# The Arachnids of Hellshire Hills, Jamaica



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**Cover Photograph:** S*elenops wilmotorum* Crews on a tree at night, Hellshire Hills, Jamaica. Photograph © Sarah C. Crews.

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# The Arachnids of Hellshire Hills, Jamaica

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**Abstract -** The Hellshire Hills arguably contain the best example of old-growth dry forest remaining in the Caribbean. This area is home to many endemic and threatened species and unfortunately is also threatened by habitat degradation and large-scale development. Although biological surveys have been conducted in the region, detailed information for certain groups is lacking, particularly for terrestrial arthropods. In November 2013, 6 arachnologists spent 4 days in the Hellshire Hills using various methods to collect arachnids. We collected multiple species from 6 orders (excluding Acari, which we did not identify), including 1 species of Opiliones, 1 species of Solifugae, 1 species of Amblypygi, 3 species of Scorpiones, 4 species of Pseudoscorpiones, and 116 species of Araneae. Of these, we tentatively conclude (pending further analyses) that 2 genera and 33 species are new to science, and several others are new records for the island. Approximately 23 are endemic to Jamaica, and at least one, *Selenops wilsoni*, is known to be restricted to a very narrow range within the Hellshire Hills. Our study indicates that additional surveys would yield more species. Because many disparate taxa—plants, invertebrates, and reptiles—indicate high endemicity and species richness in the area, we recommend that human-mediated alteration of Hellshire should be avoided.

## Introduction

The Hellshire Hills are on the southern coast of Jamaica (~17°53'39.00"N, 76°56'49.00"W; Fig. 1) and are part of the Portland Bight Protected Area. This area comprises ~114 km$^2$ of what is considered the best example of primary dry forest remaining in the entire Caribbean region (McLaren et al. 2011). This forest has remained relatively undisturbed largely because the area lacks roads that would allow access. However, inaccessibility and inclusion in a protected area do not preclude human-mediated environmental degradation. The forest and its endemic flora and fauna have been under threat from habitat destruction for charcoal production, the possibility of tourism development (Wilson 2011), and introduced species, such as *Felis catus* L. (Domestic Cat) and *Herpestes auropunctatus* (Hodgson) (Small Indian Mongoose) (Lewis et al. 2010). In addition to being one of the last examples of a continuous tract of dry forest in the region, the area also harbors great organismal diversity. Woodley et al. (1971) briefly surveyed the area in 1970 and found high species diversity of both animals and plants. Updates have been made to the flora, increasing the number of species to 418 (Botanical Research Institute of Texas

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2014), and to the herpetofauna, increasing the number to a total of 14 for Jamaica, including 2 species in the Hellshire Hills thought to be extinct but which were subsequently re-discovered: *Cyclura collei* Gray (Jamaican Iguana; Vogel 1994), and *Celestus duquesneyi* Grant (Blue-tailed Galliwasp; Wilson and Vogel 2000). The former is listed as critically endangered, and the latter is considered critically endangered by experts but has not yet been assessed by Red List criteria (Gibson 1996; B. Wilson, University of the West Indies, Mona, Jamaica, pers. comm.).

The majority of survey work in Hellshire, and in most regions, concerns vertebrates or plants. Surveys for terrestrial invertebrates have been comparatively rare. The reasons that these animals are in some respects ideal for surveys, their abundance and diversity, are the same reasons they can be problematic subjects for surveys. Producing an inventory of terrestrial arthropods presents special challenges detailed in Ivie et al. (2008), such as the lack of collections, challenges to collecting, sheer numbers of species, size of organisms, and finding experts that can identify the many species that will doubtless be encountered. There are few people with expertise on particular groups, and unfortunately, the number of experts is declining. Additionally, surveying and identifying terrestrial invertebrates is a very time-consuming process that typically lacks financial compensation. Finally, it has been shown that despite addressing problems of sampling bias with terrestrial arthropod collecting in tropical forests, investigators nearly always undersample invertebrate communities (Coddington et al. 2009, Sorenson et al. 2002).

Little is known about the terrestrial arthropod fauna in Hellshire other than what was reported in Woodley (1971): "Insects and spiders were collected at all stations by various methods ... A number of species new to Jamaica were discovered, a few which may be new to science ... The species identified are listed in Appendix 3." No arachnids were identified in Woodley's (1971) Appendix 3. Thus, our results represent the first and perhaps only report of arachnid diversity from a small portion of the Hellshire Hills.

