

DISTRIBUTION OF COMMON RACCOONS AND COYOTES DURING QUAIL NESTING SEASON

Susan M. Cooper¹

Texas AgriLife Research, Texas A&M University System, Uvalde, TX 78801, USA

Dale Rollins

Texas AgriLife Extension Service, Texas A&M University System, San Angelo, TX 76901, USA

Shesh Jhala

Rolling Plains Quail Research Ranch, Rotan, TX 79546, USA

ABSTRACT

Mammalian predation of quail and their eggs is a problem to many producers of quail particularly considering that abundance of common meso-predators, such as coyotes (*Canis latrans*) and common raccoons (*Procyon lotor*), is increasing. Predator removal programs are often not cost effective in increasing quail numbers but habitat management may be appropriate. There is a need for detailed knowledge of the habitat preferences and foraging patterns of these predators so producers of quail may limit predation of quail through management decisions and habitat manipulation. We placed GPS collars on 5 coyotes and 11 raccoons at Rolling Plains Quail Research Ranch, Fisher County, Texas during the nesting season of northern bobwhites (*Colinus virginianus*). The location of each animal was recorded at 5-min intervals for 35–42 consecutive nights. Habitat use and selectivity was calculated by Chi-square test of proportional use and availability of ecological sites both within the minimum convex polygon area used by each animal and throughout the ranch and adjacent 3-km buffer zone. Distribution of marked animals relative to roads, water, and quail feeders was compared to an equal number of randomly generated locations. Coyotes preferentially hunted in grassland which is prime nesting habitat for northern bobwhites. Coyotes were not deterred from accessing grassland with high concentrations of low growing plains prickly pear (*Opuntia polyacantha*). The nocturnal paths taken by coyotes over 1 month effectively covered virtually all the grassland habitat within their home range which increases the probability of locating nesting quail. Coyotes used ranch roads for travel but had little attraction to quail feeders and water sources. Raccoons favored areas of heavy cover such as riparian woodland and boulder strewn hillsides. Female raccoons had small home ranges and remained within thick cover. They rarely entered the more open habitats where quail nest and did not use ranch roads or seek out quail feeders which were mainly in grassland areas, nor did they encounter cactus-dominated grassland areas. Male raccoons had more expansive home ranges than females; they favored riparian strips and rocky hills as travel corridors but also ventured into more open habitats. They strongly avoided cactus-dominated areas but used grassland where scattered shrubs provided additional cover. Male raccoons within these areas used ranch roads for ease of travel and certain individuals frequently visited quail feeding stations. The tortuous nocturnal foraging path followed by raccoons provided efficient search patterns for locating scattered resources such as quail nests. Raccoons are generally considered to be more problematic predators of quail nests than coyotes. Where coyotes are less of a threat to quail than raccoons, tolerating the presence of coyotes may protect quail through competitive exclusion of raccoons from grasslands by the larger predator. Similarly, cactus in grasslands is seen as a problem for grazing livestock and a hindrance to quail hunters, but leaving some areas dominated by cactus may provide quail with valuable nesting refugia inaccessible to raccoons. The success of supplemental feed programs for quail should be balanced against the problem of altering the distribution of raccoons so they spend more time in quail nesting habitat and are more likely to discover quail nests. Placing feeders in areas where cover for predators is limited is advisable, as is targeted predator removal at quail feeding stations.

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¹E-mail: s-cooper@tamu.edu