

See discussions, stats, and author profiles for this publication at:  
<https://www.researchgate.net/publication/305399081>

# Notes on the Spiders (Arachnida, Araneae) of the Turks and Caicos Islands, British West Indies

Article *in* Caribbean Journal of Science · January 2016

DOI: 10.18475/cjos.v49i1.a9

---

CITATIONS

0

READS

108

2 authors, including:



[Sarah C. Crews](#)

California Academy of Sciences

25 PUBLICATIONS 249 CITATIONS

[SEE PROFILE](#)

All content following this page was uploaded by [Sarah C. Crews](#) on 18 July 2016.

The user has requested enhancement of the downloaded file. All in-text references [underlined in blue](#) are added to the original document and are linked to publications on ResearchGate, letting you access and read them immediately.

## Notes on the Spiders (Arachnida, Araneae) of the Turks and Caicos Islands, British West Indies

SARAH C. CREWS<sup>1\*</sup> AND APRIL YANG<sup>2</sup>

<sup>1</sup>California Academy of Sciences, Department of Entomology, 55 Music Concourse Drive, San Francisco, CA, 94118

<sup>2</sup>Fremont, CA, USA 94539

Corresponding author email: [screwsemail@gmail.com](mailto:screwsemail@gmail.com)

**ABSTRACT.**— Spiders were opportunistically collected in 2006 and 2007 in the Turks and Caicos Islands during focused collecting of selenopid spiders. These samples were combined with a previous collection, and all were identified to the lowest taxonomic level possible. We found 28 families, 55 genera and 62 species. There appear to be several undescribed species, and the fauna includes endemics, a mixture of widespread species, species only found on one or a few other islands as well as some apparently introduced species. Some species occur on both the Caicos and the Turks banks, whereas others are only found on one or the other. Additional work should be conducted using systematic collection methods covering more geographic regions, especially some of the less-developed areas of the Turks and Caicos Islands.

**KEYWORDS.**— arachnid, arthropod, Bahamian island chain, Caribbean, survey

The identification of spiders in the Caribbean region can be difficult because the fauna is composed of spiders from North America, Central America, South America and Caribbean island endemics. Although there are several regional guides for identification (e.g., de Silva et al. 2006 - St. Vincent and the Grenadines; Bryant 1948 - Hispaniola; Bryant 1947a - Mona; Bryant 1947b, Petrunkevitch 1929 - Puerto Rico; Bryant 1940 - Cuba; Bryant 1942 - US Virgin Islands), and preliminary lists for several islands in the Lesser Antilles and one for Great Inagua, Bahamas are available (Sewlal 2008; Sewlal 2009a; Sewlal 2009b; Sewlal 2010; Sewlal and Starr 2010; Sewlal and Starr 2011; Slowik and Sikes 2011), few systematic surveys have been conducted across the Caribbean region (Crews et al. 2015; Sánchez-Ruiz 2005) and none from islands of the Bahamian Archipelago. Here we present the first list of spiders that occur in the Turks and Caicos Islands.

The Turks and Caicos Islands are the southernmost islands of the Bahamian Archipelago. They are in the Atlantic Ocean, bordering the Caribbean Sea, approximately 850 km southeast of Florida, USA and 150 km north of Hispaniola (Fig. 1). They comprise two emergent carbonate platforms, the Caicos Bank, which is approximately 6000 km<sup>2</sup> (Lloyd et al. 1987), and the smaller Turks Bank (324 km<sup>2</sup>). The platforms are separated by the deep Turks

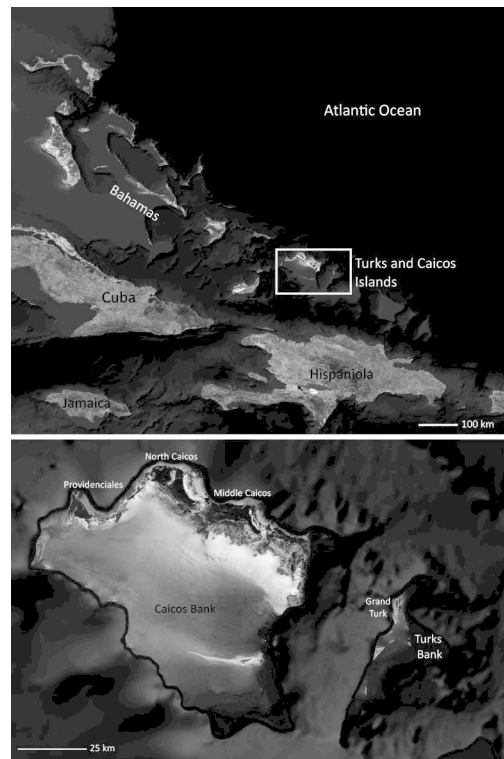


FIG. 1. Map of Turks and Caicos Islands. Expanded view shows the Turks Bank and the Caicos Bank as well as the islands where the spiders in this study were collected.

