



Review of the African genera *Arantia* Stål and *Goetia* Karsch (Orthoptera: Tettigoniidae: Phaneropterinae)

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Abstract

The genus *Arantia* is reviewed, the distribution and distinguishing characters given. The three species of *Goetia* are assigned as subgenus to *Arantia*. *Arantia gestri* Griffini is transferred to this new subgenus and synonymized with *G. dimidiata* Bolivar. Other species synonymized are: *A. accrana* Karsch with *A. rectifolia* Brunner von Wattenwyl; *A. gabunensis* Brunner von Wattenwyl with *A. regina* Karsch; *A. mammisignum* Karsch and *A. tigrina* Bolivar with *A. excelsior* Karsch; *A. ugandana* Rehn is synonymized with *A. fasciata* (Walker). 6 species from Tropical Africa are newly described: *A. (Arantia) quinquemaculata* n. sp., *A. (Arantia) ivoriana* n. sp., *A. (Euarantia) tanzanica* n. sp., *A. (Euarantia) tibiaspinosa* n. sp., *A. (Euarantia) bispinosa* n. sp. and *A. (Euarantia) griffinii* n. sp. A key to the subgenera and species of *Arantia* is provided. The tribe Arantiini is synonymized with Holochlorini.

Key words: review, taxonomy, new species

Introduction

Currently 29 taxa of the genus *Arantia* Stål, 1874 are known from different countries of sub-Saharan Africa. *Arantia* species are comparatively large phaneropterids, many have leaf-like tegmina and thus are perfectly camouflaged in the vegetation. The alae are longer than the tegmina. The protruding part is pointed and of the same colour as the tegmina while the remaining part of the alae is hyaline. All species are fully winged. Especially the hind legs are long and the hind tibiae often strongly curved. Heller *et al.* (2014) described a new species of *Arantia* and subdivided the group into two subgenera mainly based on tegmina width and the curvature of the hind tibiae. Highest diversity of this genus is found in Central and West Africa. Few *Arantia* species are recorded from East and South Africa and Islands of the Indian Ocean. As true for various other groups of tropical insects for the majority of *Arantia* species little or no data are available on biogeography, habitat and biology. Some few species obviously are distributed over a large area, e.g. *Arantia fasciata* (Walker), and have been collected from West, Central, East to South Africa while the majority of species is just known from its type locality. Most museum collections hold only few *Arantia* species, mostly with a few specimens, larger series of specimens are only known for *A. fasciata*, *A. gabunensis* (= *A. regina*), *A. rectifolia* or *A. orthocnemis*. Often in several species only the female is described. The best characters to use to identify *Arantia* species is the outer genitalic morphology of males. Even though all *Arantia* species are fully alate and of large size compared to other Phaneropterinae, a high diversity is seen in this genus and often several species are found syntopically. Museum specimens are often faded being of tawny or yellowish colours while most *Arantia* species are probably more of less uniformly green in life. Few species have conspicuous colour patterns and fasciae and thus may be easily distinguished from other species.

The genus *Goetia* presently contains three species being distributed throughout West and Central Africa. It is distinguished from *Arantia* by the presence of a fore coxal spine absent in *Arantia*. Except for this character *Goetia* strongly resembles *Arantia* and thus it is proposed in this paper to accommodate it as a subgenus with *Arantia*. Aim of this study is to review *Arantia* and *Goetia*, provide information on their distribution and to describe new species.

Material and methods

Specimens from the following museums and collections were included in this study:

BMCP	Bruno Massa Collection, Palermo
CHB	Claudia Hemp Collection, Bayreuth
ISAM	Iziko South African Museum, Cape Town
MfN	Museum für Naturkunde, Berlin
MNCN	Museo Nacional de Ciencias Naturales, Madrid
MRT	Museo Regionale di Storia Naturale, Terrasini (Palermo)

MSNG	Museo Civico di Storia Naturale ‘G.Doria’, Genoa
MSNM	Museo Civico di Storia Naturale, Milan
MSNP	Museo di Storia Naturale, University of Pavia
MSNT	Museo Regionale di Scienze Naturali, Turin
MZUF	Museo di Zoologia ‘La Specola’ of the University, Florence
NHM	British Museum of Natural History, London
NMHP	National Museum Natural History, Prague
NMW	Naturhistorisches Museum, Vienna
PACT	Philippe Annoyer Collection, Toulouse
RBINS	Royal Belgian Institute Natural Sciences, Bruxelles
ZMUC	Zoological Museum of the University, Copenhagen

Some specimens were collected by P. Moretto in the Dzanga-Ndoki National Park of the Central African Republic, in the Ivory Coast, Togo and Burkina Faso in 2012–2017 with the aid of a UV lamp, both on the ground and in the canopy. Others were collected by Philippe Annoyer in the Dzanga-Ndoki National Park of the Central African Republic in 2009–2012 with the aid of a UV lamp, both on the ground and in the canopy.

Some specimens 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); the following measurements (in mm) were taken: Body length: dorsal length from the head to the apex of the abdomen (without ovipositor in females); Pronotum length: length of the pronotum along dorsal median line; Pronotum height: maximum height of the pronotum; Hind femur: length of hind femur; Hind tibia: length of hind tibia; Tegmina: length of tegmina; Ovipositor (the curvature of the ovipositor was not considered, measurements taken from the subgenital plate to the tip of the ovipositor).

Results and discussion

According to Brunner von Wattenwyl (1878) the genus *Arantia* is related to the American genera *Philophyllia* Stål, 1873, *Phoebolampta* Brunner von Wattenwyl, 1878, and others included within the genus-group *Microcentra* Brunner von Wattenwyl, 1878. However, Brunner von Wattenwyl preferred to establish the own genus-group *Arantiae* Brunner von Wattenwyl, 1878 (currently tribe *Arantiini* Brunner von Wattenwyl, 1878).

Since *Arantia* contained morphological heterogeneous taxa Griffini (1906, 1908) and Bolívar (1906) discussed erecting different genera, and recently Heller *et al.* (2014) separated the genus into two subgenera, *Arantia* and *Euarantia* Heller, 2014, with the type *Arantia latifolia* Karsch, 1890 for the subgenus *Euarantia*. According to Heller *et al.* (2014) *Arantia* species have narrow tegmina (7–12 mm width) and nearly straight hind tibiae, while *Euarantia* have broad tegmina (13.5–24 mm width) and curved hind tibiae.

The closest related genus to *Arantia* in Africa is *Goetia* Karsch, 1891. When *Goetia* was described, it was delimited from *Arantia* by the following characters: the lateral lobes of the pronotum in *Goetia* are a slightly deeper than the median length of the pronotum, while in *Arantia* the pronotal lobes are considerably deeper than the median length. The fore coxae are armed in *Goetia*, while in *Arantia* they are unarmed, with the exception of *A. gestri* Griffini. In *Goetia* the subgenital plate lacks styli while in *Arantia* styli may be present or absent (Brunner von Wattenwyl 1878; Karsch 1891). However, the shape of the lateral lobes of the pronotum is very variable in species of both genera. Therefore only the presence/absence of the spine on the fore coxae remains distinguishing *Goetia* from *Arantia* (but not *A. gestri*). Otherwise the general morphology of both genera is the same and both taxa are closely related to each other. Therefore we here propose to synonymize *Goetia* Karsch, 1891 with *Arantia* Stål, 1874 placing *Goetia* into an own subgenus of *Arantia*. Considering the high variability of species and the impossibility to separate them morphologically in different genera, we considered the choice to use subgenera in this case a useful compromise for species identification.

Thirty-two taxa have been described in the genus. Kirby (1906) synonymized *A. atrolineata* Brunner von Wattenwyl with *A. fasciata* and Hemp (2013a) synonymized *A. spinulosa* with *A. fasciata* (Walker). *Arantia curvata* Griffini was described as subspecies of *A. simplicinervis* Karsch, but is considered as a synonym of *A. simplicinervis* by Cigliano *et al.* (2017). The type of *A. ugandana* Rehn is missing and could not be studied.

However, specimens identified as *A. ugandana* in the collection of the NHM coming from localities near the type locality (Uganda) suggest that *A. ugandana* is synonymous with *A. fasciata*. Three taxa are currently known in the genus *Goetia*. In this paper 26 species are considered valid, and 6 species are newly described.

At present the genus *Arantia* is placed in the tribe Arantiini Brunner von Wattenwyl, 1878, while for the genus *Goetia* no tribe has been proposed. The genus *Holochlora* Stål, 1873 formerly contained two species, *H. fatidica* Stål, 1873 and *H. venosa* Stål, 1873; *H. fatidica* was used as type-species for the genus *Arantia* by Stål (1874), while *H. venosa* remained as type species for the genus *Holochlora* (Kirby 1906). Morphological characters of *Arantia*, *Euarantia*, *Goetia* and *Holochlora* are given in Table 1.

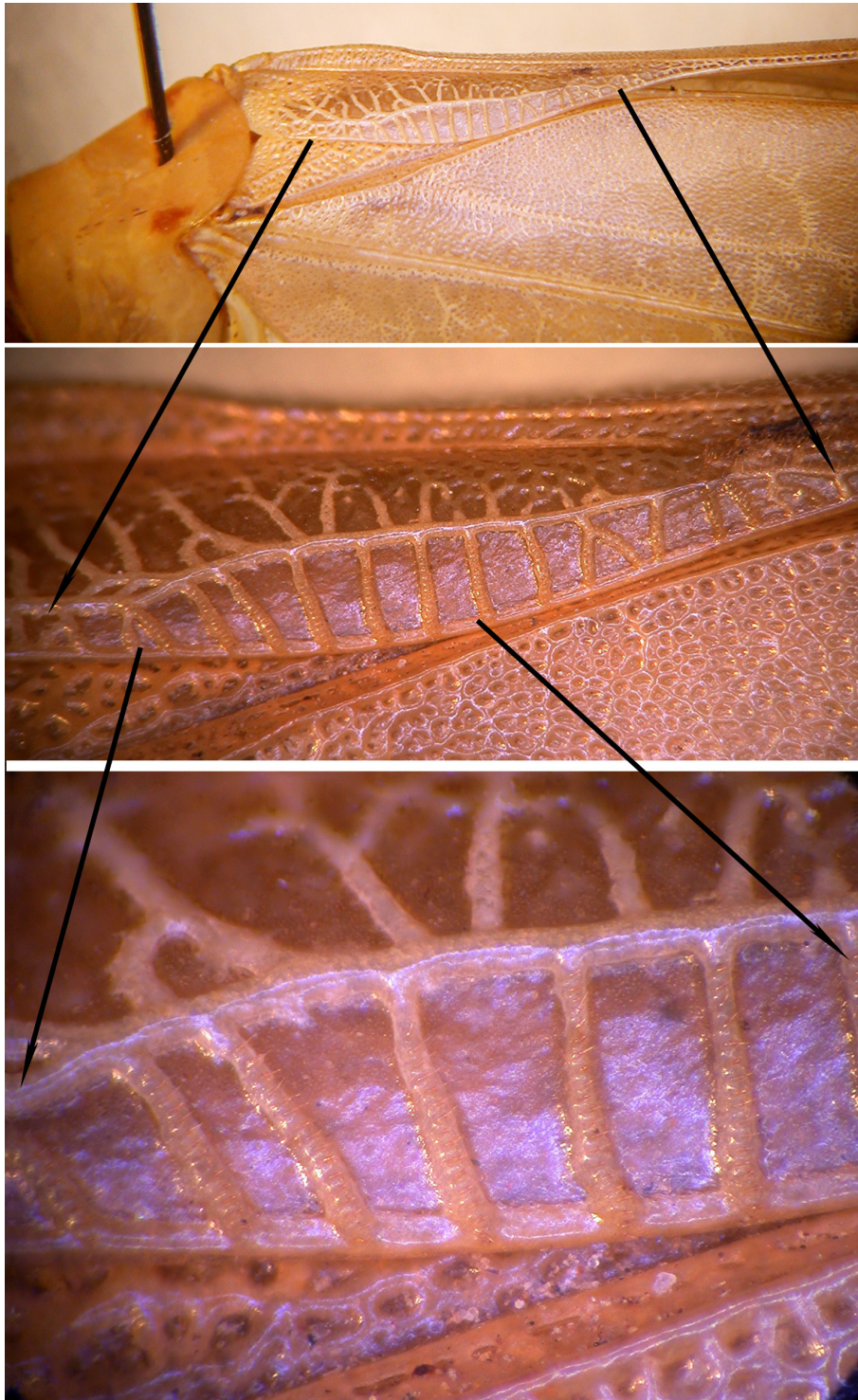
TABLE 1. Characters of the genus *Arantia* (subgenera *Arantia*, *Euarantia* and *Goetia*) and *Holochlora*.

Character	Subgen. <i>Arantia</i>	Subgen. <i>Euarantia</i>	Subgen. <i>Goetia</i>	Gen. <i>Holochlora</i>
Compound eyes	round	round	round	semi-spherical
Spine of fore coxae	absent	absent	yes	yes
Outer tympanum	open	open or closed	open	open
Last tergite	not modified	not modified	not modified	modified or not
Stridulatory vein of left tegmen	normal or elevated above wing plane	normal	normal or elevated above wing plane	normal or elevated above wing plane
Stridulatory file	normal	normal	normal	bulging in middle or normal
Ovipositor	small, reduced	small, reduced	small, reduced	robust, wide

Considering the small differences between *Holochlora* and *Arantia* (eyes, ovipositor) the correct tribe of *Arantia* should be Holochlorini instead of Arantiini, and consequently Arantiini has to be considered a synonym of Holochlorini. The genus *Holochlora* is distributed in the Oriental Region and only one species has been described from Madagascar (Liu *et al.* 2008). However, recently a species has been discovered in Zimbabwe and another in the Mauritius Is. (Massa in press); thus, its distribution is actually wider than previously assumed.

Re-description of the genus *Arantia*

Medium to large sized insects with a short head and wide round eyes. Fastigium verticis short, narrower than scapus of antenna. Prozona hardly narrower than metazona of pronotum; anterior margin of pronotum straight or slightly concave, posterior margin rounded, with evident lateral excisions where wings are inserted. Pronotum generally longer than high, in some cases as long as high or higher than long (e.g. *A. fasciata*, *A. excelsior*, *A. regina*). Lateral lobes of pronotum rounded or with a concavity. Tegmina much wider than pronotum length, leathery or more soft, with the apical margins obliquely cut. Hind wings longer than tegmina. Fore coxae unarmed (subgenera *Arantia* and *Euarantia*) or armed (new subgenus *Goetia*). Ventral margins of fore tibiae may wear small spines. Tympana of fore tibiae closed on inner, open on outer side except in the *A. fasciata*-complex and in some specimens of *A. excelsior*. Here the tympana are more or less closed both on the inner and the outer side. The ventral margins of fore and mid femora are furrowed, generally (but not always), fore femora with ventral spines, hind femora ventrally usually with some spines, in some species broad-based. Hind tibiae longer than the femora and more or less dorsally furrowed. Lower part of hind genicular lobe with accessory spine. Meso and metasterna rounded. The supra-anal plate of the male is triangular and rounded. The male cerci are variable, may be stout, sinuous, curved, with or without spines or indentations, branched, apically wrinkled or obtuse or club-shaped. The subgenital plate of the male is wide, three-keeled, with the posterior margin concave or straight and usually has styli. In some species where only the types are known styli are missing. However, this may be due to loss of these small and fragile structures. The ovipositor is reduced, strongly up-curved with the apex close to the abdomen, the upper valve is longer than the lower one. Also in the genus *Arantia* and its subgenera the female has transverse and longitudinal veins with small teeth on the dorsal area of the right tegmen (Figs 1–3), used for acoustical communication with the male. Analogous structures have been found in most females of Phaneropterinae (Heller *et al.* 2015).



FIGURES 1–3. Right tegmen female *Arantia* (*Euarantia*) *regina*, at different magnifications. Visible are several rows of tiny teeth used for acoustical communication with the other sex. Note that the right tegmen was artificially placed over the left tegmen in order to photograph the structures.

Key to the species of *Arantia*

(only males, with some notes considering species known only from females)

- 1 Fore coxa with well developed spine on anterior side of coxa. Subgenus *Goetia* n. comb.3
- 1' Fore coxa unarmed or with only traces of spines2
- 2 Tegmina broad (width > 12 mm); tegmina leathery, leaf-like. Hind tibiae curved. Subgenus *Euarantia* Heller5

2'	Tegmina narrow (< 12mm). Mostly medium-sized species with light green tegmina. Hind tibiae little or not curved. Subgenus <i>Arantia</i> Stål	20
3.	Tegmina purple. Conspicuous black spots on ventral side of femora. Central African Republic. <i>A. (Goetia) purpurea</i> (Massa)	
3'	Tegmina not purple, predominantly green	4
4.	Tegmina without hexagons. Male cerci slender, dorso-ventrally compressed, with apical dent. West and Central Africa	
4'	. . . . . <i>A. (Goetia) dimidiata</i> Bolivar (= <i>gestri</i> Griffini)	
5	Veins forming hexagons on tegmina. Male cerci sinuate, tips a roundish hairy bulge. West and Central Africa	
5'	. . . . . <i>A. (Goetia) galbana</i> Karsch	
6	At least one ventral broad-based spine on hind femora. Lateral lobes of the ovipositor with a pointed protuberance. Cerci long, up- and in-curved, stout with a central narrowing, a spoon-like expanded apex and a sclerotized apical spine. Democratic Republic Congo, Central African Republic	
6'	. . . . . <i>A. (Euarantia) marmorata</i> Karsch	
7	Spines ventrally on hind femora of normal shape	6
8	Abdominal tergites with small spines. Male cerci long and in-curved; a sclerotized dark bulge branches off before the upper apex, which has a long in-curved dark finger. Democratic Republic Congo, Central African Republic	
8'	. . . . . <i>A. (Euarantia) congensis</i> Griffini	
9	Abdominal tergites of normal shape	7
9'	Male cerci club-shaped	13
10	Male cerci not club-shaped	8
10'	Male cerci undifferentiated	9
11	Male cerci either with inner spine, branched or with bifid apex.	10
11'	Apex of male cerci flattened and tips incurved. Posterior margin of pronotum wrinkled. Mauritius Is., Indian Ocean	
12	. . . . . <i>A. (Euarantia) mauritiana</i> Saussure	
12'	Apex of male cerci with sclerotized ridge. Cameroon, Equatorial Guinea.	
13	. . . . . <i>A. (Euarantia) latifolia</i> Karsch ¹	
13'	Inner base of male cerci with one spine. Cerci stout with sclerotized ridge at inner side. Ivory Coast	
14	. . . . . <i>A. (Euarantia) bispinosa</i> n. sp.	
14'	Inner base of male cerci without spine	11
15	Midway on male cerci sclerotized inner spine. Dorsal furrow of tibiae expanded. Congo, Cameroon, Sierra Leone, Togo	
15'	. . . . . <i>A. (Euarantia) incerata</i> Karsch	
16	Male cerci bifid	12
16'	Outer part of tip of male cerci sclerotized and acute, inner part broad based and with tiny sclerotized spinule. Fore tibiae pitch black in area of tympana. Pronotum with thin transverse black line where pronotum is abruptly bent, posterior part of more yellowish to whitish colour. Cameroon, Central African Republic, Angola	
17	. . . . . <i>A. (Euarantia) melanota</i> Sjöstedt	
17'	Both tips of male cerci about the same size, sclerotized. Fore tibiae green, infumate in area of tympana. Pronotal disc uniformly green. Guinea, Sierra Leone, Togo, Ivory Coast, Cameroon, Democratic Republic Congo, Central African Republic	
18	. . . . . <i>A. (Euarantia) retinervis</i> Karsch	
18'	On anterior margin of tegmina numerous brown to black patches or grooves between veins	14
19	Tegmina without brown to black patches between veins on anterior margin	19
19'	Metazona of pronotum with a deflection at posterior part	15
20	Metazona of pronotum in the posterior part without deflection	16
20'	Hind tibia basally not modified. Posterior margin of pronotum partly or completely brown with conspicuous white fascia or two large white patches. Central and West Africa (Sierra Leone, Equatorial Guinea, Central African Republic and Cameroon)	
21	. . . . . <i>A. (Euarantia) excelsior</i> Karsch (= <i>A. mammissignum</i> Karsch = <i>A. tigrina</i> Bolivar)	
21'	Basally hind tibia with 3–5 closely set and enlarged spines so that this part seems expanded; marked dark brown. Posterior margin of pronotum brown with 2 small white patches. Ivory Coast.	
22	. . . . . <i>A. (Euarantia) tibiaspinosa</i> n. sp.	
22'	Posterior part of pronotum dark brown. Male cerci stout and slightly sinuous with club-shaped apex pitch black. Styli of subgenital plate present. Hind tibiae with brown markings. Cameroon, Central African Republic, Ivory Coast	
23	. . . . . <i>A. (Euarantia) scurra</i> Karsch	
23'	Posterior part of pronotum not dark brown but sometimes with two lateral brown patches	17
24	Smaller size, ratio length/width tegmina > 4.0. Fore tibiae ivory-coloured mixed with some dark traces in the area of the tympana. Tegmina with only faintly visible 4–5 ivory or more tawny to orange spots, sometimes on dark to black ground	18
24'	Larger size, ratio length/width tegmina < 4.0. Sometimes 2 black spots on posterior margin of pronotum. Stridulatory file short and straight, consisting of ca. 40 teeth. Widely distributed throughout West and Central Africa.	
25	. . . . . <i>A. (Euarantia) regina</i> Karsch (= <i>gabunensis</i> Brunner von Wattenwyl)	
25'	Stridulatory file short, with 80–85 teeth. Stridulatory area on left tegmen as in Fig. 19. West and Central Africa (Cameroon, Equatorial Guinea, Central African Republic, Democratic Republic Congo, Senegal, Togo, Burkina Faso, Ivory Coast)	
26	. . . . . <i>A. (Euarantia) rectifolia</i> Brunner von Wattenwyl (= <i>A. accrana</i> Karsch)	
26'	Stridulatory file long, with more than 100 teeth. Stridulatory area on left tegmen as in Fig. 20. Central Tanzania	
27	. . . . . <i>A. (Euarantia) tanzanica</i> n. sp.	
27'	Inner and outer tympanum of fore tibia closed. Posterior margin of pronotum (measured at greatest distance of metazona) > 6 mm. Posterior part of pronotum with transverse dark fascia at broadest point, remaining part white. Tegmina wide > 15 mm.	

