

On the taxonomy and geographic distribution of the genus  
*Centromachetes* Lönnberg, 1897, with a redescription of  
*Centromachetes pocockii* (Kraepelin, 1894)  
(Scorpiones, Bothriuridae)

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(With 16 Figures)

**Abstract**

Several contributions have been added to knowledge of the species in the genus *Centromachetes* Lönnberg, 1897, from Chile since the description of the first species by Kraepelin (1894). Confusion concerning the status of the known species still remains, however. In the present paper, historical information is provided, and a redescription given of *Centromachetes pocockii* (Kraepelin, 1894), as well as a key to the three species currently recognized. The geographical distribution of the genus in Chile is also surveyed.

**Introduction**

The genus *Centromachus* and the species *Centromachus pocockii* were described by Kraepelin (1894) on the basis of a single female collected at Lebu, Valparaiso Province, Chile. The type was deposited in the Copenhagen Museum. Since the name *Centromachus* was found to be occupied by its homonym *Centromachus* Thorell & Lindström, 1884 (Scorpiones), the name *Centromachetes* Lönnberg, 1897 was proposed as a replacement for *Centromachus* Kraepelin, the type species of this genus being *Centromachus pocockii* Kraepelin, 1894 [= *Centromachetes pocockii* (Kraepelin, 1894)]. This state of affairs was confirmed by Kraepelin (1899) in "Das Tierreich" and has been maintained by subsequent authors (cf. Sissom, 1990).

The genus *Centromachetes* remained monotypic until 1932, when Mello-Leitão described a second species, *Centromachetes obscurus*, from Valdivia, Chile. The known species were again cited by Mello-Leitão (1945) in his monograph on South American scorpions. Subsequent studies on bothriurid scorpions by Maury (1973, 1981) revealed that (i) the species *Bothriurus titschaki* Werner, 1939, from Coronel and Contulmo, Chile, actually belongs to the genus *Centromachetes*, (ii) the species *Bothriurus asymmetricus* described by Pessôa (1935) is a synonym of *C. obscurus*, and (iii) the species *Bothriurus dispar* Mello-Leitão, 1931, described from "La Ferreira"

(actually Laferrère in the Province of Buenos Aires, Argentina), is a synonym of *C. pocockii*. Moreover, Maury (1981) suggested that the type locality indicated by Mello-Leitão (1931) was certainly wrong, since the genus *Centromachetes* is apparently endemic to Chile. In his catalogue of Chilean scorpions, Cekalovic (1983) listed all three species.

These varying opinions have led to confusion regarding the status of the species belonging to the genus *Centromachetes*. The species *C. pocockii* is therefore redescribed and a key is provided to the three known taxa, followed by a survey of the geographical distribution of members of this genus in Chile (Fig. 16).

### Redescription

#### *Centromachetes pocockii* (Kraepelin, 1894) (Figs 1-15)

*Centromachus pocockii* Kraepelin, 1894: 238.

*Centromachetes pocockii*: Lönnberg 1897: 200; Kraepelin 1899: 199; Borelli 1900: 64; Werner 1934: 291; Mello-Leitão 1945: 205.

*Bothriurus dispar* Mello-Leitão 1931: 90; Mello-Leitão 1932: 22; Mello-Leitão 1934: 93; Mello-Leitão 1945: 162; Bücherl 1963: 195; Bücherl *et al.* 1963: 224; Maury 1981: 101.

Female holotype: Chile, Lebu bei Valparaiso; deposited at the Zoological Museum, University of Copenhagen.

The following redescription and illustrations are based on two specimens (♂+♀) from Chile (Arauco: Lebu) collected by T. Cekalovic, 18 Feb 1977. The material is deposited in the Zoologisches Museum Hamburg (ZMH Acc. No. A 49/01). The measurements are provided in Table 1.

Additional material examined: "Temuco, Chile, Mus. Berlin, c. V.1911" (♂, ♀); "Temuco, Mittelchile, 1932, Pater G. Rahm leg., Eing. Nr. 29/1935" (♀); "Concepción, Chile, ♂, 25.5.07, unter Steinen, L. Scheduling d."; "Traiguén, Chile, ♂, v. 1907, d. Borelli, Eing.Nr. 5.1902" (all material ZMH); "Chile, Valdivia, 1894/1895, Luburti, RS-0644" (4♂, 2♀: Muséum National d'Histoire Naturelle, Paris).