Island Passage, and the banks are not known to have ever been connected. The banks are rimmed with more than 200 islands and islets

(Reynolds 2011). Parts of the Turks and Caicos Islands have been continuously emergent for at least 400–300 ky (Fouke 1984; Wanless and Davis 1989; Morgan and Harris 2008), whereas other parts have been emergent for only 120 ky (Carew and Mylroie 1997), with sea level change through time dictating the total area (Lisiecki and Raymo 2005). The climate is semiarid to subtropical with rainfall varying seasonally (Pienkowski 2002). Vegetation on the islands includes coastal scrub, pineyards, tropical dry forest, mangroves and salt marsh vegetation.

For 5 days in May 2006 and 5 days in February 2007, spiders were opportunistically collected while conducting focused searching for selenopid spiders on Providenciales, Middle Caicos, North Caicos and Grand Turk. Habitats surveyed include silver buttonwood forest, thornscrub, tropical dry forest, mangroves/beach vegetation, a pineyard and in and around caves. The spiders were transported back to the laboratory for identification, and these are deposited in the California Academy of Sciences. This material was added to a small collection from the United States National Museum collected from 1997–2001 by W.E. Steiner and J.M. Swearingen for a total of 131 specimens.

Spiders were identified to the lowest taxonomic level possible (typically only adult specimens can be identified to species because genitalia are the primary character used to identify spiders, and only adult spiders have genitalia). In total, we identified 62 species of 55 genera in 28 families (Table 1). This is a surprisingly high number given the amount of time spent collecting and the geographical area covered. Araneidae (orb-weavers) was the most species rich family, with 9 species identified, followed by Lycosidae (wolf spiders) with 8 species and Saltcidae (jumping spiders) and Theridiidae (cobweb weavers) with 6 species each. The species comprise extremely widespread Pantropical and Cosmopolitan species (e.g. – *Pellicinus marmoratus* (Onopidae) and *Physocylus globosus* (Pholcidae)), species that are widespread in the Americas (e.g. – *Eustala anastera* (Araneidae) and *Argyrodes*

*elevatus* (Theridiidae)), Caribbean endemics (e.g. – *Deinopis lamia* (Deinopidae) and *Pardosa cubana* (Lycosidae)), and single island or island bank endemics (*Selenops baweka* (Selenopidae)). There are more than 10 possible undescribed species, and at least two new species have been confirmed by experts of the particular group (i.e. – *Metacyrba* sp. 1 (F. Calariquelme, pers. comm.) and *Odo* sp. 1 (D. Silva Davila, pers. comm.)). Tentatively new species have been sent to available experts for formal description.

Interestingly, spiders of the genus *Zodarion* were collected. This genus is confined to Eurasia and North Africa. According to the key and the illustrations in Bosmans (1994), the specimens collected on Grand Turk belong to *Z. costablancae*, a species previously known from only the Iberian Peninsula. This species is likely a human introduction, but there is no evidence to support or refute this claim. It is unknown if the species is established, and if so, how long it has been on the island. Some species collected were only found on either islands of the Caicos Bank or islands of the Turks Bank. Whereas more thorough surveying may determine that these species are actually found on both banks, it does not appear that *Selenops baweka* occurs on the Turks Bank. Several days were devoted to searching for this spider, and thus far it has only been found on the Caicos Bank (Crews 2011). Although the herpetofauna species can be found on both banks, there are large genetic splits between some of the genera found on both banks (e.g. – *Leiocephalus psammodromus* and *Sphaerodactylus*) (Reynolds 2011). It appears that, as in the native terrestrial herpetofauna, at least some natives are derived from Hispaniola (Reynolds 2011; e.g. – *Selenops baweka* Crews & Gillespie 2010), although it is difficult to determine how many because much of the Hispaniolan spider fauna is unknown or undescribed, and little is known of the fauna of other nearby Bahamian Islands.

