ORNITHOLOGICAL MONITORING AND RESEARCH ON GUANA ISLAND, BRITISH VIRGIN ISLANDS

PROJECT REPORT FROM THE OCTOBER 2003 FIELD SESSION

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Worm-eating Warbler (*Helmitheros vermivora*)

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INTRODUCTION

In March 2003 I was invited to join the team of scientists conducting research on Guana Island. I had conducted a limited project in the Luquillo Experimental Forest, Puerto Rico, in January 1998 (Boal et al. 2003), and had been looking for an opportunity to develop a research program in the Caribbean. Thus, the invitation was a welcome opportunity for me. I approached the invitation with the objectives of 1) gaining familiarity with the geography, vegetative communities, and logistical constraints of working on the island, 2) continuing the long-term mist-netting operations to monitor neotropical migrant bird use of the island as a stopover location during autumnal migrations, and 3) identifying research opportunities and needs for which I could develop subsequent studies.

RESULTS

Island Familiarization

We arrived on Guana Island, British Virgin Islands at mid-day of 10 October 2003 and departed on the morning of 22 October 2003. We spent much of the first two days familiarizing ourselves with the geography and vegetative characteristics of the

islands, and identification of locations to set up mist nets. Fred Sibley was a great help in this period of familiarization.

We continued familiarization of the island and conducted cursory surveys for avian species during the mid-day hours when mist-nets were closed. These surveys included the Pyramid Trail, the trail to Long Man's Point, Guanaberry Trail, Liao Wei Ping Trail, the lower reaches of Quail Dove Ghut, the North Beach area, and repeated routes through the Salt Pond and adjacent flats to and including the Orchard. During these surveys we gained an appreciation for the ruggedness and difficulty of getting around in many parts of the island. We were struck by the variety in physiographic characteristics, with obvious microclimate differences related to elevation, slope orientation, and landscape type (i.e., drainages, hillsides, flats). Also, we noticed the variability in understory development, apparently due to presence or absence of sheep grazing. This variability in vegetation communities, microclimates, understory development, etc., leads to some pertinent research questions discussed below.

Bird Monitoring Operations

We initiated bird-banding efforts on 12 October and completed banding efforts on the afternoon of 20 October. We conducted passive mist-netting for songbirds over an eight-day period. We also conducted targeted mist-netting for shorebirds at the Salt Pond one afternoon. Our mist netting efforts totaled approximately 184.5 net hours (Table 1). Coincidentally, during our mist-netting efforts we made 185 captures of birds, for an average of 1 bird per net hour (Table 1). The majority of these were new captures that we banded (120) or did not band (26). The majority of the birds that were captured but

not banded were hummingbirds (17) for which we did not have bands. The 146 individual birds that were new captures represented 25 species (Table 2).

We recaptured 39 individual birds representing seven species. The majority of these were Bananaquits (*Coereba flaveola*; 27) and Black-faced Grassquits (*Tiaris bicolor*; 5) (Table 3). Two of these recaptures were of Caribbean Elaenias (*Elaenia martinica*), one of which was banded seven years ago (F. Sibley, pers. comm.). We are attempting to determine if this is an age record for the species. One recaptured Black-faced Grassquit was five years old (F. Sibley, pers. comm.).

In general, mist-netting and surveys indicated 2003 was a good year for migrants on Guana Island. In addition to the more commonly observed and banded migrants such as the Blackpoll Warbler (*Dendroica striata*) and Black-and-white Warbler (*Mniotilta varia*), we found several uncommon birds and one which we believe is a new record for Guana Island (Table 4, Appendix 1). We mist-netted and banded one Swainson's Thrush (*Catharus ustulatus*) and visually observed a second, unbanded, Swainson's Thrush. This is interesting because Raffaele (1989) does not list the species as occurring in Puerto Rico or the Virgin Islands. However, this was not the first time a Swainson's Thrush has been found on Guana Island. We plan to examine autumn and winter reports and Christmas Bird Count data from Tortola to elucidate meaningfulness of the occurrence of Swainson's Thrushes on Guana Island.

Other species of note included our capture and banding of a Yellow-throated Vireo (*Vireo flavifrons*), a Red-eyed Vireo (*Vireo olivaceus*), a Hooded Warbler (*Wilsonia citrina*), a Magnolia Warbler (*Dendroica magnolia*), a Kentucky Warbler (*Oporornis formosus*), an Indigo Bunting (*Passerina cyanea*), and a Rose-breasted

Grosbeak (*Pheucticus ludovicianus*) (Table 4). Other Magnolia Warblers, Kentucky Warblers, Indigo Buntings, and a Rose-breasted Grosbeak were also seen in other areas of the island and an individual Black-throated Blue Warbler (*Dendroica caerulescens*) and Blackburnian Warbler (*Dendroica fusca*) were also observed (Table 4).

