

Survey on the SuperFamily Pyraloidea and Their Relatives in the Wet Secondary Rainforest on the Island of Dominica

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Abstract

The Pyraloidea is one of the most widespread superfamilies of moths, containing Pyralidae and Crambidae. They have never been cataloged in full on Dominica. A total of thirteen species of Pyraloidea were collected and preserved. A selection of these moths were photographed for any future identification purposes.

Introduction

Dominica is a small island on the middle of the Lesser Antilles that is covered in several rich habitats including dry rainforest, wet rainforest, and elfin forest. The superfamily Pyraloidea (Snout Moths) is group of tiny moths found worldwide and is one of the most species rich families in the Lepidopterans with currently 15,576 species identified (Nuss 2013). These tiny moths have a wingspan between 10mm and 80mm (Nuss 2013). One of the defining characteristics of these moths are scales on the proboscis and their tympanal cavities under their abdomen open towards the hind coxae (Covell 1984). Within this superfamily there are two families; Pyralidae and Crambidae, that are being observed here. The simplest way to tell these families apart is to look at the tympanal cavities. Tympanal cavities in Pyralidae are more open, and not covered by any other organ (Solis 2013).

Tiny moths like the Pyraloidea are commonly overlooked due to their small size and difficulty to pin and the Pyraloidea moths on Dominica have never been documented by the A&M Study Abroad Program.

Materials and Methods

Pyraloideas are primarily nocturnal so to catch these moths a light trap was set at the Springfield Research Center, in the wet secondary rainforest, at two different locations. This trap utilized a mercury vapor lamp and was turned on the nights of May 24th, May 25th, May 28th and June 2nd on the north edge of the veranda. On June 3rd it was set on the southern edge of the veranda, on the second floor balcony. Each specimen was pinned and spread. Specimens that were too small to pin normally were micro pinned and spread. This process is more difficult than normal pinning, due to the small size and delicate specimens.

Once dried, each moth was checked under a microscope to verify it was a pyralidae or crambidae and identified to species using a set of plates provided by Dr. Alma Solis, USDA/ARS, Beltsville, MD. A plate of species was created from identified specimens photos.

Results

Over the course of three weeks the mercury light trap was set a total of five times with a total of 125 moths captured. A total of thirteen species were found (Table 1). The species found were as follows; *Apogeshna stenialis*, *Hepetogramma decora*, *Herpetogramma bipunctalis*, *Diaphania milalis*, *Microthyris prolongalis*, *Palpita quadristigmalis*, *Agathodes designalis* Guenee, *Glyhodes sibillalis* Walker, *Synclera jarbusalis* (Walker), *Syngamia forella* (Cramer), *Herpetogramma phaeopteralis* (Guenee), *Ategumia matutinalis* (Guenne) and *Hoterodes ausonia*. Some moths were more plentiful than others, for example the *Apogeshna stenialis* was caught a total of fourteen times over the four days and seen many more times while the *Diaphania milalis* was only seen and trapped once. A selection of the best preserved moths were photographed for future identification (Fig. 1).

Fig. 1 : A selection of Pyraloidea collected at Springfield Guesthouse

(Not to Scale)