## Field-site Description

We made collections in 2 small areas. One area was along the beach (17°51'07.9"N, 76°58'16.4"W), and the other area was along a trail (17°51'58.3"N, 76°57'53.7"W) leading up a hill to the interior Hellshire forest (Fig. 1). We noticed that the areas differ significantly in vegetation, soil type, humidity, and temperature. The beach is dominated by sandy soils with few rocks; introduced and native grasses including *Cenchrus tribuloides* L. (Sanddune Sandbur), *Paspalum distichum* L. (Knotgrass), *Spartina patens* (Aiton) Muhl. (Saltmeadow Cordgrass), and *Sporobolus virginicus* (L.) Kunth (Seashore Dropseed); and the woody species *Coccoloba uvifera* (L.) L. (Seagrape ), and *Thespesia populnea* (L.) Sol. ex Corrêa (Portia Tree). Part of the area just behind the beach is swampy and dominated by *Rhizophora mangle* L. (Red Mangrove) with some windward dwarfed *Vachellia tortuosa* (L.) Willd. (Twisted Acacia). We also observed that the area around the trail and into the forest has a thin layer of ferralitic soil and is karstic, with numerous, sharp limestone rocks bearing many dissolution holes. Deeper in the forest, leaf litter covers the ground. The dominant vegetation of the dry tropical forest is *Gymnanthes lucida* Sw. (Shiny Oysterwood). Shielded from the sea breeze, the forest was much warmer than the beach, and more humid especially at night (S.C. Crews, L.A. Esposito, and F. Cala-Riquelme, pers. observ.).

## Methods

Together with 3 other arachnologists, we collected from the afternoon of 20 November until the night of 23 November 2013 for at least 8 hours a day, except on the first day when collecting was conducted for ~5 hours. We collected both day and night, and sorted specimens in the mornings and/or the hottest parts of the day when collecting was suspended. We obtained arachnids from aerial webs both day and night, by beating vegetation during the day, from beneath bark and rocks, and on surfaces (cryptic) both day and night, and in leaf litter either by sifting or using Winkler extraction. We placed specimens directly into 100% ethanol.

Identification of Caribbean spiders can be difficult because the fauna is a mixture of North American, Central American, and South American species. There are many regional publications that are helpful for identification (e.g., Cuba [Bryant 1940], US Virgin Islands [Bryant 1942], Mona [Bryant 1947a], Puerto Rico [Bryant 1947b, Petrunkevitch 1929], Hispaniola [Bryant 1948], St. Vincent and the Grenadines [de Silva et al. 2006]); however, some species covered in these works were described from a single specimen, sometimes with inadequate or a total lack of illustrations, or no discussion of variation. Thus, some taxa remain problematic