In addition to the spider fauna, other arachnids known to occur on the Turks and Caicos Islands include the endemic scorpion species *Centruroides platnicki*, also derived

TABLE 1. Species of spiders collected in this study and the islands on which they were collected. GT = Grand Turk; MC = Middle Caicos; NC = North Caicos; P = Providenciales. The last column shows a general distribution for the species that were collected. If a distribution is unknown, the column was left blank. CA = Central America; GA = Greater Antilles; LA = Lesser Antilles; Mex = Mexico; NA = North America; PR = Puerto Rico; SA = South America; US = United States; VI = Virgin Islands; WI = West Indies

	GT	MC	NC	P	Distribution
Agelenidae			x	x	
Anyphaenidae					
<i>Hibana velox</i> (Becker 1879)	x		x	x	NA, WI
<i>Wulfilia wunda</i> Platnick 1974			x		GA, US
Araneidae					
<i>Allocyclosa bifurca</i> (McCook 1887)				x	CA, GA, US
<i>Argiope argentata</i> (Fabricius 1775)				x	NA to SA
<i>Cyclosa walckenaeri</i> (O. Pickard-Cambridge 1889)				x	NA to SA
<i>Eriophora ravilla</i> (C. L. Koch 1844)			x		NA to SA
<i>Eustala anastera</i> (Walckenaer 1841)	x				NA to SA
<i>Eustala cazieri</i> Levi 1977	x				Bahamas, US
<i>Gasteracantha cancriformis</i> (Linnaeus 1758)				x	Widespread
<i>Metepeira datona</i> Chamberlin & Ivie 1942	x			x	GA, US
<i>Neoscona nautica</i> (L. Koch 1875)				x	Circumtropical
Corinnidae					
<i>Corinna</i> sp. 1				x	CA, SA, WI
<i>Creugas gulosus</i> Thorell 1878	x				Cosmopolitan
Deinopidae					
<i>Deinopis lamia</i> MacLeay 1839				x	GA

## Desidae

*Paratheuma insulana* (Banks 1902) x GA, US

## Dictynidae

*Emblyna cf. altamira* x GA, Mex, US

## Gnaphosidae

*Camillina cf. pedestris* x Mex

*Gnaphosa sericata* (L. Koch 1866) x CA, GA, US

## Linyphiidae

*Tennesseellum formica* (Emerton 1882) x NA, Marshall Islands

Linyphiinae sp. 1 x

## Lycosidae

*Agalenocosa bryantae* (Roewer 1951) x Hispaniola

*Geolycosa* sp. x

*Pardosa cf. cubana* x

*Pardosa cubana* Bryant 1940 x Cuba, Grand Cayman, Jamaica

*Pardosa cf. portoricensis* x

*Hogna* sp. x widespread

*Tigrosa* sp. x Canada, US

*Trochosa ruricola* (De Geer 1778) x Holarctic

## Miturgidae

*Odo* sp. 1 x x GA, Mex, VI, SA

<i>Teminius</i> sp.	x		Mex, SA, US, WI
Nephilidae			
<i>Nephila clavipes</i> (Linnaeus 1767)		x	NA to SA
Oecobiidae			
<i>Oecobius concinnus</i> Simon 1893		x	Pantropical
Oonopidae			
<i>Pelcinus marmoratus</i> Simon 1891		x	Pantropical
Philodromidae			
<i>Tibellus</i> sp.	x		Widespread
Pholcidae			
<i>Physocylus globosus</i> (Taczanowski 1874)	x	x	Cosmopolitan
<i>Spermaphora</i> sp.		x	Widespread
Phrurolithidae			
<i>Phrurolithus</i> sp.	x		Widespread
Prodidomidae			
<i>Neozimiris</i> sp.	x		CA, Mex, SA, WI
Salticidae			
<i>Anasaitis squamata</i> (Bryant 1940)		x	Cuba
<i>Habronattus pretiosus</i> Bryant 1947	x	x	PR, VI
<i>Menemerus bivittatus</i> (Dufour 1831)		x	Pantropical

