Revista Ibérica de Aracnología, nº **34** (30/06/2019): 69–75.
Grupo Ibérico de Aracnología (S.E.A.). ISSN: 1576 - 9518.

A NEW SPECIES OF *MEGACHACTOPS* OCHOA, ROJAS-RUNJAIC, PINTO-DA-ROCHA & PRENDINI, 2013 (SCORPIONES: CHACTIDAE) FROM COLOMBIA

Eric Ythier

SynTech Research, 613 route du Bois de Loyse, 71570 La Chapelle de Guinchay, France.
eythier@syntechresearch.com

Abstract: A new species of scorpion belonging to the genus *Megachactops* Ochoa, Rojas-Runjaic, Pinto-da-Rocha & Prendini, 2013 (family Chactidae Pocock, 1893) is described on the basis of two specimens collected in a rainforest formation located in Puerto Colombia, Guainía, Colombia. This is the third known species of the genus *Megachactops*, and the first reported from Colombia.
Key words: Scorpiones, Chactidae, *Megachactops*, new species, Colombia.

Una especie nueva de *Megachactops* Ochoa, Rojas-Runjaic, Pinto-da-Rocha & Prendini, 2013 (Scorpiones: Chactidae) de Colombia
Resumen: Se describe una especie nueva de escorpión del género *Megachactops* Ochoa, Rojas-Runjaic, Pinto-da-Rocha & Prendini, 2013 (familia Chactidae Pocock, 1893) a partir de dos ejemplares recogidos en una formación de pluvisilva de Puerto Colombia, Guainía, Colombia. Es la tercera especie conocida del género *Megachactops*, y la primera que se cita de Colombia.
Palabras clave: Scorpiones, Chactidae, *Megachactops*, especie nueva, Colombia.

Taxonomy / Taxonomía: *Megachactops kurripako* **sp. n.**

Introduction

The Neotropical chactid genus *Megachactops* was created (Ochoa *et al*., 2013) to accommodate the species *M. coriaceo*, formerly assigned to the genus *Chactopsis* (*C. coriacea* González-Sponga, 1991) as well as a new species, *M. kuemoi* Ochoa *et al*., 2013. Since then, the number of species in this genus has remained unaltered, with both species occurring in Venezuela.

In the present paper, a new species of the genus *Megachactops* is described from a primary rainforest formation in Puerto Colombia, Guainía Department, Colombia. The description of the new species raises to three the number of species belonging to the genus *Megachactops* and this is the first species of the genus reported from Colombia. A key to identification of the species of *Megachactops* and their distribution records are provided.

Methods

Measurements and illustrations were made using a Motic DM143 digital stereo-microscope together with a Canon EOS 7D camera and a Wacom Intuos drawing tablet. Measurements follow Stahnke (1970) and are given in mm. For comparison purpose, trichobothrial notations follow those developed in Soleglad and Sissom (2001) and Ochoa *et al*. (2013). The morphological terminology mostly follows Hjelle (1990). Specimens studied herein are deposited in the following collections: MNHN (Muséum national d'Histoire naturelle, Paris, France) and EYPC (Eric Ythier Private Collection, Romanèche-Thorins, France).

Taxonomic treatment

Family Chactidae Pocock, 1893

Genus *Megachactops* Ochoa, Rojas-Runjaic, Pinto-da-Rocha & Prendini, 2013

DIAGNOSIS FOR THE GENUS. Scorpions of medium size with a total length of 34 to 68 mm. General coloration yellowish-brown to reddish-brown. Carapace with lateral median carinae present, anterior margin with conspicuous median notch. Pedipalp patella with seven ventral trichobothria, aligned and situated close to ventro-external carina; dorso-median carinae present, dorsal patellar process prominent. Pedipalp chela manus with three ventral and seven external trichobothria, fixed finger with 16 trichobothria; fixed and movable fingers with multiple primary rows of denticles. Metasomal segment V with median lateral carinae occupying less than half the length of the segment. Pectines with 8 to 10 teeth.