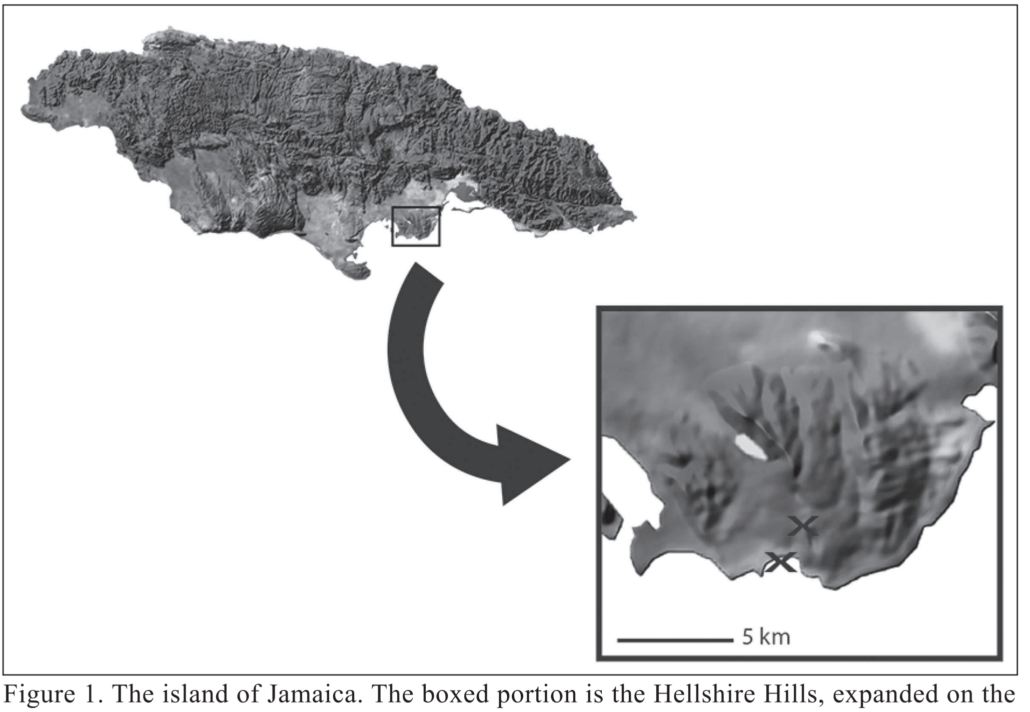


Figure 1. The island of Jamaica. The boxed portion is the Hellshire Hills, expanded on the right. The Xs mark the 2 collection sites.

for identification. Any species designated here as likely undescribed was either identified as such by an expert on the group or was checked against all possibilities in the literature. We consulted the World Spider Catalog v. 15.5. (World Spider Catalog 2014) to validitate species names. We eliminated salticids and oonopids from richness estimates because only identification data were available and not specimen counts. We included only adults in count totals unless no adults of a singleton family/genus/species were found (e.g., Filistatidae is counted as a family, genus, and species even though only a single juvenile was collected).

We analyzed inventory completeness using the occurrence of singletons (species represented by only a single specimen; Coddington et al. 1996) and the ratio of observed species richness to the Chao1 estimate of species richness (Sorenson et al. 2002). The Chao1 estimate of species richness and the predicted number of additional species that would be found with additional survey efforts, using a prediction size of 1000, was determined using Spade (Chao and Shen 2010). We calculated the sampling intensity, or the ratio of the number of adults to the observed richness (Coddington et al. 1996). Species richness was computed per collecting method, per site, and overall. We constructed a species-accumulation curve using EstimateS Version 9 (Colwell 2013).

## Results

Excluding Acari, we collected 6 arachnid orders, including 1 species of Opiliones, 1 species of Solifugae, 1 species of Amblypygi, 3 species of Scorpiones, at least 4 species of Pseudoscorpiones in 4 families, and 116 species of Araneae (Table 1, Appendix 1). The Amblypygi, the Opiliones, 1 species of Scorpiones, and 33 species of Araneae are considered new to science. The spider species are from 84 genera in 31 families, with at least 26 likely new species records for the island,

Table 1. Orders of Arachnida, excluding Araneae, collected in November 2013 at Hellshire Hills, Jamaica. ? = several species of ammotrechid Solifugae have been collected in Jamaica; this is a juvenile and we were unable to determine the species. * indicates a new record for the island.

| Order | Family | Species |
|---|---|---|
| Amblypygida | Phrynidae | *Phrynus* cf. *levii* sp. n.* |
| Scorpiones | Buthidae | *Centruroides* sp. n.* |
| | | *Centruroides insulanus* |
| | Diplocentridae | *Heteronebo jamaicae* |
| Solifugae | Ammotrechidae | ? |
| Pseudoscorpiones | Garypidae* | *Garypus* sp.* |
| | Neobisiidae | ? |
| | Olpiidae | *Pachyolpium* sp. |
| | Olpiidae | *Pachyolpium* cf. *adiposum* |
| | Olpiidae | *Aphelopium* sp. |
| | Chthoniidae | *Pseudochthonius* sp. |
| Opiliones | Samioidae | *Akdalima* sp. n.* |

excluding undescribed species (unless they were known to be a new genus or family record). Additionally, we recorded one new family record (Plectreuridae) for the island and a possible second (Pisauridae).

