A Preliminary Survey for Spiders on St. Kitts, West Indies with Comparative Notes on Nevis

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ABSTRACT
A survey of the spider fauna of the island of St. Kitts, West Indies was carried out in early 2007 and compared with those found on the neighbouring island of Nevis in 2006. Eighteen localities in 17 habitats were sampled both natural and influenced by human activities. Specimens were collected by implementing visual search and sweep-netting techniques. Spiders were also collected from the nests of the mud-dauber wasps *Sceliphron* sp. The survey produced 36 species in 15 families, with human influenced habitats exhibiting higher species diversity than natural habitats on both islands, and six additional species not found on Nevis. The families Araneidae and Tetragnathidae also contained a majority of the species found on both islands.

Key words: Spiders, St. Kitts, Nevis, web-building, Araneidae, Tetragnathidae.

The distribution and habitats of spider fauna in the West Indian islands are poorly known. Lists to the species level are available only for Barbados (G. Alayón and J. Horrocks unpubl.), Cuba (Alayón 1995), Nevis (Sewlal and Starr 2007), Grenada (J. N. Sewlal unpubl.) and Anguilla (J. N. Sewlal and C. K. Starr unpubl.). The spiders of Trinidad have been surveyed at the family level (Cutler 2005; Sewlal and Alayón 2007; Sewlal and Cutler 2003), but at the species only for the Salticidae (Cutler and Edwards 2002).

During 26 January to the 9 February, 2007, I spent two weeks on the island of St. Kitts conducting a survey of its spider fauna with the aim of collecting a substantial part of the spider fauna in a broad variety of habitats. St. Kitts and its sister isle Nevis are located in the northern Leeward Islands in the Eastern Caribbean (17°20'N 62°45'W), separated by a 3 km wide channel called The Narrows. St. Kitts has an area of 168 km^2. It has a central point and the highest elevation on the island of approximately 1156 m. It has a range of natural and secondary habitats including; rainforest, secondary forest, dry evergreen forest, palm brake, elfin woodland, dry forest, farmland, pastureland, caves and salt ponds (Lindsay and Horwith 1999).

During this survey, 18 localities covering 17 habitats were sampled, including four that were man-made or heavily influenced by human activities. Eight more habitats were sampled in St. Kitts than in Nevis, because some were only available on this island, for example, salt ponds and caves. The main collecting method employed was through visual search, both at the ground level and above ground, including in shrubs and low trees and sweep-netting. The nests of mud-dauber wasps that hunt spiders to provision their nests also proved to be a valuable source of spiders (Krombein 1967). Therefore, nests of mud-dauber wasps of the genus *Sceliphron* sp. were collected and dissected as a means of obtaining species that would have escaped detection using the previous two methods. In addition, cryptic microhabitats, such as, under rocks and rotting logs, were also searched.

Voucher specimens were deposited in the Land Arthropod Collection of the University of the West Indies, St. Augustine, Trinidad and Tobago. A synoptic collection of the common species on the island was left at the St. Christopher Heritage Society.

The sampling effort produced a total of 15 families. Overall, natural habitats had less species than those that were man-made. Roadside vegetation as well as abandoned buildings and stone structures (mostly ruins from abandoned sugar estates) produced the highest number of species with 12 out of 36 species. However, on Nevis, garden and secondary forest habitats yielded the most species, with 13 and 11 respectively. The palm brake yielded the only one species and two on Nevis. This is to be expected as altered habitats provide suitable frequency and presence of points of attachment for families that construct webs to catch their prey. Some habitats also provide a natural path or gap in the vegetation where prey, in particular flying insects, can be blown into webs. Both of these requirements are met by roadside habitat where nine of the 12 species found there build webs. Another feature of most altered habitats, in particular gardens and roadside vegetation, is the presence of artificial lighting which during the night attracts flying insects so that nocturnal species have a relatively steady food supply.

