The distribution of the genus *Tmesisternus* Latreille, 1829 (Coleoptera: Cerambycidae, Tmesisternini), with the description of six new species from the Indonesian islands Flores and Sulawesi

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Abstract: The genus *Tmesisternus* with its 257 described species is known from Kangea till Solomon Islands and N. Australia. 242 Species occur in New Guinea, including 175 endemic species. Recent surveys and studies in musea have lead to the recognition of six new species, four from Sulawesi and two from Flores, which are described here. Besides that a key is given for the specimens of Sulawesi.
Ikhtisar: Genus *Tmesisternus* dengan 257 spesies yang dideskripsi, diketahui dari pulau Kangea sampai Kepulauan Solomon dan Australia Utara. 242 Spesies hadir di New Guinea, termasuk 175 spesies yang endemik. Penelitian yang baru dan studi di museum-museum menghasilkan enam spesies baru, yaitu empat dari Sulawesi dan dua dari Flores, yang diletakkan di bawah ini. Di samping itu kunci untuk semua spesies dari Sulawesi disajikan.

Depositories

The abbreviations given below have been used throughout the text.

AWW	- Collection Andreas Weigel , Wernburg, Germany
Br.	- A. von Breuning
GWS	- Collection Gerrit Withaar, Stadskanaal, the Netherlands
NME	- Naturkunde Museum Erfurt, Germany
NG	- New Guinea mainland
PNG	- Papua New Guinea
RMNH	- Naturalis (former Rijksmuseum van Natuurlijke Historie), Leiden, The Netherlands
ZMAN	- Zoologisch Museum, Amsterdam, The Netherlands

Introduction

The genus *Tmesisternus* Latreille, 1829, including the new description in this publication, consists of 257 species, occurring from Kangea Isl. (north of Bali) in the west to the Solomon Islands and North Australia in the east. Most of the species occur on New Guinea, and nearly all on islands east of the Wallace line. On a recent trip to Sulawesi three new species were discovered by several local collectors. In the collection of Diethart Dauber in Austria another new species is found from Sulawesi. Furthermore two new species from Flores were discovered; the first is found by a local collector and the second one was found in the collection of the museum in Leiden (RMNH).
Some species from Sulawesi are difficult to identify; for that reason a key is given for all species from Sulawesi.

Distribution

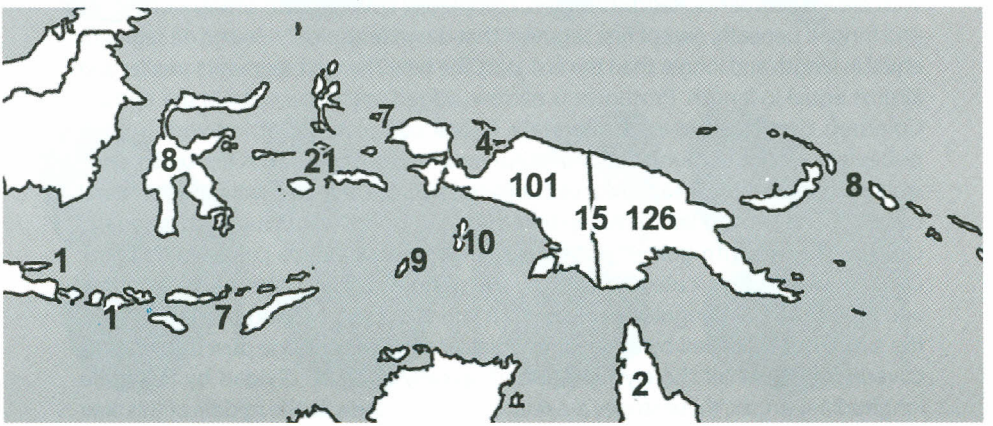
The genus *Tmesisternus* Latreille, 1829 is - with its 257 species - one of the largest genera in the eastern part of Indonesia, PNG and northern Australia. 242 Species (or 94,2%) occur on the mainland of New Guinea, including 175 endemics, consisting of 70 endemics in Papua, 95 endemics in PNG and 10 endemics in NG (not clear whether it is one locality or more, in Papua and/or in PNG). West of New Guinea 1 species is found at Kangea Island (not endemic), 1 species at Sumba Island (endemic), 6 species at Flores (all endemics), 1 at Timor, 8 on the Sulawesi Island (including 5 endemics), 21 at the Moluccas (including 13 endemics), 9 at Kai and Tanimbar Islands (including 6 endemics), 10 species at the Aru Islands (including 1 endemic) and 7 species in Raja Ampat (including 1 endemic). East of New Guinea 8 species are found at the islands NE and E of PNG - New Britain, Solomon Isl., Bismarck Archipelago and Woodlark Isl. - (including 4 endemics) and 2 species are known from Australia (including 1 endemic).
At table 1 the numbers of species are shown per area, using 14 - sometimes combined - areas, which numbers are also shown on a distribution map (see map 1). Table 2 shows the number of species found at a single (grouped) area, at 2, 3, 4 or 5 areas, and at which area or areas. So, 215 species are known from one area only; 32 species from two areas, 5 species from three areas, 3 species from four areas and 2 species from five areas.