We collected ~1200 individual spiders, of which 1022 were considered in richness analyses. The fauna was dominated by Araneidae (22 species in 15 genera), Theridiidae (19 species in 12 genera), and Salticidae (13 species in 9 genera). Species richness estimates and other diversity statistics are shown in Tables 2 and 3. The Chao1 estimate for overall species richness was 136. Richness values differed by collecting method and were estimated at 22.0 for litter, 51.9 for beating, 67.9 for cryptic, and 75.2 for aerial. Richness also differed per area, with estimates of 68.1 for the beach and 90.0 for the interior forest. Sampling intensity was low for all methods and both areas, ranging from 4.5 to 7.3, with an overall intensity of 9.6. The percentage range of singletons was 11.1–17.6% per method and 21.2–22.9% per locality, and 22.6% overall, indicating that the inventory was incomplete—a common finding in arthropod surveys (Coddington et al. 2009). We also used the ratio of the observed richness to the Chao1 estimate to estimate the completeness of the inventory; this parameter also differed by method, ranging from 65.5–81.8%, but was similar per area with estimates of 79.5% and 77.8% for the beach and forest, respectively, with an overall completeness of 77.9%. This analysis indicates that further survey work would detect ~31 additional species. However, the prediction of the number of new species that would be found in a further survey as calculated in Spade ranged from 10.9 to 18.4. The species accumulation curve also indicated that our inventory did not document all species present (Fig. 2).

Table 2. Results of species richness analysis and other statistics by collection method. Singletons = number of taxa from which only one specimen was collected.

| | Aerial | Beating | Cryptic | Litter | Total |
|---|---|---|---|---|---|
| Individuals | 414 | 202 | 231 | 126 | 1021 |
| Species | 57 | 34 | 51 | 18 | 106 |
| Singletons | 9 | 5 | 8 | 2 | 24 |
| % singletons | 15.8% | 14.7% | 16.0% | 11.1% | 22.6% |
| Sampling intensity | 7.3 | 5.9 | 4.6 | 7.0 | 9.6 |
| Species richness | 75.2 | 51.9 | 65.0 | 22.0 | 136.0 |
| Estimated inventory completeness | 75.8% | 65.5% | 76.9% | 81.8% | 77.9% |

Table 3. Results of species richness analysis and other statistics by collection locality.

| | Beach | Forest |
|---|---|---|
| Individuals | 258 | 507 |
| Species | 52 | 70 |
| Singletons | 11 | 16 |
| % singletons | 21.2% | 22.9% |
| Sampling intensity | 5.0 | 7.24 |
| Species richness | 65.4 | 90.0 |
| Estimated inventory completeness | 79.5% | 77.8% |

Of the species presumed to be undescribed, we found 16 exclusively in the forest, 7 exclusively around the beach, and 5 from both areas. Each collecting method revealed undescribed species that include web-builders and wanderers of both small and large species. Of described species that we collected in both areas, 18 are widespread, or not endemic to Jamaica, whereas 6 species are Jamaican endemics.

## Discussion

Our results are similar to other comparable surveys because they indicate that this first-pass survey designed to provide instantaneous species richness results underestimated actual species richness. Many larger and more thorough spider surveys have been conducted in tropical areas of the world; however, the majority were performed in areas that differ from our study site in terms of rainfall, elevation, sampling intensity, and seasonality. One survey in a similar habitat occurred at the Siboney-Jutící Ecological Reserve in Cuba (Sánchez-Ruiz 2005). In 2 days of fieldwork, 385 individuals of 90 species in 30 arthropod families were recovered. Species richness was estimated to be 175, somewhat higher than our estimate for Hellshire, and it was estimated that further surveying would produce 80 additional species. This result could be due to the selective searching effort employed to collect for diversity rather than general collecting, and thus, the number of singletons might have increased the estimate. Several preliminary surveys have been conducted in the Lesser Antilles (Sewlal 2008, 2009a, 2009b, 2010; Sewlal and Starr 2010, 2011; Slowik and Sikes 2011), and although these islands differ in geologic origin, habitat diversity, and size, and despite differences in collecting methodology and analyses, some similar patterns among studies are evident. For example, most