1. *A. (Euarantia) ovalipennis* Chopard (Guinea), known only from the female sex, is very similar to *A. (Euarantia) latifolia*, but according to Chopard (1954) it has more rounded tegmina. Nevertheless, we compared the type with *A. (Euarantia) latifolia* and propose the synonymy.

Anterior margin of fore tegmina without row of dark dots but whole tegmen with numerous scattered impressed dots. Fore tibiae in area of tympana often more or less conspicuous white with some infumate to dark areas, especially at tympana. Hind femora with two rows of small evenly spaced spines, black tipped with broad base². Male cerci decussate, comparatively stout with well developed clubs at apex, smooth and dark at inner side. From West throughout Central to East and South Africa *A. (Euarantia) fasciata* (Walker) (= *atrolineata* Brunner von Wattenwyl = *spinulosa* Brunner von Wattenwyl = *ugandana* Rehn)

19'	Inner tympanum closed, outer open. Posterior part of pronotum differently coloured from the anterior part. Anterior margin of tegmina without row of tiny dots. Stridulatory file with more than 80 teeth. Legs covered with numerous short hairs. Male cerci long and in-curved, with an apical bulge with two small black spines, one of which very small. Central African Republic	<i>A. (Euarantia) griffinii</i> n. sp.
20	Male cerci undifferentiated	29
20'	Male cerci with processes or spines	21
21	Male cerci with spine or process about halfway or at apex	22
21'	Male cerci with spine or process near the base	25
22	Male cerci with blunt or expanded apex; subapically with spine	23
22'	Apex of male cerci without spines	24
23	Male cerci with blunt apex with a ridge armed with 1 spinule and a hooked broad-based spine. Subapically with robust lateral spine with sclerotized tip. West Africa (Guinea, Ghana).	<i>A. (Arantia) angustipennis</i> Chopard
23'	Male cerci with expanded apex with an inner broad-based stout spine and two outer spinules. Subapically with a long spine with sclerotized tip so that cerci almost look branched. Ivory Coast	<i>A. (Arantia) ivoriana</i> n. sp.
24	Apex of male cerci evenly rounded, laterally flattened. Strong spine dorsally about midway. West Africa (Guinea, Sierra Leone, Ghana and Ivory Coast).	<i>A. (Arantia) brevipes</i> Chopard
24'	Apex of male cerci not flattened	25
25	Spines near apex of male cerci. Tips of male cerci outward curled; before apex strong spine. Small size (♂ 20–25 mm). Sierra Leone, Guinea, Ivory Coast, Togo, Cameroon	<i>A. (Arantia) fatidica</i> (Stål)
25'	Spine or process near base of male cerci	26
26	Process near base of male cerci. Basal process of male cerci round, with almost circular sclerotized ridge. Cerci with strongly serrated and sclerotized inner ridge.	27
26'	Spine near base of male cerci	28
27	Tegmina more rounded and more leathery. Cameroon	<i>A. (Arantia) orthocnemis</i> Karsch
27'	Tegmina narrower and more translucent. Mauritius, Indian Ocean	<i>A. (Arantia) dentata</i> Saussure
28	Spine basally on male cerci slender; male cerci comparatively short, decussate, with an inner basal back-curved spine; inner chitinous ridge from base to apex. Cameroon, Democratic Republic of Congo and Angola	<i>A. (Arantia) manca</i> Bolivar
28'	Spine basally on male cerci laterally slightly flattened; cerci very long and slender, without inner sclerotized ridge. Democratic Republic Congo.	<i>A. (Arantia) gracilicercata</i> Heller
29	Male cerci comparatively long and slender, apically with dents. Bases of male cerci stouter	30
29'	Male cerci very long and slender. Bases of male cerci slender, tips undifferentiated. Central Africa (Cameroon, Angola)	<i>A. (Arantia) leptocnemis</i> Karsch
30	Tegmina with dark markings	31
30'	Tegmina without markings and very hyaline. Bases of male cerci stout, tips flattened and in-curved. Nigeria, Cameroon, Equatorial Guinea	<i>A. (Arantia) hydatinoptera</i> Karsch
31	Markings on tegmina less than five. Stridulatory file with 48–50 teeth. West, Central and South-West Africa	<i>A. (Arantia) simplicinervis</i> Karsch
31'	Five brown markings on tegmina. Stridulatory file with 28–30 teeth, the inner 4 more spaced than the remaining outer ones. Central African Republic	<i>A. (Arantia) quinquemaculata</i> n. sp.

Annotated list of species

In the following list species are arranged into three groups: 1) species with unarmed fore coxae, closed tympana on inner and open on outer side of fore tibiae, narrow tegmina (7–12 mm width) and nearly straight hind tibiae (subgenus *Arantia*) 2) species with unarmed fore coxae, closed tympana on inner and outer or open on outer side of fore tibiae, broad tegmina (13.5–24 mm width) and curved hind tibiae (subgenus *Euarantia*) 3) species with armed fore coxae, closed tympana on inner and open on outer side of fore tibiae (*Goetia* subgen. new combination). Although the use of subgenera in taxonomy is controversial, due to the high variability of characters (e.g., wing width) we propose this classification for species of the genus *Arantia* to indicate relationships within the group until more information (e.g. molecularly) gets available. Thus, three subgenera are here proposed for *Arantia*: *Arantia* Stål, *Euarantia* Heller, and *Goetia* Karsch.

2. *Arantia (Euarantia) excelsior* sometimes may have closed tympana both on inner and outer sides of fore tibia, but it never has broad-based and black-tipped spines on the hind femora.

Subgenus *Arantia* Stål, 1874

Arantia (Arantia) angustipennis Chopard, 1954 (Figs. 4, 72a, b)

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464820>

Chopard (1954). Mem. Inst. franc. Afr. Noire, 40 (2): 36.

Type locality: GUINEA, Yanlé; depository: MNHN, Paris; kind of type: holotype male.

Material examined. GUINEA. Mt. Nimba, Yanlé (holotype ♂) (MNHN).

Tegmina width: 8.7; tegmina width/pronotum length: 1.6 (Heller *et al.* 2014).

A. angustipennis is a small species (body length ♂ 21 mm). Chopard (1954) described the male from Guinea (Yanlé). Naskrecki (2009) recorded it from Ghana. Tegmina are broad (ratio length/width: 4.3, Chopard 1954), fore femora are clearly longer than pronotum (10 vs. 5.5 mm) (Fig. 4). Fore femora have 5 ventral spines, mid femora 4 and hind femora 7 ventral spines on both sides. Male cerci are stout, up- and in-curved, with a blunt apex with a ridge armed with 1 spinule and a hooked spine; before the apex a robust lateral spine is present (Figs 72a, 72b).

Distribution. Known from the type locality Yanlé, Guinea and Ghana, West Africa.

Arantia (Arantia) brevipes Chopard, 1954 (Figs. 4, 51, 75)

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464826>

Chopard (1954). Mem. Inst. franc. Afr. Noire, 40 (2): 37.

Type locality: GUINEA. Depository: MNHN, Paris. Kind of type: syntypes male and female.

Material examined. GUINEA. Mt. Nimba VI.1942, M. Lamotte (1♂ and 4♀ syntypes). Mt. Nimba VII.19512, B. Holas (1♂). Mt. Nimba 20.I.1957 (1♂). Mt. Nimba, Gonéla 5–7.VI.1991, C. Girard (light) (1♂). Mt. Nimba, Zoregué forest (800 m) 14–19.VI.1991, C. Girard (light) (1♀). IVORY COAST. 1 km before Lamto Forit 1–3.X.1968, C. Girard (1♀). Lamto 10.IX.1968, C. Girard (1♂, 1♀). 15 km before Lamto 13.IX.1968, C. Girard (1♂). Singrobo 8.X.1968, C. Girard (1♀) (MNHN). Biémasso (441m) 7–11.VII.2014 (1♂). Man, Mt. Tonkoui (1200m) 1–4.VII.2014 (light trap), P. Moretto (2♂); same locality, 13–15.VII.2014 (light trap), P. Moretto (2♂); same locality 24–28.VII.2015 (light trap), P. Moretto (1♂). Taï National Park, Res. Station 18.III.2017 (night), B. Massa (1♂, 1♀). Taï National Park, Res. Station 13.III.2017 (light trap), B. Massa (1♂) (BMCP); Azagny Nat. Park (59m) 26.XI–1.XII.2015, M. Aristophanous, P. Moretto, E. Ruzzier (1♂) (NHM). Man, Cascades 26.XII.1979, A. Pauly (1♀) (RBINS).

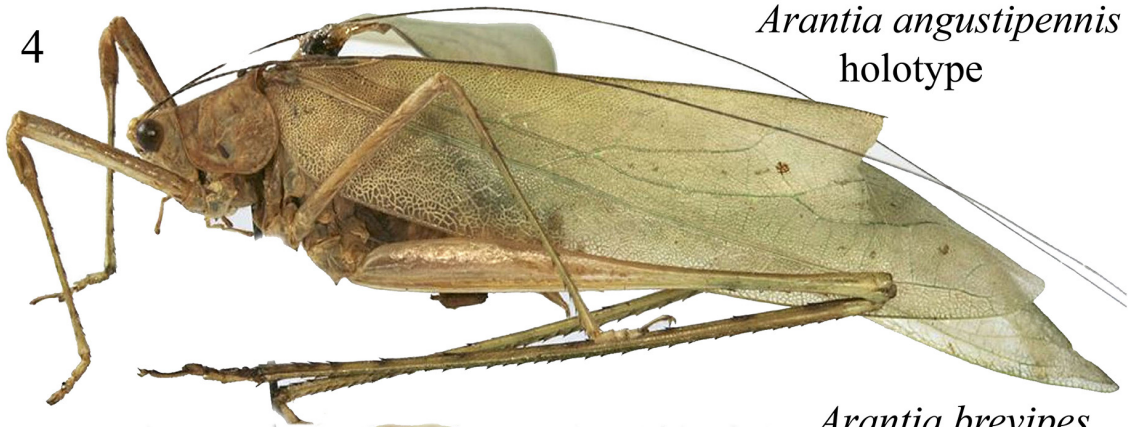
Measurements. Males. Body length: 26.8±1.1; pronotum length: 6.2±0.2; pronotum height: 6.0±0.1; hind femur: 22.0±1.6; tegmina: 36.8±2.1 (syntype: 38.2); tegmina width: 9.8±0.2 (syntype: 11.4); tegmina length/width: 3.4–4.0 (syntype: 3.3); tegmina width/pronotum length: 1.4–1.7. Female (syntype). Body length: 30.5; pronotum length: 6.5; hind femur: 22.0; tegmina: 35.5; tegmina width: 12.0; tegmina length/width: 3.0; tegmina width/pronotum length: 1.8.

Chopard (1954) described both sexes from Guinea. Later, Ragge & Roy (1971) recorded it from Sierra Leone, and Naskrecki (2009) from Ghana.

A. brevipes is a small species (body length ♂ 25–28 mm, ♀ 30.5 mm), related to *A. angustipennis*, but with broader tegmina and shorter legs [fore femora slightly longer than pronotum: 8 vs. 7 mm according to Chopard (1954), 7.5–7.8 vs. 6.0–6.5 in the here investigated specimens] (Fig. 4). The anterior part of the pronotum is narrow and the general aspect from above is very narrow. Tegmina have a black marking at their base and the metanotum is darkened. The stridulatory file is very short (ca. 1.5 mm) and consists of ca. 80 evenly spaced teeth (Fig. 51). Fore femora have 6–7 ventral spines on inner margin, mid femora 0–2 on inner and 3–6 on the outer margin, the hind femora 5–6 small ventral spines on the inner and outer sides. Male cerci have an inner spine about midway, are apically rounded and the tips are shaped like a flat blade (Fig. 75). Styli present.

Distribution. West Africa (records from Guinea, Sierra Leone, Ghana and Ivory Coast).

4



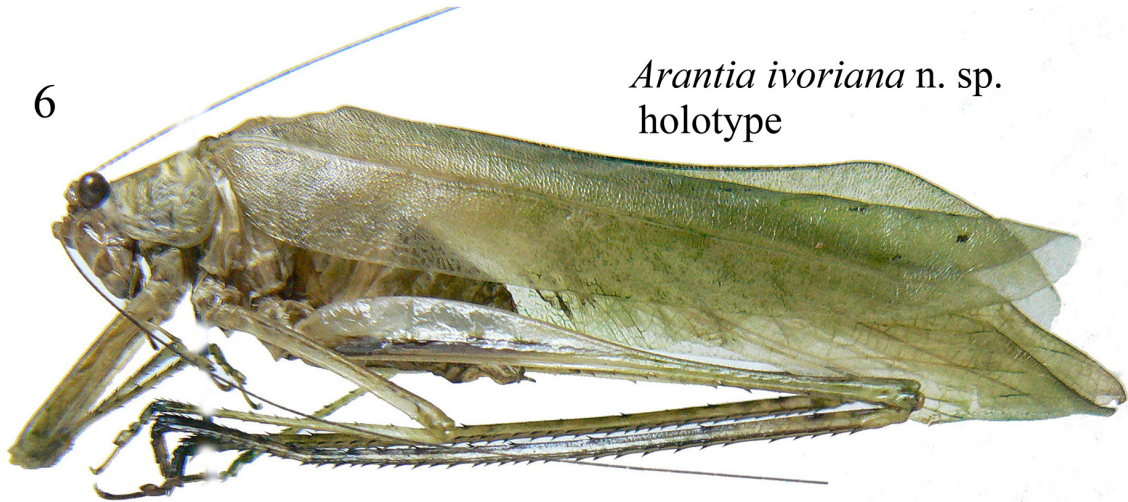
Arantia angustipennis
holotype

5



Arantia brevipes
syntype

6



Arantia ivoriana n. sp.
holotype

7



Arantia fatidica

FIGURES 4–7. Habitus of *Arantia* (*Arantia*) *angustipennis* (holotype) (4), *A.* (*Arantia*) *brevipes* (syntype) (5), *A.* (*Arantia*) *ivoriana* n. sp. (holotype) (6) and *A.* (*Arantia*) *fatidica* (7).

***Arantia (Arantia) ivoriana* n. sp. (Figs. 6, 52, 73a, b)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:500639>

Material examined. IVORY COAST. Taï National Park, Res. Station 21.III.2017 (light trap), B. Massa (♂ holotype) (BMCP).

Measurements of male. Body length: 25.3; pronotum length: 5.3; pronotum height: 4.8; hind femur: 28.0; tegmina: 40.0; tegmina width: 7.2; tegmina length/width: 5.5; tegmina width/pronotum length: 1.3.

Diagnosis. *A. ivoriana* n. sp. is a small sized (♂ 25.3 mm), very characteristic species, with translucent tegmina. The stridulatory vein is elevated above the wing plane and the cerci have a lateral long spine and two apical spinules.

Description. Male (Fig. 6). *General habitus and colour pattern.* Predominantly yellow-green, base of tegmina black, hidden by pronotum. *Head and antennae.* Eyes oval, fastigium of vertex sulcate. Antennal segments reddish with small brown rings. Head and legs yellow with brownish dots and stripes, face yellow. *Thorax and legs.* Fore coxa unarmed. Tympana on fore tibia open on outer and closed on inner side. Pronotum green, anterior margin slightly concave, posterior margin rounded. Tegmina oval, green with a dark spot at the base, 5.5 times longer than broad. The stridulatory area of the left tegmen is almost straight and elevated above the wing plane, the stridulatory file is straight and consists of ca. 85–90 evenly spaced teeth (Fig. 52). Fore femora with 4 inner ventral spines, fore tibiae with 8 inner and outer ventral spines, and 6 dorsal outer spines. Mid femora with 3 outer ventral spines, mid tibiae with 14 outer and inner ventral spines, 12 spines on outer and inner dorsal margins. Hind femora with 6 outer and 7 inner ventral spines, hind tibiae slightly curved, with 20 outer and inner ventral spines. *Abdomen.* Male cerci with expanded apex with an inner broad-based stout spine and two outer spinules. Subapically with a long spine with sclerotized tip so that cerci almost look branched (Fig. 73a). Subgenital plate short and narrow, the apex is straight. Styli present (Fig. 73b).

Female. Unknown.

Etymology. Named after the country Ivory Coast.

Affinities. It is related to *A. (Arantia) angustipennis*, from which it may be separated by the different shape of the cerci.

Distribution. Known only from the type locality (National Park of Taï, Ivory Coast).

***Arantia (Arantia) fatidica* (Stål, 1873) (Figs. 7, 74a, b)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464827>

Stål (1873). Ofv. K. Vetensk. Akad. Forh., 30 (4): 43.

Type locality: SIERRA LEONE. Depository: NHRS, Stockholm; kind of type: holotype male.

