# MILLIPEDES:

## An Examination of the Different Orders on the Island of Dominica

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ABSTRACT

Millipedes are awesome! A total of nine of the 16 orders of Millipedes can be found in the Caribbean. Unfortunately, the millipedes of Dominica have not been studied as vigorously as the other flora and fauna on the island. Only 3 species of millipedes have been described from Dominica since 1888. I set out to remedy this by collecting as many specimens as possible and identifying them as far as I could.

INTRODUCTION

Dominica is a little island in the Caribbean Sea located between the islands of Martinique and Guadalupe. There are 9 Orders of millipedes that could possibly occur in the Caribbean: Chordeumatida, Glomeridesmida, Penicellata, Polydesmida, Polyzoniida, Siphonophorida, Stemmiulida, Spirobolida and Spirostreptida (Milli-Peet, 2007). Chordeumatida, Penicellata, and Polydesmida occur worldwide with exceptions, but none that include the Caribbean. Polyzoniida and Siphonophorida are known to occur in the Carribean; and Glomeridesmida, Stemmiulida, Spirobolida and Spirostreptida all occur the West Indies specifically.

Millipedes are in the class Diplopoda, which includes about 10,000 known and described species worldwide. They are extremely important to the health of all forests, especially in tropical areas, because of their ability to return nutrients tied up in large organisms (for example: trees) back into the soil for future re-growth. Millipedes are often confused with centipedes and terrestrial crustaceans called isopods. They can be easily distinguished from centipedes since they have two pairs of legs per body ring, short antennae, and no poison claws at the front of the head. The way to tell millipedes from isopods is by looking at their antennae and number of

legs. The antennae of millipedes point forward, while the antennae of isopods point backward. Isopods also never have more than 7 pairs of legs and adult millipedes always have more than that. (Milli-Peet, 2007)

## MATERIALS AND METHODS

In this research project I used very technical and complicated equipment that included glass and plastic vials, a "shake and bake" litter sample strainer, plastic Ziploc bags, tweezers, ethanol, a microscope and the Milli-Peet Key to the Orders of Millipedes.

I collected specimens from the trail leading up to Morne Trois Pitons National Park, at the Morne Anglais Poultry Farm, and at Batalie Beach. I also collected specimens from the Archbold Tropical Research and Education Center itself, and up the mango trail past the Bee House near the banana plantation. The millipedes from each place were kept in separate vials and when I returned to the lab, each vial was appropriately labeled according to where the millipedes were collected. One by one, I took the millipedes out of their vials and using the Milli-Peet Key to the Orders of Millipedes I identified each to the order it belonged to. I kept a tally of which orders I collected at each location and returned them to their vials. Other students, along with the two wonderful professors that accompanied us, would often find specimens from the trips that they went on and deliver them to me. I would record the necessary data, place them in the appropriate vials, and identify them just like the ones I collected myself.

## RESULTS

Collection data is summarized in Table 1. From the trail leading up to Middleham Falls I collected one millipede in the order Spirobolida. From the Morne Anglais Poultry Farm I collected several specimens from the order Spirobolida. Down at the big fig tree I collected several specimens in the orders Spriostreptida and Spirobolida. On ATREC I collected one

specimen from the order Spirobolida. At Batalie Beach I collected a couple specimens from the order Spirobolida. Finally, I collected several specimens from the orders Glomeridesmida, Spirobolida, and Spirostreptida on the mango trail up past the Bee House.

Table 1

| Locality | Orders Collected | Vegetation Type |
|---|---|---|
| Morne Trois Pitons National Park Trail | Spirobolida | Primary Montane Rainforest |
| Morne Anglais Poultry Farm | Spirobolida | Secondary Forest |
| Fig Tree | Spirobolida<br>Spirostreptida | Secondary Forest |
| ATREC | Spirobolida | Secondary Forest |
| Batalie Beach | Spirobolida | Coastal Dry Forest |
| Bee House Mango Trail | Spirobolida<br>Spirostreptida<br>Glomeridesmida | Secondary Forest |

All the specimens collected during the three-week period I was on island of Dominica are being taken back to the grand Texas A&M University for further identification and research purposes.

DISCUSSION

Throughout my entire research project I only collected millipedes from 3 of the 9 possible orders. This could be due to the fact that the three orders I did collect are known to occur specifically in the West Indies, whereas the other six orders are known to occur in a more broad and general area such as simply being found ‘worldwide’ or in the ‘Caribbean’. By far the most common millipede order collected was Spirobolida. At least one species of Spirobolida was found at each of the six locations I collected at. This was particularly surprising to me considering that the order Polydesmida has two families occurring in the West Indies, and Spirobolida has only a single family. The mango trail seemed to have the most ordinal diversity among all the different locations. This may be caused by better soil composition due to the many mango and banana trees located in the vicinity of where the millipedes were collected. The rotting and decaying fruit lying on the ground could contribute to more nutrient rich soil and

attract more macro arthropods like millipedes. On the other hand, the presence of the different fruit trees could also be an indicator of better soil.

Prior to my research on the island, only three species of millipedes had been described from the orders Spirobolida, Spirostreptida, and Polydesmida. With my research I hope to shine some light on all the other orders and species that call this wonderful island home.

This project can most certainly be improved upon. I would have liked to collect more specimens from more places on the Island. It would have been extremely beneficial to get millipedes from the dry forest in Cabrits to see what orders and species are located there. I also could have used different collecting methods to obtain other millipedes and collected at different times during the day and night. It is impossible to know all the orders I missed by not employing these different tactics.

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Dr. Wharton

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