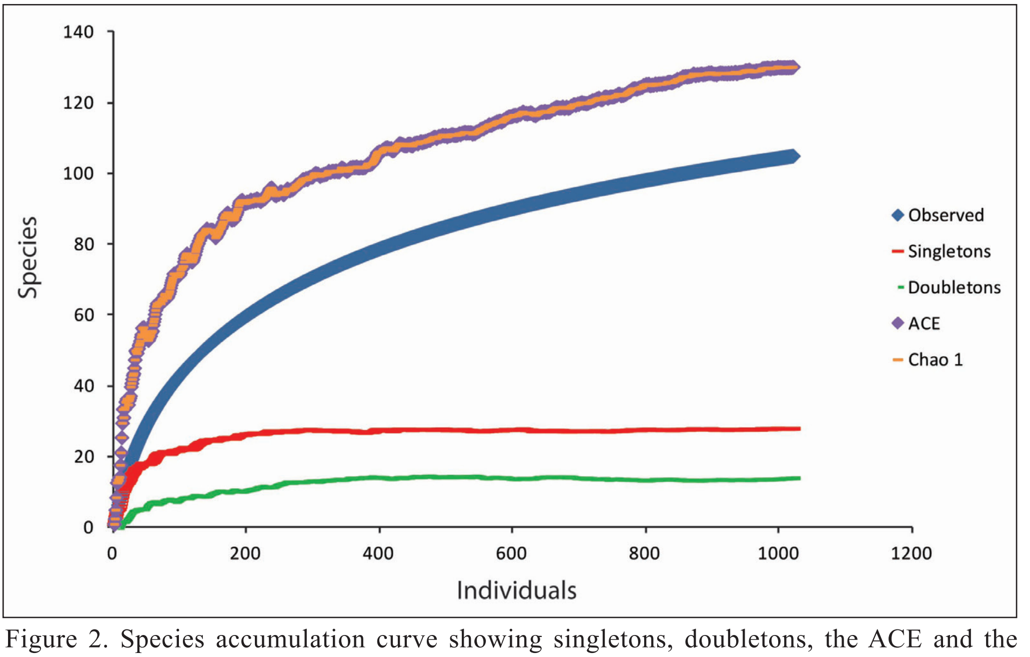


Figure 2. Species accumulation curve showing singletons, doubletons, the ACE and the Chao1 estimators, and the observed species.

species were from the Areneidae in Hellshire (this study), Antigua (Sewlal 2009a), and St. Kitts (Sewlal 2008). In these studies, we acknowledge that this finding may be an artifact of collection method. Additionally, some genera were more common in certain habitats. For instance, *Metepeira* species were collected more often in beach vegetation than in other habitats in Hellshire as well as in Anguilla (Sewlal and Starr 2010) and Inagua (Sewlal and Starr 2011).

Our study was limited in duration and only occurred at one time of year in a relatively small portion of Hellshire. With more time, we could have searched more microhabitats, such as inside caves, and likely would document many new and endemic species. Because we found several juvenile spiders and no adults of some species, seasonality undoubtedly played a role in which species were recovered. More time sampling and sampling at different times of year would undoubtedly yield additional species.

At our study site, the beach area is considerably more disturbed than the interior forest. Typically, there are more introduced species in disturbed areas. Thus, it was expected that the more widespread species would be encountered exclusively or at least more often at the beach. Our results were not consistent with this expectation. Although the widespread introduced species *Cyrtophora citricola* was exclusively collected at the beach, other widespread species were collected only in the interior forest (e.g., several araneids, *Spermophora senoculata*). Nevertheless, we estimated species richness to be higher in the forest than the beach—90 and 65.4, respectively. Similar conclusions regarding diversity and disturbed habitats were found in the Lesser Antilles and Bahamian islands (Sewlal 2009b, 2010; Sewlal and Starr 2011). Whereas some species were exclusive to the beach and some were exclusive to the forest, more collecting is required to determine if the differences between these habitats act to limit the distribution of certain species. This is the second time the Hellshire Hills have been surveyed for the selenopid spider species *Selenops wilsoni*. The only other species of selenopid found at Hellshire is *Selenops wilmotorum*. During the first survey, *S. wilmotorum* and *S. wilsoni* were found only at the beach and only in interior forest, respectively (Crews 2011). *S. wilmotorum* has also been documented elsewhere on the island (Crews 2011). We found *S. wilmotorum* at the beach and deeper in the forest, but encountered *S. wilsoni* solely in the interior forest. Thus, not only is *S. wilsoni* endemic to Jamaica, it may very well be endemic to Hellshire, having one of the smallest ranges of all selenopid spiders (Crews 2011). It is unknown whether these 2 species compete or how the presence of the more widespread *S. wilmotorum* affects the narrow-endemic *S. wilsoni*. Hellshire also is the only locality on the island of Jamaica with 2 endemic scorpions, both in the genus *Centruroides*, and 1 of only a few localities in the Caribbean Islands with multiple endemic species of that genus.