Material examined. CAMEROON (3♀) (MNCN). TOGO. Bismarckburg 29.IX–31.X.1890, R. Büttner (1♂). Bismarckburg III–IV.1891, R. Büttner (1♂). Bismarckburg 15–31.XII.1890, R. Büttner (1♀). Bismarckburg 1891, R. Büttner (1♀). Bismarckburg 30.VI–3.VII.1893, L. Conradt (1♀) (MfN). GUINEA. Mt. Nimba, Yalanzon, M. Lamotte (1♀). Mt. Nimba, Nion, M. Lamotte (1♀). Mt. Nimba (1000 m), M. Lamotte (1♂). Between Kéouleuta & N'Zo 25.V.1991, C. Girard (1♀) (MNHN).

Tegmina width: 9.1–11; tegmina length/width: 3.5–3.8; tegmina width/pronotum length: 1.8 (Heller *et al.* 2014).

Characters. *A. fatidica* is a species of small size (body length ♂ 20–25 mm, ♀ 29 mm) (Fig. 7). Stål (1873) described the male from Sierra Leone, and later Karsch (1893) described the female from Togo; it has been recorded by Karsch (1889, 1890, 1893) from Sierra Leone, Barombi Station (Cameroon) and Togo, by Griffini (1908) from Mukonje Farm (Cameroon), and by Chopard (1954) from Mt. Nimba (Ivory Coast and Guinea). This species has a shiny black spot at the base of the tegmina. Fore femora have 3–4 ventral spines, mid femora 2–4 ventral spines and hind femora with a double row of 6–7 yellow ventral spines with a black tip. Male cerci are short and slightly curved; at about middle of the cerci an inner stout, slightly flattened and pointed spine with a black tip is typical; the apex of the cerci is bifid, pointed and apically hairy (Figs 74a, 74b). Styli are present. Ovipositor is short without lateral protuberances.

Distribution. Species with a probably wide distribution in West and Central Africa (records from Sierra Leone, Guinea, Ivory Coast, Togo, Cameroon).

***Arantia (Arantia) dentata* Saussure, 1899 (Fig. 76)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464811>

Saussure (1899). Abh. Senckenb. Natforsch. Ges., 21: 615.

Type locality: MAURITIUS. Depository: MHNG, Geneva. Kind of type: holotype male.

Tegmina width: 10; tegmina width/pronotum length: 1.3 (Heller *et al.* 2014).

Characters. *A. dentata* is a species of medium size (body length ♂ 35 mm). Only two male specimens are known, but one of them comes from Cameroon (Saussure 1899; John Hollier, pers. comm.) and thus very likely belongs to *A. orthocnemis*. It is characterized by narrow and translucent tegmina with a black spot at their base. Further characters are a rounded margin of the pronotal lobes. The male cerci are rather stout and have an inner spine, as *A. orthocnemis* (compare Figs 76 and 77).

Remarks. *A. dentata* is morphologically very similar to *A. orthocnemis*. However, the localities of both taxa (*A. dentata* known from Mauritius in the Indian Ocean, *A. orthocnemis* occurring in Central and West Africa) are far apart geographically and therefore we decided not to synonymize these two species.

Distribution. Known only from the island Mauritius in the Indian Ocean.

***Arantia (Arantia) orthocnemis* Karsch, 1890 (Figs. 8, 77)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464832>

Karsch (1890). Entom. Nachricht., 16 (23): 357.

Type locality: CAMEROON. Barombi Station. Depository: MfN, Berlin. Kind of type: syntypes male and female.

Material examined. CAMEROON. Barombi Station, Preuss (1♂, 1♀ syntypes). (1♂, 1♀). Mundame, L. Conradt; Cameroon, Victoria (1♀). Isanga Lobaje Eays, Jainide, X.1894, G. Tessmann (1♀) (MfN). (1♂, 1♀) (MNCN). Mukonje Farm, R. Rohde (1♂, 1♀) (MSNG). Mundame (2♂). Mukonje Farm, R. Rohde (4♂, 3♀) (RBINS). DEMOCRATIC REPUBLIC CONGO. Congo, Urw.-Mawambi 1910, Grauer (2♂) (NMW).

Tegmina width: 9.8–11; tegmina length/width: 4.6; tegmina width/pronotum length: 1.5 (Heller *et al.* 2014).

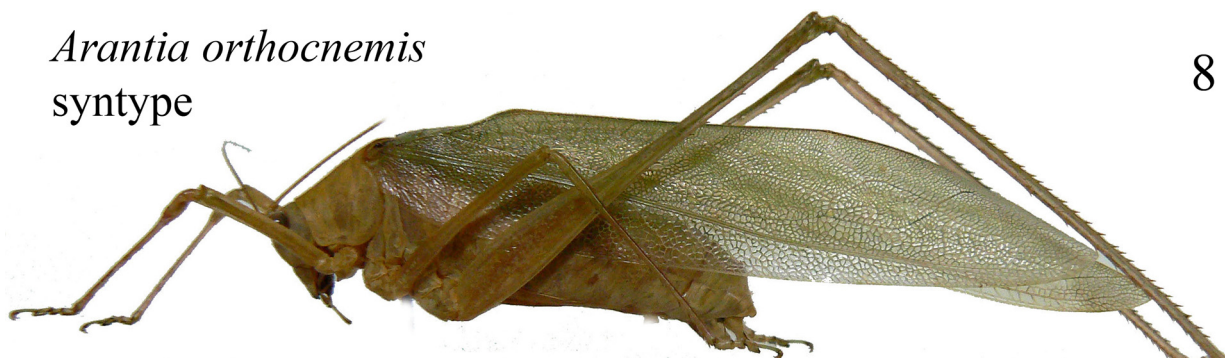
Characters. *A. orthocnemis* is a species of medium size (body length ♂ 31 mm, ♀ 34 mm) (Fig. 8). Karsch (1890) described both sexes from Barombi Station (Cameroon). Sjöstedt (1902) recorded it from Itoki (Cameroon), Bolívar (1906) from Fernando Póo (Equatorial Guinea), Griffini (1908) from Mukonje Farm (Cameroon) and Bruner (1920) from Lolodorf (Cameroon). It has narrow tegmina with reddish or ivory to white coloured spots, and with basal black markings. Tarsi in most specimens are black. Fore femora with 5–8 inner ventral spines (1 specimen from Mundame has 5 spines on the left femur, while the right is unarmed), mid femora are unarmed, hind femora with 6 outer and 8 inner ventral spines. Male specimens are easily distinguished from other *Arantia* species comparing the male cerci. The bases are swollen and a sclerotized ridge stretches from the base to the apex at the inner side. Basally at the inner side of the cerci a process is present, armed with an almost circular sclerotized ridge (Fig. 77). Styli well developed. The ovipositor has two lateral protuberances. The subgenital plate of the female is short and slightly pointed.

Affinities. Karsch (1889) and Griffini (1908) pointed out its affinity with *A. hydatinoptera*. *A. orthocnemis* has morphologically completely different male cerci while in *A. hydatinoptera* the male cerci are apically compressed and the tips incurved and a basal process is lacking as well as the inner sclerotized ridge. *A. hydatinoptera* is probably more closely related to *A. leptocnemis*. *A. orthocnemis* has almost identical male cerci as *A. dentata* (see above).

Distribution. Widespread in Central and Western Africa (Cameroon, Democratic Republic Congo, Equatorial Guinea).

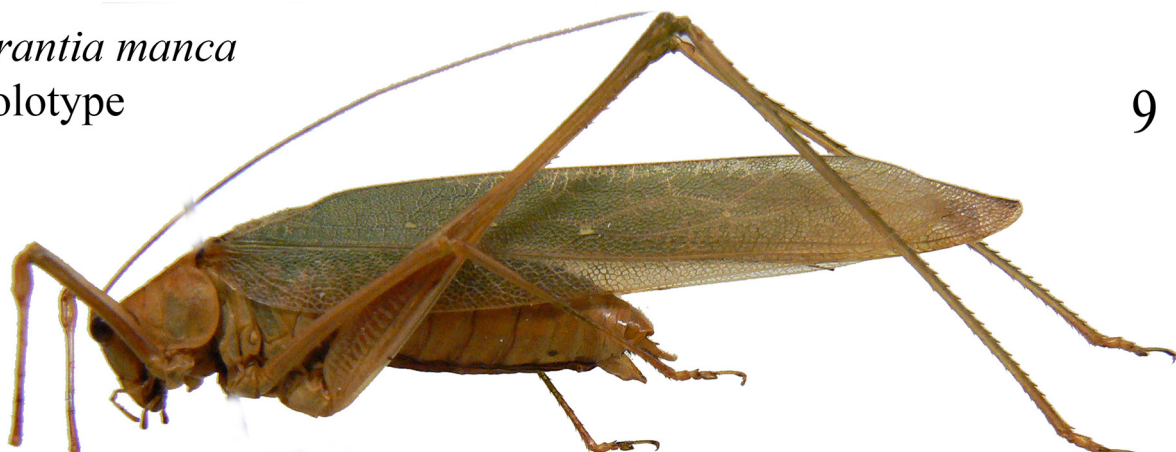
Arantia orthocnemis
syntype

8



Arantia manca
holotype

9



Arantia gracilicercata
holotype

10



Arantia hydatinoptera
syntype

11



FIGURES 8–11. Habitus of *Arantia* (*Arantia*) *orthocnemis* (syntype) (8), *A.* (*Arantia*) *manca* (holotype) (9), *A.* (*Arantia*) *gracilicercata* (holotype) (10) and *A.* (*Arantia*) *hydatinoptera* (syntype) (11).

***Arantia (Arantia) manca* Bolívar, 1906 (Figs. 9, 78a, b)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464831>

Bolívar (1906). Mem. Soc. espan. Hist. nat., 1: 332.

Type locality: CAMEROON. Depository: MNCN, Madrid. Kind of type: lectotype male.

Material examined. CAMEROON. L. Conradt (♂ lectotype) (MNCN). DEMOCRATIC REPUBLIC CONGO. Kisantu (2♂). ANGOLA. Kabinda (1♂) (RBINS).

Tegmina width: 7; tegmina width/pronotum length: 1.2 (Heller *et al.* 2014).

Characters. *A. manca* is a small sized species described on one male only. This species has narrow tegmina with a black spot at the base (Fig. 9). Hind tibiae are straight. Styli on the male subgenital plate are absent. Male cerci are short and in-curved and have an inner basal back-curved spine; from the spine to the upper cerci apex a brown chitinous ridge is present (Figs 78a, 78b).

Distribution. Bolívar (1906) wrote in the introduction of his paper that he was going to include not only specimens coming from Spanish Guinea, but also further specimens from the same geographic region (e.g. Cameroon). However, he did not mention any exact locality for *Arantia manca*. The specimen in the collection of MNCN, identified as *Arantia manca* by Bolívar, is labeled: Kamerun, L. Conradt, 1898–1899. This specimen was mentioned as holotype by Ragge (1968a), but according to the ICZN, must be considered as lectotype (Paris 1994). Known from Cameroon and recorded from Ghana by Naskrecki (2009), here newly reported from Angola and the Democratic Republic of Congo.

***Arantia (Arantia) gracilicercata* Heller, 2014 (Figs. 10, 79a, b)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464819>

Heller *et al.* (2014). Zootaxa, 3785: 355–358.

Type locality: DEMOCRATIC REPUBLIC CONGO. Centre de Recherche en Sciences Naturelles in Irangi, ca. 100 km (north) west of Bukavu. Depository: MfN, Berlin. Kind of type: holotype male.

Material examined. DEMOCRATIC REPUBLIC CONGO. Centre de Recherche en Sciences Naturelles in Irangi, ca. 100 km (north) west of Bukavu (♂ holotype) (MfN).

Tegmina width: 7–10.5; tegmina length/width: 4.0–4.2; tegmina width/pronotum length: 1.3–1.7 (Heller *et al.* 2014).

Characters. *A. gracilicercata* is related to *A. orthocnemis* (compare Figs 9 and 10). Both species share a similar habitus and shape of the male cerci which are long and slender with an inner sclerotized ridge and an inner basal spine. However, in *A. orthocnemis* the male cerci are not as long and slender as in *A. gracilicercata* and the inner spine or process located at the inner base of the male cerci is differently shaped between both species (cf. also Heller *et al.* 2014) (Figs 79a, 79b).

Distribution. Known only from the type locality, Bukavu area in the border region of the Democratic Republic of the Congo with Rwanda, Central Africa.

***Arantia (Arantia) hydatinoptera* Karsch, 1889 (Figs. 11, 80)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464829>

Karsch (1889). Berlin Ent. Z., 32: 433, 434, 436.

Type locality: NIGERIA. Benue. Depository: MZPW, Warsaw. Kind of type: syntypes male and female.

Material examined. EQUATORIAL GUINEA. Fernando Póo, Punta Frailes X–XI.1901, L. Fea (1♂, 1♀) (MSNG). CAMEROON. John-Albrechtshöhe III.1896, L. Conradt (1♀). Lolodorf, L. Conradt (1♀) (MfN). Staudinger (1♀) (NMW).

Tegmina width: 8.9–10; tegmina length/width: 4.8; tegmina width/pronotum length: 1.4 (Heller *et al.* 2014).

Characters. *A. hydatinoptera* is of medium size (body length ♂ 30 mm, ♀ 35 mm) (Fig. 11). Karsch (1889)

described both sexes from Nigeria. Later, Griffini (1906) recorded it from Bioko (Fernando Póo, Equatorial Guinea). The anterior area of the pronotum is narrower than the posterior area. The tegmina are narrow with tiny small dark spots. Fore femora with 7–8 small inner ventral spines, mid femora are unarmed, hind femora with 3 inner and 4 outer small ventral spines. Male cerci are long, unarmed, apically in-curved and a little dorso-ventrally flattened, the apex is not sclerotized (Fig. 80). The ovipositor is short (4 mm) (Karsch 1889; Brunner von Wattenwyl 1891), the subgenital plate of the female is short and rounded, and has two lateral bulges at its base.

Distribution. Central and West Africa (records from Nigeria, Cameroon and Equatorial Guinea).

***Arantia (Arantia) leptocnemis* Karsch, 1890 (Figs. 12, 13, 81)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464830>

Karsch (1890). Entom. Nachricht., 16 (23): 358.

Type locality: CAMEROON. Barombi Station. Depository: MfN, Berlin. Kind of type: holotype female.

Material examined. CAMEROON. Barombi Station (1♀ holotype). Barombi Station, Preuss (1♂) (MfN). ANGOLA (1♂) (MNCN).

Tegmina width: 7.7–9; tegmina length/width: 5.9; tegmina width/pronotum length: 1.3 (Heller *et al.* 2014).

Characters. *A. leptocnemis* is a medium sized species (body length ♂ 30 mm, ♀ 22.8 mm). Karsch (1890) described the female and considered it related to *A. orthocnemis*. Later, Karsch (1891) described the male. Tegmina are narrow (Figs 12–13) and may have a black marking at their base. Fore femora have 4 spines, mid femora are unarmed (except for a small spine near the apex), hind femora have 5 outer and 3 inner small ventral spines. Male cerci are long, narrow and in-curved, the apex is sclerotized and rounded (Fig. 81). Styli are present. The subgenital plate of the female is short and rounded. The species is easily distinguished by its long and slender decussate male cerci.

Distribution. Central to Southwest Africa (Cameroon, Angola).

***Arantia (Arantia) simplicinervis* Karsch, 1889 (Figs. 14, 53, 82)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464833>

Karsch (1889). Berlin Ent. Z., 32: 433, 434, 438.

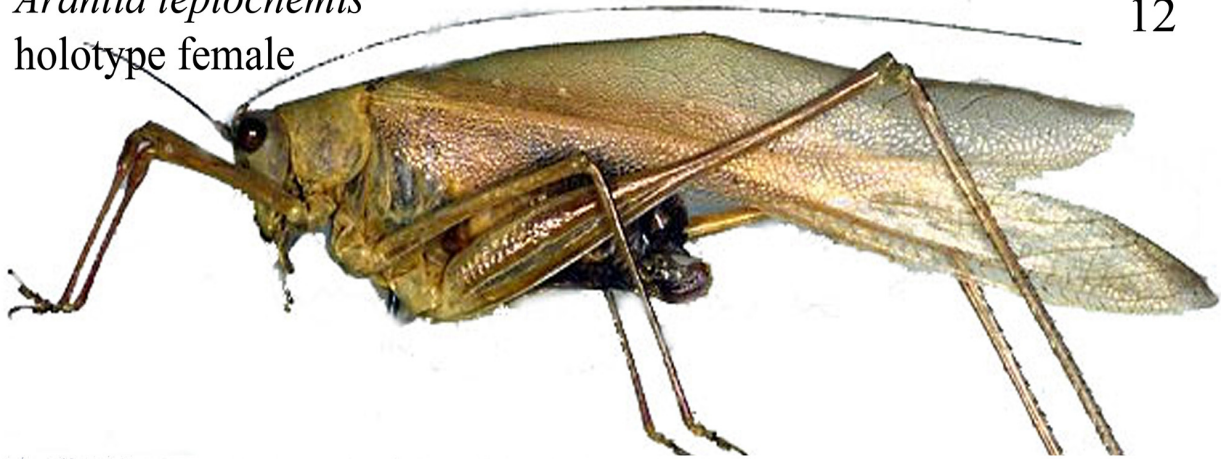
Type locality: CAMEROON. Chinchoxo and Kuako (Kimpoko). Depository: MfN, Berlin. Kind of type: syntypes males.

Syn. *Arantia (Arantia) simplicinervis curvata* Griffini, 1908
Griffini (1908). Mem. Soc. entom. Belgique, Bruxelles, 15: 212.

Type locality: CAMEROON. Mukonje Farm. Depository: RBINS, Bruxelles. Kind of type: holotype female.

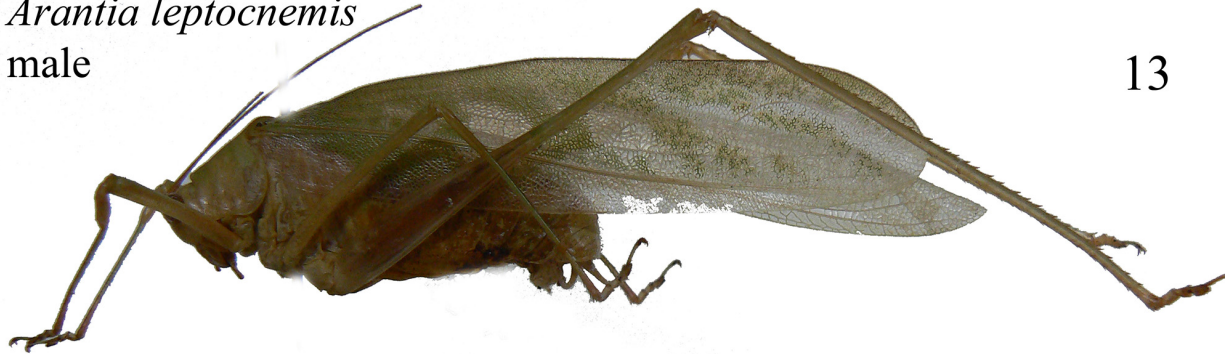
Material examined. CAMEROON. Chinchoxo (1♂ syntype). Victoria (2♀) (MfN). Mukonje Farm, R. Rohde (1♀ holotype of ssp. *curvata*) (RBINS). TOGO. Bismarckburg 11–17.I.1893, L. Conradt (1♀). ANGOLA. Dundo (1♂). GUINEA. Fernando Póo, Biapa (1♂) (MNCN). Fernando Póo, Punta Frailes X–XI.1901, L. Fea (1♂) (MSNG). G. Bakoré 18.III.1981, C. Girard & M. Lamotte (1♂, 2♀). Mt. Nimba (2♂) (MNHN). CENTRAL AFRICAN REPUBLIC. Dzanga-Ndoki National Park, Mboki 25.I.2012; Ndoki, Lake 1, 10–11.II.2012; 11–12.II.2012; 13–14.II.2012; 22–23.II.2012; 24–25.II.2012; 28–29.II.2012 (light trap), P. Moretto (10♂) (BMCP). Dzanga-Ndoki National Park, Ndoki, Lake 1, 14.II.2012, 21–22.II.2012 (light trap) (4♂) (PACT). IVORY COAST. Taï National Park, Res. Station 21.III.2017 (night), S. Danflous (1♀). Taï National Park, Res. Station 16.III.2017, platform 40m (light trap), B. Massa (1♂) (BMCP). Man, Mt. Tonkouï (1171m) 12–18.VII.2015 (light trap), M. Aristophanous, P. Moretto, E. Ruzzier (1♂) (NHM). GABON. Petit Okano IX.1985, A. Pauly (1♂). N'Toum 23.II.1982, 22.VII.1984, 28.VII.1984, V.1985, 18.V.1985, 15.VII.1985, 16.VIII.1985, 5.IX.1985, 9.IX.1985, 5–20.X.1985, 8.X.1985, A. Pauly (11♂, 1♀). M'Paga 12.IV.1986, A. Pauly (1♀). Capo Santa Clara 29.IX.1985, A. Pauly (1♀). ZAIRE. Bamanian VII–VIII.1980, R. Kiss (1♂) (RBINS).

