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## A new genus of Phaneropterinae (Orthoptera: Ensifera: Tettigoniidae) from Central Africa

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### Abstract

The new genus *Pseudoplangia* is described for *Plangia laminifera* Karsch, 1896. Its general aspect is similar to that of the genus *Plangia* Stål, 1873, but it differs remarkably in the vertex width, in the shape of eyes, that are oval and elongate, in the length of mid femora, that are shorter than pronotum length, in the shape of fore and mid legs that are very much laterally compressed, and in the presence of broad-based spines on the hind tibiae.

**Key words:** *Pseudoplangia* n. gen., *Plangia*, description, affinities, distribution

### Introduction

Stål (1873) described the genus *Plangia* as follows: “*Processu verticis apice articulo primo antennarum haud vel vix latiore; oculis minus angustis; pronoto dorso plano antrorsum angustato, marginibus lateralibus obtusis convexis*” (= Fastigium verticis not or just wider than the first antennal segment; less narrow eyes; disc of the pronotum flat, posteriorly narrowed, with convex and obtuse lateral margins). In his key this short description was coupled with that of the genus *Eurycorypha* Stål, 1873: “*Processu verticis et frontis latissimo, articulo primo antennarum latiore; pronoto dorso plano, marginibus lateralibus parallelis vel subparallelis, distinctissimis, angulatis; oculis angustis*” (= Fastigium verticis and frons very wide, wider than the first antennal segment; disc of the pronotum flat, with parallel or subparallel very distinct and angular lateral margins; eyes narrow). He also established as type species of the genus *Plangia* the species *Phylloptera graminea* Serville, 1838.

According to Ragge (1980) the genus *Plangia* Stål, 1873 is characterized by fastigium of vertex usually sloping steeply to frons, at least as broad as, and often broader than, first antennal segment, with or without median sulcus, eyes oval, pronotum without lateral carinae, but sometimes showing fairly clear angle between disc and lateral lobes, surface punctate or at least partly so, shiny, fore coxae armed, femora with ventral spines, fore and mid tibiae without dorsal spurs except at apex, hind tibiae with three apical spurs on each side, male tenth abdominal tergite unmodified or somewhat enlarged, male sub-genital plate with styli, ovipositor well developed, with fine teeth.

Ragge (1980) ascribed to the genus *Plangia* 8 taxa: *P. compressa* (Walker, 1869), *P. graminea* (Serville, 1838), *P. graminea deminuta* Griffini, 1908, *P. karschi* Chopard, 1954, *P. laminifera* Karsch, 1896, *P. nebulosa* Karsch, 1890, *P. unimaculata* Chopard, 1955 and *P. villiersi* Chopard, 1954. *Plangia venata* Griffini, 1893 from Madagascar was synonymized by Carl (1914) with *P. albolineata* (Brunner von Wattenwyl, 1878) from Madagascar, not listed by Ragge (1980), who overlooked also *P. guttatipennis* Karsch, 1889 from Madagascar, *P. ovalifolia* Bolívar, 1912 from Seychelles, and *P. segonoides* (Butler, 1878). In addition *P. natalensis* Walker, 1869 from South Africa was synonymized with *P. graminea* by Kirby (1906). On the whole, 12 taxa are currently listed within the genus *Plangia* by Eades et al. (2013).

However, among the species above listed *Plangia laminifera* does not match characteristics of the genus; for this reason a new genus is erected and below described.

## Material and methods

From 24<sup>th</sup> January to 4<sup>th</sup> March 2012, the French entomologist Philippe Moretto participated in the Sangha 2012 entomological expedition to the Dzanga-Ndoki National Park. During the long survey, P. Moretto was able to collect at night with the aid of UV lamps more than two thousand specimens of Orthoptera that he kindly sent to the author's laboratory at the Department of Agricultural and Forest Sciences, University of Palermo, Italy. Most Phaneropterinae were object of a previous paper (Massa 2013), others were later identified; among them there is the series of specimens here discussed. They were photographed with a Nikon Coolpix 4500 digital camera, mounted on a Wild M5 Stereomicroscope, and photos were integrated using the freeware CombineZP (Hadley 2008). Mounted specimens were measured with a digital calliper (precision 0.01 mm).

