

The Diversity of Life in Heliconias and Bromeliads

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Study Abroad - Dominica

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Introduction:

Heliconias (f. Heliconiaceae) and bromeliads (f. Bromeliaceae) are commonly found in various areas of Dominica. Both plants provide habitats for organisms to live in. My hypothesis is that there will be more differences in the organisms living in bromeliads than in heliconias. The bromeliads exist in a broad range of sizes and grow at various elevations, providing different living environments for organisms. Heliconias grow to a standard size and height.

Materials and Methods:

- * 20 dram pill bottles
- * scintillation vials
- * 70% EtOH
- * stereo microscope
- * large glass pipette
- * small glass pipette
- * turkey baster
- * sharpie permanent marker - fine point

I used the turkey baster to extract water from each plant, and I stored the samples in 20 dram pill bottles. I labeled the samples according to location. Each sample was examined under a stereo microscope, and individual organisms were separated using large and small pipettes. Organisms were preserved in 70%EtOH in scintillation vials.

Data:

Sample #1:

Heliconia (red, yellow, and green bloom)
Mt. Joy
25 May 1998

Organisms Present:	Number:
Psychodidae larva (f. Psychodoidea)	1
Psychodidae pupa	1
Mosquito larvae #1 (f. Culicidae)	3

Sample #2:

Heliconia (yellow bloom)
Mt. Joy
25 May 1998

Organisms Present:	Number:
Mosquito larvae #1	2
Mosquito pupae (2 emerged to adults)	3
Psychodidae larvae	16
Psychodidae pupae	4
Maggots (o. Diptera)	4
Ants (o. Hymenoptera)	2

Sample #3:

Heliconia (red, yellow, and green bloom)
Springfield plantation - Near Checkhall River
25 may 1998

Organisms Present:	Number:
Mosquito larvae #1	18
Mosquito pupae	2
Psychodidae larva	1
Psychodidae pupa	4
Maggots	4
Ants	6
Mite	1
Chironomidae larva #1 (f. Chironomidae)	1
Unknown fly larva #1	1

Sample #4:

Heliconia (red, yellow, and green bloom)
Springfield plantation - Near Checkhall River
25 may 1998

Organisms Present:	Number:
Mosquito larva #1	1
Ants	9

Sample #5:

Heliconia (red, yellow, and green bloom)
Springfield plantation - Near Checkhall River
25 may 1998

Organisms Present:	Number:
Mosquito larvae #1	4
Ant	1
Maggot	1

Sample #6:

Bromeliad
Emerald Pool
29 May 1998

Organisms Present:	Number:
Mosquito larvae #1	6
Mosquito larvae #2	2
Chironomidae larvae #1	3
Ostracod	1
Copepods	2

Sample #7:

Bromeliad
Emerald Pool
29 May 1998

Organisms Present:	Number:
Mosquito larvae #1	4
Chironomidae larvae #2	3
Ostracods (two species)	57
Daphnia	17
Ant	1

Sample #8:

Bromeliad
Emerald Pool
29 May 1998

Organisms Present:	Number:
Chironomidae larvae #3	5

Sample #9:

Bromeliad
Springfield Plantation - Near Checkhall River
28 May 1998

Organisms Present:	Number:
Psychodidae larva	1
Empididae or Dolichopodidae larva	1
Unknown fly larvae #2	3

Sample #10:

Bromeliad
Springfield Plantation - Near Checkhall River
28 May 1998

Organisms Present:	Number:
Chironomidae larva #1	1
Oribatid mite	1
Unknown fly larvae #2	6

Discussion:

A total of 204 specimens representing 16 different species were collected in either bromeliads or heliconias (Fig.3). Heliconia samples produced 90 specimens representing 7 total species, and bromeliads produced 114 specimens representing 14 total species. Four species were apparently found in both heliconias and bromeliads (Fig. 3). Figures 1 and 2 show the relative proportions of species in heliconias and bromeliads respectively. While samples from heliconias were relatively uniform in species content, those from bromeliads varied striking between locations (see Data section).