COMPOSITION OF THE GENUS *Megachactops*
Megachactops coriaceo (González-Sponga, 1991) (Venezuela).
Megachactops kuemoi Ochoa, Rojas-Runjac, Pinto-Da-Rocha & Prendini, 2013 (Venezuela).

Megachactops kurripako sp. n.

Fig. 1-4, Table I.

TYPE MATERIAL. Colombia, Guainía Department, Puerto Colombia, primary rainforest, 1 male holotype and 1 female paratype (collected by local people), IX/2003. Holotype deposited in the MNHN. Paratype deposited in the EYPC (EY0032).

ETYMOLOGY. The specific name is placed in apposition to the generic name and refers to the Kurripako ethnic group, living in the area where the new species was found.

DIAGNOSIS. Total length 34.4 mm for male holotype and 66.5 mm for female paratype (see morphometric values in Table I). General coloration yellowish brown (male) to reddish brown (female) with marked brownish variegated spots; pedipalps reddish brown with longitudinal brownish spots; fingers brownish with tip yellowish; legs yellowish brown (male) to reddish brown (female) with brownish spots mainly on femur, patella and tibia; tarsal segments lighter. Carapace anterior margin with deep, biconcave median notch, with coarse (male) to fine (female) granulations over the entire surface except on some areas which are smooth and punctuate. Metasomal segments with intercarinal ventral surfaces smooth and punctuate; dorso-submedian carinae absent on segments I-III. Lateral and ventral surfaces of the telson of the male finely granular. Pectines and genital operculum of the female densely covered with microsetae; pectines of male holotype and female paratype with 9-9 teeth. Trichobothrial pattern on external face of patella with em_1 situated slightly distal to em_2 and em_3, and est_3 situated distal to est_2 and est_4. Metasomal segment V of female with length/width ratio 2.42 and length/depth ratio 2.71; telson of male with length/width ratio 3.44 and length/depth ratio 3.44; pedipalp femur with length/width ratio 2.69 in male and 2.70 in female; pedipalp chela with length/width ratio 4.27 in male and 3.23 in female and length/depth ratio 4.70 in male and 3.23 in female.

DESCRIPTION BASED ON ♂ HOLOTYPE AND ♀ PARATYPE.

Coloration. General coloration yellowish brown (male) to reddish brown (female). Carapace reddish brown, marked with brownish variegated spots around the ocular tubercle and on the anterior and lateral edges of the carapace; median ocular tubercle and areas around lateral ocelli darker, almost black. Tergites reddish brown with confluent reddish brown spots, on the sides and middle of tergites. Venter and sternites brownish yellow, with darker pigmentation on sternites VI-VII; sternum yellowish (male) to brownish yellow (female); genital operculum yellowish, with brownish pigmentation anteriorly in female; pectines brownish yellow. Metasomal segments reddish brown, marked with variegated brownish spots along and between carinae on ventral, lateral and dorsal side of segments; on dorsal side the brownish pigmentation is continuous on posterior margin of the segments. Vesicle yellowish brown (male) to reddish brown (female) with basis of aculeus yellowish and tip of aculeus reddish. Chelicerae reddish yellow, with variegated brownish spots; fingers brownish; teeth reddish. Pedipalps reddish brown with longitudinal brownish spots; fingers brownish with tip yellowish. Legs yellowish brown (male) to reddish brown (female), marked with brownish spots mainly on femur, patella and tibia; tarsal segments lighter.