<i>Metacyrba</i> sp. n.			x		
<i>Amphidraus manni</i> (Bryant 1943)			x	Hispaniola	
<i>Phanias</i> sp.			x	CA, Mex, US	
Scytodidae					
<i>Scytodes fusca</i> Walckenaer 1837			x	Pantropical	
<i>Scytodes</i> cf. <i>fusca</i>			x		
<i>Scytodes</i> sp. 1			x		
<i>Scytodes</i> sp. 2			x		
Segestriidae					
<i>Ariadna</i> sp.		x		Widespread	
Selenopidae					
<i>Selenops baweka</i> Crews 2011		x	x	x	Caicos Bank
Sicariidae					
<i>Loxosceles</i> sp.		x		x	Widespread
Tetragnathidae					
<i>Leucauge venusta</i> (Walckenaer 1841)			x		NA to SA
Theraphosidae					
<i>Trichopelma</i> sp. 1				x	SA, WI
Theridiidae					
<i>Argyroides elevatus</i> Taczanowski 1873	x			x	GA, NA to SA
<i>Latrodectus curacaviensis</i> (Müller 1776)	x				LA, SA
<i>Steatoda erigoniformis</i> (O. Pickard-Cambridge 1872)				x	Pantropical
cf. <i>Theridion</i>				x	

<i>Theridion</i> sp. 1	x	
<i>Theridion flavonotatum</i> Becker 1879	x	US, Cuba
Thomisidae		
<i>Misumenops cf. bellulus</i>	x	Cuba, US, VI
Zodariidae		
<i>Zodarion cf. costablancae</i>	x	Iberian Peninsula

from Hispaniola (Esposito 2011) and the widespread tropical amblypygid *Phrynus marginemaculatus*. Unidentified arachnids include at least one species of Solifugae, several pseudoscorpions and mites and ticks.

On small islands where arthropods may be restricted to small, particular types of habitat, the probability of extinction increases as habitat loss increases. With the islands being rapidly developed for tourism and other industries (Tsui 2005; Reynolds 2011), it is worth the effort to conduct a thorough, systematic survey of the islands over multiple seasons to determine the species that are present and their ranges, especially given that 62 species were found with only minimal collecting effort. Finding areas on the islands that contain the most species across disparate lineages (e.g. – plants, vertebrates and arthropods) can help inform conservation efforts. Such information is available for the herpetofauna (23 species: 13 native, 10 introduced, 9 endemic species or subspecies; Reynolds 2011), as well as birds (221 species; Lepage 2015), bats (~10 species), plants (~500 species), butterflies (47 species) and beetles (137 species) (Pienkowski 2002). This paper provides a first pass at examining the spider diversity of the Turks and Caicos Islands.

*Acknowledgements.*—We thank Brian Riggs, Brian ‘Naqqi’ Manco and Margaret Jones for help with logistics and collections. We also thank Diana Silva Dávila, [Franklyn](#)

[Cala-Riquelme](#), Cris Rheims, Alex Valdez [Mondragón](#), Charlie Dondale, and [Nadine Dupérré](#) for help with identifications, [Bruce Fouke](#) and Paul (Mitch) Harris for answering geology questions and providing useful references, and [Gustavo Hormiga](#) at the National Museum of Natural History for the specimen loan. Finally, we are grateful to Jo-Anne Sewlal, an anonymous reviewer and Brian ‘Naqqi’ Manco for comments on earlier versions of the manuscript.

#### LITERATURE CITED

- Bosmans, R. 1994. Revision of the genus *Zodarion* Walckenaer, 1833 in the Iberian Peninsula (Araneae, Zodariidae). *Eos, Madrid*. 69:115-142.
- Bryant, E. B. 1940. Cuban spiders in the Museum of Comparative Zoology. *Bulletin of the Museum of Comparative Zoology* 86:247-532.
- Bryant, E. B. 1942. Notes on the spiders of the Virgin Islands. *Bulletin of the Museum of Comparative Zoology* 89:317-366.
- Bryant, E. B. 1947a. A list of spiders from Mona Island, with descriptions of new and little known species. *Psyche* 54:86-99.
- Bryant, E. B. 1947b. Notes on spiders from Puerto Rico. *Psyche* 54:183-193.
- Bryant, E. B. 1948. The spiders of Hispaniola. *Bulletin of the Museum of Comparative Zoology* 100:329-447.
- Carew, J. L. and J. E. Mylroie. 1997. Geology of the Bahamas. In *Geology and Hydrogeology of Carbonate Islands. Developments in Sedimentology* 54, eds. H. L. Vacher and T. Quinn, 91-139. Netherlands: Elsevier BV.



