

**The Species and Associated Microhabitats of the
Springfield Estate Hummingbirds**

By:

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Methods

From the time period of May 23, 1999 until June 4, 1999 I recorded all hummingbird species caught in the one-quarter inch, six-meter long mist nets set up at the aforementioned locations. These nets were open for hummingbird collections at various hours throughout the time periods and are listed next to each respective catch (see table A).

One net (net A), was constructed using two bamboo poles and stakes on either end, which is the same procedure used for all the nets. The terrain at this net location was in the center of a cleared area bordered by a garden wall, and forest edge. It was angled on an approximated 45-degree angle slope on dry, loose soil probably used as a water runoff. The herbaceous layer was from one to two meters and consisted solely of saw grass (Cladium jamaicense). The canopy layer consisted of mango (Mangifera indica), banana (Musa spp.), bamboo (Bambusa vulgaris), citrus tree (Citrus, spp.), coconut palm (Cocos nucifera), and royal palm (Roystonea oleracea). This net was at the cultivated and human use location and was open from May 23, 1999 to May 26, 1999.

Net B was located on a plateau inside of dense vegetation. The vegetation was again from one to two meters but occurring antiparallel and immediately next to the net. The soil was very compact and wet, almost clay-like. The herbaceous layer was primarily saw grass. Small amounts of leaf litter accumulated there. The canopy layer contained: banana, pawpaw (Carica papaya), breadfruit (Artocarpus spp.) and royal palm. The understory shrubs were from one to five meters tall. These were the passion fruit (Passiflora spp.), heliconia (Heliconia rostrata), and (Epianthes peltata). This net was dubbed transitional and was open from May 23, 1999 to May 26, 1999.

Using these five mist nets, I caught the hummingbird specimens on mornings and evenings. Once a bird was caught, I transported the specimen to the laboratory facilities where I weighed them. Then I measured their wing length from the wrist joint to the longest feather of the wing in millimeters. After that, I cut off one third of the tail feather. The tail feather that I cut varied between species and were in numerical order beginning with the first catch of each type of species. All of the feathers were cut from the birds' right wing. Once the data was recorded, I let the specimens go. This process was repeated daily with each catch until June 4, 1999 when data collection ceased.

Discussion

The fact that most hummingbirds were caught in the transitional landscape nets was due to the fact that there were three nets to each one of the disturbed and rainforest habitats. This was because the nets were being shared with other students and their project as well as my own. These numbers in abundance though don't spoil the overall percentage ratios of the differentiated species.

Using table B-1 as a reference, there is an obvious change from the Antillean Crested hummingbird to the Purple-throated Carib. The Green-throated Carib remained a constant throughout. Only in net C (transitional) did all three species seem to coexist so much so that all three species were captured and recorded. From the results I obtained, I can conclude that the Antillean Crested hummingbirds feed in open areas since they were most likely caught in the process of foraging. However, the Purple-throated Carib preferred to feed, or were captured more often, in the nets located in the rainforest. All three species seemed to coexist in the transitional environment. Although these statements are derived from my results, the use of twenty hummingbirds was too small of a number to prove anything beyond a doubt. With this information in mind, I have proven my hypothesis to the fullest extent using the data that I have collected. I believe that this project could easily be built upon in order to reflect more accurate percentages from a larger number of captures.

Table A**Net A****Table A-1**

Common Name	Scientific Name	Date	Net	Time (EST)	Mass Weight (g)	Wing (mm)	Feather Clipping
Green-throated Carib	Sericotes holosericeus	05/23/99	A	16:50	5.2g	52 mm	
Antillean Crested	Orthorhyncus cristatus	05/24/99	A	17:50	2.4g	34 mm	Bird right 1
Green-throated Carib	Sericotes holosericeus	05/24/99	A	18:10	9.4g	50 mm	Bird right 1

Net B**Table A-2**

Common Name	Scientific Name	Date	Net	Time (EST)	Mass Weight (g)	Wing (mm)	Feather Clipping
Green-throated Carib	Sericotes holosericeus	05/23/99	B	17:00	6.2g	65 mm	
Green-throated Carib	Sericotes holosericeus	05/25/99	B	09:10	6g	55 mm	Bird right 2