Morphology. Carapace anterior margin with deep, biconcave median notch, with coarse (male) to fine (female) granulations over the entire surface except on some areas which are smooth and punctuate; median ocelli one diameter apart. Tergites with most of surface finely punctuate. Sternum pentagonal, wider than long. Pectinal tooth count 9-9 in male holotype and female paratype, fulcra absent; pectines and genital operculum densely covered with microsetae in male and female. Sternites smooth and shiny with surface punctuate, sternite VII acarinate; spiracles oval in shape. Metasomal segments with intercarinal ventral surfaces smooth with some fine punctuation corresponding to the brownish pigmentation, dorso-submedian carinae absent on segments I-III, segment V length/width ratio 2.45 in male and 2.42 in female, length/depth ratio 2.58 in male and 2.71 in female. Telson with vesicle elongated, ventral and lateral surfaces finely granular in male, telson length/width ratio 3.44 in male and 3.03 in female, length/depth ratio 3.44 in male and 3.32 in female; aculeus short, moderately curved. Pedipalp femur and patella with dorsal internal, dorsal external and ventral internal carinae complete and granular, femur length/width ratio 2.69 in male and 2.70 in female, patella length/width ratio 2.41 in male and 2.39 in female; pedipalp chela with manus cylindrical, slightly thickened (especially in female) and with fingers elongated, chela length/width ratio 4.27 in male and 3.23 in female, chela length/depth ratio 4.70 in male and 3.23 in female, intercarinal surfaces smooth with some fine punctuation; fixed and movable fingers with multiple primary rows of denticles. Chelicerae with dentition typical of the family Chactidae (Vachon, 1963) and with sparse setation dorso-externally and dense setation ventrally and internally. Trichobothriotaxy of type C, neobothriotaxic (Vachon, 1974); femur with three trichobothria; patella with 33 trichobothria, two dorsal, seven ventral, 23 external and one internal, trichobothrial pattern on external side of patella with em_1 situated slightly distal to em_2 and em_3, and est_3 situated distal to est_2 and est_4; chela with 26 trichobothria, 10 on manus with three ventral and seven external, 16 on fixed finger with six dorsal, seven external and three internal.

RELATIONSHIPS. The new species is related to *M. kuemoi* Ochoa, Rojas-Runjac, Pinto-Da-Rocha & Prendini, 2013 distributed in the Amazonas State of Venezuela, but the two species can be readily distinguished by (i) lateral and ventral surfaces of the telson of the male finely granular (mostly smooth and punctate in *M. kuemoi*), (ii) pectines and genital operculum of the female densely covered with microsetae (sparsely covered in female of *M. kuemoi*), (iii) metasomal segment V of female with length/width ratio 2.42 (2.15 to 2.29 in *M. kuemoi*) and length/depth ratio 2.71 (2.45 to 2.67 in *M. kuemoi*), telson of male with length/width ratio 3.44 (2.86 in *M. kuemoi*) and length/depth ratio 3.44 (3.15 in *M. kuemoi*), pedipalp femur with length/width ratio 2.69 in male (2.93 in *M. kuemoi*) and 2.70 in female (2.82 to 3.12 in *M. kuemoi*); pedipalp chela with length/width ratio 4.27 in male (4.05 in *M. kuemoi*) and 3.23 in female (3.89 to 4.09 in *M. kuemoi*) and length/depth ratio 4.70 in male (4.25 in *M. kuemoi*) and 3.23 in female (3.75 to 4.04 in *M. kuemoi*) (see Table I), (iv) trichobothrial pattern on external side of patella with em_1 situated slightly distal to em_2 and em_3 (em_3 proximal to em_1 and em_2 in *M. kuemoi*; see Figure 3), (v) lighter general coloration especially in male (yellowish brown) with tip of chela fingers yellowish in both sexes (general coloration brownish with chela fingers densely pigmented in *M. kuemoi*), (vi) smaller size of the male (34.4 mm for male holotype, while the male holotype of *M. kuemoi* has a length of 56.8 mm).

M. kurripako sp. n. can also be distinguished from the other species of the genus *Megachactops, M. coriaceo* (González-Sponga, 1991) distributed in the Amazonas State of Venezuela, by the following main features: (i) carapace with coarse (male) to fine (female) granulations over the entire

