



FLAAR
MESOAMÉRICA

GUATEMALA



1st report

Spider Diversity of Alta Verapaz

From field expeditions

Spider Diversity of Alta Verapaz

1st report

Photographs: Erick Flores (FLAAR), Nicholas Hellmuth (FLAAR)
Layout and graphic design of the PDF: Katherinne Herrera (FLAAR)
Species identification: Katherinne Herrera (FLAAR)

FLAAR MESOAMERICA 2021

Cahabón visit

On 2017, the FLAAR team visited Tzalamtun, a village in Cahabón, Alta Verapaz. In this trip, the team took photos of three different spiders and a group of spiderwebs. All species were from the Araneomorphae Suborder, also known as "True Spiders"; one from the Araneidae family, one from the Thomisidae family and one of the Oxypoidae family.

At the first photo below, we can identify a female of the species *Verrucosa undecimvariolata*. This species was first described by O. Pickard-Cambridge in 1889 as *Mahadiva undecim-variolata* (*M. 11-variolata*); male and female from Panama, Chiriqui, Champion. On 1892, Keyserling changed its name to *Mahadeva undecimvariolata*, and on 1904, F.O. Pickard-Cambridge re-named it as *Verrucosa undecimvariolata*. In this last description, F.O. Pickard-Cambridge designated the lectotype* and paralectotype* of the species without labeling them as such. Its distribution goes from Mexico to Argentina and this species has not been studied in any terms of behavior, reproduction, habitat, diet, or anything.

***Lectotype:** A specimen selected to serve as a guide (single type specimen) for a species originally described from a set of specimens described, where no specimen is designated as the original description.

***Paralectotype:** Another specimen additional to the Lectotype.



Female *Verrucosa undecimvariolata*. Photographer: Erick Flores. FLAAR Mesoamérica. 2017. Cahabón, Alta Verapaz.



In Guatemala, we have two species of the genus *Verrucosa*: *V. arenata* and *V. undecimvariolata*. This first approach makes it easier for us to classify and appreciate the main characteristics for the diagnosis of the species.

Diagnosis

As described on the last Revision of the orb-weaving spider genus *Verrucosa* McCook, 1888 (Araneae, Araneidae) published on 2015, the Diagnosis of the species is as follows:

"The females of *V. undecimvariolata* can be distinguished from the other species by the shape and size of the lateral lamellae, by the presence of one white reticulated spot above the spinnerets (between the lamellae and the scape), and by the long and narrow median plate. This species can also be distinguished from the known females of *Verrucosa* by the presence of eleven short tubercles on the posterior region of abdomen (5 are signaled in the photo)" (Lise *et al.*, 2015).

There are no specimens collected from Guatemala, we know the species is here just because we have specimens that have been collected from Mexico, Costa Rica, Panama, Colombia, Peru and Brazil, so the geographical distribution shows that this species has to be here too.

The *Verrucosa* genus is not of medical concern, meaning its venom is not dangerous to humans.

Female *Verrucosa undecimvariolata*.
Photographer: Erick Flores. FLAAR
Mesoamérica. 2017. Cahabón, Alta Verapaz.

The spider of the image below is one of the family Oxyopidae. These spiders are commonly known as Lynx spiders because of their behavior; they're fast nocturnal hunters.

In Guatemala, we have 15 species of spiders from the Oxyopidae family, but only two from the *Peucetia* genus: *P. longipalpis* and *P. viridans*. In this opportunity, the spider of the photo was identified as *Peucetia viridans*. This species was first described by Hentz on 1832 and was then named as *Sphasus viridans*. Later taxonomic revisions positioned this species as *Peucetia viridans*, being the last revision the one done by Santos & Bescovit on 2003.

Diagnosis

In this Revision of the Neotropical species of the lynx spider genus *Peucetia* Thorell, 1869 (Araneae: Oxyopidae), they described the next characteristics for the diagnosis of the species:

"*P. viridans* resembles *P. longipalpis* in the short conductor and the shape of the median apophysis. They can be distinguished by the bifid paracymbium and the lobe-like ventral tibial apophysis of *P. viridans* (structure signaled in the image below). The presence of a stalk on the paracymbium distinguishes it from all other neotropical species".