Arantia leptocnemis
holotype female



12

Arantia leptocnemis
male



13

Arantia simplicinervis



14



15

Arantia quinquemaculata n. sp.
holotype

FIGURES 12–15. Habitus of *Arantia* (*Arantia*) *leptocnemis* (12: holotype female, 13: male), *A.* (*Arantia*) *simplicinervis* (14) and *A.* (*Arantia*) *quinquemaculata* n. sp. (holotype) (15).

Measurements of males. Body length: 29.8±2.5; pronotum length: 6.6±0.2; pronotum height: 6.4±0.2; hind femur: 28.1±1.1; hind tibiae: 33.2±1.5; tegmina: 44.2±1.6; tegmina width: 9.0±0.3; tegmina length/width: 4.9–5.0; tegmina width/pronotum length: 1.3–1.5.

Characters. *A. simplicinervis* is a medium-sized species (body length ♂ 28–31 mm, ♀ 36–39 mm). Karsch (1889) described both sexes from Chinchoxo and Kuako (Kimpoko, Cameroon). Later, Griffini (1906) recorded it from Fernando Póo (Equatorial Guinea). It is characterized by whitish-yellowish paranota and more or less rectangular tegmina with thick veinlets (Fig. 14). The metanotum is slightly dark and also the tympana of fore tibiae may be dark. The types and other specimens have two dark spots on the lateral sides of the pronotum. A small black spot is present on the base of the tegmina, more or less hidden by the pronotum. Some specimens have an additional second small black spot in that area. Fore femora are armed with 3–7 spines, mid femora have 4–7 outer spines, hind femora 4–7 inner and 0–7 outer ventral small black-tipped spines [according to Karsch (1889) outer ventral margin of hind femora is unarmed, but in some specimens spines are present]. The stridulatory file is short and consists of 48–50 teeth (Fig. 53). Male cerci are long, comparatively slender, in-curved at their tips and slightly flattened, apically with or without a black swelling and with 2 black small dents (Fig. 82) (Karsch 1889; Brunner von Wattenwyl 1891). Styli are absent. The ovipositor is shorter than the pronotum.

Remarks. *Arantia simplicinervis curvata* was described as a variety of *A. simplicinervis* by Griffini (1908) on one female from Mukonje Farm (Cameroon). According to Griffini (1908) dimensions of this taxon lie within those of *A. simplicinervis* (Tegmina width: 10.0; width tegmina/length pronotum: 1.5), with the exception of the larger size (39 mm), more curved apical hind tibiae, spines of hind femora green with dark apex (present also in *A. simplicinervis*), the metazona of the pronotum being brown, with a concavity at the posterior margin, and a very short ovipositor (3.7 mm). Sjöstedt (1912) reported it as variety of *A. simplicinervis* from Buea (Cameroon). Because of the absence of true differences, *A. simplicinervis curvata* has to be considered a synonym of *A. simplicinervis*.

Distribution. Widely distributed in West, Central and south-west Africa (records from Guinea, Togo, Ivory Coast, Cameroon, Central African Republic, Angola).

Arantia (Arantia) quinquemaculata n. sp. (Figs. 15, 54, 83a, b)

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:500641>

Material examined and depository. CENTRAL AFRICAN REPUBLIC. Dzanga-Ndoki National Park, Lake 1, 10–11.II.2012 (light trap), 02°28'40.5N 016°13'02.6E, P. Moretto (♂ holotype); same data 18–19.II.2012 (♀ paratype) (MSNG); same data 24–25.II.2012 (light trap), P. Moretto (1♂ paratype) (MfN); same data 13–14.II.2012; 15–16.II.2012; 20–23.II.2012; 24–25.II.2012 (light trap), P. Moretto (9♂, 1♀ paratypes) (BMCP). Dzanga-Ndoki National Park, Ndoki, Camp 1, 29.I.2005, 10.II.2005 (light trap), P. Annoyer (2♂ paratype). Dzanga-Ndoki National Park, Ndoki, 23.X.2008 (light trap), P. Annoyer (1♂ paratype). Dzanga-Ndoki National Park, Ndoki, Lake 1, 29.XI.2010 (light trap), P. Annoyer (1♂ paratype). Dzanga-Ndoki National Park, Ndoki, Lake 1, 21–22.II.2012 (light trap), P. Annoyer (2♂ paratypes). Dzanga-Ndoki National Park, Ndoki, Lake 2, 10.II.2012 (light trap), P. Annoyer (1♂ paratype) (PACT). TOGO. Fazao 4.VIII.2013 (light trap), P. Moretto (1♂ paratype) (BMCP, 1♂ paratype in CHB). IVORY COAST. Taï Nat. Park, Res. Station 19–22.III.2017 (light trap), B. Massa (5♂ paratypes). Taï National Park, Res. Station 16.III.2017, platform 40m (light trap), B. Massa (2♂ paratypes). Taï Nat. Park, Res. Station 4.IV.2017 (light trap), P. Moretto (3♂ paratypes) (BMCP). Taï Nat. Park, Res. Station 5–10.VII.2015 (light trap), M. Aristophanous, P. Moretto, E. Ruzzier (2♂ paratypes) (NHM). Tabou 21.XII.1979, A. Pauly (1♂ paratype) (RBINS). Taï Nat. Park, Res. Station 1.IV.2017 (light trap), P. Annoyer (1♂ paratype) (PACT). GABON. N'Toum 16.IX.1985, A. Pauly (1♂ paratype) (RBINS).

Measurements. Males. Body length: 30.4±1.8 (27.6–33.5); pronotum length: 7.2±0.4 (6.6–7.7); pronotum height: 6.9±0.4 (6.4–7.5); hind femur: 25.4±1.0 (24.0–27.1); hind tibiae: 30.0±1.0 (28.9–31.5); tegmina: 41.7±0.7 (40.5–42.8); tegmina width: 9.5±0.2 (9.1–9.8); width tegmina/length pronotum: 1.2–1.4. Females. Body length: 32.7±0.2 (32.6–32.9); pronotum length: 7.1±0.1 (7.0–7.2); pronotum height: 6.9±0.1 (6.8–7.0); hind femur: 26.6±1.0 (25.9–27.3); hind tibiae: 29.9±0.8 (29.3–30.5); tegmina: 43.6; tegmina width: 10.1±0.1 (10.1–10.2); ovipositor: 4.95±0.1 (4.9–5.0); tegmina width/pronotum length: 1.4.

Diagnosis. A medium sized species characterized by at least 5 dull brown markings in at least 3 hexagons on the yellow-green tegmina.

Description. Male. *General habitus and colour pattern.* Medium-sized with a characteristic colour pattern of 5–7 spots on the tegmina. First two antennal segments are yellow with a black spot, the remaining antennomeres are yellow. Head and legs are yellow with blackish areas (fore femora, tympana of fore tibiae, second half of mid and hind femora). Face yellow. Pronotum green, lateral lobes with a whitish area, metazona darker than prozona. Tegmina slightly oval, yellow-green with black markings at the very base, and 5–7 brown dull markings distributed along its length (Fig. 15). *Head and antennae.* Eyes oval, fastigium of vertex sulcate. *Thorax and legs.* Tympana of fore tibiae open on outer, closed on inner side. Prozona of pronotum clearly narrower than metazona. Anterior margin of pronotum slightly concave, posterior margin rounded. Lower margin of pronotal lobes without the concavity present in other species of the genus. A small black spot is present on the base of the tegmina, more or less hidden by the pronotum. Tegmina are 4.0–4.4 times longer than wide. The stridulatory area of the left tegmen is short. The stridulatory file consists of 28–30 teeth, the inner 4 more spaced than the outer ones (Fig. 54). Fore coxae unarmed. Fore femora with 5 inner ventral spines, fore tibiae with 6 inner and outer ventral spines, and 3 dorsally. Mid femora with 6–7 outer ventral spines, mid tibiae with 9–10 outer and inner ventral spines, 2–3 spines on outer and inner dorsal margins. Hind femora with 5 inner ventral black spines and 0–1 on outer ventral margin. Hind tibiae little curved, with 17–18 spines on outer and 10–11 on inner ventral margin. *Abdomen.* Cerci are long and in-curved, with an apical hairy sclerotized black tip, ending with two small dents (Fig. 83a). The subgenital plate is triangular, long and narrow, the apex is concave and styli are absent (Fig. 83b).

Female. Similar to male. Ovipositor is short and gently up-curved with small teeth only at the lower apical valve. The subgenital plate is triangular with a straight apex. Cerci are in- and up-curved.

Etymology. This species is characterized by at least five (from Latin: *quinque*) brown markings (in latin: *macula*) on the tegmina; *quinquemaculata* is a feminine adjective.

Affinities. *A. quinquemaculata* is related to *A. hydatinoptera* and *A. simplicinervis*, morphologically very similar to *A. simplicinervis*. Characterized by its brown markings on tegmina and the stridulatory file. In addition, its hind femora are comparatively shorter than those of *A. simplicinervis*.

Distribution. Central African Republic, Ivory Coast, Gabon and Togo, probably also occurring in suitable habitats between these localities.

Subgenus *Euarantia* Heller, 2014

Arantia (Euarantia) fasciata (Walker, 1869) (Figs. 16, 17, 18, 55, 56, 85a, b)

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464789>

Walker (1869). Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum, 2: 378.

Type locality: GAMBIA. Depository: BMNH, London. Kind of type: holotype female.

Syn. *Arantia (Euarantia) atrolineata* Brunner von Wattenwyl, 1891

Brunner von Wattenwyl (1891). Verh. der Zoologisch-Botanischen Gesellsch, Wien 41: 63, 69.

Type locality: WEST TROPICAL AFRICA. "Slave Coast". Depository: ETHZ, Zurich. Kind of type: holotype female.

Syn. *Arantia (Euarantia) spinulosa* Brunner von Wattenwyl, 1878

Brunner von Wattenwyl (1878). Monographie der Phaneropteriden 137.

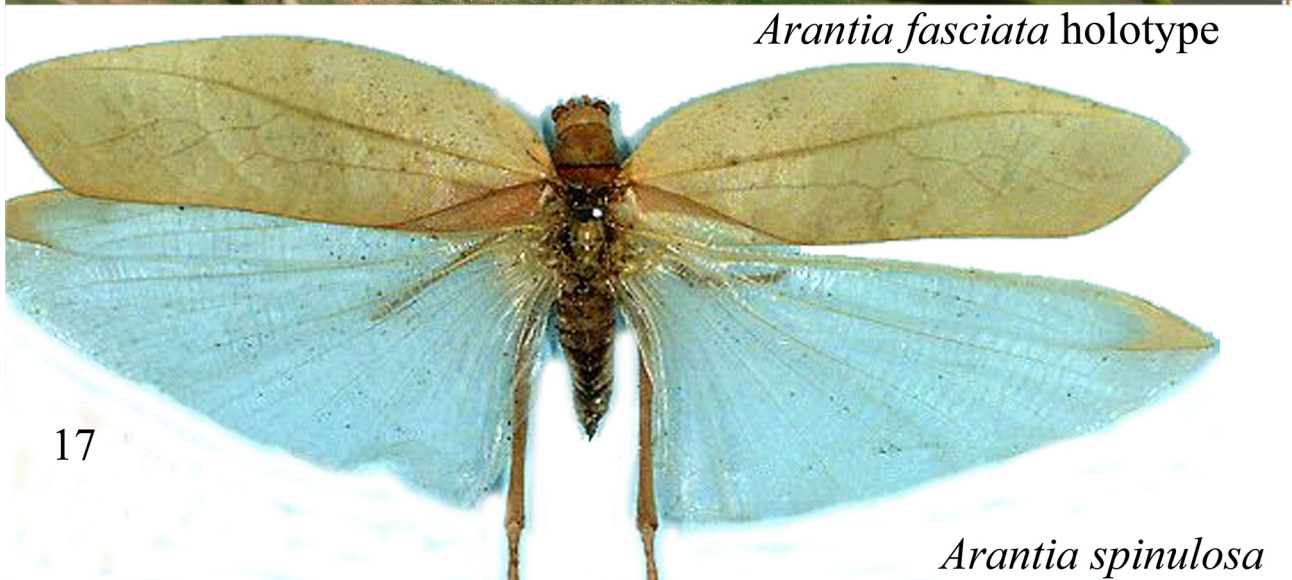
Type locality: SOUTH AFRICA. KwaZulu-Natal, Durban. Depository: NMW, Vienna. Kind of type: holotype female.

Material examined. GAMBIA. (♀ holotype). GUINEA. Beyla, BM1967-33 (NHM). TANZANIA. Mt Kilimanjaro, Plantation belt 1430 m, Kidia XI.1997, I.1998, XII.2000, III.2008, IX.2013; plantation belt 1330 m, III.2007, IX.2010, I.2014, cultivated Savanna 890 m, VI.2013 (CHB). E. Usambara Mountains, Amani, 1000 m, I.1976 (ZMUC). E. Usambara, Amani 17–20.VI.1998, L. Bartolozzi & A. Sforzi (1♂) (MZUF). SOUTH AFRICA (2♀). Kwa-Zulu-Natal, Pinetown VII.1884 (1♀). Port Natal (1♂, 2♀) (NMW, identified as *A. spinulosa*). ZIMBABWE. Salisbury, VIII.1815 (1♀). MALAWI. Blantyre, Nyasaland 1922 (1♂) (ISAM, identified as *A. spinulosa*). ? Cap Drenge (1♀) (MfN). IVORY COAST. Lamto 13.II.1969 (light) (1♂) (MNHN). SOMALIA. Giohar 10–13.IX.1968 (1♂). Afgoi II–III.1978, A. Simonetta (1♀). KENYA. Masai Mara National Park (1600m) 11.VI.1994, L. Bartolozzi (1♂). Malindi 10.XI–6.XII.1989 (1♀) (MZUF). DEMOCRATIC REPUBLIC CONGO. Lusingan 18.VII–8.VIII.1947 (1♀). Kilwezi, Lufira 16–21.VIII.1948 (1♀). Katanga (1♀) (RBINS).

Measurements of South African specimens. Males (N=6). Body length: 29.0–32.8 (mean: 30.5); pronotum length: 7.0–7.8 (mean: 7.4); pronotum height: 8.3–9.9 (mean: 9.2); hind femur: 32.7–37.8 (mean: 34.8); tegmina

length: 54.9–63.3 (mean: 57.6); tegmina width: 15.0–17.1 (mean: 16.1); length/tegmina width: 3.58; width tegmina/length pronotum: 2.18.

Measurements of female holotype. Body length: 34; pronotum length: 8.5; pronotum height: 9.1; hind femur: 35.2; hind tibiae: 41.1; tegmina: 63.2; tegmina width: 19.4; tegmina length/width: 3.26; tegmina width/pronotum length: 2.28; ovipositor: 5.5.



FIGURES 16–18. *Arantia* (*Euarantia*) *fasciata* from Kilimanjaro (16), *A.* (*Euarantia*) *fasciata* (holotype) (17) and *A.* (*Euarantia*) *spinulosa* from South Africa (18).

Measurements of East African specimens (Tanzania). Males (N=6). Body length: 29.2–32.7 (mean: 30.5); pronotum length: 7.5–8.2 (mean: 7.85); pronotum height: 8.5–9.4 (mean: 8.8); hind femur: 32.1–33.7 (mean: 33.23); tegmina length: 55.0–58.7 (mean: 56.38); tegmina width: 14.0–16.5 (mean: 15.3); length/tegmina width: 3.7; width tegmina/length pronotum: 2.0. Females (N=6). Body length: 31.6–39.7 (mean: 35.72); pronotum length: 8.1–9.3 (mean: 8.48); pronotum height: 9.5–10.6 (mean: 10); hind femur: 35.9–40 (mean: 37.4); tegmina length: 62–70 (mean: 65) tegmina width: 17.5–21.2 (mean: 19.1); ovipositor: 5.4–6.6 (mean: 6.1); tegmina length/width: 3.4; tegmina width/pronotum length: 2.25.

Characters. *A. fasciata* is a species of large size (Figs 16–18). Only the female is described at present. It is characterized by closed tympana on both sides of the fore tibiae. Part of the face is white, often lateral brown-reddish stripes are present. Very characteristic is a broad fascia transverse on the metazona of the pronotum being dark anteriorly and white posteriorly. The tegmina are wide with clear impressed dots in the costal area. The anterior margin of the pronotum is nearly straight, the posterior margin broadly rounded. The female ovipositor has numerous small tubercles especially on the posterior end of the valves and is covered densely with short hairs. Kirby (1906) synonymized *A. atrolineata* with *A. fasciata* and Hemp (2013a) synonymized *A. spinulosa* with *A. fasciata*.

Description of the male (based on East African specimens). *General habitus and colour pattern.* Large species with broad wings, predominantly green with a white and dark stripe on the posterior part of the pronotum. *Head and antennae.* Eyes oval, striped. Antennae long and thin, about 6–7 cm long. Fastigium of vertex forming a ridge with shallow sulcus above with rounded margin between antennae. Fastigium of frons conical; both fastigia separated by deep gap. *Thorax and legs.* Anterior margin of pronotum almost straight. Disc of pronotum almost plane with shallowly impressed sulcus on metazona. Posterior margin of pronotum slightly down-curved, broadly rounded. Broad based, short, blunt knob (reduced spine?) on fore coxa. Tympana of fore tibiae on both sides closed or closed on outer side and on inner side triangular shaped or longish oval. Fore femur unarmed or with few tiny, sometimes black tipped spines. Mid femora unarmed. Hind femora with two rows of small evenly spaced spines, black tipped with broad base. Distally 1–2 spines can be larger to very large in some specimens with flange-like bases. All femora with two pairs of spurs at apex. Fore and mid tibiae with two ventral rows of few small spines, a pair of spurs at the apex. Hind tibiae with four rows of spines, dorsal rows of spines very dense, especially distally; three spurs at each side at apex. The stridulatory file is curved and consists of ca. 100 evenly spaced teeth (Figs 55–56). *Abdomen.* Cerci slightly curved, decussate, long with a stouter base and more slender anterior part, tips club-shaped with a serrated sclerotized ridge (Figs 85a, 85b). Subgenital plate longer than wide, with median ridge and tiny styli.