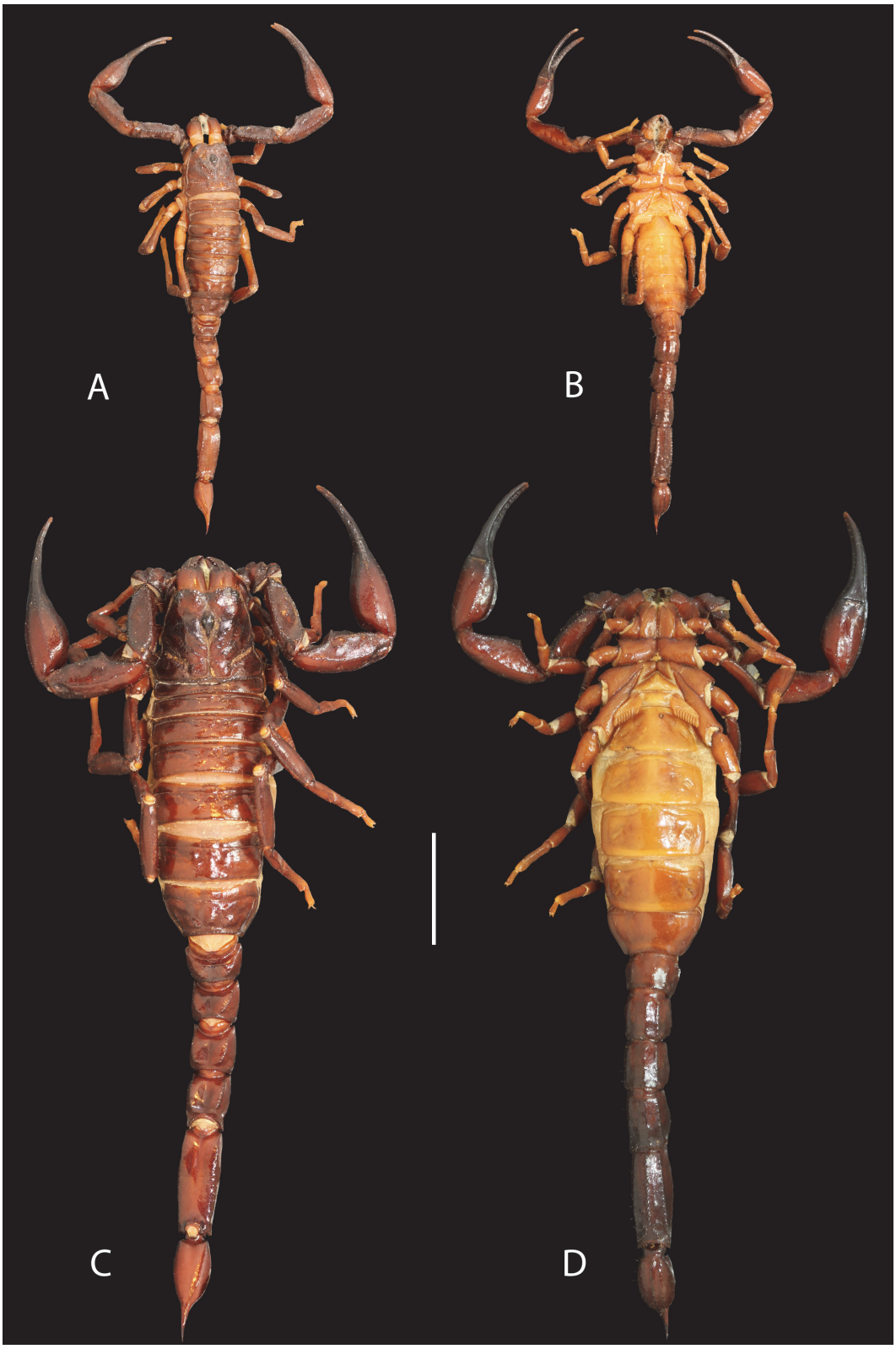


Fig. 1. *Megachactops kurripako* sp. n., habitus. **A**, **B**. Male holotype. **C**, **D**. Female paratype. **A**, **C**. Dorsal aspect. **B**, **D**. Ventral aspect. Scale bar = 1 cm.

surface except on some areas which are smooth and punctuate (carapace densely granular throughout the surface in male and female of *M. coriaceo*), (ii) ventral intercarinal surfaces of metasomal segments smooth and punctuate (densely granular in *M. coriaceo*), (iii) dorso-submedian carinae absent on metasomal segments I-III (present in *M. coriaceo*), (iv) trichobothrial pattern on external side of patella with est_3 situated distal to est_2 and est_4 (est_3 proximal to est_2 and est_4 in *M. coriaceo*; see Figure 3), (v) lighter general coloration especially in male (yellowish brown) with tip of fingers yellowish in both sexes (dark brown in *M. coriaceo* with fingers densely pigmented), (vi) smaller size of the male (34.4 mm for male holotype, while the male holotype of *M. coriaceo* has a length of 53.5 mm).