**MALE. C o l o r a t i o n** basically yellow-reddish with some diffuse brownish spots. Prosoma: Carapace reddish-yellow with very diffuse brownish spots; eyes surrounded by black pigment. Mesosoma: tergites reddish-yellow, but paler than the carapace, and with some diffuse vestigial brownish spots. Metasoma: all segments reddish; vesicle reddish-yellow. Venter and sternites yellowish with very diffuse brownish spots on the coxapophysis; pectines and genital operculum yellowish. Chelicerae yellowish, fingers reddish-yellow, teeth reddish. Pedipalps reddish-yellow, fingers densely reddish. Legs yellowish.

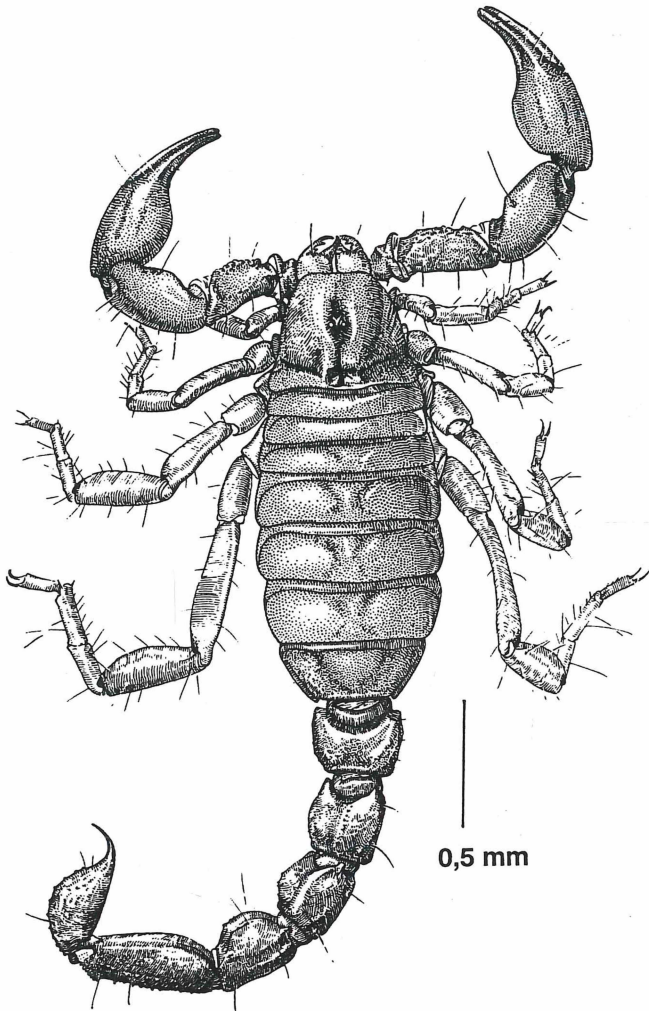
**M o r p h o l o g y.** Carapace not granular and with only a few minute granulations anteriorly; smooth to lustrous; anterior margin without a median concavity, almost straight. Keels absent. All furrows very feeble; interocular furrow absent. Median ocular tubercle anterior to the center of the carapace. Three pairs of very small lateral eyes.

Sternum slit-like. Mesosoma: tergites acarinate, smooth and shiny with sparse very feeble granulation posterolaterally, except in the case of tergite VII. Venter: genital operculum oval in shape and divided longitudinally. Pectines: pectinal tooth count 7-8 in males (see also Table 2). Sternites smooth and shiny, with moderately elongated stigmata; VII with two very feeble keels. Metasoma: segments I to IV with all keels moderate to strong, and moderate granulation; segment V with dense granulation ventrally. Telson with only a few granules on the ventral surface; aculeus short and moderately curved. Cheliceral dentition characteristic of the family Bothriuridae (Vachon 1963). Pedipalps moderately to feebly granular; femur pentacarinat with keels moderate to strong; tibia and chelae smooth to lustrous, except for the dorsal face of tibia which is moderately granular; all keels feeble to vestigial; movable fingers with two series of granules almost fused, not divided into rows. A moderate to strong apophysis present on the inner faces of the chelae at the bases of the movable fingers. This is a secondary sexual character present only in males. Trichobothriotaxy of type C. Neobothriotaxy. Chelae with 27 trichobothria, tibia with 19 and femur with 3 (Vachon 1973). Legs: tarsus of leg IV with two rows of 3 spines on the ventral surface; legs III and IV with pedal spurs.