- Crews, S. C. 2011. A revision of the spider genus *Selenops* Latreille, 1819 (Arachnida, Araneae; Selenopidae) in North America, Central America and the Caribbean. *ZooKeys* 105: 1-182 doi: 10.3897/zookeys.105.724.
- Crews, S. C. and R. G. Gillespie. 2010. Molecular systematics of *Selenops* spiders (Araneae: Selenopidae) from North and Central America: implications for Caribbean biogeography. *Biological Journal of the Linnean Society* 101:288-322.
- Crews, S. C., L. A. Esposito and F. Cala-Riquelme. 2015. The Arachnids of Hellshire Hills, Jamaica. *Caribbean Naturalist* 28:1-14.
- de Silva, M., G. Alayón-García and J.A. Horrocks. 2006. *The spiders and their relatives of St. Vincent and the Grenadines*. Mayreau Environmental Development Organization.
- Esposito, L. A. 2011. *Systematics and biogeography of the New World scorpion genus Centruroides Marx, 1890 (Scorpiones: Buthidae)*. Unpublished dissertation. CUNY, United States.
- Fouke, B. W. 1984. *Quaternary Geology and depositional history of Providenciales, Turks and Caicos Islands, British West Indies*. Unpublished thesis. University of Iowa, United States.
- Lepage, D. 2015. Avibase. <http://avibase.bsc-eoc.org/>. Accessed 10 August 2015.
- Lisiecki, L. E. and M. E. Raymo. 2005. A Pliocene-Pleistocene stack of 57 globally distributed benthic  $\delta^{18}\text{O}$  records. *Paleoenography* 20:PA1003 doi: 10.1029/2004PA001071.
- Lloyd, R. M., R. D. Perkins and S. D. Kerr. 1987. Beach and shoreface ooid deposition on shallow interior banks, Turks and Caicos Islands, British West Indies. *Journal of Sedimentary Petrology* 57:976-982.
- Morgan, W. A. and P. M. Harris, Eds. 2008. *Developing models and analogs for isolated carbonate platforms – Holocene and Pleistocene carbonates of Caicos Platform, British West Indies*. SEPM Core Workshop 22. 213 p.
- Petrunkovitch, A. 1929. The spiders of Porto Rico. Part one. *Transactions of the Connecticut Academy of Arts and Sciences* 30:1-158.
- Pienkowski, M. 2002. *Plan for Biodiversity Management and Sustainable Development around Turks and Caicos Ramsar Site*. 226 p.
- Reynolds, R. G. 2011. Status, conservation, and introduction of amphibians and reptiles in the Turks and Caicos Islands, British West Indies. In *Conservation of Caribbean Island Herpetofauna Volume 2: Regional Accounts of the West Indies*, eds. A. Hailey, B. S. Wilson, and J. Horrocks, 379-410. Netherlands: Brill.
- Sánchez-Ruiz, A. 2005. Spiders. In *Rapid Biological Inventories: 10, Cuba: Siboney-Jutici*, eds. G. A. Fong, F. D. Maceira, W. S. Alverson, and J. M. Shopland, 119-122. Chicago, Illinois USA: Rapid Biological Inventories, The Field Museum.
- Sewlal, J. N. 2008. A preliminary survey for spiders on St. Kitts, West Indies, with comparative notes on Nevis. *The Living World, Journal of Trinidad and Tobago Field Naturalists' Club* 2008:66-69.
- Sewlal, J. N. 2009a. Preliminary survey for spiders on Antigua, West Indies. *The College of the Bahamas Research Journal* 15:8-11.
- Sewlal, J. N. 2009b. A preliminary survey for spiders on Grenada, West Indies. *The Living World, Journal of Trinidad and Tobago Field Naturalists' Club* 2009:37-39.
- Sewlal, J. N. 2010. A preliminary survey for spiders on Montserrat, West Indies. *The Living World, Journal of Trinidad and Tobago Field Naturalists' Club* 2010:31-34.
- Sewlal, J. N. and C. K. Starr. 2010. A first survey of the spiders of Anguilla, West Indies, with comparative notes on St. Kitts and Nevis. *Caribbean Journal of Science* 46:116-119.
- Slowik, J. and D. S. Sikes. 2011. Spiders (Arachnida: Araneae) of Saba Island, Lesser Antilles: Unusually high species richness indicates the Caribbean biodiversity hotspot is woefully undersampled. *Insecta Mundi* 177:1-9.
- Tsui, B. 2005. In *Turks and Caicos, luxury now joins natural beauty*. International Herald Tribune. Travel Section 2/4/2005.
- Wanless, H. R. and J. J. Dravis. 1989. *Carbonate Environments and Sequences of Caicos platform*. 28<sup>th</sup> International Geological Congress, Fieldtrip Guidebook T-374.