

SHORT COMMUNICATIONS

Nest-site Competition between Red-winged Blackbirds and Great-tailed Grackles

JAMES T. RUTLEDGE AND RANDALL S. CHANDLER

*Division of Allied Health and Life Sciences, The University of Texas
at San Antonio, San Antonio, Texas 78285 USA*

In their examination of breeding success in Red-winged Blackbirds (*Agelaius phoeniceus*), Weatherhead and Robertson (1977, *Can. J. Zool.* 55: 1261) proposed an index for the evaluation of the quality of nest-site placement within male Red-wing territories. Based on nest height, water depth below the nest, nest cover, and nest-support vegetation, nest indices (and consequently, the quality of male territories) were significantly and positively correlated with the number of young fledged per female.

During the spring and summer of 1978, the Weatherhead-Robertson index technique was applied to nest placement data obtained from separate populations of Red-winged Blackbirds occupying areas adjacent to two freshwater ponds in San Antonio, Bexar County, Texas. The largest of the populations appeared to be in competition for nest sites with Great-tailed Grackles (*Quiscalus mexicanus*), although no overt aggression was observed between the two species. Despite the fact that male Red-wings in this first area defended cattail (*Typha* sp.) stands with some areas of sedge extending into the pond throughout the breeding season, females more frequently constructed nests in baccharis (*Baccharis* sp.) and huisache (*Acacia farnesiana*) shrubs in areas removed from the pond edge by up to 30 m. Grackles, on the other hand, selected nest-sites in cattail and sedge over water. The second Red-wing population nested in an area devoid of nesting grackles. With few exceptions, nests were located in vegetation (primarily cattail) over water.

In an attempt to quantify the subjective view that grackles were outcompeting Red-wings for the marsh nesting sites around the larger pond, we employed the Weatherhead-Robertson index to assess the mean quality of nest-site placement for each Red-wing population and for the grackle population. In all cases an attempt was made to find every active nest within the confines of the study areas.

Twenty-seven Red-winged Blackbird nests were scored in the area that included the Great-tailed Grackle breeding colony. Six of the nests were located in cattails over water that averaged 22.2 ± 3.4 cm (mean \pm one standard error of the mean) in depth. The remaining 21 nests were constructed in baccharis or huisache vegetation over land. Mean nest height for all 27 nests was 100.8 ± 7.2 cm, with a nest quality index value of 11.5 ± 0.3 . The 18 grackle nests in this area were located in cattails over water with a mean depth of 39.3 ± 1.6 cm and at a mean nest height of 42.4 ± 1.3 cm. The nest quality index was 17.7 ± 0.1 , a value significantly greater than the Red-wing index ($P < 0.001$, Student's *t*-test, one-tailed). In the second Red-wing population with no grackles present, 12 of the 15 nests were located over water with a mean depth of 39.8 ± 1.9 cm and at a mean height of 41.8 ± 1.4 cm. The mean nest quality score was 17.3 ± 0.4 , a value significantly greater than the score for Red-wing nests in the first area ($P < 0.001$) but not significantly different from the grackle nest score ($P > 0.05$).

These results appear to demonstrate competition for nest sites between Red-winged Blackbirds and Great-tailed Grackles. Apparently the presence of nesting grackles causes female Red-wings to select upland nest sites despite the active defense by male Red-wings of territories that include marshland Red-wing nesting habitat. That the upland nest sites selected by female Red-wings were actually inferior to nests over water cannot be fully substantiated. The 21 upland nests produced only two known fledglings (both from the same nest), and we suspected a high incidence of nest predation by locally abundant feral cats, opossums, and various snake species. Nesting success data for birds nesting over water are incomplete. At least two of the six Red-wing nests in the area occupied by grackles contained nestlings, but their ultimate fate is unknown. No nesting success data were collected for the second Red-wing population breeding in the area free from grackle competition.

Wiens (1965, *Auk* 82: 356) examined the behavioral interactions between Red-winged Blackbirds and Common Grackles (*Quiscalus quiscula*) on a common breeding ground. Overlap of nesting territories did not appear to alter significantly the reproductive success of either species, although interspecific aggression was occasionally reported, usually initiated by male Red-wings and considerably more frequent in the early part of the breeding season. As previously noted, we did not observe any aggressive encounters between Red-wings and Great-tailed Grackles in the area of overlap. It is possible that the size difference between the two species may account, in part, for the absence of aggression.—Received 2 February 1979, accepted 22 May 1979.