

First Record of *Chactas raymondhansi* Francke & Boos, 1986, in Tobago, W.I.

The scorpion fauna of Trinidad and Tobago currently comprises ten species following the reinstatement of *Microtityus starri* Lourenço and Huber, 1999, by Armas and Teruel, 2014. These species belong to two families: Chactidae Pocock, 1893, and Buthidae C.L. Koch, 1837, and five genera: *Ananteris* Thorell 1891, *Microtityus* Kjellesvig-Waering, 1966, *Tityus* Koch, 1836, *Broteochactas* Pocock, 1893, and *Chactas* Gervais, 1844. All of these genera except *Chactas* were previously recorded from Tobago. *Chactas* is for the most part a neotropical genus, as its members occur almost exclusively from Central to South America (Lourenço 1991; Teruel and Cozijin 2011), with a single species, *Chactas raymondhansi* Francke and Boos, 1986, being found in Trinidad. No other records for this genus are reported for the rest of the Caribbean with most being found in Colombia and Venezuela (González-Sponga 1996; Lourenço 1997). This note details the first records of *C. raymondhansi* for the island of Tobago.

Chactas raymondhansi was previously thought to be endemic to Trinidad and had only been found in cloud forest at the summits of the highest mountains in the Northern Range: Cerro Del Aripo (990 m), Mt. El Tucuche (980 m) and Morne Bleu (800 m) (Prendini 2001). As such, because of its restricted range, it can be considered to be micro-endemic and rare. As with most chactid scorpions, its venom is not considered toxic to vertebrates (Goyffon 1978), but its robust body and the fact that it is the largest scorpion known on the island (Francke and Boos 1986) would nonetheless make it a formidable predator to invertebrate prey. As for its microhabitat, *C. raymondhansi* was originally described as being bromeliad-dwelling, as the first specimens that were collected came from the bases of the bromeliad, *Glomeropitcairnia erectiflora* Mez. However, as stated by Prendini (2001) this designation is nothing more than an artefact of diurnal collecting methods, which target bromeliads as a convenient place to search. Prendini's statement is further supported by field observations of the specimens that are recorded in this paper.

During a nocturnal scorpion survey conducted in the Main Ridge Forest Reserve, Tobago on 12 March, 2017, 3 specimens of *C. raymondhansi* were collected on trees approximately 2.5 metres above ground level along the Gilpin Trail. The microhabitat where they were collected is consistent with what was previously reported for this species as they are generally regarded as arboreal, having only been collected no less than 1m above ground level. Arboreal scorpions can typically be found under tree bark, in tree holes and crevices, in epiphytes, and at the bases of leaves. The first specimen that was observed and subsequently collected was a female (carapace length: 9 mm), that was seen running under ultraviolet light (395 nm)

along the root mass of a tree that was hanging overhead on the steep side of the mountain ridge at UTM 761177E, 1248462N. Upon being approached, the scorpion retreated into a cavity in the middle of the root mass of the tree which was mostly out of contact with soil. The root mass was subsequently taken apart and the specimen collected. The second and third specimens were collected in a follow-up trip on 28 May 2017. The second specimen was a male (carapace length: 7 mm) collected at UTM 761059E, 1248603N, and the third specimen was a female (carapace length: 9 mm) collected at 761005E, 1248701N (Fig 1.).

Both of these specimens, just like the first, were observed at approximately 2.5 metres above ground level with use of UV flashlights. Each were observed to be motionless in a "sit and wait" position, which is the typical hunting position for these opportunistic predators (Fig 2). The first specimen retreated into a cavity on the trunk of the tree when an attempt was made to collect it. The cavity was subsequently cut open and the scorpion was collected and placed into a collecting jar. The second scorpion was observed overhead on the exposed root mass of a tree on the steep side of the mountain ridge. It quickly retreated into a cavity of a root when an attempt was made to collect it but the root cavity was subsequently cut open and the scorpion retrieved. All three specimens were euthanised and subsequently examined by the lead author under a dissecting microscope for confirmation of identity. The diagnostic features that characterise *C. raymondhansi* as described by Francke and Boos (1986) were observed. For verification, photomicrographs were taken and sent to Dr Oscar F. Francke of the National Autonomous University of Mexico, the species authority for *C. raymondhansi*, who confirmed the identifications. The first specimen to be collected was deposited in the University of the West Indies Zoology Museum, St. Augustine campus, Trinidad and numbered UWIZM.2019.8, while the two specimens were kept for genetic studies.