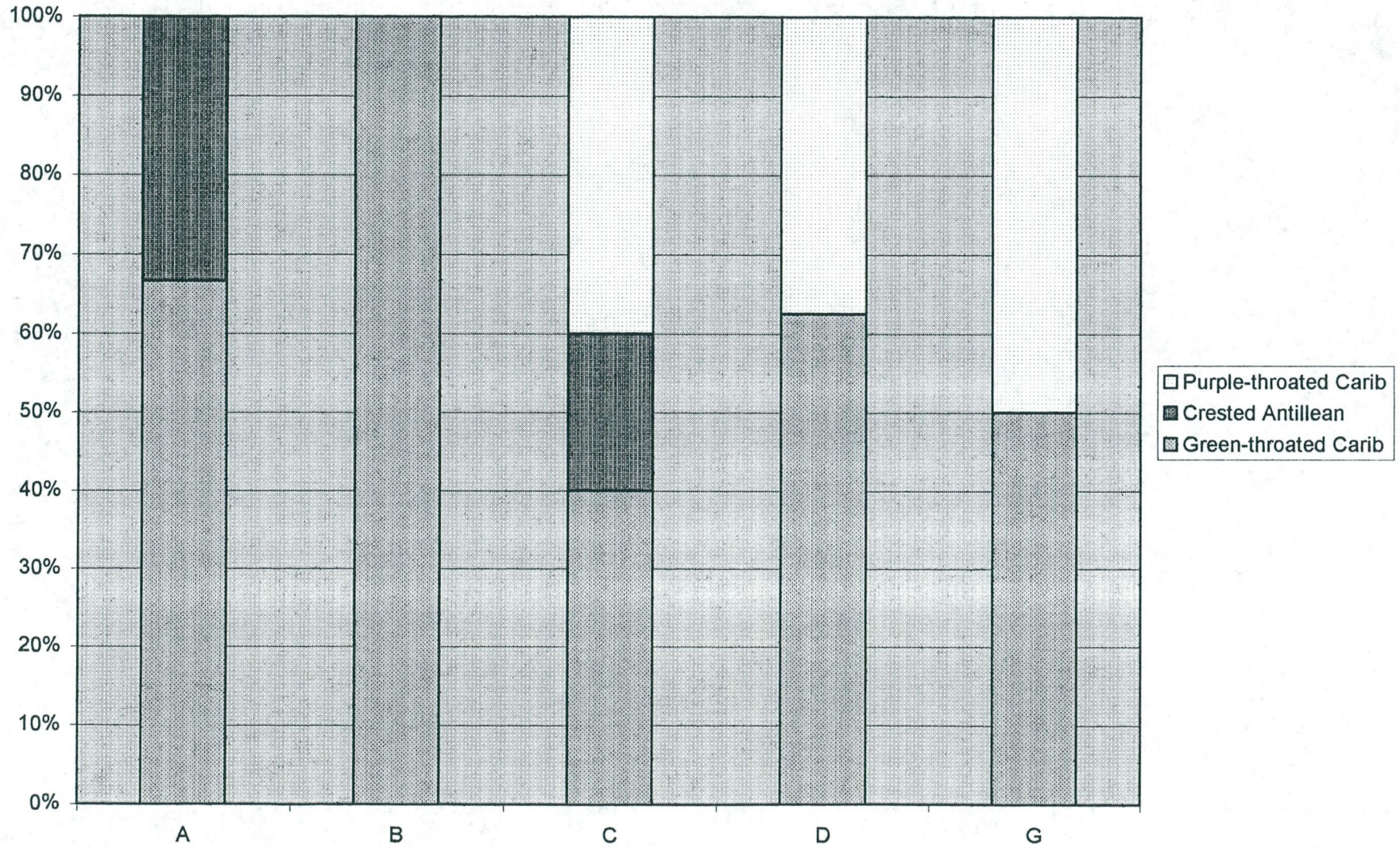
Net C**Table A-3**

Common Name	Scientific Name	Date	Net	Time (EST)	Mass Weight (g)	Wing (mm)	Feather Clipping
Green-throated Carib	Sericotes holosericeus	05/27/99	C	17:30	6g	60 mm	Bird right 3
Purple-throated Carib	Eulampis jugularis	06/01/99	C	07:20	10g	65 mm	Bird right 2
Antillean Crested	Orthorhyncus cristatus	06/01/99	C	18:45	3.5g	45 mm	Bird right 1 & 2
Green-throated Carib	Sericotes holosericeus	06/04/99	C	09:00	6g	46 mm	Bird right 7
Purple-throated Carib	Eulampis jugularis	06/04/99	C	08:05	9.5g	73 mm	Bird right 4