Diagnosis. General habitus and colour pattern as in female *A. fasciata*, but with a smaller body size. Specimens collected in East Africa and seen in various collections differ considerably in body size. Most specimens have dark green tegmina without any pattern. However, in savanna habitats on the southern slopes of Mt. Kilimanjaro few specimens were collected with a large body size and with a vivid pattern of brown patches and fasciae on the tegmina which looked very different from the other uniformly coloured specimens. Comparing the genitalia and the stridulatory files showed that also these specimens belonged to *A. fasciata*. A similar situation seems to be the case in *A. regina* (see below) where specimens also vary considerably in body size.

Distribution. Widespread in Africa, from Somalia to South Africa and Gambia further west.

Notes on habitat and ecology. Information on habitat and ecology are available only for East African populations (see Hemp 2005; 2013a, b). *A. fasciata* is a night-active canopy dweller. Its song of a few loud syllables can be heard from the canopy of trees during evening hours. In East Africa it is found in savanna habitats but is also common in submontane elevations on mountains. It also occurs in anthropogenic-influenced habitats such as banana-coffee plantations and here inhabits single high trees. Nymphs are often found on broad-leaved bushes and trees of medium height. *A. fasciata* is fully alate often covering great distances when disturbed. However, the species seems to rely greatly on its camouflage only moving when being shaken directly from the branches.

Remarks. *A. fasciata* is distributed over a large area of Africa south of the Sahara. Specimens studied from West, East and South Africa show a certain degree of morphological variation suggesting that at least different populations are present. Thus there are differences in the shape of the fastigium verticis, the shape of the tympana on the fore legs (West African species with completely closed tympana on both sides while in specimens from East Africa the inner side is more open, being tri-angular shaped and more open on the posterior side). Also the shape of

the subgenital plate varies slightly. Further in West African species the face is smoother with parallel furrows below the eyes running to the labrum, while in East African specimens the facial area below the eyes is strongly wrinkled. However, the morphological variation is so gradual that no clear differences can be put down to define species. Unfortunately no male specimens from West Africa are stored in any museum we have visited and since females are generally morphologically very similar in *Arantia* ssp. it cannot be excluded that West and Central African populations differ from East and South African populations on species level. More collecting hopefully will eventually clarify the status of the *Arantia fasciata* species-complex and molecular analyses and studies on song should be undertaken to illuminate speciation patterns.

***Arantia (Euarantia) ugandana* Rehn, 1914**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464818>

Rehn (1914). *Wiss. Ergebn. dtsch. Zent. Afr. Exped.* 1907–1908, 5: 176.

Type locality: UGANDA. Depository: according to OSF it should be preserved at Senckenberg German Entomological Institute, Müncheberg, but it is not present in their catalogues (M. Ohl, pers. comm.). Kind of type: holotype female.

Tegmina width: 14; tegmina width/pronotum length: 2.3 (Heller *et al.* 2014).

It is a small sized species (body length ♀ 26.5 mm, tegmina 67.5 mm). Rehn (1914) described only the female from Uganda.

Characters. According to Rehn (1914) it is related to *A. spinulosa*, lacking one of the outer spines ventrally on the hind femora. It is clearly smaller in size, the margin of the tegmina lacks any concavity, lateral lobes of pronotum are a bit concave, lower margin sinuous.

Remarks. As mentioned in the introduction, the status of *A. ugandana* is unclear since the holotype is missing. Specimens identified as *A. ugandana* in the Natural History Museum, London, belong to the *A. fasciata* complex. Therefore we here synonymize *A. ugandana* with *A. fasciata*.

***Arantia (Euarantia) rectifolia* Brunner von Wattenwyl, 1878 (Figs. 19, 21, 22, 57, 88a, b)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464806>

Brunner von Wattenwyl (1878). *Monographie der Phaneropteriden*, 137.

Type locality: EQUATORIAL GUINEA. Fernando Póo. Depository: NMW, Vienna. Kind of type: holotype male.

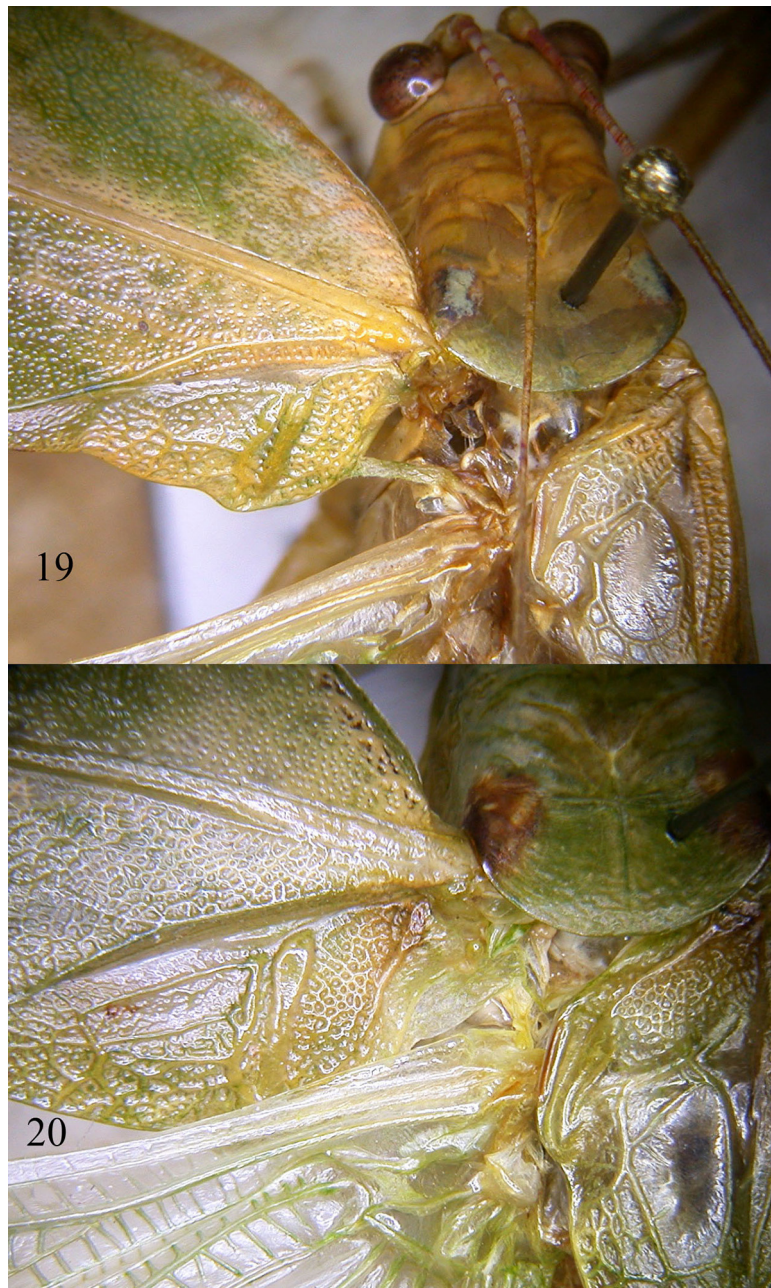
Syn. *Arantia (Euarantia) accrana* Karsch, 1889

Karsch, 1889. *Berlin Ent. Z.*, 32: 433, 436.

Type locality: GHANA. Accra. Depository: MfN, Berlin. Kind of type: holotype female.

Material examined. EQUATORIAL GUINEA. Fernando Póo (♂ holotype) (NMW). TOGO. Kpalimé, Ft of Missahohe 29–30.VII.2013 (light trap), P. Moretto (1♂). Fazao 3–4.VIII.2013 (light trap), P. Moretto (3♂). BURKINA FASO. Pama VIII.2005, P. Moretto (3♂). IVORY COAST. Boudoukou Zamou VII.2004, P. Moretto (3♂). Cornal VIII.1998, P. Moretto (1♂). Khorogo, Koko village 20.VII.2013, P. Moretto (3♂). Man, Mt. Tonkoui (1200m) 14–15.VII.2014 (light trap), P. Moretto (3♂); same locality 28.VI–1.VII.2014 (light trap), P. Moretto (3♂, 1♀); same locality 13–15.VII.2014 (light trap), P. Moretto (1♂); 18–20.VI.2015 (light trap), F. Moretto (2♂); same locality 24–28.VII.2015 (light trap), P. Moretto (1♂); same locality 4.VI.2016 (light trap), P. Moretto (1♂). Khorogo, Koko (347m) 31.VII.2014, dry forest (light trap), P. Moretto (3♂). Comoe, Kolomabira (347m) 20.VII.2013, P. Moretto (1♂). Comoe, Kolomabira (228m) 8.VI.2015 (light trap), P. Moretto (2♂); same locality 22.VI.2015 (light trap), P. Moretto (1♂). Comoe, Zamou (280 m) 27.VII.2016 (light trap), P. Moretto (2♂). Taï Nat. Park, Res. Station 18–21.III.2017 (light trap), B. Massa (11♂). Taï National Park, Res. Station 16.III.2017, platform 40m (light trap), B. Massa (1♂). Taï Nat. Park, Res. Station 2–4.IV.2017 (light trap), P. Moretto (5♂, 2♀) (BMCP). Taï Nat. Park, Res. Station 25.III.2017 (light trap at platform 40m), P. Annoyer (1♂) (PACT). Taï Nat. Park, Res. Station 5–10.VII.2015 (light trap), M. Aristophanous, P. Moretto, E. Ruzzier (1♂) (NHM). CENTRAL AFRICAN REPUBLIC. Dzanga-Ndoki National Park, Lac 2, 25.I.2012, 10–11.II.2012, 15–16.II.2012, 28–

29.II.2012, 24–25.II.2012 (6♂) (BMCP). Kaniana 15.II.1939, H.J. Brédo (1♂) Elisabethville (=Lubumbashi) 25.IV.1939, H.J. Brédo (1♂). GABON. N'Toum II.1983, 2.VII.1984, IV.1985, 15.VII.1985, 29.VII.1985, 15.VIII.1985, 15.IX.1985, 30.IX.1986, A. Pauly (7♂, 1♀). DEMOCRATIC REPUBLIC CONGO. 23–27.II.1948, G.F. de Witte (1♂). Kaziba. N Kivu, Rwankwi 31.V.1961, Y.V. Leroy (1♂). CAMEROON. Akono I–II.1969 (1♂) (RBINS). KENYA Kakamega Forest Reserve, Buyango Hill 27.IX.2005, Holstein & Bartsch (1♂) (CHB).



FIGURES 19–20. Dorsal view of stridulatory area of *Arantia (Euarantia) rectifolia* (19) and *A. (Euarantia) tanzanica* n. sp. (holotype) (20).

Further material examined. *A. accrana*: GHANA. Accra, Ungar (♀ holotype). TOGO. Misahöhe 5–15.IV.1894, Baumann (2♂) (MfN).

Measurements. Males. Body length: 26.8–30.0 (mean: 27.0); pronotum length: 5.9–6.5 (mean: 6.2); pronotum height: 6.7–7.1 (mean: 6.9); hind femur: 25.5–28.5 (mean: 27.0); hind tibia: 27.1–30.1 (mean: 28.5); tegmina length: 45.0–49.0 (mean: 47.5); tegmina width: 12.0–13.8 (mean: 12.8); length/tegmina width: 3.5–3.7; width tegmina/length pronotum: 2.0–2.1.

Measurements of the female holotype *A. accrana*. Body length: 24 mm; pronotum length: 7 mm; tegmina: 53 mm; tegmina width: 12.8; hind femur length: 28 mm; ovipositor: 5 mm (Karsch 1889).

Characters. *A. rectifolia* is a species of medium size [body length ♂ 26–30 mm; ♀ 27–32 mm; the size of the ♀ (47 mm) reported by Griffini (1908) is uncertain, because doubtfully identified]. Brunner von Wattenwyl (1878) described the male and considered it similar to *A. fatidica*. Later, both sexes were recorded by Karsch (1889), Brunner von Wattenwyl (1891) and Bruner (1920) from Lolodorf (Cameroon) and the Democratic Republic Congo. Ragge & Roy (1965) reported the species from Senegal, Ragge (1968b) from the Ivory Coast, and doubtfully Griffini (1908) from Mukonje Farm (Cameroon). Ebner (1943) recorded it again from Fernando Póo (Equatorial Guinea). The width of tegmina of the holotype is 12.8 mm, intermediate between *Arantia* and *Euarantia*, in other specimens examined it ranged between 12.0 to 13.8 mm. Hind tibiae are not as curved as it was given by Heller *et al.* (2014) for *Euarantia*.

Typical is an ivory-coloured coating mixed with some dark traces on the fore tibiae in the area of the tympana. The dorsal sides of the tympana are conchate while the ventral sides are oval and open. The tegmina are not very broad, with sometimes only faintly visible 4–5 ivory (in living specimens) or more tawny to orange spots (in preserved specimens, see Figs 19, 21, 22). The stridulatory file is short, curved and consists of 80–85 teeth (Fig. 57). The fore femora are unarmed or armed with 1–2 small spines ventrally. The hind femora are armed with 3–5 inner and 4–7 outer ventral black-tipped or black small spines. Male cerci are long and slightly sinuous and have a black, chitinous and rounded apex (Figs 88a, 88b). Subgenital plate with tiny styli, in many specimens absent.

Only the female of *A. accrana* was described by Karsch (1889) although 2 males are also present in the Berlin collection which Karsch himself identified as belonging to *A. accrana* in 1894 (examined; see Fig. 22). The comparison of material of the male holotype of *A. rectifolia* with the male identified by Karsch as *A. accrana* showed no differences between the two taxa. Also the female holotype of *A. accrana* was compared with females caught together with male *A. rectifolia*. No differences in size and shape of the ovipositor and subgenital plate could be detected. Brunner von Wattenwyl (1891) separated the taxa on base of the ventral spination of the fore femora (absent in *accrana*, present in *rectifolia*) and the presence of ivory spots on the anterior margin of the tegmina. The ivory spots are expressed mostly in males and also the spination varies between specimens checked from being tiny to absent. At that time only the female of *A. accrana* was described and stored in Berlin and the key of Brunner of Wattenwyl was based on Karsch's description. For these reasons here *A. accrana* is considered synonymous with *A. rectifolia*.

Remarks. *A. rectifolia* shows some variation in the morphology of the stridulatory area. Probably *A. rectifolia* is a complex of closely related species. Only studies on songs and molecular analysis will help to clarify the status of this taxon.

Distribution. Probably widely distributed throughout West and Central Africa (records from Cameroon, Equatorial Guinea, Central African Republic, Democratic Republic Congo, Senegal, Togo, Burkina Faso, Ivory Coast).

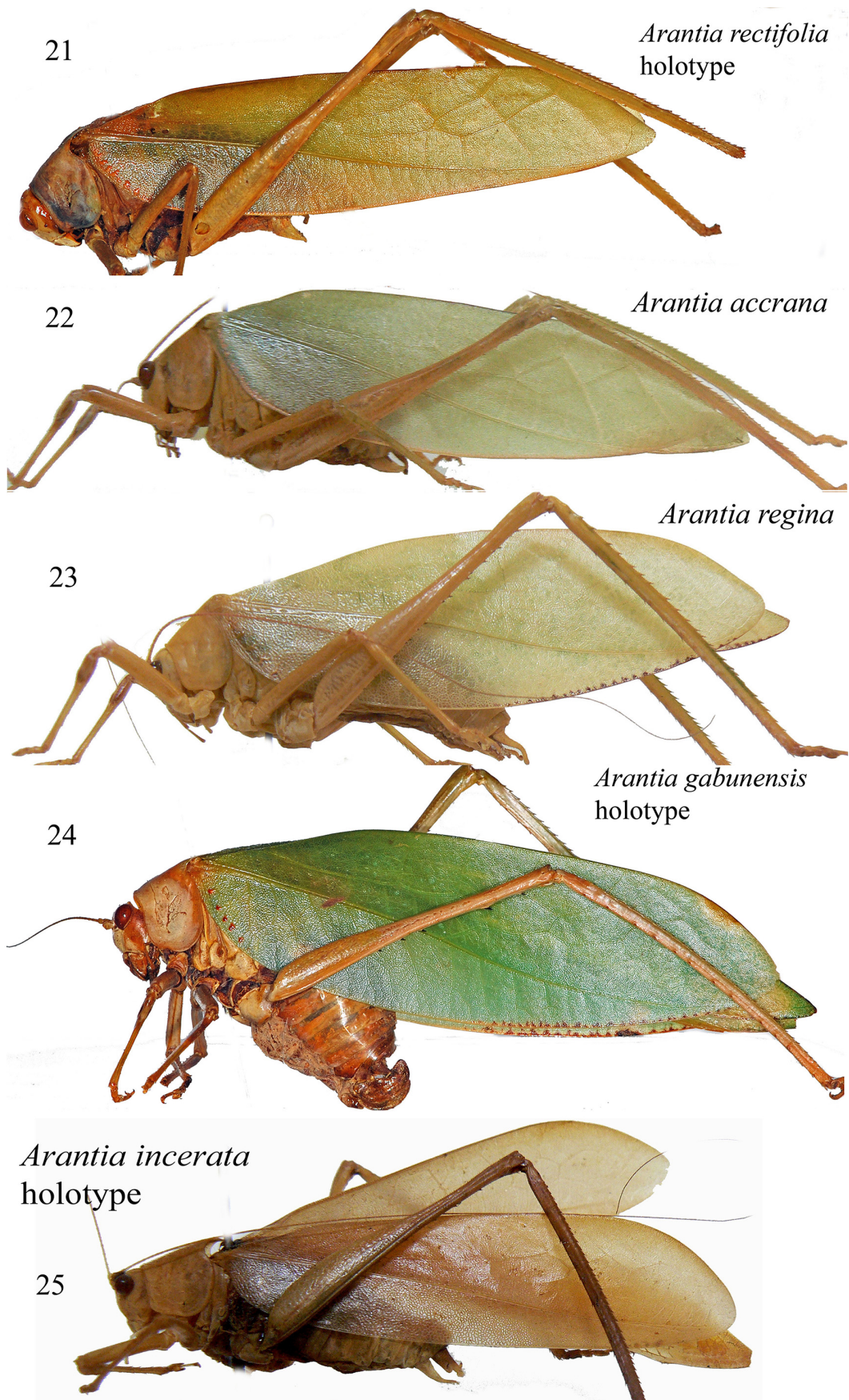
Arantia (Euarantia) tanzanica n. sp. (Figs. 20, 58, 85b)

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:500642>

Material examined and depository. TANZANIA. Tabora, Puge Simbo Forest Reserve, submontane forest, February 2016 (♂ holotype) (MfN). Central Tanzania, East Chenene Forest Reserve, 80 km north of Dodoma, Miombo woodlands, March 2015 (♂ paratype) (CHB).

Measurements. Male (N=2). Body length: 28.1–32.0; pronotum length: 7.2–7.3; pronotum height: 7.2–7.3; hind femur: 28.2; hind tibia: 28.4–31.2; tegmina length: 53.5–53.6; tegmina width: 13.5–13.6; length/tegmina width: 4.0; width tegmina/length pronotum: 1.9.

Diagnosis. *A. tanzanica* n. sp. is larger than *A. rectifolia*, has broader wings, and a different stridulatory area on the left tegmen (compare Figs 19 and 20). The stridulatory file is much longer in *A. tanzanica* n. sp. consisting of 90–110 teeth, being large in the middle and more widely spaced and smaller and more densely set at both sides while *A. rectifolia* has a comparatively short stridulatory file with more regular densely set 80–85 small teeth (compare Figs 57 and 58). The fastigium verticis also differs between both species: *A. rectifolia* has a fastigium that is narrow triangular with a deep sulcus while in *A. tanzanica* n. sp. the fastigium verticis has posteriorly a broad base then narrowing suddenly midway and is more shallowly sulcate. Also the spination of the legs is different between both species. Otherwise both species are morphologically very similar.