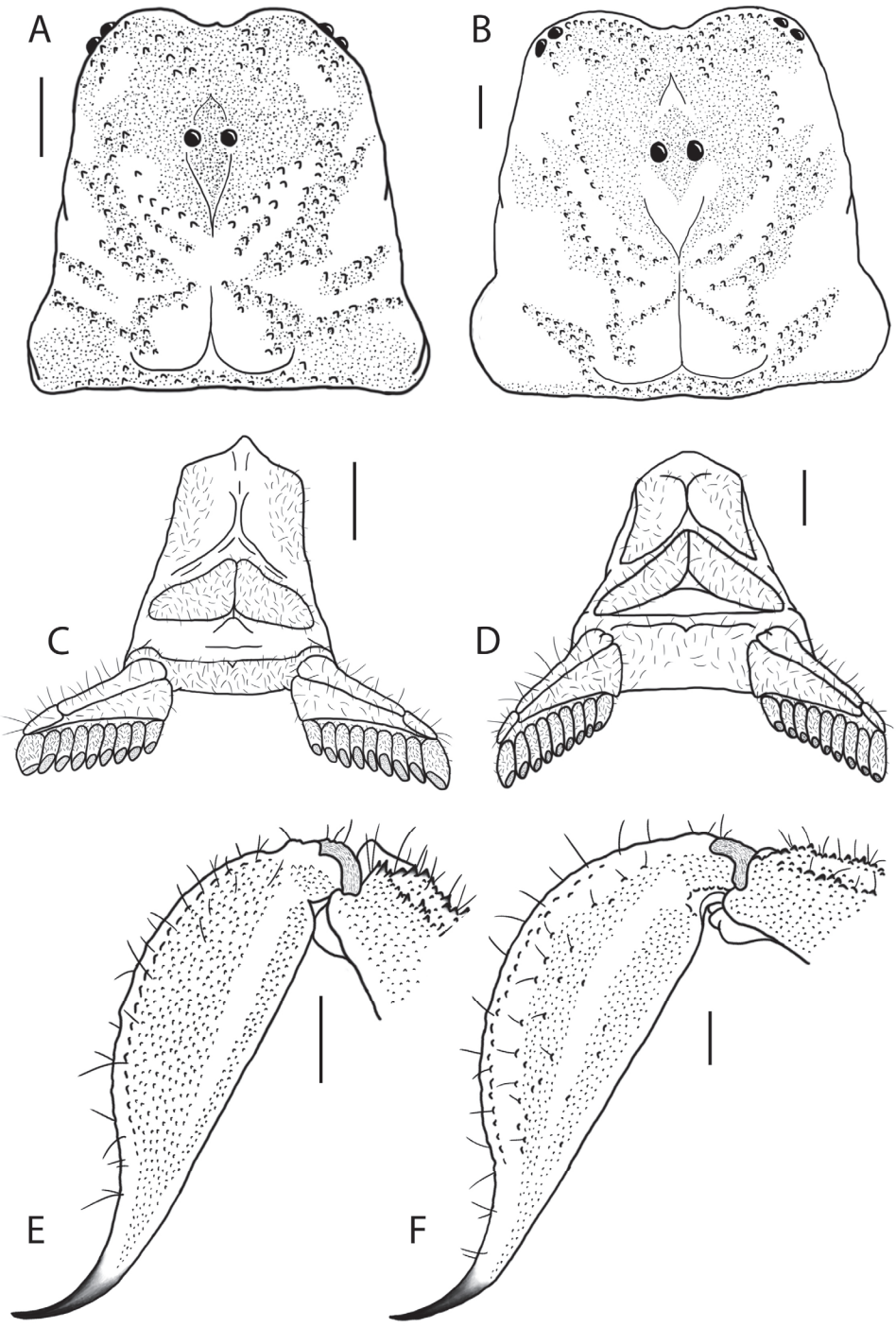


Fig. 2. *Megachactops kurripako* sp. n. **A**, **C**, **E**. Male holotype. **B**, **D**, **F**. Female paratype. **A**, **B**. Carapace. **C**, **D**. Sternum, genital operculum and pectines. **E**, **F**. Telson, lateral aspect. Scale bars = 1 mm.