### *Pseudoplangia* n. gen.

(Figs. 1–15)

**Type species:** *Plangia laminifera* Karsch, 1896, here designated

**Description.** Fastigium of vertex sloping steeply to frons, broader than the first antennal segment, with median sulcus (Figs 7, 14). Eyes oval and elongate, moderately prominent (Figs 3, 6, 14, 15). Head without fronto-genal carinae (Fig. 7). Pronotum without lateral carinae, well-developed humeral excision on the lateral lobes (Figs 3, 6, 14, 15). Upper and lower borders of legs densely covered by hairs (Figs 7, 12, 13). Fore coxae armed, fore and mid femora and tibiae laterally compressed (Figs 6, 7); fore femora with ventral spines (Fig. 7), fore tibiae with ventral spines and open tympanum on each side (Fig. 7). Mid femora and tibiae with ventral spines, mid femora shorter than pronotum length. Hind femora with ventral spines, hind tibiae with broad-based spines on upper side, small spines on lower side, and three apical spurs on each side (Figs 1, 2, 12, 13). Fore and mid tarsi very short. Wings well developed, fore wings slightly shiny and shorter than hind wings (Figs 1, 2). Male tenth abdominal tergite unmodified, sub-genital plate without styli (Fig. 5). Ovipositor well developed, clearly up-curved, with fine teeth (Fig. 9).

**Diagnosis.** The general aspect is similar to that of the gen. *Plangia* Stål, 1873, but it differs remarkably in the vertex width, in the shape of eyes, that in *Plangia* are oval but not elongate, in the presence of broad-based spines on the hind tibiae, in the length of mid legs, that in *Plangia* are longer than pronotum length, and in the shape of fore and mid legs, that are very much laterally compressed (Figs 16, 17). In *Plangia* the fastigium of vertex is less broad than in *Pseudoplangia*, fore and mid tibiae are not so compressed, hind tibiae have small and not broad-based spines, and styli, even if very small, are present in the sub-genital plate of the male. *Eurycorypha* Stål, 1873 has oval and more elongate eyes, fronto-genal carinae, very broad fastigium of the vertex and frons, mid legs longer than pronotum length, and much pronounced pronotum borders (Figs 18, 19). *Plangiodes* Chopard, 1954 also has fronto-genal carinae and is very similar to *Eurycorypha* in most other characters, but has a narrower fastigium. Finally, *Plangiopsis* Karsch, 1889 is easily recognizable, because it has closed tympana on inner side of fore tibiae.