Table 1. Distribution of *Tmesisternus*

Ka	Sb	FT	SI	Mo	KT	Ar	RA	Ja	Pa	NG	PG	Isl	Au	TT	
	X													1	215 sp. known from a single area
		X												6	
			X											5	
				X										13	
					X									6	
						X								1	
							X							1	
									X					71	
										X				10	
											X			96	
												X		4	
													X	1	
									X		X			21	32 sp. known from 2 areas
											X	X		1	
						X			X					2	
										X			X	1	
		X		X										1	
						X				X				1	
				X					X					3	
					X							X		1	
X												X		1	
			X						X		X			1	5 sp. known from 3 areas
							X		X		X			1	
					X						X	X		1	
						X			X		X			1	
						X	X			X				1	
				X			X	X		X				1	3 sp. known from 4 areas
				X		X			X		X			1	
				X		X	X				X			1	
				X		X	X	X			X			1	2 sp. known from 5 areas
				X			X	X	X		X			1	
Total number of species															**257 species**

Table 2. Distribution of *Tmesisternus* per locality

Ka	Kangea	1
Sb	Sumba	1
FT	Flores/Timor	7
Sl	Sulawesi (incl. Tukang Besi Isl)	8
Mo	Moluccas	21
KT	Kei + Tanimbar	9
Ar	Aru	10
RA	Raja Ampat	7
Ja	Japen	4
Pa	Papua mainland	101
NG	NG mainland	15
PG	PNG mainland	126
Isl	New Britain, Solomon, Bism, Arch, Woodlark	8
Au	Au	2



Map 1. Distribution of *Tmesisternus* sp. per area

New species

***Tmesisternus weigeli* spec.nov.**
Figs 1, 7

Holotype: ♂, N. Sulawesi, E. slopes of Mnt Bone, 860 m., 19-9-1981, leg. Rodenburg, ZMAN.
Paratypes (8): S. Sulawesi; Mamasa, 1 ♀, ZMAN; S. Sulawesi ; Mamasa, Makki, 8 1999. 6 ex, coll. Dauber; S. Sulawesi, Palopo, Pulu pulu, 1♀, AWW.

Diagnosis: Completely black with the pronotum and three areas on elytra in golden pubescens. Femora is swollen and sometimes with blue gloss. It differs from *wiedenfeldi* in having the apical area of the elytra completely covered with toment instead of some spots.

