SHORT COMMUNICATION

Preliminary Survey for Spiders on Antigua, West Indies

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ABSTRACT

Spiders have a worldwide distribution that comprises all land environments except at the polar extremes. There are now 40,700 named, described species of spiders (Platnick, 2009), thought to represent about one-fifth of the true total. On a faunistic level, the spiders of some regions are reasonably well known, but this is far from the case in the New World tropics, including the West Indies. At present, we have species-level surveys for Cuba (Alayón, 1995), Barbados (Bryant, 1923; Alayón & Horrocks, 2004), St. Vincent & the Grenadines (Simon, 1894; de Silva, Horrocks & Alayón, 2006), Anguilla (Sewlal & Starr, 2006), Nevis (Sewlal & Starr, 2007), St. Kitts (Sewlal, 2008) and Grenada (Sewlal, 2009a), and a family-level list for Trinidad (Cutler, 2005, Sewlal & Cutler, 2003, Sewlal & Alayón, 2007, Sewlal, 2009b). Additional information on the family *Pholcidae* of some of the Lesser Antilles is provided by Sewlal and Starr (2008). The present short communication serves to expand on Bryant's (1923) list of 23 species from Antigua and to treat the species distribution on the island with respect to habitats. This survey adds 18 species and 11 families to the list compiled by Bryant (1923).

INTRODUCTION

During 15-29 February 2008, a survey of the spider fauna of Antigua was conducted with the aim of collecting a substantial part of the total species in a broad variety of habitats. Antigua (17°03'N 62°48'W) is in the middle of the northeast Leeward Islands in the Eastern Caribbean. It has an area of 280km^2, is volcanic in origin and consists of gently undulating slopes with a maximum elevation of approximately 402m. Due to intense monoculture of sugar cane for the past 300 years, approximately 70% of the original vegetation has been lost. The remaining natural vegetation is evergreen and dry forest, scrublands and grasslands, with some vegetation on the verges of salt ponds. Sampling was also done on Green Island, one of the numerous smaller dry forest islands surrounding Antigua.

METHODS

During this survey, 24 localities covering 10 habitats were sampled. Half of these were human-made or heavily influenced by human activity. The main collecting methods were visual search at the ground level and sweep-

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netting above ground. The search took in cryptic microhabitats, such as those under rocks, rotting logs and bark.

The sampling effort on the main island produced a total of 34 species representing 16 families (Table 1). Sampling on Green Island yielded four species in three families. Four habitats displayed high species richness, each with at least 10 species, with abandoned buildings displaying the lowest species richness of all, with just three species.

RESULTS

Almost half of the species found belonged to the orb-weaving families, *Araneidae* and *Tetragnathidae*. Therefore it came as no surprise that the most ecologically diverse species found also belonged to these families. This included *Argiope argentata* and *Leucauge argyra* which were recorded from 7 and 6 habitats respectively.

Of the 23 species listed for Antigua by Bryant (1923) 13 species were collected and two others, the orb weaver (*Tetragnatha* niten) and the wolf spider (*Lycosa insulana*) were also listed as found in Barbados. Although Bryant lists *L. sancti-vincenti* as being found in Antigua the specimen collected better fitted the description of *L. insulana*. This survey adds 18 species and 11 families to the list compiled by Bryant (1923).

Specimens from the Mygalomorphae group or tarantulas were collected from gardens; however, they pose little danger to humans as the venom of this family is not known to cause noticeable poisoning (Croft & Pearce-Kelly, 1987).

DISCUSSION

Human-altered habitats were predicted to be especially rich in species because of certain features like the presence of many suitable points of attachment for web-building spiders, open areas which facilitate the wind blowing flying insect prey into webs and artificial lighting which also attracts prey for the spiders. However, this prediction was not borne out in Antigua, unlike in islands previously sampled, with only one such altered habitat, garden vegetation, exhibiting such high species richness. The landscaping of most gardens is suitable for habitation by spiders, in particular web-building spiders, as there are plenty of suitable points of attachment for webs. Spiders are predators with small arthropods, mainly insects, comprising their diet. There are also open areas where wind can blow prey into the webs. In addition, gardens receive light during the night from artificial sources, such as from nearby houses and streetlights that would attract insects that are prey mainly for nocturnal spider species.

High species richness was observed mainly in relatively natural habitats, with riparian vegetation displaying the highest value with 14 species. The presence of high species richness values in relatively natural habitats is not surprising as the majority of habitats available on the island consist of secondary or disturbed vegetation, so a relatively natural habitat would offer a wider variety of microhabitats for spiders of all families as well as sites for web attachments for species that build webs, due to its higher diversity of vegetation and complex vegetation structure (Tews et al., 2004).

CONCLUSIONS

The information from this study is two-fold in that it serves to provide a current list of the spider fauna of the island which can also be used to track immigrations and extinctions which will impact the overall biodiversity of the island. These data are also part of a study to compare the spider fauna of the Eastern Caribbean.

Voucher specimens were deposited in the Land Arthropod Collection of the University of the West Indies, St. Augustine, Trinidad and Tobago.

Table 1. Showing the species of both *Araneomorphae* and *Mygalomorphae* spiders for each habitat sampled in Antigua during 15 to 29 February 2008.

Family and Species	Habitats									
	Garden	*In & On Buildings*	*Abandoned Buildings*	*Roadside*	*Pastureland*	*Humid Valley Forest*	*Dry Forest*	*Vegetation around salt ponds*	*Littoral Woodland*	*Riparian vegetation*
Araneidae *Araneus* sp								✓		
Argiope argentata	✓			✓	✓		✓	✓	✓	✓
Argiope trifasciata								✓		
Cyclosa caroli						✓				
Cyclosa walkenari	✓	✓					✓			
Eustala anastera	✓		✓			✓				
Eustala fuscovittata					✓					
Gasteracanta cancriformis	✓	✓	✓				✓			✓
Metepeira compsa	✓						✓	✓	✓	✓
Neoscona cf oaxcensis	✓			✓	✓			✓		
Lycosidae *Lycosa insulana*					✓			✓		✓
Linyphiidae Sp. A								✓	✓	
Miturgidae *Cheiracanthium inclusum*	✓			✓	✓				✓	✓
Nesticidae Sp. A							✓			✓
Oecobiidae *Oecobius cf. concinnus*		✓	✓							
Oxyopidae *Oxypes salticus*				✓	✓		✓		✓	
Pholcidae *Physocyclus globosus*		✓								
Plectreuidae Sp A	✓				✓					
Sp B						✓				
Salticidae *Hentzia vernalis*		✓					✓			✓
Lyssomanes sp.						✓				
Sp. A										✓
Sparassidae *"Olios"* sp.	✓									
Tetragnathidae *Alcimosphenus lincinus*						✓				
Leucauge argyra	✓	✓		✓				✓	✓	✓
Leucauge regnyi						✓	✓			✓
Tetragnatha nitidens				✓				✓		✓
Theridiidae *Argyrodes elevates*							✓	✓		✓
Sp. A										
Theridiosomatidae Sp. A								✓		✓
Therophosidae *Cyrtopholis* sp	✓	✓								
Thomisidae *Misumenops asperatus*	✓			✓	✓			✓		✓
TOTAL	12	7	3	7	8	6	9	12	6	14

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