BIOLOGICAL EXPLORATION DURING THE 2015 PROYECTO ESPELEOLÓGICO SISTEMA HUAUTLA EXPEDITION

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As a cave biologist, just the thought of an eyeless tarantula or depigmented scorpion well within the deepest cave in the hemisphere sends tingles down my arms. These are totally different tingles than those of a non-caver thinking of spiders and scorpions in underground places.

The area of Sistema Huautla is known for at least nine described species of troglobites (Juberthie et al., 2015). While this list represents impressive collecting efforts by cavers dating back to the early days of exploration in the Sistema Huautla area, without a doubt it underrepresents the true biological diversity of caves in this region. During the 2015 Proyecto Espeleológico Sistema Huautla expedition, I had the fortune of working with Dr. Oscar Francke, Rodrigo Monjaraz, Jorge Mendoza, and Gerardo Contreras as they continue their work documenting the diversity of cave fauna, particularly arachnids, in the region.

My first collecting efforts in the area were in La Grieta, via the Hobbit Hole entrance. In the room below the historic La Grieta entrance the team of Steph Davlantes, Gilly Elor, Kasia Biernacka, Matt Tomlinson, James Brown and me paused on the way in to collect tarantulas and other spiders. Later during the five day camp from April 8–12 James and I collected a thysanuran, possibly *Anelpistina*, a *Stygnopsis* harvestman, and a small spider during a resurvey near Camp 1.5.

After getting out of the La Grieta camp, I was able to join on April 14 the team of cave biologists, together with Mark Minton and Yvonne Droms, in search of Cueva Inclinada. We first located a small cave at the downstream end of an area of construction that is soon to be a soccer field. Mark descended a short handline from a stone wall that was built to shore up fill in the bottom of the doline to make it level. After less than 50 meters, this cave ended where the mud floor came up to the downward-sloping ceiling. This cave to is in the correct location for Sótano del Agua, but if it is, the bottom of the cave is now filled in (Jameson and Mothes, 1982).

Next we proceeded to the other side of the construction site, over the lip of another doline, and down into the real entrance of Cueva Inclinada. Here we spent time rigging and dropping our team down the first two drops, collecting *Stygnopsis* harvestmen, and searching for other cave species.

After a lunch break in the hot shade, we drove to the Río Iglesia doline to locate and sample in

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From left: Gerardo Contreras in Cueva Inclinada. Rodrigo Monjaraz collecting *Stygnopsis* harvestman in Millipede Cave. Jorge Mendoza in Cueva Inclinada.

Clockwise from upper left: Troglobitic tarantula from Church Cave, *Hemirrhagus* sp. The large blue-green and yellow Rhachodesmid millipede in Millipede Cave. Oscar Franke collecting leaf-liter species on the surface near Millipede Cave. *Stygnopsis* harvestman, dipluran, and millipede from Skull Cave.

Described troglobites from the Huautla area

Group	Common name	Genus and species	Author
arachnid	scorpion	*Alacran tartarus*	Franke
arachnid	tailless whip scorpion	*Paraphrynus grubbsi*	Mullinex
arachnid	tarantula	*Hemirrhagus grieta*	(Gertsch)
millipede	flat-backed millipede (possible troglobite)	*Sphaeriodesmus grubbsi*	Shear
millipede	flat-backed millipede (possible troglobite)	*Sphaeriodesmus iglesia*	Shear
springtail	slender springtail	*Pseudosinella bonita*	Christiansen
springtail	slender springtail	*Pseudosinella huautla*	Christiansen
insect	silverfish	*Analpistina specusprofundi*	Espinasa and Vuong
insect	ground beetle	*Mexisphodrus urquijoi*	Hendrichs and Bolivar

Millipede Cave. This cave is named for the conspicuous blue-green-and-yellow millipedes in the entrance area (Polydesmida: Rhachodesmidae). Here we proceeded to the back, down a short climb best done with a handline, where we collected harvestmen and spiders, as well as two small pseudoscorpions, a new record for this cave. At the end of the back room is a breakdown pile that Mark dug at while the rest of us dodged rocks below. A small-person lead remains in this area. While most of us were in the cave, Oscar collected leaf litter species on the surface nearby.

My final collecting trip was to Skull Cave on April 16 with Victor Ursu, James Brown, Yvonne and Mark. Here, in addition to photography, Mark, Victor, and I removed some bedrock bridges blocking a small, wet crawlway with air. After a notable amount of effort I was able to squeeze past the last restriction, only to get to a slightly larger crawlway where ultimately the ceiling came down even farther; a a much greater bedrock-removal effort would be required to continue. We collected *Stygnopsis* harvestmen, millipedes, and a dipluran.

Thanks to Oscar Francke, James Reddell, Mark Minton, and Yvonne Droms for being inspirational biologists and cavers and for reviewing this article.

Jameson, R., and P. Mothes, 1982. Caves of the San Miguel Doline. *AMCS Activities Newsletter* 12, pp. 37–42.

Juberthie, C., J. Palacios-Vargas, and J. Reddell, 2015. Mexico. *Encyclopædia Biospeologia*, vol. IIa/*Mundos Subterraneos*, v. 25–26, 101 pp.

James Brown traversing in La Grieta.

Exploración Biológica Durante la Expedición 2015 del Proyecto Espeleológico Sistema Huautla

Nueve especies de animales que habitan en cuevas habían sido descritas con anterioridad en las cuevas del área de Huautla, Oaxaca. El autor ayudó a Oscar Franke y otros biólogos de la UNAM en la colecta de especies en la zona del proyecto del PESH en 2015. Las cuevas visitadas incluyeron La Grieta, Cueva Inclinada, Church Cave, Millipede Cave y Skull Cave.