The great size difference between male and female in the new species (the male is almost half the size of the female) is unprecedented for the genus *Megachactops* as well as for the other two closely-related genera *Chactopsis* and *Chactopsoides*. There is a possibility that the holotype is a small adult, *i.e.* which matured with one-molt less than standard males. The alternate possibility is that the male is a standard adult and the female is gigantic. Such adult size variation defining discrete classes is a common occurrence amongst scorpions. Thus, the diagnostic value of adult male size should be taken cautiously until new adult specimens can be examined.

Key to the species of *Megachactops*

1. Carapace densely granular throughout the surface in male and female; ventral intercarinal surfaces of metasomal segments densely granular; dorso-submedian carinae present on metasomal segments I-III ..... ***M. coriaceo***
– Carapace with coarse (male) to fine (female) granulations over the entire surface except on some areas which are smooth and punctuate; ventral intercarinal surfaces of metasomal segments smooth and punctuate; dorso-submedian carinae absent on metasomal segments I-III **2**

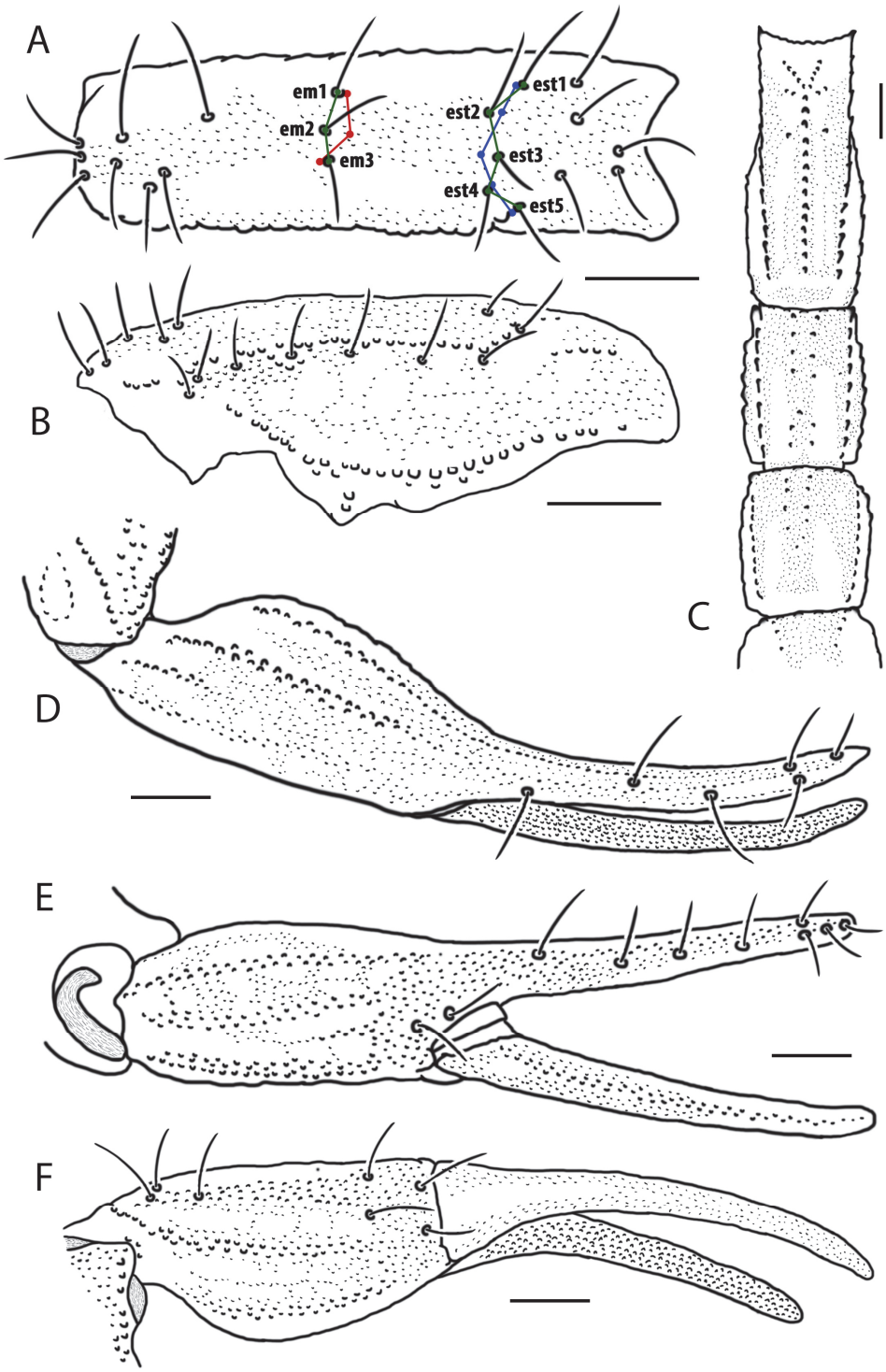


Fig. 3. *Megachactops kurripako* sp. n. Male holotype. **A**, **B**. Right patella, external aspect (**A**) showing comparison with trichobothrial pattern of *M. kuemoi* (red dots; male holotype) and *M. coriaceo* (blue dots, male holotype) and ventral aspect (**B**). **C**. Metasomal segments III-V, ventral aspect. **D**-**F**. Right chela, dorsal (**D**), external (**E**) and ventral (**F**) aspects. Scale bars = 1 mm.