This species has been widely investigated. We know about its general, maternal and reproductive behavior. We also know about its diet, feeding specialization, predatory role, life history and even, its importance for a natural alternative as a pest control that can be used in different kinds of crops.



Male *Peucetia viridans*. Photographer: Erick Flores. FLAAR Mesoamerica. 2017. Cahabón, Alta Verapaz.



Male *Peucetia viridans*. Photographer: Erick Flores. FLAAR Mesoamerica. 2017. Cahabón, Alta Verapaz.



Male *Peucetia viridans*. Photographer: Erick Flores. FLAAR Mesoamérica. 2017. Cahabón, Alta Verapaz.



Female *Misumenoides* sp. Photographer: Erick Flores. FLAAR Mesoamerica, 2017. Cahabón, Alta Verapaz.

The spider on the cover and the image above is from the Thomisidae family, more specifically, from the genus *Misumenoides*. In the case of this genus, classifying species is not as easy as the other species identified before. Most of the comparative characteristics that can help with species identification can be found only by microscopic examination. Because of this, classification on the hereby spider is not possible by a simple photo.

We can know that this spider belongs to the *Misumenoides* genus because close-up views of these spiders can show facial features that help to classify it: "All four anterior (front) eyes are about the same size. When viewed from the front, and a little above, it seems all eight eyes are visible and form a crescent shape. The lateral eyes are on tubercles, but the posterior laterals are visible". Spiders of this genus can be easily misidentified for the *Misumena* genus, as they're very similar. But one thing that helps distinguish one genus from the other is the "mask-like" mark the *Misumenoides* genus has, which can be easily identified in the image below.

In Guatemala, we have 9 species of *Misumenoides*:

- *M. annulipes*
- *M. bifissus*
- *M. blandus*
- *M. depressus*
- *M. magnus*
- *M. parvus*
- *M. rugosus*
- *M. vigilans*
- *M. magnus*



The spider of the photo doesn't look like any of the species described by the literature. Mainly because these genera (and a lot of spiders of the Thomisidae family) tend to adapt the color of the plant/flower they're on, so color isn't a reliable characteristic in which we can take a guide to classify the species.

However, literature describes two species for the Cahabón "Chicoyoito" area: *M. magnus* and *M. vigilans*. Even if it's not possible to know with certainty just by these photos, this species might be one of those two.

Female *Misumenoides* sp. Photographer: Erick Flores. FLAAR Mesoamerica, 2017. Cahabón, Alta Verapaz.



Female juvenile *Argiope blanda*. Photographer: Erick Flores. FLAAR Mesoamerica. 2017. Senahú, Alta Verapaz.

Senahú visit

On the same year (2017), the FLAAR team also visited Senahú, Alta Verapaz. In this visit on the same year, only two species of spiders were recorded, one from the Araneidae family and another one from the Salticidae family. The spider from the photo above is an *Argiope blanda*. The species was first described by O. Pickard-Cambridge in 1898. Its distribution goes from USA to Costa Rica as mentioned in the World Spider Catalog. But as we can read in the last Review on the spider genus *Argiope* which makes special emphasis on broken emboli female epygenes (Araneae: Araneidae: Argiopinae), the distribution could be even smaller, from Mexico to El Salvador.

Diagnosis

For the diagnosis, looking at the abdomen can help a lot to determine the species. In the case of the *A. blanda*, the description is as follows: "Oval-shaped abdomen, slightly truncate before, blunt-pointed behind; whitish-yellow in color, and furnished with a few long bristle hairs; a large brown subtriangular area occupies the posterior two-thirds of the upperside, its lateral margins dentate, black, and with curved indentations, the anterior portion or base of the triangle being less dark-colored than the rest. The sides of the abdomen are marked with longitudinal and oblique black lines; the underside is black (or pale, thickly marked with black) with a white margin, at the middle of which on each side is a strong, sharply defined, tooth-like dentation; sometimes (in immature specimens of both sexes) the two dentations meet in the middle and form an angular bar".

With that description, we can identify the species as *A. blanda* and we can also infer the one is an immature specimen, as we can see how the tooth-like dentation is not formed and instead, we see an angular bar in the middle.

Female juvenile *Argiope blanda*. Photographer: Erick Flores. FLAAR Mesoamerica. 2017. Senahú, Alta Verapaz.





