

## TITLE: INVESTIGATING FACTORS THAT INFLUENCE NORTHERN BOBWHITE CHICK SURVIVAL

*A bobwhite chick fitted with a 0.75 gram radiotransmitter and a patagial tag during 2018.*



**Project Summary:** Chick survival represents a knowledge gap in our understanding of bobwhite ecology. Most bobwhite chick mortality during the breeding season is presumed to be primarily caused by predators. However, the validity of this inference is unclear. For instance, we measured brood survival from hatch to 30 days on the 6666 Ranch during 2014 and 2015. Brood survival averaged 27% in 2014 and 57% in 2015, an increase presumed to be caused by improved rainfall and the resulting enhanced habitat conditions during 2015. It is unclear exactly which component of habitat caused this increase in survival. A rainfall induced increase in food availability, herbaceous cover availability, alternative prey abundance, or some combination of the three could all play a role in the increased brood survival that we measured during 2015. Alternatively, decreases in predator abundance or temperatures more favorable to chick survival could also be hypothesized to play a role in this increase. Bobwhite chick survival is currently a complex and uncertain issue. Our objective is to estimate survival of bobwhite chicks in the Rolling Plains of Texas and to relate chick survival rate to a suite of potential influential factors including predator abundance, weather conditions, insect availability, and habitat characteristics. Understanding factors that promote bobwhite chick survival should lead to development of specific management techniques to increase this key demographic parameter across the Rolling Plains of Texas. We are coordinating methods of this project with researchers from Tall Timbers Research Station in Tallahassee, Florida who are undergoing a similar effort. During 2017 and 2018 we monitored 25 broods and 101 chicks using a combination of patagial tags and radio-tags, 2-4 times a day to determine movements, survival and cause of mortality based on evidence at the mortality site. Chick survival to 21 days of age was estimated to be 2% and 7% in 2017 and 2018, respectively. Avian predators were the primary source of mortality. Data from the 2019 breeding season is currently being analyzed.

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Two radiotransmitters (1 marked with arrow) in mammalian feces make it easy to identify what ate these two chicks.

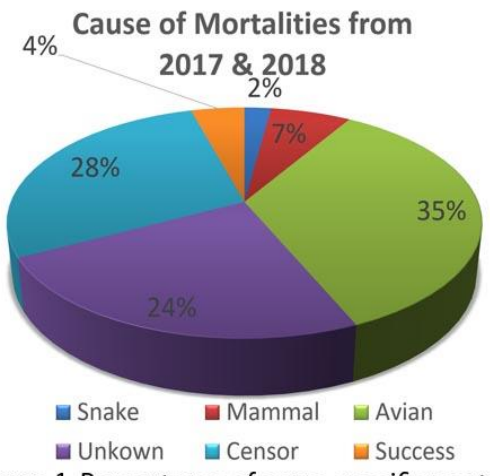


Figure 1. Percentages of cause-specific mortalities of 46 radio-marked chicks throughout 16 broods from 2017 and 2018.