Raffaele (1989) indicates the Worm-eating Warbler (*Helmitheros vermivorus*) can be found throughout the Greater Antilles but is an uncommon visitor to Puerto Rico and the larger Virgin Islands and is typically found in heavy forests of interior mountains. Thus, it was a surprise when we captured (and re-captured two days later) a Worm-eating Warbler on Guana Island. To our knowledge, this is a new species record for the island, although Rowan Roy (pers. comm.) reports rare winter and spring sightings of the species have been made elsewhere in the British Virgin Islands.

Because I am interested in the ecology of American Kestrels (*Falco sparverius*) in the Caribbean, I brought materials to construct a bal-chatri trap. Construction of the trap took two afternoons, but I deemed it easier to build one on site than try to bring one with me. Only one hour was needed to trap the pair of kestrels residing on the flat adjacent to the Salt Pond. Two other kestrels where trapped in mist-nets, and a fifth, un-banded, female kestrel showed up on our last day but we were unable to set a trap for her. One of the kestrels captured in the mist-nets was a male that had been banded the previous year (F. Sibley, pers. comm.).

Identification of Research Opportunities

Conducting research on Guana Island involves the logistical constraint of studies being conducted in October. This seriously hampers any investigation focused on breeding ecology or productivity for most avian species. However, I believe there are

abundant research opportunities and information needs that could be addressed under these constraints.

Some possible research projects I am interested in pursuing are:

1. Population structure and dynamics of the Bridled Quail Dove (*Geotrygon mystacea*).
2. Pearly-eyed Thrasher (*Margarops fuscatus*) food habits and impact as a predator of native birds, reptiles, and fruit crops.
3. Genetic relationships of American Kestrels throughout the Caribbean.
4. Island vegetation and physiographic influences on distribution and sympatry of Antillean Crested Hummingbirds (*Orthorhyncus cristatus*) and Green-throated Caribs (*Eulampis holosericeus*).
5. Island vegetation, physiography and microclimate influences on distribution of island species.

At this time I anticipate developing a study design and proposal for project 1. I believe it is one of the more important questions regarding native species on the island and one which, with a little creativity and persistence, could be addressed. The project would require capture and color banding of individual doves and at least 4 continuous years of data collection to draw any meaningful conclusions. I would like to initiate this project in October 2004. I am currently exploring funding possibilities for financial assistance with this project. Considerable equipment, such as special mist nets and walk in traps will be needed.

Project 2 addresses a very important issue with respect to bird and lizard ecology and fruit production on the island. This project would be easy to conduct but would

require lethal collection of individual thrashers. The legalities and permits to do this would need to be worked out. I am currently exploring the feasibility of doing this study with Dr. Gad Perry at Texas Tech University, who would be a collaborator.

Project 3 is underway in that I am attempting to gain feather samples for DNA extraction from researchers on other islands throughout the Caribbean. Funding will need to be raised to conduct genetic analysis or it may be developed as a student project.

Projects 4 and 5 are important questions for the avifauna of Guana Island. Guana is possibly the least impacted island in the BVI. Developing an understanding of resource and space use and partitioning among native species under natural conditions would be very beneficial in maintaining those species on the island but also in recovery or habitat restoration efforts on other islands. These projects would require collaboration with scientists with different specialties, notably the botanist Rudy O'Reilly.

ACKNOWLEDGMENTS

Tracy Boal, Fred Sibley, and Ann Sutton all assisted with mist-netting and banding. Fred Sibley also helped with orientation to the island. I thank the USGS Cooperative Research Units for facilitating this study and The Conservation Agency for inviting me to participate in research on Guana Island and providing local support.

Table 1. Mist netting effort and capture rates at Guana Island, BVI, 12 – 20 October 2003.

Date	Net Hours	New Band	Recaptures	Not Banded[a]	Total Captures	Captures /net hour
12-Oct	20.0	5	2	6	13	0.65
13-Oct	35.8	10	3	4	17	0.48
14-Oct	32.3	6	5	7	18	0.56
15-Oct	23.0	16	3	4	23	1.00
16-Oct	17.5	17	3	0	20	1.14
17-Oct	21.0	15	3	2	20	0.95
18-Oct	22.0	21	5	2	28	1.27
20-Oct[b]	13.0	30	15	1	46	3.54
Total	184.5	120	39	26	185	1.00

[a] These were birds for which the appropriate size bands were not available or were not banded for other reasons.

[b] Trapping efforts focused on Bananaquits at the nets erected at the kitchen area and on shorebirds at the salt pond.

Table 2. Species banded by day of the week on Guana Island, BVI, 12 – 20 October 2003.

