = 22.28$ ;  $P < 0.001$ ), utilizing primarily forested blocks followed by cotton fields, soybean fields, corn fields, and other areas. On both study areas, forested and fallow blocks were the only source of cover to spend time in after crop harvest. Covey use within forested and fallow blocks was concentrated along edges of crop fields, leaving large portions of this habitat type unused. Forested and fallow blocks were primarily used as loafing cover in between feeding periods in adjacent crop fields.

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