The team also found this immature *Paraphidippus* male. This spider was first named *Phidippus funebris* by Banks, 1898, and was later renamed by Peckham & Peckham, 1901, as a spider from another genus, *Parnaeus funebris*. After that, it was changed to *Paraphidippus funebris* first by F.O. Pickard-Cambridge on 1901, and later re-named as *Dendryphantes funebris* by Petrunkevich, 1911. After more studies, Prószyński changed the species to another genus and named it *Eris funebris*. Finally, Edwards on 2004, returned the spider's identity to *Paraphidippus funebris*, after a lot of further analysis.

Diagnosis

As described by O. Pickard-Cambridge:

"Carapace deep mahogany-brown, the cephalic area clothed with green scales and black hairs, having a narrow band of white scales extending from between the lateral eyes almost to the posterior margin, convergent behind. Abdomen entirely clothed over the dorsal area with brilliant green (or coppery) metallic scales; the encircling white band is broken up into a few elongate spots; the dorsal area has four pairs of white spots, the first two elongate, the second pair transverse. Red-brown mandibles, often with a slight green reflection. Legs black or red-brown, clothed with black and white hairs and also with numerous white scales, on the underside with hoary-white hairs. The coloration, of course, varies also, but not very much."

We can easily appreciate that description in the next photo.

Male juvenile *Paraphidippus funebris*.
Photographer: Erick Flores. FLAAR
Mesoamerica, 2017. Senahú, Alta Verapaz.

Male juvenile *Paraphidippus funebris*. Photographer: Erick Flores. FLAAR Mesoamerica, 2017. Senahú, Alta Verapaz.





Mygalomorphae sling moult. Photographer: Erick Flores. FLAAR Mesoamerica. 2017. FLAAR, Guatemala.

La Tinta visit

The team also visited another place in Alta Verapaz that year. They took mainly photos of spiderwebs, and though we cannot know the spider species with these spiders' web photos, we can elucidate the Family or suborder of the spider that made the web.

Mystery web

If you love hiking or just walking outside in the nature, I think you may have seen the strange-looking spiderwebs in the next photo. They're huge, cover a great area and have multiple wholes all around.

At first, I didn't know what they were. I was confused trying to understand. Agelenidae (funnel web) maybe? No, no. They base their web at ground height and have only one hole. But then, what? A kind of Linyphiidae (sheet web)? No, their webs don't have wholes. Then I remembered all the videos I've seen of tarantula's keepers and how their tarantula's make their web. That looks very similar. Tarantulas often have more than one hole in their web and some species are communal. Plus, when tarantulas reproduce, their slings stay with their mom for 3 or more weeks until they have one or more moults. That looks like I've solved the mystery.

After wandering more in the photos of that trip, I found the picture above. That's clearly a moult of some kind of spider of the Mygalomorphae Suborder. Probably, a family of tarantulas have been living in the walls of this trail. The photos are from the Puente Chasco, Tucuru. A night expedition to this place could solve, finally, the puzzle and let us know the exact species of the spider living there.

Tarantula web. Photographer: Erick Flores. FLAAR Mesoamerica. 2017. FLAAR, Guatemala.





Linyphiidae web. Photographer: Nicholas Hellmuth. FLAAR Mesoamerica. 2017. FLAAR, Guatemala.

Bag shape (sheet) web

Interestingly, the team did find a Linyphiidae web. These webs are commonly called sheet web, as they look like they were made of some kind of bed sheet or even silk sheet. There are more than 5,000 species of Linyphiidae and they're distributed almost worldwide. This bag-like or often known as "hammock" web, is actually common from the *Linyphia* genus of spiders. The genus contains a total of 77 species (May 2019).

In Guatemala, we have 9 species of spiders of this genus:

1. *L. confinis*
2. *L. duplicata*
3. *L. lambda*
4. *L. limbata*
5. *L. linguatula*
6. *L. nigrita*
7. *L. petrunkevitchi*
8. *L. simplicata*
9. *L. trifalcata*

Maybe this web belongs to any of those species.

Conclusion

The team found great species and webs in these series of expeditions to Alta Verapaz. As you saw, further investigation needs to be done to keep up with discovering more of the spider diversity of Guatemala. We are thankful with the people who help us every time with the expedition and with everyone helping us to see and explore as much as we can in the Guatemalan forests and places.