FIGURES 21–25. Habitus of *Arantia* (*Euarantia*) *rectifolia* (holotype) (21), *A.* (*Euarantia*) *accrana* (= *A. rectifolia*) (22), *A.* (*Euarantia*) *regina* (23), *A.* (*Euarantia*) *gabunensis* (holotype) (= *A. regina*) (24), and *A.* (*Euarantia*) *incerata* (holotype) (25).

Description. Male. *General habitus and colour pattern.* Large to medium sized species with broad wings, predominantly green with pair of dark patches lateral on posterior part of pronotum. *Head and antennae.* Eyes oval-roundish, dark. Antennae long and thin, tawny. Fastigium of vertex forming a ridge with a broad base suddenly narrowing anteriorly; sulcate; fastigium of frons conical; both fastigia separated by deep gap. *Thorax and legs.* Fore coxa without spine. Tympana of fore tibiae open on inner side, conchate on outer side, whole area slightly inflated. Fore femora on inner side with two ventral black spines, mid femora unarmed, hind femora with 4 inner and 8 outer black-tipped spines. Fore tibiae with 1 dorsal spine on apical part of inflated part anterior of tympana and 2 spinules more proximally. 2 pair of spurs; ventrally with double row of irregular set of 1–4 black-tipped spines. Mid tibiae with ventral row of 7–8 irregular set pairs of spines and 2 pairs of spurs. Hind tibiae tetragonal with 4 rows of numerous and irregularly set spines; dorsal 1 pair of spurs, ventral 2 pairs. Anterior margin of pronotum broadly rounded. Disc of pronotum slightly depressed on posterior part. Posterior margin of pronotum slightly incurved. Tegmina broad with evenly rounded posterior margin. At costal area pattern of ivory-coloured net of veins on dark ground. Stridulatory file on underside of left tegmen long, sinuous (Fig. 58); teeth in the middle larger and more widely spaced than at both ends. *Abdomen.* Cerci long and slender with club, sinuous at apical part and decussate. Club hairy with inner part black. Subgenital plate longer than wide and tiny dot-like styli.

Female. Similar to male but a bit larger. Only obtained specimen could not be preserved.

Etymology. After the country of Tanzania.

Habitat and song. Canopy dweller of Miombo woodlands in Tanzania. Its song is similar to *A. fasciata*, consisting of single chirps produced during night hours from the forest canopy.

Distribution. At present only known from the East Chenene Forest (80 km north of Dodoma) and Puge Simbo Forest (Tabora) Reserves of Central Tanzania. Probably more widespread in suitable habitats (Miombo woodlands).

Arantia (Euarantia) regina Karsch, 1889 (Figs. 23, 24, 59, 86, 87)

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464837>

Karsch (1889). Berlin Ent. Z., 32: 433, 434.

Type locality: GABON. Sibange Farm. Depository: MfN, Berlin. Kind of type: holotype female.

Syn. *Arantia (Euarantia) gabunensis* Brunner von Wattenwyl, 1891

Brunner von Wattenwyl (1891). Verh. der Zoologisch-Botanischen Gesellsch. Wien, 41: 64.

Type locality: GABON. Depository: NMW, Vienna. Kind of type: holotype female.

Material examined. GABON. Sibange Farm 15.IX–20.X.1884, D.R. Büttner (♀ holotype of *A. regina*). ♀, holotype of *A. gabunensis* (coll. Brunner, NMW). Boué V.2001, P. Moretto (1♂). N'Toum 28.XI.1984, 7.VI.1985, A. Pauly (light) (2♀) (RBINS). CAMEROON. Lolodorf, L. Conradt (♂) (*A. regina*) (MfN). (1♂, 1♀) (MNCN). Barombi Station, Preuss (1♀) (MfN). EQUATORIAL GUINEA. Fernando Póo (Bioko) (1♂, 1♀) (MNCN). Mukonje Farm, R. Rohde (1♀) (RBINS). TOGO. Misahöhe X.1894, Baumann (1♂). BURKINA FASO. Folonzo XII.2012, G. Boano & M. Pavia (2♀). IVORY COAST. Man, Mt. Tonkoui (1200m) 1–4.VII.2014 (light trap), P. Moretto (1♂); same locality 24–27.XI.2014 (light trap), P. Moretto (2♂); same locality 18–20.VI.2015 (light trap), P. Moretto (4♂, 3♀); same locality 4.VI.2016 (light trap), P. Moretto (1♂, 1♀). Khorogo, Koko (347m) 21.VII.2013 (light trap), P. Moretto (4♂). Comoe, Zamou 30.IV.2016 (light trap), P. Moretto (1♀). Taï Nat. Park, Res. Station 13–22.III.2017 (light trap), B. Massa (5♂, 1♀). Taï National Park, Res. Station 16.III.2017, platform 40m (light trap), B. Massa (1♂). Taï Nat. Park, Res. Station VII–X.2016 (light trap), P. Moretto (7♂). Taï Nat. Park, Res. Station 4.IV.2017 (light trap), P. Moretto (6♂, 3♀); CENTRAL AFRICAN REPUBLIC. Dzanga-Ndoki National Park, 11–12.II.2012, 13–14.II.2012, 20–23.II.2012, 24–25.II.2012; border of Lac 1, 13–14.II.2012. Lac 3, 18–19.II.2012; Lac 2, 15–16.II.2012, platform on the canopy 10–11.II.2012. Mboki 14.I.2012 (light trap), P. Moretto (9♂, 4♀) (BMCP). DEMOCRATIC REPUBLIC CONGO. Hombo 22.XII.1970 (2♂), 31.XII.1970 (1♂). Motel de Bahraka 20.X.63, T. De Stefani (1♀) (MRT).

Measurements. Males. Body length: 29.9±2.8; pronotum length: 7.0±0.6; pronotum height: 7.5±0.8; hind

- This specimen has two labels, in one is written “Gaboun” (= Gabon), in the other “Liberia, ex Mus. Lubeck”; and because it agrees perfectly with the description of Brunner von Wattenwyl (1891) we consider the locality as Gabon.

femur: 27.3±2.4; hind tibiae: 30.9±3.1; tegmina: 49.5±4.1. Females. Body length: 32.2±1.0; pronotum length: 7.0±0.2; pronotum height: 7.4±0.2; hind femur: 27.9±0.8; hind tibiae: 32.6±1.0; tegmina: 49.4±1.6; ovipositor: 5.2±0.5; tegmina width: 15–19.6; tegmina width/pronotum length: 2.0–2.8.

Characters. *A. regina* (♀ 39 mm) (Fig. 23) was described on the female only (Karsch 1889). Giglio Tos (1907) recorded another female of this species from Boko (Democratic Republic Congo). It was described as having broad tegmina with a conspicuous blackish area at the anterior margin of the costal area of the tegmina. In addition the tegmina have 5 small yellowish spots near the base. The veinlets of the tegmina form a clear network of brown veins on green ground. Fore femora have 4 inner ventral spines, mid femora 0–1 outer ventral spine and hind femora 9 outer and 8 inner ventral spines. Male cerci are sinuous and end with an apical sclerotized bulge. Styli are absent. Brunner von Wattenwyl (1891) stated that *A. regina* agrees fully in habitus and dimensions with *A. gabunensis* but the latter differs from *A. regina* in having spines on the fore femora and lacking ivory spots at the anterior margin of the tegmina (however, the holotype has ivory spots on tegmina!). One male, identified as *A. regina* by Karsch (MfN) lies well within the variability of *A. gabunensis*, where styli are very small and sometimes invisible. Even though more material should be examined, *A. gabunensis* is here considered synonymous with *A. regina*.

Remarks. Brunner von Wattenwyl (1891) described only the female of *A. gabunensis* (Fig. 24). It is also a species of medium-large size [body length ♀ 34 mm; one ♀ of 44 mm, doubtfully identified, has been cited by Karsch (1891) from Barombi Station, Cameroon]. The anterior margin of the pronotum is straight and two dark spots are present on the lateral keels of the pronotum; a black spot may be present at the base of the tegmina, and some yellow spots are present on anterior margin of the tegmina basally. Radius veinlets are straight. The stridulatory file is short and straight and consists of ca. 40 teeth (Fig. 59). Fore femora are armed with 2 small spines, mid femora unarmed, hind femora have 5 inner black spines ventrally (cf. also Brunner von Wattenwyl 1878). Cerci are sinuous and apically enlarged (Figs 86, 87). Styli are absent.

This taxon is by far one of the most widespread *Arantia* species in central-western Africa and shows a high variability of characters (in size, spination of legs, etc).

Distribution. Probably widely distributed throughout West and Central Africa (records from Gabon, Cameroon, Equatorial Guinea, Central African Republic, Democratic Republic Congo, Togo, Burkina Faso, Ivory Coast).

***Arantia (Euarantia) incerata* Karsch, 1893 (Figs. 25, 89a, b)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464793>

Karsch (1893). Berlin Ent. Z., 38: 128.

Type locality: SIERRA LEONE. Depository: MfN, Berlin. Kind of type: holotype male.

Material examined. SIERRA LEONE. ♂ holotype, 2♂. CAMEROON. Barombi Station (1♂). Mukonje Farm, R. Rohde (2♂, 1♀) (RBINS). Buea (2♂) (NHMS). TOGO. Misahohe 14.VI.1894, Baumann (2♀) (MfN). DEMOCRATIC REPUBLIC CONGO. Kinshasa 18–24.XII.1971, M. Spadone (1♂) (MZUF).

Tegmina width: 9.7–14; tegmina length/width: 3.2–4.1; tegmina width/pronotum length: 1.9 (Heller *et al.* 2014).

Characters. Species of medium size (body length ♂ 33 mm) (Fig. 25). Easily distinguished from other *Euarantia* species by a large inner spine on the male cerci. *A. incerata* was erroneously recorded by Karsch (1889) from Sierra Leone and Cameroon as *A. fatidica* because of the similarity of the male cerci. However, the male cerci of *A. fatidica* have a much smaller inner spine and the whole habitus is different. *A. fatidica* shows the typical habitus of the subgenus *Arantia*. Characteristic is the expanded furrow dorsally on the tibiae. Later Karsch (1893) described the specimens from West Africa as a separate species, *A. incerata*. Griffini (1908) examined both sexes from Mukonje Farm (Cameroon) and described the female. The posterior margin of the pronotum is brown, the basal area of tegmina black, the fore femora as long as the pronotum. Fore femora have 5–7 inner ventral spines, mid femora are unarmed or have 4–5 small outer spines, hind femora have 6–8 very small inner spines and 2–9 outer ventral species. The hind femora are comparatively short. The male cerci are stout and round at base, tapering towards the apex with a large sclerotized spine midway on the inner side. The apex of the male cerci are laterally

flattened and inwardly curved (Figs 89a, 89b). Styli are present. The subgenital plate of the female is short and pointed. The ovipositor has two lateral protuberances.

Distribution. West Africa and Central Africa (records from Sierra Leone, Togo, Democratic Republic Congo and Cameroon).

***Arantia (Euarantia) latifolia* Karsch, 1890 (Figs. 26, 90)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464794>

Karsch (1890). Entom. Nachricht., 16 (23): 356.

Type locality: CAMEROON. Barombi Station. Depository: MfN, Berlin. Kind of type: syntypes male and female.

Syn. *Arantia (Euarantia) ovalipennis* Chopard, 1954

Chopard (1954). Mem. Inst. franc. Afr. Noire, 40 (2): 38.

Type locality: GUINEA. Nimba, N'Zo. Depository: MNHN, Paris. Kind of type: holotype female.

Material examined. CAMEROON. Barombi Station, Preuss, 3♂, 1♀ syntypes of *A. latifolia*). Victoria, 1♂. Lolodorf, L. Conradt, 1♂, 1♀. Mundame, L. Conradt, 1♀. John-Albrechtshöhe 24.VI–13.VII.1896, L. Conradt, 1♂ (MfN). 3♂, 2♀. Mundame, 4♀. Dibongo-Sagana, 1♀ (NMW). Mukonje Farm, R. Rohde, 3♂, 3♀. Buea 5♂, 2♀ (NRMS). Dibongo 1♂, 1♀ (NRMS). GUINEA. Mt. Nimba, N'Zo (holotype ♀ of *A. ovalipennis*) (MNHN). EQUATORIAL GUINEA. Bioko, 1♀ (MNCN). TOGO. Kpalimé, Ft of Missahöhe 29–31.VII.2013 (light trap), P. Moretto, 1♀ (BMCP). DEMOCRATIC REPUBLIC CONGO. Sibiti, 1♀. San Benito 1885, 1♂. Libreville, 1904, 1♀ (MNHN). Forest Banghi, 1♀ (RBINS).

Measurements. Body length: 34.0; pronotum length: 6.5; hind femur: 31.0; tegmina length: 42.30; tegmina width: 15.1–23.4; tegmina length/width: 2.0–2.8; tegmina width/pronotum length: 2.3.

Characters. *A. latifolia* is a species of medium size (body length ♂ 32 mm, ♀ 35 mm) (Fig. 26). Karsch (1890) described both sexes, later Sjöstedt (1902) recorded one female from Itoki (Cameroon). Bolívar (1906) reported one female from Fernando Póo (Equatorial Guinea) and other specimens from Cameroon, and Griffini (1908) listed both sexes from Mukonje Farm (Cameroon). *A. latifolia* is very distinctive because of its very wide, and rounded leaf-like tegmina. Two black spots at the base of the tegmina or a black stripe are typical. Further the veins of the tegmina form several large hexagons in which a small black spot is positioned centrally in most specimens. The antennae are thin and white-black annulate, about 1.5 times of the body length. The stridulatory area of *A. latifolia* males is callous and very short. Fore femora with 5–6 inner ventral spines, mid femora with outer ventral 0–5, and hind femora with 6–8 inner and 2–8 outer ventral dark-tipped spines. The male cerci are stout and hairy, and have almost the same size from base to apex; apically a sclerotized ridge is present (Fig. 90). Styli are absent. Lateral lobes of the ovipositor have a pointed protuberance, similar to those of *A. marmorata* and *A. retinervis*.

Distribution. Equatorial Guinea (Bioko = Fernando Póo), Cameroon, Togo, West and Central Africa.

Synonymic note. *A. ovalipennis* (Fig. 27) is here considered synonymous with *A. latifolia*. *A. ovalipennis* is known only from the holotype female (Chopard 1954), and it was not collected ever since. Both species have wide leaf-like tegmina, and *A. latifolia* covers a distribution including also Guinea, and is a widespread species in central and western Africa.

***Arantia (Euarantia) marmorata* Karsch, 1889 (Figs. 28, 60, 91)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464798>

Karsch (1889). Berlin Ent. Z., 32: 433, 435.

Type locality: DEMOCRATIC REPUBLIC CONGO. Depository: MZPW, Warsaw. Kind of type: holotype female.

Material examined: CENTRAL AFRICAN REPUBLIC. Dzanga-Ndoki National Park, Lac 1, 20–23.II.2012 (light trap), P. Moretto (♂); 14–15.II.2012 (light trap), P. Moretto (♂) (BMCP).

Measurements. Males. Body length: 34–35.7; pronotum length: 7.0–7.3; pronotum height: 6.8–7.3; hind femur: 33.9–34.5; hind tibiae: 38.5–38.8; tegmina: 46–47.4; tegmina width: 16.9–17.5; tegmina width/pronotum length: 2.4. Female (according to Heller *et al.* 2014): tegmina width: 22; tegmina width/pronotum length: 2.8.

Arantia latifolia

26



Arantia ovalipennis

holotype

27



Arantia marmorata

holotype

28



Arantia

congensis

29



FIGURES 26–29. Habitus of *Arantia* (*Euarantia*) *latifolia* (26), *A.* (*Euarantia*) *ovalipennis* (holotype) (27), *A.* (*Euarantia*) *marmorata* (holotype) (28) and *A.* (*Euarantia*) *congensis* (29).

Characters. *A. marmorata* is a medium-sized species (body length ♀ 33 mm) (Fig. 28). Karsch (1889) described only the female. It is yellow-greenish, characterized by rather broad tegmina, with veinlets forming hexagons, and black spots on the base of tegmina, below the pronotum. Fore femora are armed with 3 inner ventral spines. *A. marmorata* has one broad-based spine on both sides on the hind femur (Karsch 1889). Lateral lobes of the ovipositor have a pointed protuberance.

Description of the male. Comparatively large with broad, leaf-like tegmina. *General habitus and colour pattern.* On tegmina many dark spots and maculae. Hind femora ventrally with two broad-based spines. First two antennal segments yellowish, others green, with black rings. *Head and antennae.* Eyes round, fastigium of vertex sulcate. Face with reddish tinge. *Thorax and legs.* Tympana of fore tibiae open on outer side, closed on inner side, dark. Pronotum green or yellow with green lines, metazona yellowish. Anterior margin of pronotum slightly concave, posterior margin rounded. Lower margin of pronotal lobes lacks concavity present usually in other species of the genus. Tegmina are 2.5–2.7 times longer than broad, oval, green with a dark stripe at the base and numerous scattered dark maculae. The stridulatory file on left tegmen is slightly curved and narrow, with 95–100 teeth (Fig. 60). Fore coxae unarmed. Fore femora with 4 inner ventral spines, fore tibiae with 5–6 inner and outer ventral spines, and 2–3 dorsal spines. Mid femora with 1–2 outer ventral spines near the joint of the tibia with the femur, mid tibiae with 11–12 outer ventral spines, 6–7 inner ventral spines, and 6–7 outer and inner dorsal spines. Hind femora with 7 outer and 5 inner ventral spines, the last two broad-based and black-tipped. Hind tibiae curved, with 16–18 outer spines and 12–13 inner ventral spines. *Abdomen.* Cerci are long, up- and in-curved, stout with a central narrowing, and a spoon-like expanded apex and a sclerotized apical spine (Fig. 91). Subgenital plate is triangular, tricarinate, with a straight apex and two small styli.

Remarks. Karsch (1890) separated *A. marmorata* from *A. latifolia* because of the slightly different shape of the posterior margins of the tegmina, the wide dark stripe at the base of tegmina and a different spination. However, differences between *A. marmorata* and *A. latifolia* consist in tegmina width (width tegmina/length pronotum in *marmorata* 2.8, in *latifolia* 2.3) and especially in the male cerci. Typical are the male cerci, which are spoon-like expanded at the tips, lacking a subapical process present e.g. in *A. congensis*. It also is morphologically related to *A. congensis* and *A. melanota*.

Distribution. Central Africa (Democratic Republic of the Congo, Central African Republic).

Arantia (Euarantia) congensis Griffini, 1908 (Figs. 29, 61, 92)

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464785>

Griffini (1908). Mem. Soc. entom. Belgique, Bruxelles, 15: 214.

Type locality: DEMOCRATIC REPUBLIC CONGO. Bussira and Mange. Depository: MNS, Brussels. Kind of type: syntypes male and female.

Material examined. CENTRAL AFRICAN REPUBLIC. Dzanga-Ndoki National Park, Lac 1, 24–25.II.2012 (light trap), P. Moretto (♂); same locality and date (♂); 11–12.II.2012 (light trap), P. Moretto (♂); 15–16.II.2012 (light trap), P. Moretto (2♂); 14–15.II.2012 (light trap), P. Moretto (♂) (BMCP). DEMOCRATIC REPUBLIC CONGO. Bussira 15.V.1906 (1♂ syntype). Kasai, Mangé, V. Ferry (1♀ syntype) (RBINS).

Measurements. Males. Body length: 32.2±2.7; pronotum length: 6.7±0.2; pronotum height: 6.3±0.2; hind femur: 32.3±0.9; hind tibiae: 37.3±0.7; tegmina: 47.1±1.3; tegmina width: 16–19; tegmina width/pronotum length: 2.4–2.7 (present data). Female. Body length: 31; pronotum length: 7.2; tegmina: 51.5; tegmina width: 18; ovipositor: 4.4 (Griffini 1908).