FEMALE: Coloration similar to that of the male, body more bulky, pectines smaller, with 5-6 teeth. No apophysis on the internal faces of the chelae.

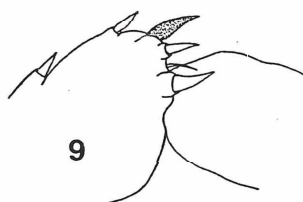
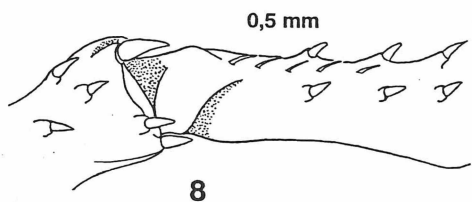
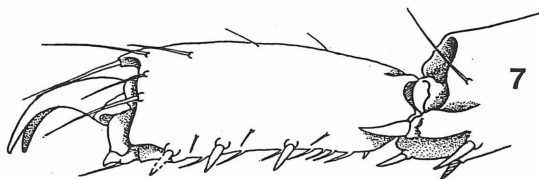
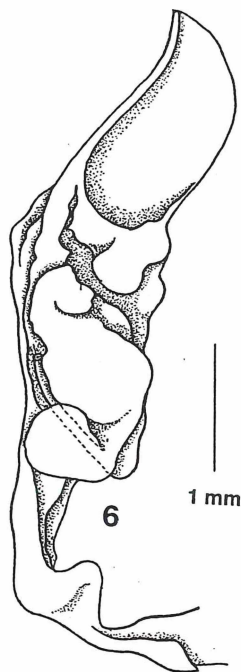
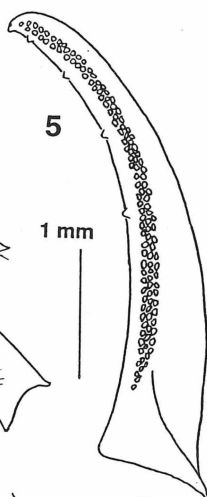
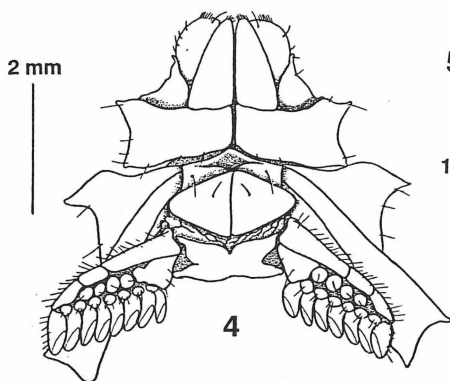
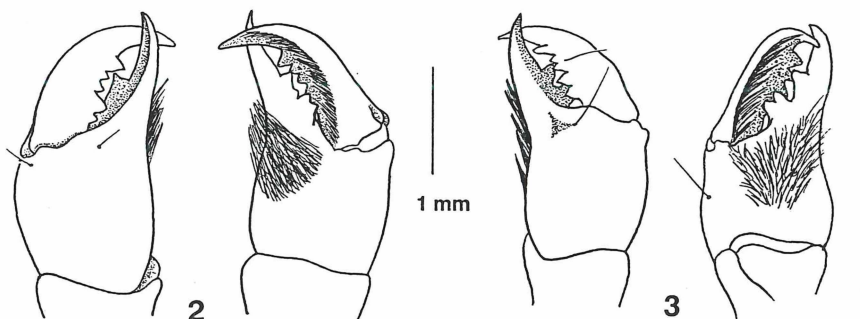
Table 1. Morphometric values (in mm) of *Centromachetes pocockii* (Kraepelin)