2. General coloration brownish with chela fingers densely pigmented; lateral and ventral surfaces of the telson of the male mostly smooth and punctuate; pectines and genital operculum of the female sparsely covered with microsetae; trichobothrial pattern on external side of patella with em_3 situated proximal to em_1 and em_2; length/width and length/depth ratio for metasomal segment V, telson, pedipalp femur and chela as in Table I; male size 56.8 mm ..... ***M. kuemoi***

– General coloration yellowish brown (male) to reddish brown (female) with chela fingers brownish with tip yellowish; lateral and ventral surfaces of the telson of the male finely granular; pectines and genital operculum of the female densely covered with microsetae; trichobothrial pattern on external side of patella with em_1 situated slightly distal to em_2 and em_3; length/width and length/depth ratio for metasomal segment V, telson, pedipalp femur and chela as in Table I; male size 34.4 mm .... ***M. kurripako* sp. n.**



Fig. 4. *Megachactops kurripako* sp. n., alive. **A**. Male holotype. **B**. Female paratype. **C**-**E**. Courtship and mating showing the "*promenade à deux*" (**C**), sexual sting (**D**) and spermatophore (**E**). **F**. Ecdysis.



Fig. 5. Map of the known distribution of *Megachactops* species: *M. coriaceo* (1), *M. kuemoi* (2) and *M. kurripako* sp. n. (3).

Table I. Morphometric values (in mm) of *M. kuemoi* Ochoa *et al*., 2013 (male holotype and female paratype; italic values = range of 5 female paratypes; NAV = not available) and *M. kurripako* sp. n. (male holotype and female paratype).