**Etymology.** After its faint resemblance with the African genus *Plangia*.

### *Pseudoplangia laminifera* (Karsch, 1896) n. comb.

*Plangia laminifera* Karsch, 1896

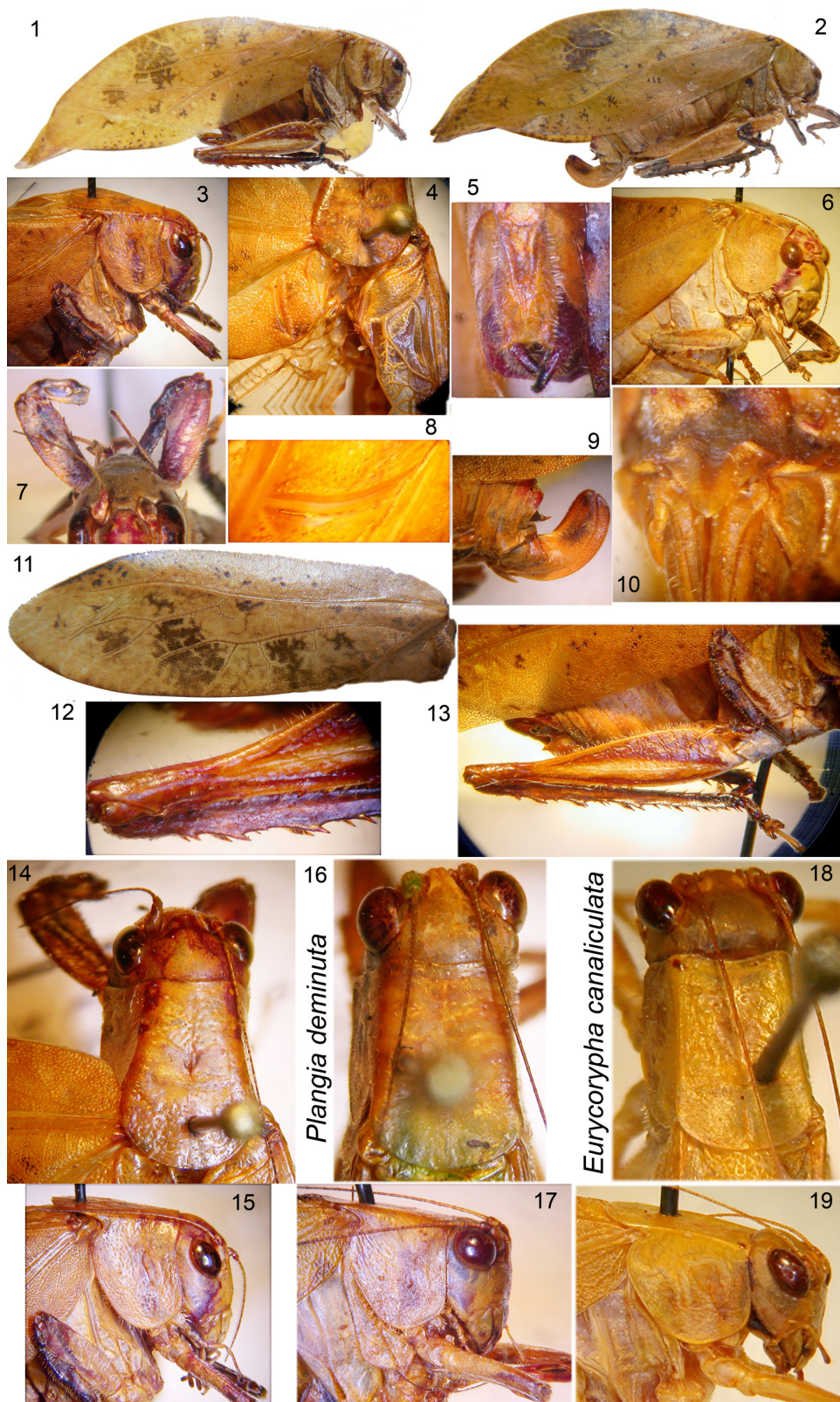
Holotype ♀: Africa, West-Central Tropical Africa, Cameroon, Lolodorf, Leopold Conrardt (ZMHB, Museum für Naturkunde, Berlin).

**Material examined.** Central African Republic, Dzanga-Ndoki National Park, Ndoki, Lake 3 (UV trap) 02°29' 18.2N 016°13'56.5E, 18–19.II.2012, P. Moretto (1♂, 2♀♀); border of Lake 1 (UV trap) 02°28'51.0N 016°13'04.5E, 13–14.II.2012, P. Moretto (1♀) (Coll. B. Massa, Palermo).

When Karsch (1896) described *Plangia laminifera*, he pointed out only the presence of compressed fore and mid femora, with black spines on lower border, but he did not mention the shape of eyes, the presence of compressed fore and mid tibiae, the shortness of mid femora, the peculiar shape of spines of hind tibiae and the width of vertex, that is broader than the width of the first antennal segment.

Description of the male, previously unknown.

Color. Antennal segments yellow with dark apices. Last articles of palps dark, face yellow, head brown with some reddish spots, pronotum brown with some reddish spots, tegmina brown with some dark markings of different size (Figs 1, 2, 11).



**FIGURES 1–19.** *Pseudoplangia laminifera* (Karsch, 1896) n. comb. 1. Habitus of the male. 2. Habitus of the female. 3. Lateral view of male pronotum. 4. Stridulatory apparatus of the male. 5. Sub-genital plate of the male. 6. Lateral view of the female pronotum. 7. View from above of male head and fore legs. 8. Stridulatory file of the male. 9. Lateral view of the ovipositor. 10. Sub-genital plate of the female. 11. Left tegmen of the male. 12. Detail of spines of hind tibiae of the male. 13. Hind femora and tibiae of the male. 14–15. Male head and pronotum from above (14) and in lateral view (15). Figs. 16–17. *Plangia deminuta* Griffini, 1908. Male head and pronotum from above (16) and in lateral view (17). Figs. 18–19. *Eurycorypha canaliculata* Karsch, 1890. Male head and pronotum from above (18) and in lateral view (19).