	Date in October								
Species	12	13	14	15	16	17	18	20	TOTAL
Semipalmated Plover								1	1
Ruddy Turnstone								3	3
White-rumped Sandpiper								2	2
American Kestrel					2		1		3
Common Ground-Dove				1					1
Caribbean Elaenia	1	1				1		1	4
Swainson's Thrush					1				1
Pearly-eyed Thrasher		2	1	3	1	2	2	1	12
Yellow-throated Vireo				1					1
Red-eyed Vireo						1			1
Black-and-white Warbler				2					2
Magnolia Warbler	1								1
Blackpoll Warbler				5	6	5	3		19
Kentucky Warbler								1	1
Hooded Warbler						1			1
Worm-eating Warbler							1		1
Ovenbird					1			1	2
Rose-breasted Grosbeak						1			1
Indigo Bunting					1				1
Black-faced Grassquit	1	1			2	2	2		8
Bananaquit	2	6	5	4	3	2	12	20	54
TOTAL BANDED	5	10	6	16	17	15	21	30	120

Table 3. Total birds captured and banded, recaptured, and captured but not banded, and percent of total during mist-net and bal-chatri trapping efforts, Guana Island, BVI, 12 – 20 October 2003.

Species	Banded	Recapture	No Band	Total	Percent
Bananaquit	54	27	0	81	43.8
Pearly-eyed Thrasher	12	2	7	21	11.4
Blackpoll Warbler	19	0	0	19	10.3
Green-throated Carib	0	0	17	17	9.2
Black-faced Grassquit	8	5	0	13	7.0
Caribbean Elaenia	4	2	0	6	3.2
American Kestrel	3	1	0	4	2.2
Ruddy Turnstone	3	0	0	3	1.6
Black-and-white Warbler	2	0	0	2	1.1
Worm-eating Warbler	1	1	0	2	1.1
White-rumped Sandpiper	2	0	0	2	1.1
Ovenbird	2	0	0	2	1.1
Indigo Bunting	1	0	0	1	0.5
Hooded Warbler	1	0	0	1	0.5
Magnolia Warbler	1	0	0	1	0.5
Yellow-throated Vireo	1	0	0	1	0.5
Red-eyed Vireo	1	0	0	1	0.5
Swainson's Thrush	1	0	0	1	0.5
Semipalmated Plover	1	0	0	1	0.5
Common Ground-Dove	1	0	0	1	0.5
Kentucky Warbler	1	0	0	1	0.5
Rose-breasted Grosbeak	1	0	0	1	0.5
Zenaida Dove	0	1	0	1	0.5
Bridled Quail Dove	0	0	1	1	0.5
Black-necked Stilt	0	0	1	1	0.5
TOTAL	120	39	26	185	99.57

Table 4. Full list of species seen, captured, or both by personnel on Guana Island, BVI, 12-20 October 2003.

SPECIES	Seen	Captured	Both
Magnificient Frigatebird	X		
Red-billed Tropicbird	X		
Brown Pelican	X		
Brown Booby	X		
Cattle Egret[a]	X		
Yellow-crowned Night-heron	X		
Little Blue Heron	X		
Green Heron[a]	X		
Greater Flamingo	X		
American Oystercatcher	X		
Black-necked Stilt			X
Wilson's Plover	X		
Semipalmated Plover			X
Lesser Yellowlegs	X		
Solitary Sandpiper	X		
Ruddy Turnstone			X
Semipalmated Sandpiper	X		
Spotted Sandpiper	X		
Least Sandpiper	X		
White-rumped Sandpiper			X
Royal Tern	X		
Red-tailed Hawk	X		
American Kestrel			X
Zenaida Dove			X
Scaley Napped Pigeon	X		
Common Ground-Dove			X
Bridled Quail Dove			X
Mangrove Cuckoo	X		
Yellow-billed Cuckoo	X		
Antillean Crested Hummingbird	X		
Green-throated Carib			X
Belted Kingfisher	X		
Gray Kingbird	X		
Caribbean Elaenia			X
Caribbean Martin[c]	X		
Barn Swallow	X		
Swainson's Thrush			X
Pearly-eyed Thrasher			X
Yellow-throated Vireo		X	
Red-eyed Vireo		X	
Black-and-white Warbler			X

Black-throated Blue Warbler[d]	X		
Blackburnian Warbler[e]	X		
Magnolia Warbler			X
Blackpoll Warbler			X
Kentucky Warbler			X
Hooded Warbler		X	
Worm-eating Warbler		X	
Ovenbird		X	
Rose-breasted Grosbeak			X
Indigo Bunting			X
Black-faced Grassquit			X
Bobolink[b]	X		
Bananaquit			X

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[a] Reported by members of the reptile team.
[b] Observed by Fred Sibley
[c] Observed by Clint Boal
[d] Observed by Tracy Boal
[e] Observed by Adrian Andre

Appendix 1. Images of some species captured and banded on Guana Island, British Virgin Islands, October 2003.

Female American Kestrel (*Falco sparverius*)

Yellow-throated Vireo (*Vireo flavifrons*)

Male Hooded Warbler (*Wilsonia citrina*)

Green-throated Carib (*Eulampis holosericeus*)