Description: Head, including the eyes somewhat broader than the pronotum anteriorly. Clothed with golden pubescens, except for a median carina represented by a swelling with a central widened, shiny stripe, fine grooved in the length and punctated in the widened area. On the front two black, smooth lateral ridges reaching the antennal insertions. A black smooth area behind the upper eye lobes. Antenna reaching apex, with eleven segments. Reddish/brown, completely covered with silvery pubescens and fringed beneath, except first segment that is swollen apically, 3e and 4e segment equal in length and longer than the first joint.The next The next segments smaller and almost equal in length. Prothorax is narrow, ridged apically, except in the middle. Coloured chestnut/brown moderately, lateral completely clothed with golden pubescens with small punctuations except for a median, at the ends narrowed, dark, smooth, unpunctated area. Similar unpunctated thin lateral stripes including the lateral tubercle. The second lateral tubercle is enclosed by toment .Scutellum is square, chestnut/brown with golden pubescens at lateral sides. Elytra coloured dull dark chestnut/brown. Postscutellar area shiny and smooth. Golden pubescens along base and premidially, a triangular area based on lateral margin, starting one fourth from the sutural side, divided by three longitudinal stripes. Also a large post central area, covering almost half the elytra, rounded apically and also divided by the three longitudinal stripes, these stripes are reuniting before apex. In the middle of this area a dark band creating a M on the two elytra. Apically feebly emarginated. Legs are red/brown, femora swollen and moderately covered with golden pubescens with a blue/greenish metallic shine. Tibia and tarsi completely covered with golden pubescens and stiff hairs.Venter completely covered with golden pubescens with minute smooth punctures, except a narrow and shiny central area.
Length: 22 mm. Width: 6 mm.

Etymology: The species is named in honour Andreas Weigel, my colleague in the study of this tribe.

***Tmesisternus liebeni* spec. nov.**
Figs 2, 8

Holotype: ♂, S. Sulawesi, Pulu Pulu, 2004, local coll, ZMAN.
Paratypes (23): Same data as holotype, 3 ♂♂, 4 ♀♀, ZMAN; Sulawesi; Paolo polo, Tanah, 1 ex, coll. Cope; Sulawesi; Palopo, 2 ex, AWW; Sulawesi; Paolo polo, 13 ex, coll. Dauber.

Diagnosis: A large species (26 mm) completely black with clear yellow pubescent areas on the elytra. The pronotum about as wide as long, in front widened: upside down trapeze form. Antenna of male is passing the elytra apex.

Description: Head black. Front a little concave, almost completely covered with yellow toment except for a fine middle grove and flat, wide and smooth lateral ridges. Much smaller than pronotum. Antenna eleven segmented, longer than apex of the elytra, red/brown and fringed beneath. Only the first joint is black and not fringed.Pronotum squarish, widely expanded in lateral front, constricted after middle. In front about as wide as elytra base. Yellow tomented and striated transversaly, widely punctated except for a broad, central area and laterally. Scutellum triangular, black with yellow toment laterally.Elytra black, fine and widely punctuated. Shoulders granulated. The apex emarginated, spined at both sides. Yellow tomented on both sides of the scutellum; premedial of the elytra a triangular area, based laterally and reaching to suture to one third of the elytra from the suture; post centrally an area starting at suture and oblique backwards reaching to the sides, a sutural spot followed by two larger spots on the end of the elytra, all areas are penetrated by two black longitudinal stripes, starting at base of elytra and reuniting before apex. Legs with black femora which front sides fine white tomented. Tibia red/brown with yellow toment and stiff hairs, black knees. Tarsi black with yellow toment and some stiff hairs. Venter black, laterally broad yellow tomented. Central area smooth. Female with pronotum squarish, smaller than elytra base, apical front corners sharp, in the middle less constricted;n antenna shorter than the elytra apex.
Length: 26 mm. Width: 7 mm.
Male: unknown.

Etymology: The name *floresianus* is derived from Flores, the Indonesian island where the types are found.

***Tmesisternus floresianus* spec. nov.**
Fig. 3

Holotype: ♂, E. Flores, Rana Ka, 2,150 m, 10 km E. of Ruteng, 1980/81, RMNH. [probably wrongly labeled as Ruteng is West Flores]
Paratypes (2): same data as holotype, 1 ♀, RMNH; 1 ♀, ZMAN.