References

1. Jäger, P. (2012c). A review on the spider genus *Argiope* Audouin 1826 with special emphasis on broken emboli in female epigynes (Araneae: Araneidae: Argiopinae). *Beiträge zur Araneologie* 7: 272-331, 358-362.
2. Levi, H. W. (1968a). The spider genera *Gea* and *Argiope* in America (Araneae: Araneidae). *Bulletin of the Museum of Comparative Zoology* 136: 319-352.
3. Levi, H. W. (1976). The orb-weaver genera *Verrucosa*, *Acanthepeira*, *Wagneriana*, *Acacesia*, *Wixia*, *Scoloderus* and *Alpaida* north of Mexico. *Bulletin of the Museum of Comparative Zoology* 147: 351-391.
4. Levi, H. W. (2004). Comments and new records for the American genera *Gea* and *Argiope* with the description of new species (Araneae: Araneidae). *Bulletin of the Museum of Comparative Zoology* 158: 47-65
5. Lise, A. A., Kesster, C. C. & Silva, E. L. C. da (2015). Revision of the orb-weaving spider genus *Verrucosa* McCook, 1888 (Araneae, Araneidae). *Zootaxa* 3921(1): 1-105. [incl. Erratum: *Zootaxa* 3956(4): 600] doi:10.11646/zootaxa.3921.1.1
6. Pickard-Cambridge, F. O. (1901a). Arachnida - Araneida and Opiliones. In: *Biologia Centrali-Americana, Zoology*. London 2, 193-312
7. Pickard-Cambridge, F. O. (1903a). Arachnida - Araneida and Opiliones. In: *Biologia Centrali-Americana, Zoology*. London 2, 425-464.
8. Pickard-Cambridge, F. O. (1904). Arachnida - Araneida and Opiliones. In: *Biologia Centrali-Americana, Zoology*. London 2, 465-560.
9. Pickard-Cambridge, O. (1889d). Arachnida. Araneida. In: *Biologia Centrali-Americana, Zoology*. London 1, 1-56.

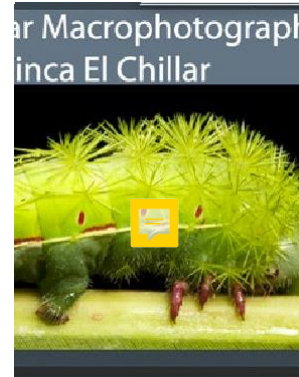
OTHER PUBLICATIONS OF THE FAUNA OF GUATEMALA



Argiope Spider
[Download for free here](#)



Birds in the Mayan civilization:
The Owl
[Download for free here](#)



Caterpillar Macrophotography
[Download for free here](#)



Stingless Bees of the Maya

My first encounter with stingless bees came at age 19, when I spent 12 months in Tikal, doing archaeological field work. The use and experience of stingless bees in most of the well-preserved Maya palaces, especially the back rooms of Palenque Palace, is documented in this report. The author, Scott Fitzgerald, is a biologist who has spent time in Tikal studying the biodiversity of Tikal under national park staff biologist Mónica Cruz.

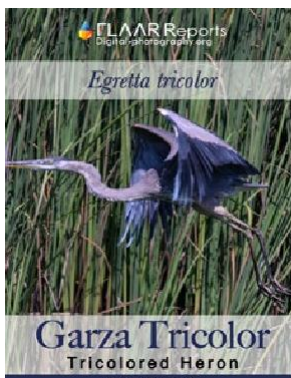
Stingless Bees of the Maya
[Download for free here](#)



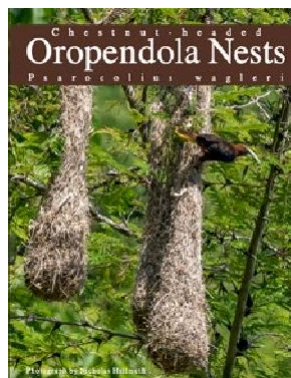
Rescate, crianza, liberación y Reincursión de dos crías de Coatis
[Download for free here](#)



Golden Silk Orb-Weaver Spiders
[Download for free here](#)



Garza Tricolor
[Download for free here](#)



Oropendola Nests
[Download for free here](#)