Little is known about most terrestrial arthropods' natural histories, and all we have are vouchers indicating that they exist. After habitat alteration, we may never have the opportunity to learn about these species or others that have not yet even been documented. For instance, some of the specimens that we collected represent the only known male specimens of a particular species group.

Because arthropods are small and diverse and only a few quick surveys have been conducted at Hellshire on a few select groups, it is likely that other terrestrial arthropod groups would reveal undescribed and/or endemic species. We know that the inventory is incomplete and that additional searching would produce additional species, some of which would likely be undescribed. If this area is altered by development, it is almost certain that species would be lost that we don't yet know exist. Because we live during a time when human development is altering the natural environment at an extremely fast pace, we often find ourselves in a race to discover, collect, and describe organisms before they go extinct. This is not a race we are winning. Although Hellshire is geologically unique, one of the last great tracts of dry tropical forest in the Caribbean, and home to animals and plants that occur nowhere else in the world, it will likely be transformed by development, causing the extinction of organisms and disrupting the distributions and lives of many others, effectively altering their evolutionary trajectories.

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**Appendix 1**. All families, genera, and species of Araneae collected during our study. Species are arranged according to their known or presumed primary method of foraging. Numbers to the right indicate numbers of individuals per collecting method per site. An * indicates a new record for the island, and # indicates the species is likely undescribed. AB = aerial beach; AF = aerial forest; BB = beating beach; BF = beating forest; CB = cryptic beach; CF = cryptic forest; L = litter

| | AB | AF | BB | BF | CB | CF | L |
|---|---|---|---|---|---|---|---|
| Web-builders | | | | | | | |
| Araneidae | | | | | | | |
| *Acacesia hamata* (Hentz) | 15 | 27 | 2 | 2 | 1 | 3 | |
| *Araneus* sp. (juv.) | | 1 | | | | | |
| *Cyclosa caroli* (Hentz) | | 7 | | 1 | | 16 | |
| *Cyrtophora citricola* (Forsskål) | 7 | | | | | | |
| *Eriophora edax* (Blackwall) | 3 | 2 | | | | 1 | |
| *Eriophora ravilla* (C.L. Koch) | 1 | 22 | | | | 4 | |
| *Eustala clavispina* (O. P.-Cambridge)* | | 1 | | | | 2 | |
| *Eustala eleuthera* Levi | 2 | 6 | 1 | | | | |
| *Gasteracantha cancriformis* (L.) | | 2 | | | | | |
| *Gea heptagon* (Hentz) | 4 | | | | | | |
| *Larinia directa* (Hentz) | | 4 | | | | 2 | |
| *Metazygia* cf. *chicanna*# | | | | | | 1 | |
| *Metazygia chicanna* Levi | 2 | 11 | | | | 1 | |
| *Metazygia dubia* (Keyserling) | 14 | 11 | 17 | | | | |
| *Metazygia zilloides* (Banks) | | 5 | | | | | |
| *Metepeira datona* Chamberlin & Ivie | 7 | 1 | | 1 | | 3 | |
| *Metepeira jamaicensis* Archer | 1 | | | | | | |
| *Metepeira* cf. *vigilax/minima*# | 1 | | | | | | |
| *Ocrepeira serrallesi* (Bryant)* | 2 | 1 | | | | 1 | |
| *Parawixia tredicimotata* O. P.-Cambridge | 8 | 47 | 4 | 1 | | 7 | |
| cf. *Wagneriana* sp.# | 1 | 20 | 2 | 5 | | 11 | |
| *Wagneriana tauricornis* (O. P.-Cambridge)* | 1 | | | | | | |
| Deinopidae | | | | | | | |
| *Deinopis spinosa* Marx* | 9 | | 10 | 7 | 7 | | 3 |
| Dictynidae | | | | | | | |
| *Dictyna meditata* Gertsch* | 1 | 2 | 1 | | | 3 | |
| *Thallumetus* cf. *parvulus* | | | | 1 | | | |
| Dipluridae | | | | | | | |
| *Ischnothele* sp.# | | | | | | 1 | |
| Filistatidae (juv.) | | 1 | | | | | |
| Linyphiidae | | | | | | | |
| Linyphiidae sp. | 1 | | | | | | 1 |
| Linyphiidae sp. | 2 | | | | | | 3 |