Diagnosis: It differs from all other species in coloring uniform pale red and strong broad ridges on elytra. Differs from *costatus* (also from Flores) in the shape of the pronotum, which is not a trapeze formed, but does have a rounded expansion at front corners.

Description: Head black, except front and clypeus, which are red with a very fine, black middle groove.Antenna reaching towards æ of elytra, with eleven segments, red-brown, much shorter than elytra. Very fine silvery tomented, except the glabrous first four segments. Completely fringed beneath. Pronotum broad and very flat, glabrous and shiny. Basely less broad than elytra, more broadened and rounded anteriorly until almost as broad as elytra. With a midlateral tubercle not visible from above. Widely punctated, except in central area, at base broadening. Somewhat blackened along base and in midapical area.Scutellum red with white toment on lateral sides. Elytra with chestnut brown colour, sparsely white tomented and heavy punctated except three heavy raised, red coloured ridges, one along the complete suture and two, starting at base and reuniting just before apex, the fourth and fifth lateral ridges are less pronounced and coloured much darker than the other three. The interstices are punctated towards apex, last 1/6 part more widened. The apex is rounded with a minute sutural spine. Legs red, with tibia and tarsi completely covered with yellow toment and some stiff hairs. Venter centrally smooth and shiny; laterally with yellow tomented patches.
Length: 22 mm. Width 7 mm.
Male: unknown.

Etymology: The name *floresianus* is derived from Flores, the Indonesian island where the types are found.

***Tmesisternus defobi* spec. nov.**
Figs 4, 9

Holotype: ♀, Sulawesi south, Mamasa, 2004, local coll, ZMAN.
Paratypes (11): same date as holotype, 2 ♂♂, 7 ♀♀, ZMAN; Sulawei; Pulu pulu, . 2 ♀♀, AWW.

Diagnosis: A large species (25 mm) and the pronotum of the male much wider than long and very strong expansions on the front corners, in total a little wider than the elytra base. Completely black with grey tomented areas.

Description: Head black, smooth with only a little whitish pubescence alongside a smooth middle area, in front near labrum, cheek posterior, and between upper and lower eye lobes. In the black central area a very weak carina on vertex, changing into a fine ridge on front ending in a tubercle before labrum. No anterior ridges. Antenna with the first joint black, very fine punctated and weak grey tomented. The following segments red/brown and also grey tomented. Fringed beneath. Eleven segmented and passing elyral apex. Pronotum broad, very enlarged anterolaterally. Wider than elytra. Expansions transversally striated and white tomented anteriorly in the corner where the expansion starts and posteriorly in the corners of the narrowed part of the pronotum. Scutellum black, wide, rounded apically. Laterally white tomented with a small smooth area in the middle. Elytra black, long and narrowed to the emarginated apex. Completely wide and weakly punctated, sometimes in rows. White tomented on some areas. Lateral a triangular area with irregular white patches, reaching sutural ridge. Post medially nearly the same area with similar pattern, but smaller, followed by a small sutural spot and a big patch on each end of the elytra. Legs femora black and claviate with front and backside partly white tomented. Tibia completely covered with golden toment and stiff hairs. Tarsi white tomented and some golden stiff hairs. Venter black with a small, smooth central area; all tergits laterally and posterialy white tomented.
Length: 27 mm. Width: 7.5 mm.
Females: Without an expanded pronotum.

Etymology: The species is named *defobi* as thanks to the nature photo laboratory "Dertien Foto Biology", for their financial support to the **Papua Insects Foundation.**

***Tmesisternus devosi* spec. nov.**
Figs 5, 10

Holotype: ♂**,** Indonesia, Flores, 12-2006, local coll.**,** ZMAN.
Paratype (1 ♀): same data as holotype, AWW.

Diagnosis: Completely black with - in *Tmesisternus* very unusual - real blue tomented areas in each of four horizontal parts on the elytra and the sides of the pronotum. Could be places in the Lotor group, but not exchangeable by the coloration.