Agathodes designalis Guenee



Glyphodes sibillalis Walker



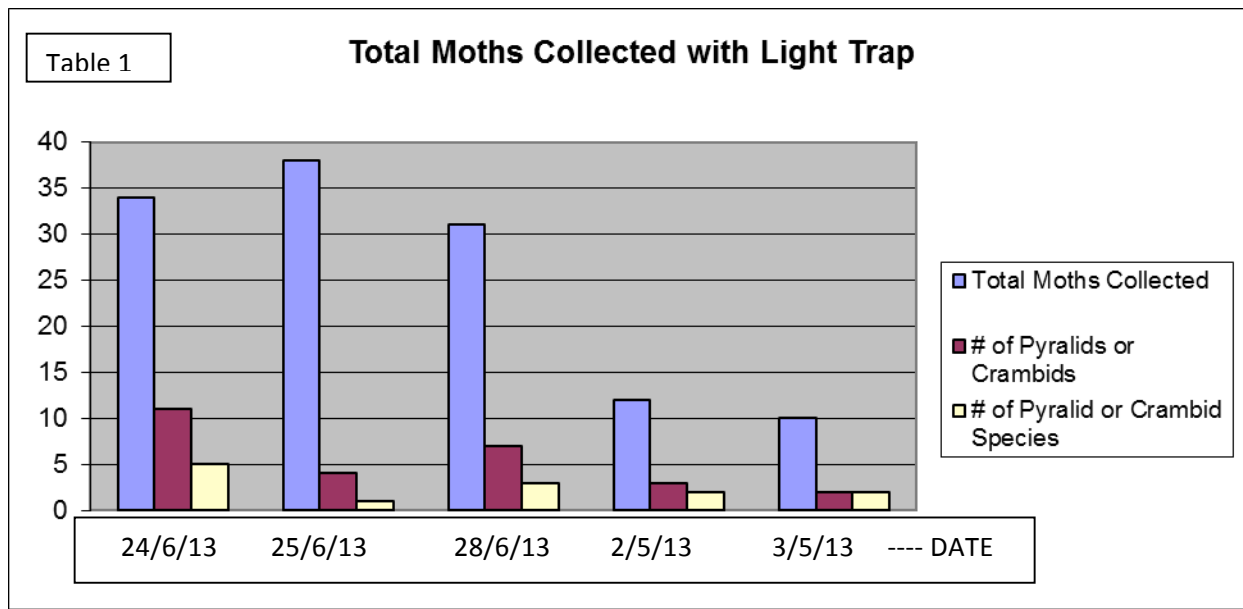
Hoterodes asuonia (Cramer)



Diaphania infimilalis (Cramer)



Synclera jabusalis (Walker)



Discussion

For a more complete cataloging of species in Dominica light traps would need to be set around the different biomes on the island. This report only represents a small section of the wet, secondary rainforest on Dominica. Weather also played a part in the small sample sizes. Microlepidopterans can not fly well in severe weather conditions and it was unseasonably rainy during trapping, resulting in a dearth of specimens.

The hardest part of this project was perfecting micro pinning. The first few days of trapping all moths were collected, to get as much practice as possible. Micro pinning requires a very steady hand and many moths were ruined after drying due to their delicate nature. Practice was the only way to eliminate this and after several hours of micro pinning, spreading, and handling of specimens accidents greatly decreased.

References

Covell, Charles V. *Moths of Eastern North America*. Norwalk, CT: Easton, 1984. Print.

- Jean-Francois, Landry, and Landry Bernard. "A Technique for Setting and Mounting Microlepidoptera." *Journal of the Lepidopterists' Society* 48.3 (1994): 205-27. Print.
- Morrison, Jennifer. *Exhibit of Dominican Moths Found at the Springfield Plantation*. 2002.
http://dominica.tamu.edu/student%20projects/Dominica%20Projects%20pdf%20copy/Morrison_Jennifer.pdf
- Powell, Stephen. *A Survey of the Order Lepidoptera on the Island of Dominica*. 2008
http://dominica.tamu.edu/student%20projects/Dominica%20Projects%20pdf%20copy/Powell_Stephen.pdf
- Solis, Alma. *Phylogenetic Studies and Modern Classification of the Pyraloidea (Lepidoptera)*. National Museum of Natural History, n.d. Web. 15 May 2013.
- Solis, Alma. *Selected Pyraloidea of Dominica Plate 1*. N.p.: n.p., n.d. Print.
- Solis, Alma. *Selected Pyraloidea of Dominica Plate 2*. N.p.: n.p., n.d. Print.
- Nuss, M., B. Landry, F. Vegliante, A. Tränkner, R. Mally, J. Hayden, A. Segerer, H. Li, R. Schouten, M. A. Solis, T. Trofimova, J. De Prins & W. Speidel 2003–2013: Global Information System on Pyraloidea. - www.pyraloidea.org

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