| | AB | AF | BB | BF | CB | CF | L |
|---|---|---|---|---|---|---|---|
| Mimetidae | | | | | | | |
| *Mimetus puritanus* Chamberlin[*] | | | | | | 1 | |
| *Mimetus* sp.[#] | 1 | | | | | | |
| Oecobiidae | | | | | | | |
| *Oecobius* sp. (juv.) | | | | | 1 | | |
| Pholcidae | | | | | | | |
| *Anopsicus* sp.[#] | | 1 | | | | 11 | |
| *Modisimus* sp.[#] | 1 | | | | | | 21 |
| *Modisimus* sp.[#] | 2 | | 3 | | | | 71 |
| *Modisimus* sp.[#] | 3 | | 1 | | | | 4 |
| *Modisimus* sp.[#] | 4 | | | | | | 1 |
| *Spermophora senoculata* (Dugès) | | | | | | 5 | 2 |
| Plectreuridae[*] | | 1 | | | | | |
| *Plectreurys* sp.[*,#] | | | | | | 2 | |
| Tetragnathidae | | | | | | | |
| *Leucauge argyra* (Walckenaer)[*] | 2 | | | | | | |
| *Tetragnatha exigua* Chickering[*] | | | 4 | | | | |
| *Tetragnatha guatemalensis* O. P.-Cambridge | 2 | | | | | | |
| *Tetragnatha orizaba* (Banks) | 4 | | | | | | |
| *Tetragnatha subextensa* Petrunkevitch | 10 | 1 | | | | | |
| *Tetragnatha visenda* Chickering | 4 | | | | | | |
| Theridiidae | | | | | | | |
| *Anelosimus pacificus* Levi | | 2 | | | | | |
| *Anelosimus* sp.[#] | | | | | | 1 | |
| *Anelosimus studiosus* (Hentz) | | 1 | | 2 | | | |
| *Argyrodes* sp. (juv.) | | | 2 | | | | |
| *Crustulina altera* Gertsch & Archer[*] | | | | | | 2 | |
| *Dipoena liguanea* Levi | 2 | 4 | | 1 | | 1 | |
| *Episinus* sp.[#] | 2 | 25 | | 7 | | 3 | |
| *Euryopis pickardi* Levi | 3 | | | | | | 1 |
| *Euryopis* sp.[#] | | 4 | | | | | |
| *Euryopis spinigera* O. P.-Cambridge[*] | | 1 | | | | | |
| *Faiditus jamaicensis* (Exline & Levi) | | 2 | | | | | |
| *Phycosoma lineatipes* (Bryant) | | | 3 | 2 | | | |
| *Theridion hispidum* O. P.-Cambridge | | 3 | | 3 | | | |
| *Theridion positivum* Chamberlin[*] | 1 | 5 | | 4 | | | |
| *Theridion*? sp.[#] | | | 1 | | | | |
| *Thymoites confraternus* (Banks)[*] | | | 1 | | | | |
| *Thymoites* sp.[#] | | | | | | | 1 |
| *Wamba crispulus* (Simon)[*] | 1 | 6 | | | | | |
| Theridiosomatidae | | | | | | | |
| *Ogulnius tetrabunus* (Archer) | 1 | | | | | 1 | |