	M. kuemoi		*M. kurripako* sp. n.	
	Holotype ♂	Paratype ♀	Holotype ♂	Paratype ♀
Total length	56.8	65.9 *(65.9 - 67.9)*	34.4	66.5
Carapace:				
- length	7.3	9.8	4.7	8.1
- anterior width	6.7	6.8	3.8	5.5
- posterior width	8.3	10.8	4.7	9.1
Mesosoma length	17.3	17.0	10.5	22.3
Metasoma length	32.2	39.1	19.2	36.1
Metasomal segment I:				
- length	2.9	3.4	1.4	3.2
- width	4.4	5.3	2.7	5.1
Metasomal segment II:				
- length	3.5	4.3	2.3	4.2
- width	3.8	4.6	2.5	4.5
Metasomal segment III:				
- length	3.8	4.8	2.4	4.2
- width	3.6	4.4	2.3	4.2
Metasomal segment IV:				
- length	4.3	5.3	2.7	5.0
- width	3.5	4.3	2.3	4.0
Metasomal segment V:				
- length	8.3	9.6	4.9	9.2
- width	3.5	4.2	2.0	3.8
- depth	3.2	3.6	1.9	3.4
Telson:				
- total length	9.5	11.7	5.5	10.3
- vesicle length	6.8	9.2	4.0	7.6
- vesicle width	3.3	3.8	1.6	3.4
- vesicle depth	3.0	3.6	1.6	3.1
- aculeus length	2.7	2.9	1.5	2.7
Pedipalp:				
- femur length	7.0	9.0	4.3	7.3
- femur width	2.4	3.0	1.6	2.7
- patella length	7.8	10.3	5.3	8.6
- patella width	3.2	4.3	2.2	3.6
- chela length	13.5	18.0	9.4	15.2
- chela width	3.3	4.4	2.2	4.7
- chela depth	3.2	4.6	2.0	4.7
- movable finger length	7.8	10.6	5.4	8.7
Ratios:				
- metasomal segment V length/width	2.36	2.29 *(2.15 - 2.29)*	2.45	2.42
- metasomal segment V length/depth	2.60	2.67 *(2.45 - 2.67)*	2.58	2.71
- femur length/width	2.93	3.00 *(2.82 - 3.12)*	2.69	2.70
- patella length/width	2.45	2.40 *(2.25 - 2.40)*	2.41	2.39
- chela length/width	4.05	4.09 *(3.89 - 4.09)*	4.27	3.23
- chela length/depth	4.25	3.91 *(3.75 - 4.04)*	4.70	3.23
- telson length/width	2.86	3.08 *(NAV)*	3.44	3.03
- telson length/depth	3.15	3.25 *(3.24 - 3.71)*	3.44	3.32

References

González-Sponga, M.A. 1991. Arácnidos de Venezuela. Escorpiones del Tepui ''La Neblina,'' Territorio Federal Amazonas. (Scorpionida: Chactidae: Buthidae). *Boletín de la Academia de Ciencias Físicas, Matemáticas y Naturales de Venezuela,* **50** (163, 164): 11-62.

Hjelle, J.T. 1990. Anatomy and morphology. In: Polis GA (Ed.) *The Biology of Scorpions*. Stanford University Press, Stanford, pp. 9-63.

Pocock, R.I. 1893. A contribution to the study of neotropical scorpions. *Annals and Magazine of Natural History*, ser. 6, **12**: 77-103. https://doi.org/10.1080/00222939308677589

Ochoa, J.A., F.J.M. Rojas-Runjaic, R. Pinto-da-Rocha & L. Prendini 2013. Systematic revision of the neotropical scorpion genus *Chactopsis* Kraepelin, 1912 (Chactoidea: Chactidae), with descriptions of two new genera and four new species. *Bulletin of the American Museum of Natural History*, **378**: 1-121.

Soleglad, M.E. & W.D. Sissom 2001. Phylogeny of the family Euscorpiidae Laurie, 1896: a major revision. In V. Fet and P.A. Selden (editors), *Scorpions 2001. In memoriam Gary A. Polis*, 25-111. Burnham Beeches, Bucks, UK: British Arachnological Society.

Stahnke, H.L. 1970. Scorpion nomenclature and mensuration. *Entomological News*, **81**: 297-316.

Vachon, M. 1963. De l'utilité, en systématique, d'une nomenclature des dents des chélicères chez les scorpions. *Bulletin du Muséum national de Histoire naturelle*, Paris 2è sér., **35**(2): 161-166.

Vachon, M. 1974. Etude des caractères utilisés pour classer les familles et les genres de scorpions (Arachnides). 1. La trichobothriotaxie en arachnologie. Sigles trichobothriaux et types de trichobothriotaxie chez les Scorpions. *Bulletin du Muséum national de Histoire naturelle*, Paris, 3è sér., n° **140**, Zool. 104: 857-958.