Almost half of the species found belonged to the orb-weaving families Araneidae and Tetragnathidae both in St. Kitts and neighbouring Nevis. Therefore it came as no surprise that the most ecologically diverse species found

so belong to these families. This included *Leucauge regnyi* and *Metepeira compsa* which were recorded from 2 and 9 habitats respectively. Whereas, *L. regnyi* was also e second most ecologically diverse species recorded in evis.

It should also be noted that although no specimens om the Mygalomorphae group were collected, their resence on the island is indicated by holes in the ground ften in gardens. This species most likely is of the family heraphosidae and is commonly referred to as "Donkey nders". However, their presence was not as abundant s on Nevis.

No species were found in caves most likely because ey were not very extensive and the walls quite smooth herefore not providing many crevices for such cave dwell- g families as Pholcidae and Scytodidae.

On reviewing observations made in Nevis, the charac- ristic pattern of webbing radiating from the entrances of urrows made by the family Filistatidae in rocky crevices, as also seen in Nevis in the ruins of old sugar plantations articularly in the base of windmills. However, this family as not recorded in Sewlal and Starr (2007).

An important source of potential bias is in the collect- g method, which was directed mainly toward species that an be seen under ordinary circumstances. This undoubt- ly accounts for the heavy preponderance of web-building piders, especially of the orb-weaving families.

Six additional species were found in St. Kitts and ot on Nevis. This does not indicate endemism as sam- ling was carried out in more habitats and better weather onditions allowed for a more thorough collection on St. Kitts.

While the results represent a good beginning, the use f methods suited to collect leaf-litter-dwelling and other ryptic spiders can be expected to yield many additional ecords.

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Family and Species	Habitat																
	Palm brake	Elfin woodland	Garden	In and around houses	Caves	Cultivated land	Coastal	Abandoned buildings / ruins	Vegetation around salt ponds	Dry evergreen forest	Rainforest	Roadside	Sec. forest	Dry forest	*Sceliphron* nests	Pastureland	Scrubland
Araneidae *Araneus* sp.									✓								
Argiope argentata				✓			✓	✓				✓				✓	✓
Argiope trifasciata							✓										
Chrysometa sp.						✓					✓						
Cyclosa walkenaeri												✓				✓	
Eustala fuscovitta						✓											
Eustala sp.			✓					✓									
Gasteracantha cancriformis			✓			✓		✓	✓	✓		✓		✓		✓	
Kapogea sp.												✓					
Metepeira compsa			✓	✓		✓	✓	✓	✓			✓				✓	✓
Neoscona sp.							✓					✓				✓	
Ctenidae Sp. A				✓													
Filistatidae *Kuhukania hibernalis*										✓							
Linyphiidae Sp. A						✓											
Miturgidae Sp. A			✓	✓				✓							✓		
Oxyopidae *Oxyopes salticus*							✓									✓	✓
Sp. A							✓		✓			✓					
Pholcidae *Modisimus* sp.										✓	✓		✓				
Physocyclus globosus				✓				✓									
Salticidae *Corythalia* sp.									✓								
Hentzia sp.			✓	✓				✓	✓			✓				✓	
Menemerus bivittatus				✓													
Scytodidae *Scytodes fusca*								✓							✓		
Scytodes longipes								✓									

Family and Species	Habitat																	
	Palm brake	Elfin woodland	Garden	In and around houses	Caves	Cultivated land	Coastal	Abandoned buildings / ruins	Vegetation around salt ponds	Dry evergreen forest	Rainforest	Roadside	Sec. forest	Dry forest	*Sceliphron* nests	Pastureland	Scrubland
Segestriidae Sp. A								✓									
Sparassidae *Olios* sp.			✓	✓		✓	✓	✓		✓		✓				✓	
Theraphosidae Sp. A			✓														
Theridiidae *Argyrodes elevatus*			✓			✓	✓		✓			✓					✓
Latodectus geometricus							✓										
Theridion sp.						✓											
Thymoites sp.											✓						
Thomisidae *Misumenops* sp. A			✓				✓					✓				✓	
Tetragnathidae *Leucauge argyra*						✓			✓			✓				✓	
Leucauge regnyi	✓	✓	✓	✓		✓	✓	✓		✓	✓		✓	✓		✓	