| | AB | AF | BB | BF | CB | CF | L |
|---|---|---|---|---|---|---|---|
| Uloboridae | | | | | | | |
| *Miagrammopes* cf. *latens/scoparius*[#] | | | 6 | | | 1 | 10 |
| *Philoponella semiplumosa* (Simon) | | 14 | | | | 9 | |
| | | | | | | | |
| Long-sighted hunters | | | | | | | |
| Ctenidae | | | | | | | |
| *Acanthoctenus* sp.[#] | | | | | 1 | 3 | |
| "Cteninae" sp.[#] | | 1 | | | | 6 | |
| | | | | | | | |
| Lycosidae | | | | | | | |
| *Arctosa* cf. *tantilla*[#] | 4 | | | | | | |
| *Arctosa* cf. *fusca*[#] | | | | | 1 | | |
| | | | | | | | |
| Oxyopidae | | | | | | | |
| *Hamataliwa rana* (Simon)[*] | | 1 | 4 | | | | |
| *Oxyopes salticus* Hentz[*] | | | | | 2 | | |
| | | | | | | | |
| Pisauridae? (juv.)[*] | | | 1 | | | | |
| | | | | | | | |
| Salticidae | | | | | | | |
| *Allodecta* sp.[#] | | | | | | | |
| *Anasaitis* sp.[#] | | | | | | | |
| *Anasaitis decoris* Bryant | | | | | | | |
| *Anasaitis venatoria* (Peckham & Peckham) | | | | | | | |
| *Caribattus* sp.[#] | | | | | | | |
| *Compsodecta grisea* (Peckham & Peckham) | | | | | | | |
| *Hentzia calypso* Richman | | | | | | | |
| *Lyssomanes antillanus* Peckham & Wheeler | | | | | | | |
| *Metacyrba* sp.[*#] | | | | | | | |
| *Paradecta darlingtoni* Bryant | | | | | | | |
| *Paradecta valida* Bryant | | | | | | | |
| *Peckhamia* sp.[*#] | | | | | | | |
| | | | | | | | |
| Short-sighted hunters | | | | | | | |
| Anyphaenidae | | | | | | | |
| *Hibana gracilis* (Hentz)[*] | 3 | 3 | | | | | |
| *Lupettiana linguanea* Brescovit | | | | 6 | | | |
| *Wulfila* cf. *wunda*[#] | 20 | | 9 | 16 | | 4 | |
| *Wulfila albens* (Hentz)[*] | 5 | | 19 | 3 | | | |
| | | | | | | | |
| Barychelidae[*] | | | | | | | |
| *Trichopelma* sp.[*#] | | | | | | 3 | |
| | | | | | | | |
| Caponiidae | | | | | | | |
| *Nops toballus* Chickering | | | | | | | 3 |
| | | | | | | | |
| Corinnidae | | | | | | 15 | 9 |
| *Corinna* cf. *aenea*[#] | | | | 1 | | 2 | |
| *Mazax chickeringi* Reiskind | | | | | 1 | | |

| | AB | AF | BB | BF | CB | CF | L |
|---|---|---|---|---|---|---|---|
| Gnaphosidae | | | | | | | |
| Zelotine (juv.) | | | | | | | 2 |
| Gnaphosidae sp. 1 (juv.) | | | 1 | 1 | | | |
| Gnaphosidae sp. 2 (juv.) | | | | | | 2 | |
| Liocranidae | | | | | | | |
| cf. "*Liocranum*" *remotus*[#] | | | | | | 15 | 9 |
| Liocranidae sp. 1 (juv.) | | | | | | 1 | |
| Liocranidae sp. 2 (juv.) | | 1 | | | | | |
| Oonopidae | | | | | | | |
| *Escaphiella* sp. | | | | | | | x |
| *Heteroonops* sp. | | | | | | | x |
| *Longoonops*? sp. | | | | | | | |
| *Opopaea* sp. | | | | | | | x |
| *Scaphioides* sp. | | | | | | | x |
| *Stenoonops* sp. | | | | | | | x |
| Scytodiadae | | | | | | | |
| *Scytodes* cf. *longipes*[*] | | | | 5 | | 2 | |
| *Scytodes fusca* Walckenaer[*] | 1 | | | | 1 | | |
| *Scytodes lewisi* Alayón | | 2 | 1 | | | | 1 |
| *Scytodes* sp.[#] | | | 1 | | | | |
| Selenopidae | | | | | | | |
| *Selenops wilmotorum* Crews | | | | | 1 | 1 | |
| *Selenops wilsoni* Crews | | | | | | 9 | |
| Sparassidae | | | | | | | |
| *Pseudosparianthis* sp.[#] | 1 | 3 | 11 | 12 | | 13 | 11 |
| Tetrablemmidae | | | | | | | |
| *Caraimatta cambridgei* (Bryant) | | | | | | 30 | 61 |
| Thomisidae | | | | | | | |
| *Mecaphesa*? sp.[#] | | | 1 | | | | |
| *Misumenops bellulus* (Banks)[*] | 2 | | 2 | | | | |
| *Tmarus farri* Chickering | | 13 | 14 | 7 | | | |