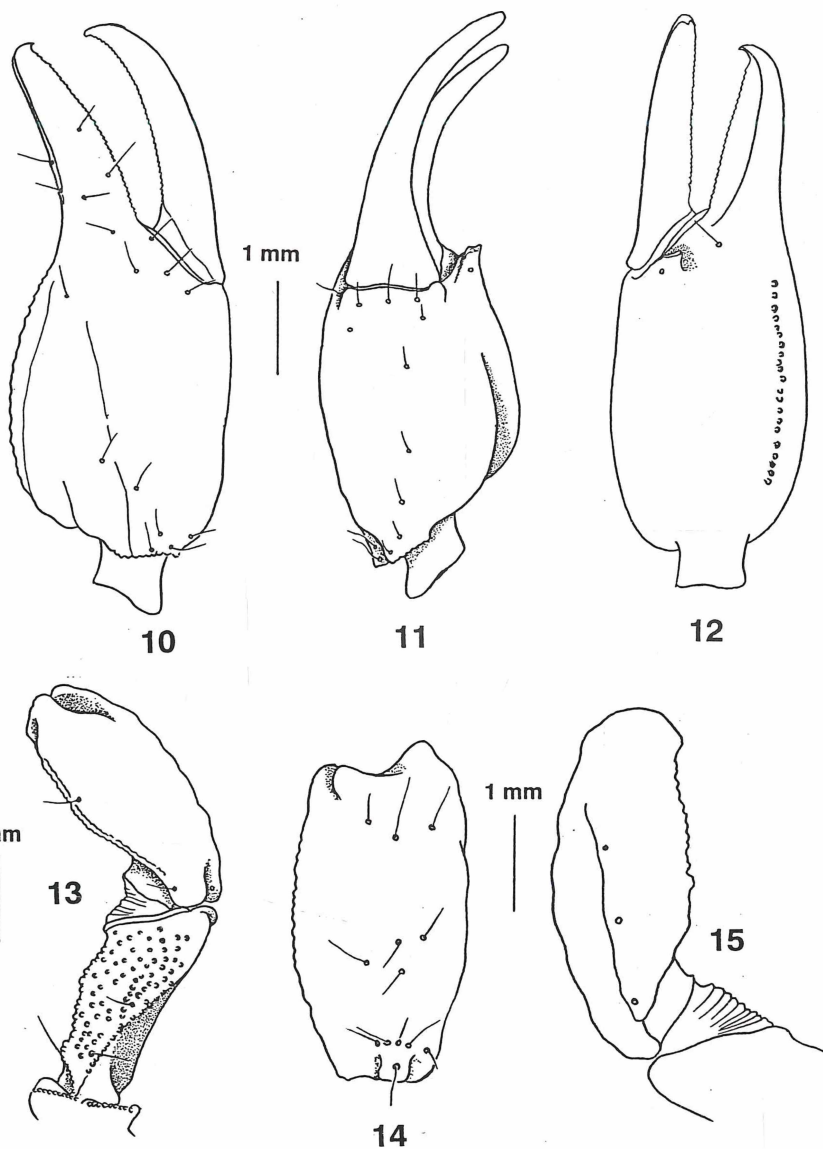
	♂	♀
Carapace:		
- length	4.1	4.9
- anterior width	3.3	3.8
- posterior width	5.2	6.3
Metasomal segment I:		
- length	2.0	2.6
- width	2.8	3.5
Metasomal segment V:		
- length	4.1	4.8
- width	2.2	2.6
- depth	1.6	2.1
Vesicle:		
- width	2.2	2.6
- depth	1.8	1.9
Pedipalp:		
- Femur length	2.9	3.1
- Femur width	1.1	1.5
- Tibia length	3.6	4.2
- Tibia width	1.4	1.8
- Chelae length	6.6	7.7
- Chelae width	2.4	2.6
- Chelae depth	2.5	2.8
Movable finger:		
- length	3.5	4.3



**Fig. 1.** *Centromachetes pocockii* (Kraepelin), female from Lebu.

**Figs 2-9.** *Centromachetes pocockii* (Kraepelin): 2-3 - chelicerae, dorsal and ventral aspect (2: ♂, 3: ♀ from Lebu); 4 - ventral aspect of coxapophysis, sternum, genital operculum and pectines; 5 - position of the granulation on pedipalp-chela finger; 6 - paraxial organ; 7-8 - tarsi, lateral and ventral aspects, showing the spinulation; 9 - detail of pedal spur (all ♂ from Lebu).