Characters. *A. congensis* is a species of medium size (body length ♂ 29.5–36.1 mm, ♀ 31 mm) (Fig. 29). Griffini (1908) described it from the Democratic Republic Congo as subspecies of *A. melanota*. According to Griffini (1908) it is similar to *A. melanota* but is characterized by longer fore femora (11 mm in *A. congensis* vs. 10.7 mm in *A. melanota*), broader tegmina, and different cerci. It has a narrow pronotum, and clearly longer and more slender legs than any other species of the genus *Arantia*. In addition, it has broad-based spines ventrally on the hind femora. The anterior margin of the pronotum is slightly concave, the posterior margin rounded. The lower margins of the pronotal lobes lack the concavity usually present in other species of the genus. Tegmina are 2.8–3.3 times longer than broad, about a dozen of hexagons formed by the veinlets centrally on the tegmen. The

stridulatory file of the left tegmen is slightly curved, with 95–100 teeth (Fig. 61). A small spine is present at the posterior end of tergites 2th–8th. Fore coxae unarmed. Fore femora with 3–5 inner ventral spines, fore tibiae with 7–8 inner and outer ventral spines, and 4–5 dorsally. Mid femora unarmed, mid tibiae dorsally and ventrally with 11–12 outer and inner ventral spines and 6–7 outer and inner dorsal spines. Hind femora with 6–8 outer and 4–5 inner ventral spines, the last 4 spines broad-based and black-tipped. Hind tibiae curved, with 12–14 outer and 9–11 inner ventral spines. Tibiae and femora are long and slender. Very characteristic are the male cerci; the bases are spoon-like expanded at the tips, with a subapical process (Fig. 92). The subgenital plate is triangular, tricarinate, the apex is concave with two tips, similar to styli, that are obliterated.

The female has been re-described by Heller *et al.* (2014). It is characterized by unusually large and broad-based spines (especially the last two) on both edges ventrally on the hind femur. The ovipositor has two lateral protuberances.

Colour. Probably predominantly green in life, preserved insects with yellowish to tawny areas. Antennal segments reddish with small black rings. Tympana dark or only dark at their apex. Tegmina oval, green with a dark stripe at the base and some yellow spots on the vertical veinlets (Fig. 29).

Distribution. Central Africa (records from Democratic Republic Congo, Central African Republic).

Arantia (Euarantia) melanota Sjöstedt, 1902 (Figs. 30, 62, 93a, b)

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464802>

Sjöstedt (1902). Bihang Kungl. Svenska Vet. Akad. Handl., 27 (3): 6.

Type locality: CAMEROON. Bonge. Depository: NHRS, Stockholm. Kind of type: holotype male.

Material studied. CAMEROON. Dibongo/Sanaga (1♂, 1♀). L. Conradt 1889–1899 (1♂). Mukonje Farm, R. Rohde (1♀) (RBINS). ANGOLA (1♂) (MNCN). CENTRAL AFRICAN REPUBLIC. Dzanga-Ndoki National Park, Lac 1, 24–25.II.2012 (light trap), P. Moretto (♂) (BMCP).

Measurements. Male. Body length: 32.8; pronotum length: 7.4; pronotum height: 6.6; hind femur: 34.5; hind tibiae: 40.9; length of tegmina: 50.1; length of hind wings: 53.0; tegmina width: 15.3–15.8; tegmina width/pronotum length: 2.0–2.1.

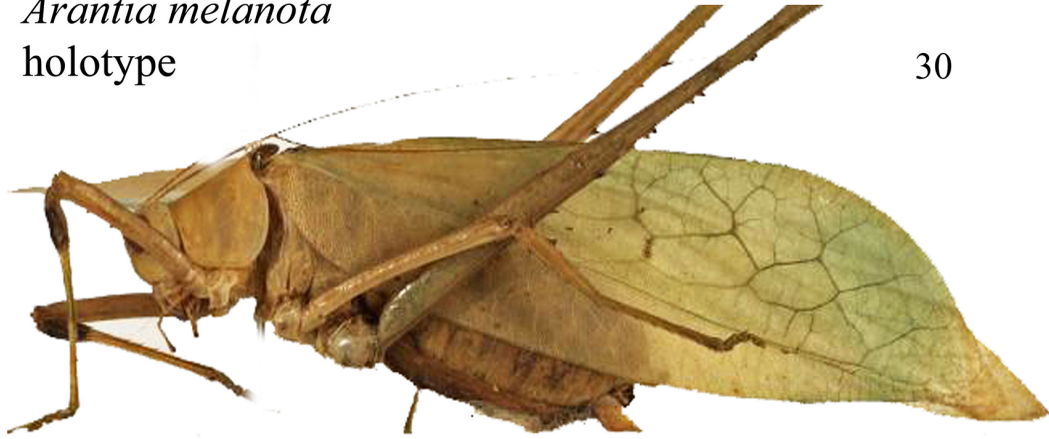
Characters. *A. melanota* is a species of large size (body length ♂ 32–40 mm, ♀ 44 mm). Sjöstedt (1902) described the male. Griffini (1908) described the female from Mukonje Farm (Cameroon). It is characteristic for its dark tympana, whitish metanotum bordered by a dark stripe and a black line on the posterior part of the pronotum in the area where the metazona is curved. Eyes round and prominent, first antennal segment covered with fine hairs. Fastigium of vertex sulcate. Anterior margin of pronotum straight, posterior margin rounded. Lower margin of pronotal lobes round. Tegmina are 3.4 times longer than broad. Veinlets of tegmina form some hexagons; at their angles some small yellow and black spots are present. The stridulatory file of the left tegmen is arcuate, composed of ca. 60–65 teeth (Fig. 62). Fore coxae unarmed. Conspicuous is a black area around the tympana of the fore tibiae. Fore femora with 5 inner ventral spines, fore tibiae with 8 inner and 4 outer ventral spines, and 5 dorsally. Mid femora unarmed. Mid tibiae with four rows of spines, 11 outer and 9 inner ventral spines, 6 outer and 8 inner dorsal spines. Hind femora with 5 black spines ventrally. Hind tibiae strongly curved, with 14 inner and outer ventral spines. Cerci in-curved, apex claw-like with sclerotized tips, densely covered by hairs (Figs 93a, 93b). The subgenital plate is more or less trapezoidal and short, with enlarged and closely spaced appendices. Styli are absent. Ovipositor has two lateral protuberances.

Affinities. The tegmina are comparatively broad, with several hexagons formed by the veins. Typical is also a black area at the immediate base of the tegmina. Characteristic are the male cerci with a claw-like apex. Large black spines are present ventrally on the hind femora. From its habitus with the broad leaf-like tegmina similar to *A. latifolia*. However, the latter has different male cerci that are undivided and wear a sclerotized ridge at the tips. Similar male cerci are present in *A. retinervis* also sharing a similar habitus with *A. melanota*. In the latter species the male cerci are divided into two approximately equally long sclerotized tips, one of them stout and broad-based the other tip more slender. Conspicuous in *A. melanota* are the black marked areas of the tympana on the fore tibiae which are green in *A. retinervis*. Further *A. retinervis* has a uniformly green pronotum while *A. melanota* has a thin black transverse line on the metazona of the pronotum.

Distribution. Angola, Cameroon and Central African Republic.

Arantia melanota
holotype

30



31

Arantia mauritiana
holotype



Arantia retinervis
syntype

32



33

Arantia bispinosa n. sp.
holotype



FIGURES 30–33. Habitus of *Arantia* (*Euarantia*) *melanota* (holotype) (30), *A.* (*Euarantia*) *mauritiana* (holotype) (31), *A.* (*Euarantia*) *retinervis* (syntype) (32) and *A.* (*Euarantia*) *bispinosa* n. sp. (holotype) (33).

***Arantia (Euarantia) mauritiana* Saussure, 1899 (Figs. 31, 94)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464800>

Saussure (1899). Abh. Senckenb. Natforsch. Ges., 21: 615.

Type locality: MAURITIUS. Depository: MHNG, Geneva. Kind of type: holotype male.

Tegmina width: 19; tegmina width/pronotum length: 2.2 (Heller *et al.* 2014).

Characters. Species of medium size (body length ♂ 31 mm). Saussure (1899) described the male from Mauritius. Conspicuous is the black wrinkled and up-lifted posterior margin of the pronotum (Fig. 31). Also part of the lateral lobes are black. The male cerci are straight. The apical part of the cerci is laterally flattened, the tip in-curved wearing a single sclerotized spine (Fig. 94).

Distribution. Known only from the island Mauritius in the Indian Ocean.

***Arantia (Euarantia) retinervis* Karsch, 1889**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464814>

Karsch (1889). Berlin Ent. Z., 32: 433, 437. (Figs. 32, 63, 95a, b)

Type locality: CAMEROON. Chinchoxo, Barombi and SIERRA LEONE. Depository: MfN, Berlin. Kind of type: syntypes males.

Material examined. CAMEROON. Chinchoxo (3♂ syntypes). Barombi Station (2♂ syntypes). Barombi Station, Preuss (2♂, 3♀). Victoria (1♀). John-Albrechtshöhe 27.V–3.VI.1896, L. Conradt (1♂, 2♀). Lolodorf, V. Heyne (2♀). Victoria (4♂, 11♀). (2♂) (MNCN). Staudinger (1♂). Mundame, Rohde (2♂, 1♀). Barombi Station, Preuss (1♂, 1♀). Mukonje Farm, R. Rohde (4♂, 9♀). TOGO. Bismarckburg, R. Büttner (1♂). Bismarckburg 15–31.XII.1890, R. Büttner (1♂, 1♀); Togo 31.III.1894, E. Baumann (1♂); Togo, Misahöhe 1894, E. Baumann (2♂). Misahöhe XII.1893, E. Baumann (2♀). SIERRA LEONE Staudinger (1♂) (MfN). Dohrn (2♀). GUINEA. Ebebeyin VII.1948, J. Mateu (1♀). Rio Kongüe (Muni), Escalera (1♂). EQUATORIAL GUINEA. Fernando Póo, Basile VIII–IX.1901, L. Fea (1♂). Mt. Nimba VII–XII.1951, Lamotte & Roy (1♂, 1♀). DEMOCRATIC REPUBLIC CONGO. Fernand-Vaz X.1902 (1♀). N'Jolé (= Ndjole) XI.1902 (1♀) (MSNG). Sibiti XI.1963, A. Descarpentriès & A. Villiers (1♂) (MNHN). 27.III–5.IV.1975 (1♂) (MZUF). CENTRAL AFRICAN REPUBLIC. Dzanga-Ndoki National Park, Ndoki, 26.I.2012; Lac 1, 20–23.II.2012; 13–14.II.2012; 15–16.II.2012 (light trap), P. Moretto (5♂); Ivory Coast, Man, Mt. Tonkoui (1200m) 28.VI–1.VII.2014 (light trap), P. Moretto (1♂). IVORY COAST. Comoe, Kolomabira (228m) 11.XI.2014 (light trap), P. Moretto (1♂). Taï Nat. Park, Res. Station 19.III.2017 (light trap), B. Massa (1♂). Taï Nat. Park, Res. Station 4.IV.2017 (light trap), P. Moretto (4♂) (BMCP). Man, Mt. Tonkoui (1171m) 12–18.VII.2015 (light trap), M. Aristophanous, P. Moretto, E. Ruzzier (1♂). Telo Village (415m) 10–13.XI.2015 (light trap), M. Aristophanous, P. Moretto, E. Ruzzier (2♂) (NHM). Between Lambarene and the sea, E. Hang 1901 (1♂). Lamto 15–30.X.1968, C. Girard (light) (1♂). 15 km before Lamto 13.IX.1968, C. Girard (1♂, 1♀). Staudinger (1♂). GABON. Ogoue (1♀) (NMW). GABON. N'Douamang 28.IX.1985, A. Pauly (1♀). N'Toum V.1985, 5–20.X.1985, A. Pauly (2♂). Assok Ngum 1.II.1986, A. Pauly (1♂) (RBINS).

Tegmina width: 13–16.20; tegmina length/width: 2.4–3.6; tegmina width/pronotum length: 1.9 (Heller *et al.* 2014).

Characters. *A. retinervis* is a species of medium size (body length: ♂ 30 mm, ♀ 35 mm) (Fig. 32). Karsch (1889) described the male from Cameroon and Sierra Leone. Karsch (1891, 1893) recorded it from Togo, Bolívar (1906), Griffini (1906) and Ebner (1943) from Fernando Pòo (Equatorial Guinea), Sjöstedt (1929) from Democratic Republic Congo and Ragge (1968b) from the Ivory Coast. The anterior margin of the tegmina is slightly expanded. A small black spot is present at the base of the tegmina. The stridulatory file is arcuate and narrow and consists of ca. 60–65 teeth (Fig. 63). Veinlets of tegmina form some hexagons (Fig. 32) and may have small dark spots. Fore tibiae have a dark-reddish base and tympana are darkened. Fore femora have 4–7 inner ventral spines, mid femora unarmed or with 1–2 small spines, hind femora with 5 outer and 7 inner ventral small yellow spines. Male cerci are stout, long, slightly in-curved and show a bifid brown spatular and pointed apex (Figs. 95a, 95b). Male styli are absent. The ovipositor has two lateral pointed protuberances, the subgenital plate of the female is short and rounded. Probably green in life, preserved insect yellowish green.

Distribution. Widely distribution throughout West and Central Africa (records from Sierra Leone, Guinea, Togo, Ivory Coast, Equatorial Guinea, Democratic Republic Congo, Central African Republic and Cameroon).

***Arantia (Euarantia) bispinosa* n. sp. (Figs. 33, 68, 84a, b)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:500643>

Material examined and depository. IVORY COAST. Taï National Park, Res. Station 18.III.2017 (light trap), B. Massa (1♂ holotype, 1♂ paratype) (BMCP).

Measurements. Body length: 31.4–32.1; pronotum length: 6.4–6.6; pronotum height: 5.6–5.7; fore femur: 11.5–12.0; mid femur: 13.0–13.2; hind femur: 31.1–32.2; hind tibiae: 35.4–37.0; tegmina length: 42.8–44.6; length of hind wings: 46.8–48.5; tegmina width: 12.0–12.5; tegmina length/width: 3.6–3.9; tegmina width/pronotum length: 1.9.

Diagnosis. *Arantia bispinosa* n. sp. is a large-sized (♂ 31–32 mm) species, with the base of tegmina black. Very peculiar are two spines at the inner base of the cerci with a sclerotized ridge that stretches along the inner side of the cercus. It is also characterized by long femora (see measurements). We placed it within the subgenus *Euarantia*, but as in the case of *A. rectifolia*, the width of tegmina is intermediate between *Arantia* and *Euarantia*.

Description. Male (Fig. 33). *General habitus and colour.* Predominantly yellow-green, leaf-like. Antennal segments reddish. Pronotum yellow, legs yellow, except for hind tibiae that are green. Base of tegmina black. *Head and antennae.* Eyes oval-roundish, antennae long and very thin, 64.5 mm. *Thorax and legs.* Fore coxa unarmed. Tympana on fore tibiae open on outer, closed on inner side. Anterior margin of pronotum straight, posterior margin rounded. Lower margin of pronotal lobes with a concavity. Tegmina oval, green with a dark stripe at the base, 3.6 times longer than broad. The stridulatory area of the left tegmen is almost straight, the stridulatory file is arcuate, narrow and consists of less than 40 teeth (Fig. 68). Fore femora with 6 inner ventral spines, fore tibiae with 7 inner ventral and 6 outer ventral spines. Mid femora with 2 outer ventral spines, mid tibiae dorsally with 5 outer and inner spines, 12 spines on outer and inner ventral margins. Hind femora with 5 outer and 4 inner ventral spines, hind tibiae slightly curved, with many ventral spines. *Abdomen.* Cerci are long and in-curved, with an acute small spine at the inner dorsal base, and an inner sclerotized ridge that stretches from the mid to the apex of the cerci; the ventral base of the cerci is circlic expanded with an apical brown chitinous margin (Figs 84a, 84b). Subgenital plate is triangular, the apex is straight and styli are present (Fig. 84a).

Female. Unknown.

Etymology. Named for the presence of two spines at the inner dorsal base of cerci.

Affinities. Cerci with a circlic expanded process at the base of the cerci together with a acute small spine dorsal at the base is unique so far for *Arantia*.

Distribution. Known only from the type locality, the Taï National Park (Ivory Coast).

***Arantia (Euarantia) excelsior* Karsch, 1889 (Figs. 34–37, 39–40, 64, 96–98)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464787>

Karsch (1889). Berlin Ent. Z., 32: 434–435.

Type locality: SIERRA LEONE. Depository: MZPW, Warsaw. Kind of type: holotype male.

Syn. *Arantia (Euarantia) mammsignum* Karsch, 1896

Karsch (1896). Stett. Entomol. Z. 57: 332.

Type locality: CAMEROON. Lolodorf. Depository: MfN, Berlin. Kind of type: holotype female.

Syn. *Arantia (Euarantia) tigrina* Bolivar, 1906

Bolívar I. (1906), Mem. Soc. espan. Hist. nat. 1: 330.

Type locality: EQUATORIAL GUINEA. Bioko (Fernando Póo). Depository: MNCN, Madrid. Kind of type: holotype male.

Material examined. SIERRA LEONE. *A. excelsior* (♂ holotype images on OSF, Cigliano *et al.* 2017, MZPW, Warsaw). (1♂, 1♀) (MNCN). CAMEROON. Kiroi 1908, S. Lamey (1♀) (MSNG). CENTRAL AFRICAN REPUBLIC. Dzanga-Ndoki National Park, Ndoki 26.I.2012; Border of Lac 1, 13–14.II.2012. Lac 1, 24–25.II.2012 (light trap), P. Moretto (5♂). IVORY COAST. Taï Nat. Park, Res. Station 20–22.III.2017 (light trap), B. Massa

(6♂) (BMCP). Taï National Park, Res. Station 5–10.VII.2015 (light trap), M. Aristophanous, P. Moretto, E. Ruzzier (5♂). Man, Mt. Tonkouï (1171m) 12–18.VII.2015 (light trap), M. Aristophanous, P. Moretto, E. Ruzzier (7♂). Telo Village (415m) 10–13.XI.2015 (light trap), M. Aristophanous, P. Moretto, E. Ruzzier (1♀) (NHM). Taï Nat. Park, Res. Station 25.III.2017 (light trap on platform at 40m), P. Annoyer (2♂). Taï Nat. Park, Res. Station 25.III.2017 (light trap), P. Annoyer (1♂) (PACT). GABON. N'Toum 19.XI.1982, V.1985, 16.IX.1985, A. Pauly (3♂) (RBINS). *A. tigrina*: EQUATORIAL GUINEA. Fernando Póo (Bioko) (♂ holotype) (MNCN). CAMEROON. Dibongo, (♀ paratype) (MNCN). *A. mammissignum*: CAMEROON. Lolodorf (♀ holotype) (MfN).

Measurements. Body length: 33.8±1.3; pronotum length: 8.3±0.3; pronotum height: 9.3±0.2; hind femur: 28.4±1.3; hind tibiae: 33.6±0.4; tegmina: 57.5±1.4 (♀ holotype: 68.4); tegmina width: 15–21; tegmina length/width: 2.7–3.2 (♀ holotype: 3.2); tegmina width/pronotum length: 1.9–2.1.