Fastigium of vertex is broader than the first antennal segment, with median sulcus, eyes oval and elongate, head without fronto-genal carinae. Pronotum without lateral carinae, surface punctate, shiny, legs densely covered by hairs. Fore and mid tibiae and femora are laterally compressed, mid femora very short, less than pronotum length. Fore and mid femora reddish, fore and mid tibiae dark, hind femora yellowish-brown, hind tibiae yellowish with dark apical part (Figs. 1, 2, 12, 13). Legs are comparatively short, fore and mid are laterally compressed (Figs 6, 7). Distribution of spines on legs are as follows: 3 on the inner ventral border of fore femora, 3 on each side of ventral border of fore tibiae, 4 spines on the inner ventral border of mid femora, 4 on each side of ventral borders of mid tibiae, 6 spines on the outer ventral border of hind femora, 11 on the inner and outer dorsal borders, 10 on the inner and outer ventral borders of hind tibiae. Upper spines are broad-based and long (Figs 12, 13). Many hairs are scattered over the legs. Tegmina are rather large and long (see measurements) and show a sinuous radius and simplified veins; radius is sinuous, second radius divaricate, media nearer to fore than to hind border, with three veinlets developed towards the hind border (Figs 1, 11). Speculum is wide and triangular, small veinlets branch off its left border (Fig. 4); the stridulatory file is gently curved, with ca. 100 small teeth (Fig. 8). Abdomen is yellowish with a reddish stripe on the upper part, cerci are short, covered by small hairs and in-curved, with pointed apex, reddish with black apex (Fig. 5). Sub-genital plate is long, with two carinae, provided by two apical small appendices, similar to styli, which are absent (Fig. 5).

**Redescription of the female.** Same characters of the male, with the following differences. 6–8 spines on the outer ventral border of hind femora, 10–12 and 12–13 spines on the inner and outer dorsal borders of hind tibiae, 5–6 and 9–11 spines on the inner and outer ventral borders of hind tibiae. Ovipositor clearly up-curved, cerci pointed (Fig. 9). Sub-genital plate triangular, with a concavity on the middle and two reliefs on the hind border (Fig. 10).

Measurements (mm). Male. Total length: 21.0; length of pronotum: 6.2; height of pronotum: 6.1; length of hind femora: 13.4; length of tegmina: 30.7. Females. Total length: 21.9–27.4; length of pronotum: 6.0–6.4; height of pronotum: 6.0–6.3; length of hind femora: 12.5–13.4; length of tegmina: 31.1–33.4; length of ovipositor: 5.0–5.9.

**Distribution.** Karsch (1896) described this species from Cameroon (Lolodorf); later, Griffini (1908) recorded it from the Democratic Republic of Congo (Popocabacca), and Leroy (1985) from the Central African Republic.

**Discussion.** When Ragge (1980) published his revision on African Phaneropterinae with open tympana, he divided the key into two main groups, one with dorsal spines of the hind tibiae unusually broad-based and another with unmodified dorsal spines. The first group includes only the genus group *Terpnistriae* Brunner von Wattenwyl, 1878, with characters much different from those of the genus group *Amblycoryphae* Brunner von Wattenwyl, 1878, to which both *Plangia* and *Pseudoplangia* n. gen. belong. The broad-based spines of hind tibiae are a quite unique character in the latter group of Phaneropterinae; their presence in *Pseudoplangia laminifera* was overlooked. Other Phaneropterinae with closed tympana show broad-based spines on hind tibiae (e.g. the S–E Asian genus *Ancylecha* Serville, 1838, belonging to the tribe *Holochlorini* Brunner van Wattenwyl, 1878). *Pseudoplangia* n. gen. seems to be the sole African representative of *Amblycoryphae* equipped with broad-based spines on hind tibiae.

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