ABSTRACT

The Taxonomy and Bio-diversity

of Jamaica's Arctiid Moths (Lepidoptera: Arctiidae)

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With the accelerated loss of habitats and animal species, an inventory of the invertebrate fauna of Jamaica was undertaken of which this study is a part. The high number of endemic species in Jamaica equates their loss to extinction of these species. This study aimed to identify, classify and evaluate the status of Jamaica's Arctiidae and shed some light on their taxonomy using morphological studies and a single molecular technique. Jamaica's Arctiid bio-diversity was also investigated.

Of 59 known Arctiid species collected in Jamaica, 47 were collected in this study. Detailed descriptions of the external morphology of 57 species, including descriptions of male and female genitalia and photographs of whole moths, genitalia and tymbal organs were done. Two species, *Melese* sp. and Lil' Black may be new discoveries. One species, *Eucereon moeschleri* previously represented by a single specimen was rediscovered. 37 species of Arctiidae are endemic to Jamaica with one or two species being endemic to particular regions. *Ecpantheria persola* (Arctiinae) might be endangered if not already extinct and several other species such as *E. moeschleri* (Arctiinae), *Cincia conspersa, Cincia sordida, Paracincia dognini, Paracincia butleri* and *M. grisea* (Lithosiinae) are severely restricted in their occurrences or endangered.

Taxonomic studies support the inclusion of Ctenuchinae among the Arctiidae and its subdivision into several groups. Division of the Arctiidae by Watson and Goodger (1986) into 3 tribes is supported by studies of dorsal pheromone glands and genitalia but Random Amplified Polymorphic DNA (RAPD) and tymbal organs studies contributed very little to

clarifying sub-familial groupings.

Light trapping underestimated the number of specimens but not necessarily the number of species, if moths alighting on vegetation around the traps were also sampled. Differential sampling of female Arctiids and certain species, lack of knowledge concerning the size of the area being sampled by light traps and their inability to attract some diurnal species are weaknesses of this method.

Bio-diversity studies for Irish Town and Bellevue placed Irish Town ahead of Bellevue despite the larger numbers of species and specimens collected at Bellevue.

Keywords: Arctiidae; RAPD-PCR; bio-diversity; taxonomy.