
January 1992

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Donald W. Buden

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Recommended Citation

Buden, Donald W. (1992) "Effect of Time of Day on Detectability of Land Birds on Rum Cay, Bahama Islands," *Florida Field Naturalist*. Vol. 20 : Iss. 4 , Article 5.

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Fla. Field Nat. 20(4):108-109, 1992.

EFFECT OF TIME OF DAY ON DETECTABILITY OF LAND BIRDS ON RUM CAY, BAHAMA ISLANDS

DONALD W. BUDEN
Natural Sciences
Northern State University
Aberdeen, South Dakota 57401

Among factors contributing to the detectability of birds is time of day, the greatest numbers generally being recorded during early morning, with variation occurring seasonally and among species (Shields 1977, Grue et al. 1981, Robbins 1981, Skirvin 1981, Kessler and Milne 1982, Verner and Ritter 1986, Gutzwiller 1991). Although changes in bird activity with time of day have been known to ornithologists for decades, only recently have such observations been quantified. The present report is based on my observations on the birds of Rum Cay, Bahama Islands during June and July 1989, the time of year being coincident with the height of the breeding season for many Bahama bird species. Similar studies have not been conducted previously in the Bahamas or elsewhere in the West Indies.

Rum Cay is a small (78 km²), low-lying, predominately scrub-covered island in the east-central Bahamas with 17 documented or presumed breeding land bird species (Budén

Table 1. Birds recorded on Rum Cay during 12 morning and 12 afternoon surveys. Difference is the percent increase or decrease from morning to afternoon.

| Species | Number of birds | | Difference (%) | χ^2 |
|---|-----------------|-----------|----------------|----------|
| | morning | afternoon | | |
| American Kestrel <i>Falco sparverius</i> | 55 | 35 | -36 | < 0.05 |
| Zenaida Dove <i>Zenaida aurita</i> | 154 | 235 | +53 | < 0.01 |
| Common Ground-Dove <i>Columbina passerina</i> | 105 | 134 | +28 | > 0.05 |
| Bahama Woodstar <i>Calliphlox evelynae</i> | 140 | 62 | -56 | < 0.01 |
| Gray Kingbird <i>Tyrannus dominicensis</i> | 82 | 56 | -32 | < 0.05 |
| Bahama Mockingbird <i>Mimus gundlachi</i> | 181 | 88 | -51 | < 0.01 |
| Pearly-eyed Thrasher <i>Margarops fuscatus</i> | 224 | 131 | -42 | < 0.01 |
| Thick-billed Vireo <i>Vireo crassirostris</i> | 199 | 42 | -79 | < 0.01 |
| Yellow Warbler <i>Dendroica petechia</i> | 182 | 37 | -80 | < 0.01 |
| Bananaquit <i>Coereba flaveola</i> | 116 | 30 | -74 | < 0.01 |
| Black-faced Grassquit <i>Tiaris bicolor</i> | 84 | 24 | -71 | < 0.01 |

1990). I counted all identified birds seen and heard calling during 12 morning (0530-0900) and 12 afternoon (1530-1900) walks (10 sets on the same days) averaging about 3 km/h along a 6.5 km stretch of gravel road through scrub and low, xeric woodland between Port Nelson and the northern coast during 3 June-5 July 1989. The data were submitted to a programmed Chi-square Goodness-of-Fit test (Bolding 1985) and the 11 most common land bird species were compared (Table 1).

Nine of the eleven were significantly more conspicuous during morning than afternoon ($P < 0.05$), with decreases in recorded observations ranging from 32% for the Gray Kingbird to 80% for the Yellow Warbler. This trend is reversed in the two columbids with the Zenaida Dove being recorded 53% more frequently in the afternoon ($P < 0.01$). The Common Ground-Dove was recorded 28% more frequently in the afternoon, but this difference was not significant ($P > 0.05$). Both dove species were most numerous in the vicinity of a fresh water pond and in sparse, weedy vegetation at the edge of the road. Grue et al. (1981) reported high incidence of late-in-the-day activity also in the Mourning Dove (*Zenaida macroura*) in a desert-scrub community in Arizona. These data are consistent with the other studies cited above that indicate most birds are more active and conspicuous during early morning. However, some species such as the doves in this study appear to be more active in the afternoon, and therefore they are more effectively surveyed later in the day.

I thank D. Melville for assistance during my visit to Rum Cay and R. Triplet for the statistical program.

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