

2017

Effects of Growing Season Fire on Northern Bobwhite Nest Site Selection and Survival

Sarah B. Rosche

North Carolina State University

Christopher E. Moorman

North Carolina State University

Christopher S. Deperno

North Carolina State University

Jeffrey G. Jones

*Fort Bragg Wildlife Branch*Follow this and additional works at: <https://trace.tennessee.edu/nqsp>Part of the [Natural Resources and Conservation Commons](#)

Recommended Citation

Rosche, Sarah B.; Moorman, Christopher E.; Deperno, Christopher S.; and Jones, Jeffrey G. (2017) "Effects of Growing Season Fire on Northern Bobwhite Nest Site Selection and Survival," *National Quail Symposium Proceedings*: Vol. 8 , Article 62.

<https://doi.org/10.7290/nqsp08mwgx>

Available at: <https://trace.tennessee.edu/nqsp/vol8/iss1/62>

This article is brought to you freely and openly by Volunteer, Open-access, Library-hosted Journals (VOL Journals), published in partnership with The University of Tennessee (UT) University Libraries. This article has been accepted for inclusion in National Quail Symposium Proceedings by an authorized editor. For more information, please visit <https://trace.tennessee.edu/nqsp>.

EFFECTS OF GROWING SEASON FIRE ON NORTHERN BOBWHITE NEST SITE SELECTION AND SURVIVAL

Sarah B. Rosche¹

Fisheries, Wildlife Conservation Biology Program, North Carolina State University, 110 Brooks Avenue, Raleigh, NC 27695, USA

Christopher E. Moorman

Fisheries, Wildlife Conservation Biology Program, North Carolina State University, 110 Brooks Avenue, Raleigh, NC 27695, USA

Christopher S. Deperno

Fisheries, Wildlife Conservation Biology Program, North Carolina State University, 110 Brooks Avenue, Raleigh, NC 27695, USA

Jeffrey G. Jones

Fort Bragg Wildlife Branch, Directorate of Public Works, Pope Field, NC 28308, USA

ABSTRACT

Restoration and management of longleaf pine (*Pinus palustris*) communities necessitates frequent prescribed fire. Prior to human colonization of the southeastern United States thousands of years ago, longleaf pine forests burned primarily during the growing-season as a result of lightning-ignited fires. Growing-season prescribed fire may suppress woody vegetation and promote herbaceous groundcover better than dormant-season fire. Despite the potential ecological benefits of growing-season fire, many land managers use only dormant-season prescribed fire to avoid destruction of ground nests, including those from northern bobwhite (*Colinus virginianus*). Our objective was to determine bobwhite nest survival and nest-site selection in the presence of early, growing-season prescribed fire on a 3-year return interval. We compared vegetation composition and structure at nest sites and paired random sites to identify important predictors of nest-site selection and to evaluate the effects of habitat covariates on nest survival. We captured bobwhite and attached radio transmitters. Radio-marked individuals were tracked to locate nests and determine nest survival. We documented 2 nests that burned during a growing-season prescribed fire. All 14 nests were located within units that were burned at least 2 years prior, putting these nests at a greater risk for being destroyed by prescribed fire that occurred on a 3-year return interval. We suggest that restricting early, growing-season prescribed burning to April through early June should limit an overlap between prescribed burns and the peak of northern bobwhite nesting season, which occurred mid-July at our study site. Additionally, longer fire return intervals may be needed to allow development of woody understory structure selected by bobwhites for nesting, especially on poor soils like those on our study site in the Sandhills physiographic region.

Citation: Rosche, S. B., C. E. Moorman, C. S. Deperno, and J. G. Jones. 2017. Effects of growing season fire on northern bobwhite nest site selection and survival. National Quail Symposium Proceedings 8:236.

Key words: growing season prescribed fire, *Colinus virginianus*, northern bobwhite, North Carolina, Fort Bragg Military Installation, longleaf pine, nest survival, nest-site selection, fire frequency

¹ E-mail: sbrosche@ncsu.edu