

2017

Effect of Meso-Mammal Nest Predator Activity on Northern Bobwhite Nest Success

Alexander L. Jackson
University of Georgia

William E. Palmer
Tall Timbers Research Station and Land Conservancy

D. Clay Sisson
Albany Quail Project & Dixie Plantation Research

Theron M. Terhune II
Tall Timbers Research Station and Land Conservancy

James A. Martin
University of Georgia

Follow this and additional works at: <https://trace.tennessee.edu/nqsp>



Part of the [Natural Resources and Conservation Commons](#)

Recommended Citation

Jackson, Alexander L.; Palmer, William E.; Sisson, D. Clay; Terhune, Theron M. II; and Martin, James A. (2017) "Effect of Meso-Mammal Nest Predator Activity on Northern Bobwhite Nest Success," *National Quail Symposium Proceedings*: Vol. 8 , Article 91.

<https://doi.org/10.7290/nqsp08ifx>

Available at: <https://trace.tennessee.edu/nqsp/vol8/iss1/91>

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>.

EFFECT OF MESO-MAMMAL NEST PREDATOR ACTIVITY ON NORTHERN BOBWHITE NEST SUCCESS

Alexander L. Jackson¹

D. B. Warnell School of Forestry and Natural Resources, University of Georgia, Athens, GA 30602, USA

William E. Palmer

Tall Timbers Research Station and Land Conservancy, Tallahassee, FL 32312, USA

D. Clay Sisson

Tall Timbers Research Station and Land Conservancy, Albany Quail Project, Newton, GA 39870, USA

Theron M. Terhune II

Tall Timbers Research Station and Land Conservancy, Tallahassee, FL 32312, USA

James A. Martin

D. B. Warnell School of Forestry and Natural Resources, University of Georgia, Athens, GA 30602, USA

ABSTRACT

Perceived changes in predator-prey dynamics along with documented declines of northern bobwhite (*Colinus virginianus*) have created a renewed interest from biologists and managers about the role meso-mammals play in shaping bobwhite population trajectories. As part of a larger effort to understand this predator-prey relationship, we evaluated meso-mammal activity on sites where bobwhite demographic data was simultaneously being collected via radio-telemetry. During 1999–2006 we conducted 66 meso-mammal activity surveys using scent stations on 16 sites in 3 southeastern states (Florida, Georgia, and Alabama). We calculated an index of meso-mammal activity (PI), for each site, as the average number of station visits per night by raccoons (*Procyon lotor*), Virginia opossums (*Didelphis virginiana*), nine-banded armadillos (*Dasypus novemcinctus*), bobcats (*Lynx rufus*) and foxes (*Vulpes vulpes*, *Urocyon cinereoargenteus*). We collected bobwhite reproductive information on 2,940 nests ($\bar{x} = 45/\text{site}$, $SE = 2.98$) from a total of 4,379 radio-tagged bobwhites ($\bar{x} = 67/\text{site}$, $SE = 3.81$). The average PI for all sites combined was 0.13 (range = 0.03–0.38, $SE = 0.01$). Nesting success on the sites ranged from 0.29 to 0.72 and averaged 0.52 ($SE = 0.01$). We used a mixed effects logistic regression model including site as a random effect and observed a negative relationship between the PI and nesting success ($\beta = -1.53 \pm 0.72 SE$). Our results suggest that meso-mammal activity affects bobwhite nest success, thus, predator management may be warranted at times on some sites to maximize productivity. Future research and modeling efforts should explore the impacts of meso-mammal activity on population growth rates and stability, especially in varying spatial contexts.

Citation: Warnell, D. B., W. E. Palmer, D. C. Sisson, T. M. Terhune II, and J. A. Martin. 2017. Effect of meso-mammal nest predator activity on northern bobwhite nest success. National Quail Symposium Proceedings 8:356.

Key words: *Colinus virginianus*, index of activity, meso-mammal, nesting success, northern bobwhite, predation management, predator-prey, radio-telemetry

¹Email: alj67743@uga.edu

© 2017 [Jackson, Palmer, Sisson, Terhune II and Martin] and licensed under CC BY-NC 4.0.