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

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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.

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