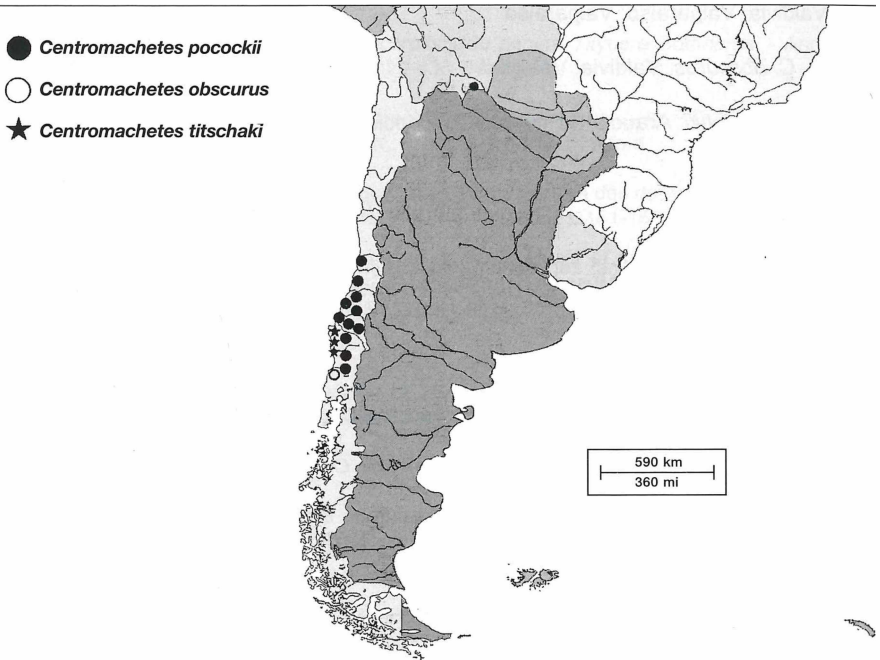




**Figs 10-15.** *Centromachetes pocockii* (Kraepelin): trichobothrial pattern ( $\sigma$  from Lebu):  
**10-12** - chela, dorso-external, ventral and internal aspects, respectively; **13** - femur and  
tibia, dorsal aspect; **14-15** - tibia, external and ventral aspect, respectively.

Table 2. The variability of the pectinal tooth number in *Centromachetes*

Number of teeth	<i>C. pocockii</i>		<i>C. obscurus</i>		<i>C. titschaki</i>	
	♂	♀	♂	♀	♂	♀
6 - 5		1				
6 - 6		2				
6 - 7						1
7 - 7	2	1			2	
7 - 8	2					
8 - 8	4				3	1
8 - 9	1				2	
9 - 9	1			1	2	
9 - 10			1	1		

Fig. 16. Records of species of the genus *Centromachetes* in Chile.

The three species of the genus *Centromachetes* can be readily distinguished by means of the following key:

1. Coloration basically yellow-reddish with some diffuse brownish spots ..... *C. pocockii* Kraepelin  
 - Coloration basically dark-brown to blackish ..... 2
2. Coloration almost blackish; interocular furrow present .... *C. obscurus* Mello-Leitão  
 - Coloration from brown to dark-brown; interocular furrow absent ..... *C. titschaki* Werner

### The geographical distribution of the genus

The genus *Centromachetes* is almost certainly endemic to Chile. The known localities of each species are listed below (Fig. 16).

- 1) *C. pocockii*: Arauco: Curanilahue, Lebu, Los Alamos; Cautín: Rio Trancura; Concepción: Concepción, Tomé, Pinares; Nuble: Bulnes; Valdivia: Temuco, Traiguen, Valdivia; Valparaiso: Valparaiso.
- 2) *C. obscurus*: Valdivia: Valdivia.
- 3) *C. titschaki*: Arauco: Contulmo; Concepción: Coronel; Malleco: Vega Blanca.

### Acknowledgements

I am very grateful to Dr. H. Dastych for information on the *Centromachetes* material deposited in Zoological Museum Hamburg, to M. Gaillard (N.M.H.N., Paris) for preparing several of the illustrations, and to Prof. John L. Cloudsley-Thompson, London, for reviewing the manuscript.

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