Hummingbirds Specific to Individual Nets

Table B-1

Percent of Species



Nets

Table A**Net D**
Table A-4

Common Name	Scientific Name	Date	Net	Time (EST)	Mass Weight (g)	Wing (mm)	Feather Clipping
Green-throated Carib	Sericotes holosericeus	05/31/99	D	09:40	5.5g	50 mm	Bird right 4
Purple-throated Carib	Eulampis jugularis	05/31/99	D	17:30	8g	65 mm	Bird right 1
Green-throated Carib	Sericotes holosericeus	06/02/99	D	08:30	6g	60 mm	Bird right 5
Green-throated Carib	Sericotes holosericeus	06/03/99	D	17:30	7g	55 mm	Bird right 6
Purple-throated Carib	Eulampis jugularis	06/04/99	D	08:05	9.5g	73 mm	Bird right 3
Green-throated Carib	Sericotes holosericeus	06/04/99	D	09:00	6.2g	50 mm	Bird right 8
Purple-throated Carib	Eulampis jugularis	06/04/99	D	09:00	7.2g	60 mm	Bird right 5
Green-throated Carib	Sericotes holosericeus	06/04/99	D	09:00	6g	60 mm	Bird right 9

Net G
Table A-5

Common Name	Scientific Name	Date	Net	Time (EST)	Mass Weight (g)	Wing (mm)	Feather Clipping
Purple-throated Carib	Eulampis jugularis	05/31/99	G	17:00	14.1g	68 mm	
Green-throated Carib	Sericotes holosericeus	06/01/99	G	09:10	10.7g	55 mm	

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Results

Twenty hummingbirds were captured in total using five mist nets. Of these nets, one was in cultivated and disturbed land, three were in transitional land, and one was in the rainforest. By far, most of the hummingbirds were caught in the transitional nets.

As shown in table B-1, there is a change in species from nets A to G, or from cultivated to rainforest habitats. Although the Green-throated Caribs' average frequency is similar, the Antillean Crested hummingbird made up the other percentage in net A, whereas, the Purple-throated Carib made up the other percentage in net G. For the transitional nets, net B was entirely Green-throated Caribs. Net C was a mixture of all three species, the distribution of these species was fairly similar except that the Antillean Crested hummingbird made up the smallest percentage (20%). Net D was primarily Green-throated Caribs (62%) compared to the Purple-throated Caribs (48%). Excluding net B, there is an obvious blend from Antillean Crested hummingbirds to Purple-throated Caribs with the Green-throated Caribs maintaining a constant.

Net C was located on a flat surface at the bottom of a wall from the Springfield Guest House. Another wall is located just on the other side of the net. The soil was wet and loose in composition. The shrubs here are the: coral tree (Gliricidia sepium), periwinkle (Catharanthus roseus), heliconia and pineapple (Ananas comosus). The canopy consisted of royal palms and pawpaw trees. This was also transitional and was open from May 26, 1999 to June 4, 1999.

Net D was on an estimated 10-degree slope at the bottom of a hill next to a residential area. The area was at the bottom of a mountain. The ground cover was dominated by Sporobolus indicus. The shrubs located here are the heliconia and torch ginger (Alpinia purpurata). The canopy layer contains: citrus, pawpaw, frangipani (Plumeria rubra), banaba, coconut palm, Australian pine (Cassurina equisetifolia), and Akee (Blighia sapida). This was the last of the transitional (semi-evergreen) nets and was open from May 26, 1999 to June 4, 1999.

Nets F&G were placed on an abandoned, overgrown path just above the Beehouse at approximately 375 ^{meters} ~~feet~~. The nets were on an estimated 40-degree slope in an extremely moist environment within the rainforest. The soil was very wet and muddy but had an enormous accumulation of leaf litter, so much so that it entirely covered the ground surface. The dropoff on the mountain just beside the nets were covered with ferns (Dicranopteris, spp.), some Lepianthes peltata existed here as well as the heliconia. The canopy layer was dense and I was unable to distinguish tree species due to their height except for the banana tree. These nets were the rainforest location nets and were open from May 31, 1999 to June 3, 1999.

Abstract

For my project I chose to study hummingbirds and their presence in three associated microhabitats in and around the Springfield Estate of Dominica, West Indies. Since tropical hummingbird communities are organized according to their food resources, I chose three distinct environments with separate floras to test my hypothesis that each separate habitat would contain different species and frequencies of hummingbirds.

I chose areas with different types of vegetation in order to prove my hypothesis. These regions are as follows: cultivation and human use land, transitional from cultivated to pristine rainforest land, and rainforest land. Various nets were set up at the above mentioned locations to view their species differentiation and frequency of the Green-throated Carib (Sericotes holosericeus), Purple-throated Carib (Eulampis jugularis) and Antillean crested hummingbird (Orthorhyncus Cristatus). I hoped to find that each respective species would frequent separate areas according to food sources associated with each ecologically different surroundings.