Description: Head black, frons with double median ridge with groove and an elliptical depression. Very weak lateral ridges along the eyes. The depression on the front and the vertex covered with blue toment, except for the middle of the vertex and an area behind the upper eye lobe. Pronotum black and smooth. At base somewhat narrower than elytra, laterally expanded. Laterally tubercle not visible from above. The lateral side weakly constricted in the middle. Hardly punctuated. Blue tomented on front corners and in the middle of the base. A little transversely striated to the front corners. Scutellum more or less square-shaped, front and backside rounded, smooth, no toment. Elytra black, hardly punctated, gradually narrowing apically. Apex laterally rounded with a very weak sutural spine. Blue tomented on the following positions: from scutellum around the shoulders, a pre- and a post-median transverse band, a smaller band before apex, all reaching from suture to around the epipleura. At last a small spot along suture and apex. Legs: completely black, partly with blue toment. Front tibia dorsally with a row of yellow stiff hairs. Venter black, completely covered with blue toment, except for a longitudinal central area.
Length: 23 mm. Width 8 mm.
Female: Pronotum without lateral expansion, narrowed forward and lateral spine visible from above.

Etymology: The species is named in honour of Drs. Rob de Vos, for his grateful help in my study, in correcting my work and his webmasters work for the **Papua Insects Foundation**.

***Tmesisternus albari* spec. nov.**
Figs 6,11

Holotype: ♂, S. Sulawesi; Mamasa, Makki, 1,600 m. 8-1999, leg. K. Martini, NME.

Diagnosis: A large, black species (24 mm) with the pronotum wider than long and widened to front corners, at base smaller and at front wider than elytra base; on the elytra some areas with yellow and blue mixed toment.

Description: Head black, very fine grooved in the middle, ending in a punctation before labrum, lateral ridges shallow, starting at antennal base running oblique to just before labrum and curved to mid groove. In the depressions blue and yellow tomented. Antenna eleven segmented, reaching about two segments longer than apex of the elytra. First segment black with blue toment. Second and third segment dark brown with some blue toment, next segments brown with grey toment. Third and fourth segment equal in length and together longer than the scape. Pronotum twice as broad than its length. Base smaller than elytra, laterally expanding forward

wider than elytra and apically rounded. Striated transversally, curved to the front corner. A small, smooth longitudinal central area. Weak transversally yellow tomented . Sparsely punctated except for the central area. Scutellum yellow tomented, except in a small smooth area in the middle. Elytra elongated, the first 3/4 of the elytra parallel sided, apical 1/4 narrowing. Apex straight with a lateral spine. The tomented coloration is starting bluish at base, changing to yellow in the middle and to the apex again changing in blue. The tomented areas are situated as a small area at base, a large premedian band, at backside sinuate from suture to lateral side and front side oblique from shoulder to suture, a post median triangular area based on lateral side and narrowing to suture, on the last quarter of the elytra one spot along suture and one laterally before apex. Elytra completely sparse punctated, at base the punctation a little deeper. Legs black with blue toment, the apex half of the tibia with stiff yellow hairs. Venter with completely black; prosternum and metasternum blue; mesosternum yellow tomented. Abdomen with a longitudinal smooth central area.
Length: 25 mm. Width: 7 mm.
Female: unknown.

Etymology: The species is named *albari*, in honour of Mrs.and Mr. Aleid and Bart Dertien for their financial support to **Papua Insects Foundation.**