With the addition of this new record there are now seven scorpion species known to inhabit Tobago. These are as follows: from Buthidae: *Ananteris cussinii* Borelli, 1910; *Microtityus rickyi* Kjellesvig-Waering, 1966; *Microtityus starri* Lourenço and Huber, 1999; *Tityus trinitatis* Pocock, 1897; and from Chactidae: *Broteochactas laui* Kjellesvig-Waering, 1966; *Broteochactas nitidus* Pocock, 1893; *Chactas raymondhansi* Francke and Boos, 1986. All, with the exception of *A. cussinii*, are endemic to Trinidad and Tobago which sets Tobago at an astounding 87% level of endemism for Trinidad and Tobago's scorpions. As to why this species wasn't previously recorded, this could simply be the result of limited survey effort being conducted

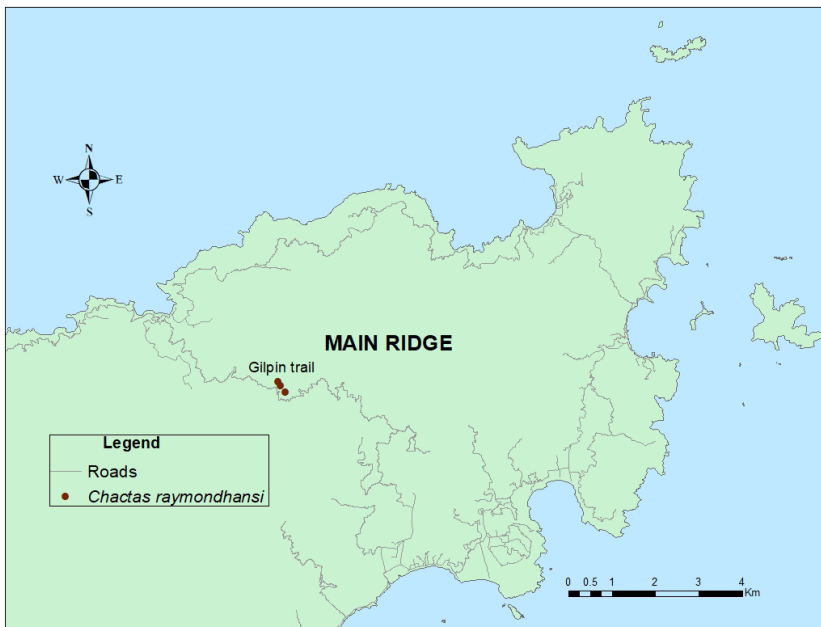


Fig. 1. Locations of *C. raymondhansi* in North-East Tobago.



Fig. 2. First specimen of *Chactas raymondhansi* Francke & Boos, 1986 collected in Tobago. (Sex: female; Carapace length: 9 mm).

in Tobago coupled with the general rarity of this species, making it unlikely to be encountered in its habitat.

It would be worthwhile to make a return trip to the Main Ridge Forest Reserve to conduct a more extensive survey for these scorpions in an attempt to estimate population size and distribution. In addition, more detailed field observations can be made to contribute to our knowledge of the ecology of this species, an area of its biology that is understudied as is the case with many species of scorpion.

ACKNOWLEDGEMENTS

The authors would like to sincerely thank Dr. Oscar F. Francke for lending his expertise in confirming the species identifications. We would also like to thank Mike Rutherford for his critical review of this manuscript as well as Virmal Arjoosingh and Virendra Bissram for their assistance in the field.

REFERENCES

de Armas LF, Teruel R. 2012. Revisión del género *Micrortotytus* Kjellesvig-Waering, 1966 (Scorpiones: Buthidae) en República Dominicana. *Revista Iberica de Arachnologia*, 21: 69-88.

Francke, O.F. and J. Boos. 1986. Chactidae (Scorpiones) from Trinidad and Tobago. *Journal of Arachnology*, 14:15-28.

González-Sponga, M.A. 1996. Guía para identificar Escorpiones de Venezuela. Cuadernos Lagoven. Editorial Artes, Caracas, 203 p.

Goyffon M. and Kovoov J. 1978. *Chactoid Venoms*. In: Bettini S, editor. *Arthropod Venoms*. Springer Verlag: Berlin. p. 395-418.

Lourenço, W.R. 1991. Les Scorpions (Chelicerata) de Colombie. II. Les faunes des régions de Santa Marta et de la cordillère orientale. Approche biogéographique. *Senckenb. Biol.*, 71: 275–288.

Lourenço, W.R. 1997. Synopsis of the scorpion fauna of Colombia, with some considerations on the biogeography and diversity of species. *Revue Suisse de Zoologie*, 104: 61–94.

Lourenço, WR and Huber, D. 1999. Additions to the scorpion faunas of Trinidad and Tobago. *Revue Suisse de Zoologie*, 106: 259-267.

Prendini L. 2001. Further additions to the scorpion fauna of Trinidad and Tobago. *Journal of Arachnology*, 29: 173–188.

Teruel, R. and Cozijn, M. A. C. 2011. A checklist of the scorpions (Arachnida: Scorpiones) of Panama, with two new records. *Euscorpius*, 133: 1–6.

Rakesh Bhukal

Department of Life Sciences, Faculty of Science and Technology, The University of the West Indies, St. Augustine.

School of Veterinary Medicine, Faculty of Medical Sciences, The University of the West Indies, St. Augustine.

rbhukal101@gmail.com

Kerresha Khan

Department of Life Sciences, Faculty of Science and Technology, The University of the West Indies, St. Augustine.