

A Field Guide to Dominican Millipedes by Order

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Abstract

A total of 443 millipede specimens representing 10 species from 3 orders were collected on the island of Dominica. Individuals were photographed and identified to order. Representative photographs of the 10 species are shown, accompanied by a brief physical description of the species.

Introduction

Dominica is a small island in the Lesser Antilles located between the islands of Martinique and Guadeloupe. Dominica has a wide variety of vegetation, including montane forest, dry scrub forest, “elfin forest”, and rainforest. The range of habitats allows for diverse wildlife, yet the myriapods of the island have been largely overlooked.

Millipedes are members of the class Diplopoda. Millipedes differ from centipedes, having two pairs of legs per body segment rather than one pair per segment. Millipedes are detritivores, eating leaf litter and other organic waste. Millipedes are an important part of the ecosystem due to their key role in the nutrient cycle, and they are particularly important in tropical areas with typically nutrient-poor soil. There are approximately 10,000 known species of Diplopods worldwide, occurring on nearly every continent.

Millipedes are a severely under researched class as a whole, but there is little to no information on Caribbean millipedes. This project sets out to expand on previous research done by previous study abroad students, “MILLIPEDES: An Examination of the Different Orders on the Island of Dominica” by Anjelica Peredo in 2007 and “A Photographic Field Guide to the Millipedes of Dominica by Order” by Lorilyn Seyler in 2012.

Materials and Methods

Millipedes were collected by manually sifting through leaf litter, picking through piles of detritus, and searching under rocks and rotting logs. Specimens were placed into quart and gallon sized plastic bags until they could be photographed and labeled with the date and location of collection at the Archbold Tropical Research and Education Center. The specimens were sorted visually, then identified to order using the *MILLI-PEET; Illustrated Key to Order* (Sierwald 2007).

Specimens were collected from each of the following locations: the Archbold Tropical Research and Education Center, Mount Joy, Emerald Pool, the Dominica Botanical Gardens, Kalinago Territory, Saint David's Bay at Castle Bruce, and Cabrits National Park.

A macro photography setup was used to photograph specimens both alive and in alcohol. The setup included a Nikon D300, 4 Nikon SB-200 slaves flashes, lens extensions, a Zeiss 100mm macro lens, and Mylar film for light diffusion.

Results

A total of 443 specimens were collected from 30 May 2015 – 10 June 2015. Specimens belonged to the orders Spirobolida, Spirostreptida, and Polydesmida. A majority of specimens belonged to the order Spirostreptida, followed closely by large numbers of Spirobolida. Only two specimens from one species of Polydesmida were found, and only in one location.

Order Spirobolida

Members of this order can be identified by a median suture line that extends upward from the labrum on the facial plate.



Species A

Beginning with the collum, this species has a distinctive black and yellow carapace. While the head itself is only black in color, both the mandibles and the gnathochilarium have visible yellow tips. The antennae and legs have a reddish tint that may range from a light pink to a deep red. The ozopores are not distinctly colored. Adult specimens ranged from 3.5cm to 6.5cm in length. A total of 91 millipedes of this species were collected. This species was found in the Dominica Botanical Gardens in Roseau.



Species B

This species is easily identified by its overall reddish carapace. The ocular fields are dark brown or black, and stand out against the lighter body color. The ozopores are not distinctly colored. Adult specimens

ranged from 3cm to 6cm in length. A total of 67 millipedes of this species were collected. This species was found in the Kalinago Territory, Saint David's Bay at Castle Bruce, and in the Dominica Botanical Gardens. Adults of this species are very quick to release a yellow pungent liquid toxin when agitated.



Species C

Members of this species may be identified by their black and dark brown carapace and white legs. The antennae coloration can range from white to a reddish brown. The ocular fields are black and stand out against the head's lighter coloration. The ozopores are not distinctly colored. Adult specimens range from 3.5cm to 5cm. A total of 57 millipedes of this species were collected. Specimens were collected at Archbold Tropical Research and Education Center, Emerald Pool, Cabrits National Park, the Dominica Botanical Gardens and Mount Joy. This species was found in every location sampled.

Order Spirostreptida

Members of this order do not have a median suture line extending upwards from the labrum.



Species D

This species is far larger than the other species collected on the island, with adults ranging from 13cm to 18cm. The carapace is dark brown and black, and the antennae and legs are dark brown. The ozopores are not distinctly colored. A total of 122 millipedes of this species were collected in the Dominica Botanical Gardens in leaf litter and in trees. This species is invasive from the neighboring island of Guadeloupe.



Species E

This species has a light brown carapace with very light legs. The ozopores are not distinctly colored. Adults of this species ranged from 5cm to 6cm. A total of 5 millipedes of this species were collected in the Dominica Botanical Gardens.



Species F

This millipede has a dark brown carapace and a very distinct orange-brown dorsal line. The ozopores are not distinctly colored. Adults of this species ranged from 5cm to 6cm. A total of 29 millipedes of this species were collected from Cabrits National Park, Archbold Tropical Research and Education Center, Mount Joy, and the Dominica Botanical Gardens.



Species G

Millipedes of this species are a striking cream and light brownish-red color, with red legs and antennae. The ozopores are light brown and obvious against the light carapace. In addition, there is a light brown dorsal line. The ocular fields of this species are maroon in color and ovular. Adults of this species ranged

from 6cm to 7cm. A total of 3 millipedes of this species were collected from the Dominica Botanical Gardens. Adults of this species are very quick to release a yellow pungent liquid toxin when agitated.



Species H

This species has a grey carapace. The collum and last segment are rimmed by yellow. This species has a faint dorsal line of darker grey. The ozopores are dark grey and stand out in comparison to the lighter body. The ocular fields are distinct and black. Adults of this species range from 2.5cm to 4cm. 39 millipedes of this species were collected from the Dominica Botanical Gardens.



Species I

Millipedes of this species have a dark and light brown carapace. The ocular fields are dark brown and have the same coloration as the labrum. The legs of this millipede have a reddish tint. The ozopores are light in color, and stand out against the darker carapace. Adults of this species range from 5cm to 7cm in length. A total of 28 millipedes of this species were collected in the Dominica Botanical Gardens and the Archbold Tropical Research and Education Center.

Order Polydesmida

Millipedes of this order have no ocelli, and are commonly referred to as “flat-backed” millipedes.



Species J

Members of this species completely lack ocelli. Specimens had a tan and brown coloration. This species has significantly fewer segments than all other species collected. Only 2 members of this species were collected. This species was only collected around Mount Joy, and measured between 3cm and 4cm.

Discussion

This field guide expands on Lorilyn Seyler's previous project, and should provide a good base for future millipede projects. This project partially agrees with the previous projects, except on one of the orders. Species J was previously identified as a member of the order Glomeridesmida, but on further investigation, the size of the adult specimens, as well as some of the basic morphological features of Glomeridesmids (not being able to roll up into a ball) indicates that the species is actually a member of the order Polydesmida.

A total of 10 species were found from three different orders, Spirobolida, Spirostreptida, and Polydesmida. A major issue that was faced in this project is a lack of general information on millipedes and myriapods in general. It is incredibly difficult to identify any specimens beyond the order level without further information. However, future projects will hopefully be able to focus in on an individual species level such as looking into the tree climbing behavior of species D, the invasive millipede from Guadalupe.

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