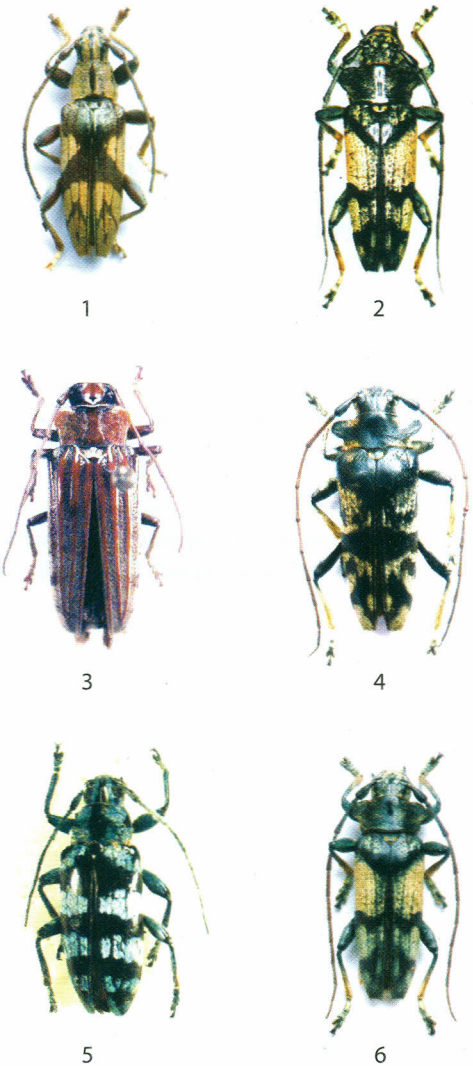
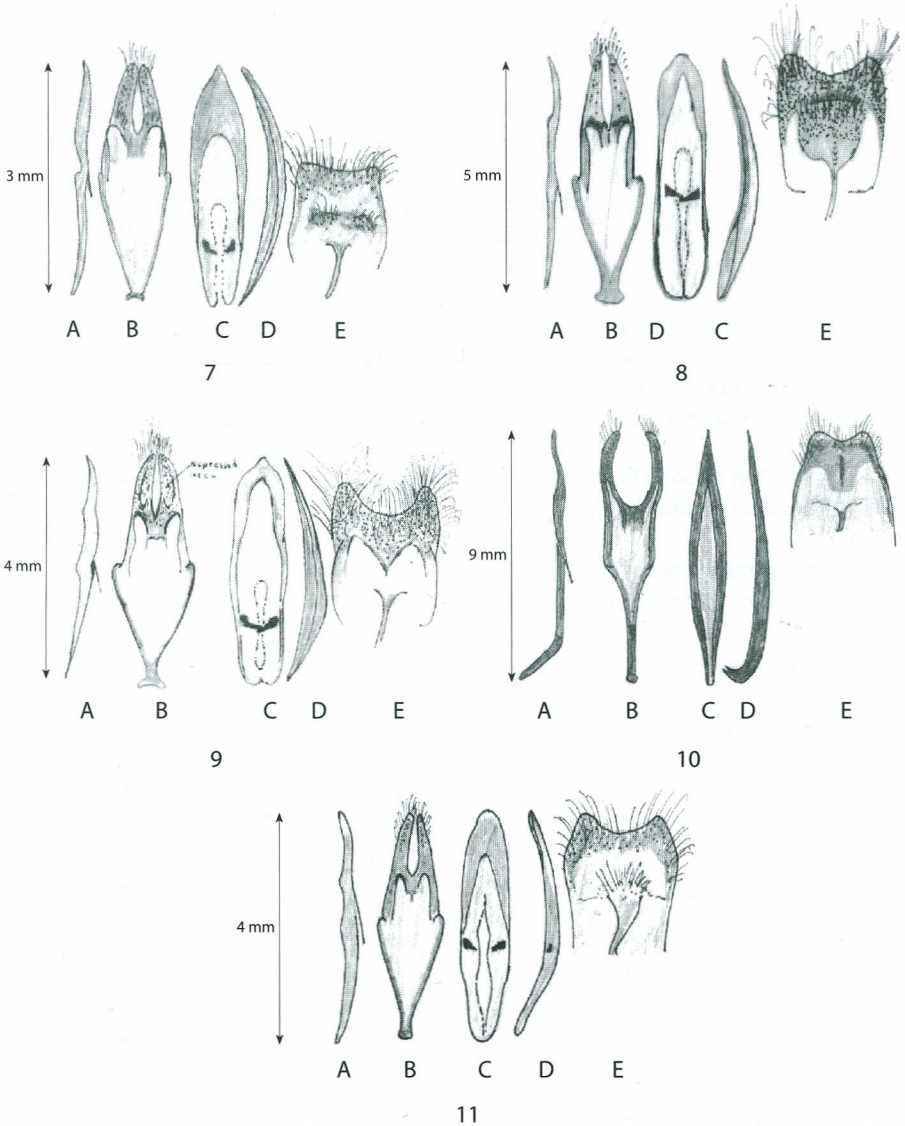