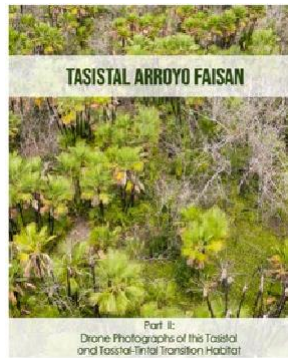


Spiders, insects and wild animals
[Download for free here](#)

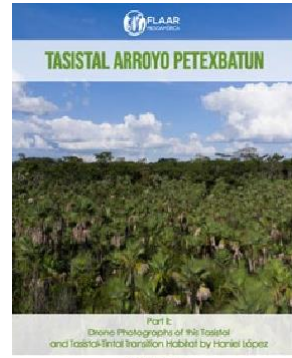
OTHER PUBLICATIONS OF THE FLORA OF GUATEMALA



Waterlily Paradise
[Download for free here](#)



Tasistal Arroyo Faisan
[Download for free here](#)



Tasistal Arroyo Petexbatun
[Download for free here](#)



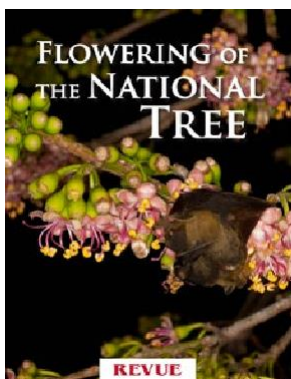
Manitas Tree
[Download for free here](#)



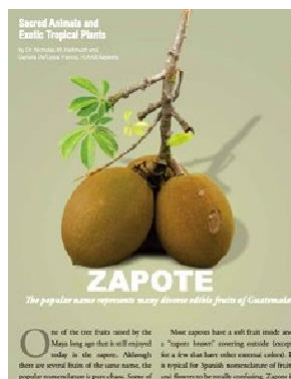
Pseudobombax ellipticum
[Download for free here](#)



Tasistal Arroyo Faisan (part 1)
[Download for free here](#)



Flowering of the National Tree
[Download for free here](#)



Zapote
[Download for free here](#)



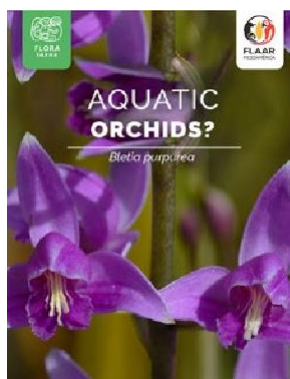
Tecomasuche
[Download for free here](#)

If you wish more FLAAR reports on flora of Guatemala,
visit our website: www.maya-ethnobotany.org.

PUBLICATIONS OF YAXHA NAKUM NARANJO



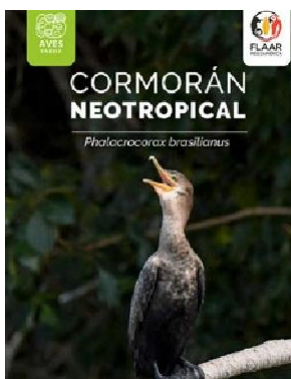
Garcita blanca
[Download for free here](#)



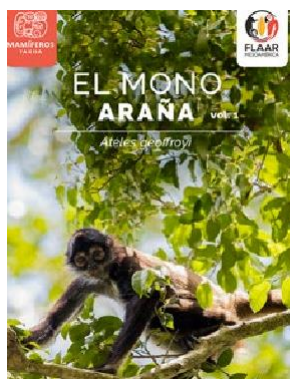
Aquatic Orchids
[Download for free here](#)



Garza blanca
[Download for free here](#)



Cormorán Neotropical
[Download for free here](#)



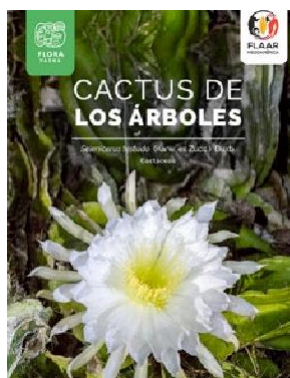
El mono araña
[Download for free here](#)



Hoja de Piedra
[Download for free here](#)



Isla del Musgo
[Download for free here](#)



Cactus de los Árboles
[Download for free here](#)



FLAAR
MESOAMÉRICA

GUATEMALA