Conclusion:

My data shows that there is a difference in the organisms inhabiting each bromeliad, and the bromeliads contain more total species than heliconias. Few similarities existed among the individual bromeliads - mosquito larvae were present in two samples, ostracods were present in two samples, and chironomidae larvae were present in two samples. The two samples containing mosquito larvae and ostracods were collected from the same location. The heliconias show similar organisms in all plants - mosquito larvae were present in all five samples, ants were present in four samples, psychodidae larvae were present in three samples, and maggots were present in three samples. I believe the differences among the bromeliads may be due to the differences in size, differences in volume of water held in each plant, and differences in location/elevation. I attribute the similarities among the heliconias to the lack of variation in the sizes and heights of the plants.

I feel that this project could have been greatly improved if the larger bromeliads were more accessible. The majority of the larger bromeliads grow at high elevations in the treetops, which are difficult to reach. I believe they would have added to the diversity of the data.

Works Cited

Berrios-Juarez, Edwin A., et.al. 1996. A Floral Guide to SCEPTRE. pp. 11-14.

Chu, H.F., and Laurece K. Cutkomp. 1992. how to know the immature insects. Wm. C. Brown Communications, Inc., Dubuque, Iowa.

Figure 1 - Total Specimens in Heliconias:

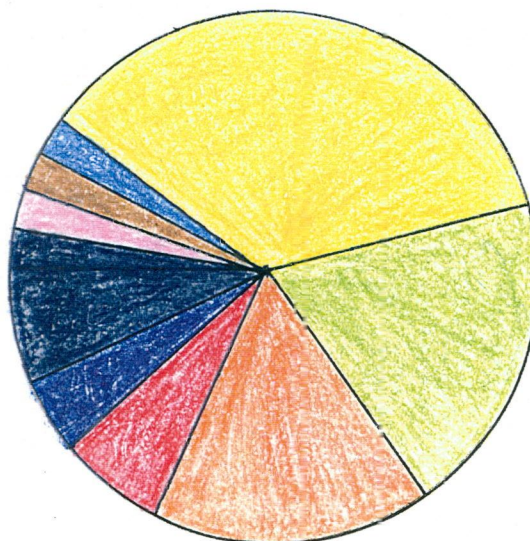
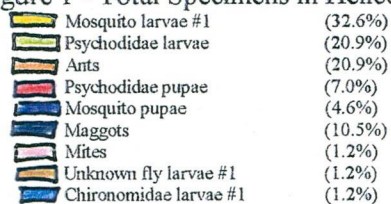


Figure 2 - Total Specimens in Bromeliads:

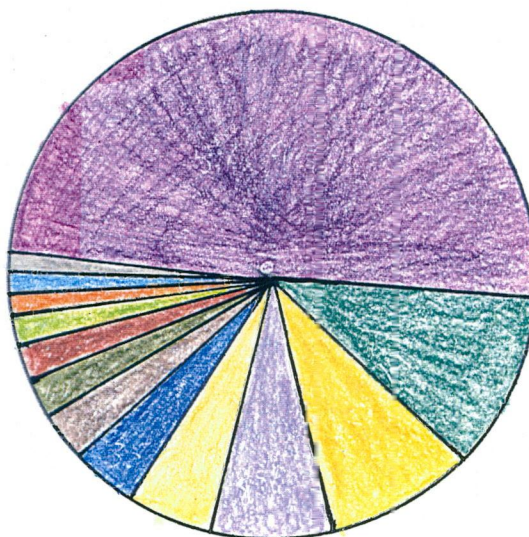
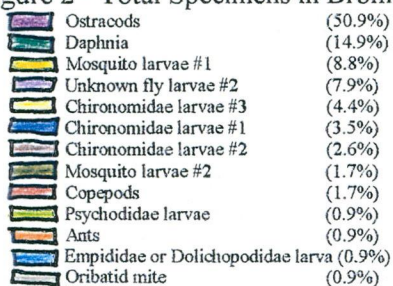


Figure 3 - Total Specimens