Fig. 1. *Tmesisternus weigeli* **spec. nov. Fig. 2.** *Tmesisternus liebeni* **spec. nov. Fig. 3.** *Tmesisternus floresianus* **spec. nov. Fig. 4.** *Tmesisternus defobi* **spec. nov. Fig. 5.** *Tmesisternus devosi* **spec. nov. Fig. 6.** *Tmesisternus albari* **spec. nov.**



Figs 7-11. A. lateral view of parameren; B. parameren ventral; C. aedegus ventral; D. lateral view aedegus; E. genital tergiet.
Fig. 7. *Tmesisternus weigeli.* **Fig. 8.** *Tmesisternus liebeni.* **Fig. 9**. *Tmesisternus defobi.* **Fig. 10.** *Tmesisternus devos.* **Fig. 11.** *Tmesisternus albari.*

Key to the species from Sulawesi.

Note: Female are distinguished from males by longitudinal groove in the last abdominal sternite, a feature which has no influence on this key.

1 a. Elytra with strong longitudinal ridges; body including pronotum, oval shaped ..... *costatus*
b. Else 2

2 a. Pronotum like fig. 12 a 3
b. Pronotum ♀ like 12 b or pronotum ♂ like fig. 12 d 6
c. Pronotum like fig. 12 c 8
d. Pronotum like fig. 12 e 10

3 a. Coloration of body black or black to chestnut 4
b. Coloration of body brown 5

4. a. Elytra completely covered with metallic green spots ..... *fulgens*
b. Elytra with three areas of yellow toment ..... *weigeli*

5. a.Elytra completely covered with longitudinal rows of yellow spots ..... *wallacei*
b. Elytra with separated rows of rounded yellow spots ..... *seriemaculatus*

6. a. Size smaller than 18 mm. Elytra with two postmedian triangular spots and the apical half covered with one spot, except a small area along the sutural and lateral side. ..... *imitans*
b. Size larger than 18 mm 7

7. a. Coloration of body red or reddish. Body with a transparent upper layer and under that a red layer with black points and spots, not corresponding with the punctuation on the top layer ..... *ochraceosignatus*
b. Coloration of body brown ..... *wallacei*
c. Coloration of body black 8

8. a. Scutellum completely covered with toment, antenna in male reaching to æ of the elytra; row of yellow spots on the apical part of the elytr ..... *pauli*
b. Scutellum only laterally covered with toment; antenna of male longer than elytra, of female slightly shorter 9

9. a. Shoulders granulated ..... *liebeni*
b. Shoulders smooth 10

10. a. Shoulders in male angular and smooth; elytra with grey spots ..... *defobi*
b. Shoulders round and smooth; elytra covered with three areas of mixed yellow-blue toment ..... *albari.*

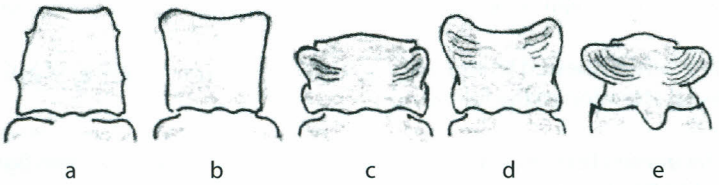


Fig. 12. Five different kinds of protonum (see Key to species 2)

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