Characters. Karsch (1896) described *A. excelsior* on a single male from Sierra Leone (Fig. 34). A few years later he described *A. mammissignum* on a single female from Cameroon (Fig. 37). The most conspicuous characters of *A. mammissignum* are the two shiny white patches on the posterior part of the pronotum, and black markings on the fore margin of the tegmina. Obviously because of the conspicuous two white patches on the posterior pronotum Karsch did not realize that the newly described female was conspecific with *A. excelsior*. However, also the male shows this conspicuous character of white patches on the posterior margin of the pronotum, as well as black markings on the tegmina (Figs 39–40). Now more specimens became available for study and it became obvious that *A. mammissignum* is conspecific with *A. excelsior*. Collections of MNCN hold a specimen from southern Cameroon (Dibongo) identified as *A. tigrina*, which is almost identical with the female of *A. mammissignum* including the colour pattern of the two large white patches on the posterior margin of the pronotum. The male holotype of *A. tigrina* (Fig. 36) has the same genitalic morphology as *A. excelsior*: the male cerci are stout at their base tapering to the apex, are sinuous midway and end in a dark coloured club (compare Figs 96, 97, 98). The male subgenital plate is very distinctive being elongate, almost rectangular and very narrow without styli but blunt short processes. Also the costal area of the tegmina has brown to black markings both in the *A. excelsior* and the *A. tigrina* types. In specimens studied the metazona of the pronotum is often brown with a whitish area at the posterior margin. Two large white patches may be present on the posterior pronotum (holotype *A. mammissignum*, female paratype *A. tigrina*), may cover the whole posterior down-curved part of the pronotum (holotype *A. tigrina*) or may be restricted to the immediate margin (holotype *A. excelsior*). Typical is also a strong deflection of the pronotal disc in the area of the metazona (Fig. 39). The face of the holotype in *A. excelsior* is reddish brown while it is ivory white in *A. tigrina*; the face of the female of *A. tigrina* in MNCN is uniformly brown. Therefore, colour variation is apparent in this species as has also observed e.g. in specimens of *A. fasciata* from East Africa, as well as differences in body size. Some specimens of *A. excelsior* have blackish stripes on the legs (including the tympana of the fore tibia). Thus, both *A. tigrina* and *A. mammissignum* are here synonymized with *A. excelsior*. The stridulatory file of *A. excelsior* is short and broad and consists of ca. 65 more evenly spaced teeth (Fig. 64). Further, some specimens (from Ivory Coast) have both inner and outer tympana closed on the fore tibia.

Affinities. *A. excelsior* is closely related to *A. rectifolia* and *A. regina* having a similar habitus of broad leaf-like wings and similar male genitalia. *A. rectifolia* has tegmina less broad than *A. excelsior* and *A. regina*. In addition, in *A. regina* the male cerci are more slender and the club at the tips of the cerci is not as large as in *A. excelsior*. The female ovipositor is smaller in *A. rectifolia*. Also *A. rectifolia* lacks the brown-black patches at the anterior margin of the tegmina which seem typical for *A. excelsior* (Fig. 34). Another striking difference is seen on the metazona of the pronotum. In *A. excelsior* a conspicuous deflection is present while in *A. rectifolia* and in *A. regina* the posterior part of the metazona is only shallowly bent.

Distribution. Central and West Africa (records from Sierra Leone, Equatorial Guinea, Central African Republic and Cameroon).

Arantia (Euarantia) scurra Karsch, 1896 (Figs. 38, 41–42, 65, 99)

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:464815>

Karsch (1896). Stett. Entomol. Z., 57: 331.



39



40

Arantia excelsior



41



42

Arantia scurra



43



44

Arantia tibiaspinosa n. sp.

FIGURES 39–44. Dorsal view of the pronotum and stridulatory area of tegmina (left) and lateral view of head, pronotum and base of tegmina (right) of *Arantia* (*Euarantia*) *excelsior* (39, 40), *A.* (*Euarantia*) *scurra* (41, 42) and *A.* (*Euarantia*) *tibiaspinosa* n. sp. (43, 44).

Type locality: CAMEROON. Lolodorf. Depository: MFN, Berlin. Kind of type: holotype male.

Material examined. CAMEROON. Lolodorf (♂ holotype) (MFN). IVORY COAST. Taï National Park, Res. Station 20–23.III.2017 (light trap), B. Massa (5♂). Taï National Park, Res. Station 16.III.2017, platform 40m (light trap), B. Massa (1♂). Taï National Park, Res. Station 4.IV.2017 (light trap), P. Moretto (4♂) (BMCP, CHB).

Measurements. Males (N=4). Body length: 31–32.7; pronotum length: 7.8–8.1; pronotum height: 8.0–8.7; hind femur: 26.1–28.0; hind tibiae: 29.8–32.8; tegmina: 50.2–52.9; tegmina width: 14.3–14.7; tegmina length/width: 3.4–3.7; tegmina width/pronotum length: 1.8–1.9.

Characters. *A. scurra* has small to medium size (body length ♂ 26.5–33 mm). Karsch (1896) described it on one male, on the following characters: head, pronotum, legs and abdomen ochreous, antennal segments pale with dark rings and ochreous basal segment, face reddish-black, basal lobe of pronotum, apex of fore femora, base of fore tibiae and apex of hind femora reddish, hind tibiae with dark rings, fore and hind femora with black spines, tegmina more or less rectangular with some black spots on their base (Fig. 38). The face is also dark and the palps have a dark apex. Fore and mid femora unarmed, hind femora with 5 inner and 7 smaller ventral spines. Male cerci are in-curved, slightly sinuous, long and stout and have a black round and wrinkled apex, styli are small and black (Fig. 99).

Affinities. *A. scurra* belongs to a group of *Arantia* species with stout and sinuous male cerci ending in a club that is black, brownish or has the same colour as the cerci. *A. rectifolia* males have a small club on the tip of the cerci which has the same colour as the cerci or is slightly brownish, *A. excelsior* has strongly sinuous male cerci with a large club which is black. Also *A. fasciata* has stout sinuous male cerci with a well developed club that is slightly coloured. *A. excelsior* and *A. scurra* also share brown to black grooves at the anterior margin of the tegmina.

Remarks. *A. scurra* is morphologically closely related to *A. excelsior*. The only characters delimitating *A. scurra* from *A. excelsior* are the dark brown pronotum and the smaller size. The male cerci are very similar and *A. scurra* shares the darkened tympana and anterior dark parts of the fore femora with *A. excelsior*. The stridulatory file (Fig. 65) is very similar to that of *A. excelsior*. Also very apparent are the dark brown and black grooves on the anterior margin of the fore tegmina shared by both *A. scurra* and *A. excelsior* specimens. At present the male holotype of *A. scurra* was unique, no collection studied so far had further specimens which would have supported the status of this species. *A. scurra* is known from Cameroon and thus also overlaps in its locality with the known distribution of *A. excelsior*. Only more material will clarify whether *A. scurra* is conspecific with *A. excelsior*.

Distribution. Central Africa (records from Cameroon and the Central African Republic).

***Arantia (Euarantia) tibiaspinosa* n. sp. (Figs. 43–44, 45a, 66, 100)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:500646>

Material examined and depository. IVORY COAST. Taï National Park, Res. Station 20.III.2017 (light trap), B. Massa (1♂ holotype) (BMCP); same data (2♂ paratypes) (BMCP, CHB). Taï National Park, Res. Station 4.IV.2017 (light trap), P. Moretto (5♂ paratypes) (BMCP). 5–10.VII.2015 (light trap), M. Aristophanous, P. Moretto, E. Ruzzier (4♂ paratypes) (NHM).

Measurements. Males (N=3). Body length: 30.2–32.5; pronotum length: 8.1–8.6; pronotum height: 9.1–10.0; hind femur: 27.5–28.6; hind tibia: 33.4–34.9; tegmina length: 48.6–54.2; tegmina width: 14.0–15.0; tegmina length/width: 3.4–3.6; width tegmina/length pronotum: 1.7–1.8.

Diagnosis. *A. tibiaspinosa* n. sp. is very similar in its colour pattern to *A. excelsior* and especially to *A. scurra*. All three species also share similar male genitalia, the apices of the cerci being club-shaped. With *A. excelsior* it shares the conspicuous white patches on the metazona of the pronotum and with *A. scurra* an almost identical colour pattern of tegmina and legs (compare Figs 39–40 with 41–42 and 43–44). The tegmina of both species have brown dots and patches where tegmina meet in the middle when folded and have dark brown stripes on the hind legs. The joints of the fore and mid legs are dark brown in both species. *A. tibiaspinosa* n. sp. may easily be distinguished by the enlarged and densely set spines of the basal hind tibiae, a character unique so far for *Arantia*.

Description. Male (Fig. 45a). *General habitus and colour pattern.* Large to medium sized species with broad wings. Posterior part of pronotum dark brown with two small white patches. Hind legs with pattern of dark stripes, also joints of fore and mid legs of same dark brown colour. Along midline where tegmina meet irregular black to

brown set patches. On anterior margin of tegmina with ivory spots on dark ground. *Head and antennae*. Eyes oval-roundish, very dark. Antennae long and thin, brown. Fastigium of vertex forming a ridge with sulcus; fastigium of frons conical; both fastigia separated by deep gap. Fastigium of vertex and fastigium of frons green while face dark brown. *Thorax and legs*. Anterior margin of pronotum almost straight. Posterior part of pronotum strongly deflexed in metazona (Figs 43–44). Metazona of pronotum dark brown with small well defined white patches or white patches larger and diffuse. Tegmina broad with truncate margin. At costal area conspicuous pattern of ivory patches set in broad dark brown fascia. Stridulatory file on underside of left tegmen long, almost straight with teeth largest in middle part, with 55–60 teeth (Fig. 66); teeth in the middle larger and more widely spaced than at both ends. Fore coxa without spine. Tympana of fore tibiae open on inner side, conchate on outer side, whole area slightly inflated and marked dark brown in this area. Fore femora on inner side with 5 inner ventral spines and 2–4 outer dorsal, mid femora with 2–3 inner ventral spines, hind femora with 6–9 black inner and outer ventral spines. Fore tibiae with 5 inner dorsal spines; 2 pair of spurs. Mid tibiae with ventral row of 7–8 irregular set pairs of spines, 1–2 on both dorsal sides and 2 pairs of spurs. Hind tibiae tetragonal with 4 rows of numerous spines; with 3–5 enlarged, densely set spines basally and more than 25 spines on upper margins (Fig. 45b); dorsal 1 pair of spurs, ventral 2 pairs. *Abdomen*. Cerci long and slender with club with small apical spine, sinuous at apical part and decussate (Fig. 100). Club small, dark. Subgenital plate longer than wide and without styli.

Female. Unknown.

Etymology. Named for the conspicuous enlarged tibial spines.

Habitat and locality information. Canopy inhabitant of Taï National Park (Ivory Coast). This Park is located approximately 100 km from the Ivorian coast on the border with Liberia between the Cavally and Sassandra rivers. It covers an area of 3,300 km² with a 200 km² buffer zone. The park consists of 4,540 km² of tropical evergreen forest, it is one of the last remaining portions of the vast primary Upper Guinean rainforest that once stretched across present-day Togo, Ghana, Ivory Coast, Liberia and Sierra Leone to Guinea-Bissau. It is the largest island of probably most pristine forest remaining in West Africa. It holds many endemic species of fauna and flora. The Taï Forest Reserve was created in 1926 and promoted to National Park status in 1972. It was recognised as a UNESCO Biosphere Reserve in 1978 and added to the list of Natural World Heritage Sites in 1982.

Distribution. West Africa, Ivory Coast. At present only known from the type locality.

Arantia (Euarantia) griffinii n. sp. (Figs. 46, 67, 101)

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:500647>

Material examined and depository. CENTRAL AFRICAN REPUBLIC. Dzanga-Ndoki National Park, Lac 1, 24–25.II.2012 (light trap), 02°28'40.5N 016°13'02.6E, P. Moretto (♂ holotype) (BMCP).

Measurements. Body length: 30.6; pronotum length: 7.2; pronotum height: 6.6; hind femur: 35.5; hind tibiae: 40.1; tegmina length: 48.1; length of hind wings: 50.1; tegmina width: 15.5; tegmina length/width: 3.1; tegmina width/pronotum length: 2.1.

Diagnosis. It is a large-sized (♂ 30.6 mm), very characteristic species, covered by many small hairs on the legs. The coloration is unusual for the genus (abdomen yellow with dorsal part red). Inner margins of the tympana inflated. Posterior margin of the pronotum is brownish, similar to *A. scurra* but not as dark. Very peculiar is the fastigium of vertex being almost heart-shaped leaving a large gap to the fastigium of the face.

Description. Male (Fig. 46). *General habitus and colour.* Predominantly green, leaf-like. Antennal segments reddish with small black rings. Head and legs yellow with reddish dots and stripes. Behind the eye yellow, face yellow, labium dark. Posterior part of pronotum brown, lateral lobes with a yellow area, metazona dark reddish. *Head and antennae.* Eyes oval, fastigium of vertex heart-shaped, forming two broad wings. Between fastigium of vertex and the face a large gap. Antennae long and very thin, 52.5 mm. *Thorax and legs.* Fore coxa unarmed. Tibiae densely covered by short hairs. Tympana on fore tibiae open on outer, closed and inflated on inner side. Pronotum green, anterior margin slightly concave, posterior margin rounded. Lower margin of pronotal lobes without the concavity present in most other species of the genus. Tegmina oval, green with a thin dark stripe at the base, 3 times longer than broad. The stridulatory area of the left tegmen is almost straight, the stridulatory file is arcuate, narrow and consists of ca. 80–85 teeth (Fig. 67). Fore femora with 4 inner ventral spines, fore tibiae with 8 inner ventral and 5 outer ventral spines. Mid femora with 1 outer ventral spine near the tibia joint, mid tibiae ventrally with 14

outer and 11 inner spines, 9 spines on outer and inner dorsal margins. Hind femora with 5 outer and 4 inner ventral spines, hind tibiae slightly curved, with 14 outer and 10 inner ventral spines. *Abdomen*. Cerci are long and in-curved, apically slightly inflated with a larger and a very small dent (Fig. 101). Subgenital plate is triangular, long and narrow, the apex is straight and styli are absent.

Female. Unknown.

Etymology. *A. griffinii* n. sp. is dedicated to Achille Griffini (1870–1932), distinguished Italian entomologist, who studied many African collections of Orthoptera preserved in different world museums.

Affinities. It is related to *A. melanota*, but the tibiae of *A. griffinii* do not have blackish tympana and the male cerci have a smaller dent at the tip. In addition *A. melanota* has broad-based spines on the hind femora.

Distribution. Known only from the type locality, the Dzanga-Ndoki National Park in the in the south-west of the Central African Republic, Central Africa.

Subgenus *Arantia* (*Goetia*) n. comb.

Arantia (*Goetia*) *dimidiata* (Bolívar, 1906) n. comb. (Figs. 47–48, 70, 102–103)

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:500649>

Bolívar (1906). Mem. Soc. espan. Hist. nat. 1: 335.

Type locality: EQUATORIAL GUINEA. Fernando Póo and CAMEROON. Depository: MNCN, Madrid. Kind of types: syntypes male and females.

Syn. *Arantia gestri* Griffini, 1906

Griffini (1906). Ann. Mus. Civ. Stor. Nat. Genova, 3 (2): 384.

Type locality: GABON. N'Jolè (=Ndjole). Depository: MSNG, Genoa. Kind of type: holotype male.

Material examined. EQUATORIAL GUINEA. Bioco (Fernando Póo), Escalera (1♂, 1♀ syntypes). CAMEROON. L. Conradt (1♀ syntype) (MNCN). CENTRAL AFRICAN REPUBLIC. Dzanga-Ndoki National Park, Lake 1, (light trap) 10–11.II.2012 (1♂); 11–12.II.2012 (2♂); 20–23.II.2012 (3♂); 24–25.II.2012 (6♂). Ndoki, border of Lake 1 (light trap) 13–14.II.2012 (6♂). Ndoki, Lake 1 (light trap) 2, 15–16.II.2012 (4♂). Ndoki, Lake 3 (light trap) 18–19.II.2012 (1♂). Ndoki, Lake 1, platform on the canopy, 35m (light trap) 4–5.II.2012 (1♂); 10–11.II.2012 (1♂); Ndoki, Lake 1, platform on the canopy, 45m (light trap) 28–29.II.2012 (1♂). Ndoki, salt pans 25.I.2012 (1♂), P. Moretto (BMCP). *A. gestri*: GABON. Ndjolé XI–XII.1902, L. Fea (♂ holotype) (MSNG). DEMOCRATIC REPUBLIC CONGO. Kasai, Mange, V. Ferry (1♀) (RBINS).

Measurements. Males. Body length: 27.0–32.0; pronotum length: 7.0–7.2; pronotum height: 5.2–6.1; hind femur: 26.0–29.0; hind tibiae: 31.0–34.0; length of tegmina: 45.0–47.0; tegmina width: 9.5–10.5 (*A. gestri*: 11.8); tegmina width/pronotum length: 1.3–1.4 (*A. gestri*: 1.7). Females. Body length: 25.0–27.0 (*A. gestri*: 27.4); pronotum length: 6.1–6.5 (*A. gestri*: 6.4); pronotum height: 5.8–6.0 (*A. gestri*: 5.8); hind femur: 28.5; hind tibiae: 27.5; length of tegmina: 44.0–47.0 (*A. gestri*: 49.8); tegmina width: 10.5–10.6 (*A. gestri*: 11.0); ovipositor: 3.8–4.2 (*A. gestri*: 3.0); tegmina width/pronotum length: 1.6–1.7 (*A. gestri*: 1.7).

Characters. *A. dimidiata* is easily distinguished from *A. galbana* by the absence of hexagonal areas in the tegmina and by black spines present on the legs of *A. galbana* (Karsch 1891; Bolívar 1906) (compare Figs 48 and 49). In addition, the cerci of *A. dimidiata* are long, in-curved, dorso-ventrally compressed and end with a small black spine, while those of *A. galbana* are sinuate and end with a round hairy bulge (compare Figs 102 and 104). Further, some specimens of *A. dimidiata* have a dark fascia on the posterior area of the pronotum, absent in *A. galbana*. The stridulatory file consists of ca. 55–60 teeth, the central situated teeth are broader and more spaced (Fig. 68). Griffini (1906) described the male of *Arantia gestri* from the Democratic Republic Congo (Fig. 47) and later (Griffini 1908) the female from Mange (Kassay, Congo). A peculiar character is the black velvet color of the hind margin of the pronotum. The fore coxae are armed with a very small spine (both in the male holotype and in the female), fore femora armed with 7–9 black-tipped small spines. The outer tympanum of the fore tibia is black. The mid femora are armed with 6 small ventral spines, and the hind femora with 6–8 ventral black-tipped spines. The anterior margin of the tegmina is straight with small black spots, and the stridulatory area of the left tegmen also has small black markings, as in *A. dimidiata*. Further, a concavity on the lower margins of the pronotal lobes is present also in *A. dimidiata*. Cerci of *A. gestri* are long, hairy, with an enlarged apex and a very small dark spine, identical to those of *A. dimidiata* (compare Figs 102 and 103). Styli are absent. The ovipositor of the female is short

and the last tergite has two tumescent bumps. *A. gestri* and *G. dimidiata* were described in the same year, thus authors of their descriptions probably were unaware of the respective described taxa. However, *G. dimidiata* was described on 1st August 1906, while *A. gestri* on 5th August 1906 (cf. Poggi 2010). Thus, *A. gestri* Griffini, 1906 is a junior synonym of *G. dimidiata* Bolívar, 1906.

Distribution. Central and West Africa (Cameroon, Central African Republic, Equatorial Guinea, Gabon).

***Arantia (Goetia) galbana* (Karsch, 1891) n. comb. (Figs. 49, 69, 104)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:500650>

Karsch (1891). Berlin Ent. Z. 36 (1): 323.

Type locality: CAMEROON. Barombi Station. Depository: MfN, Berlin. Kind of type: holotype female.

Tegmina width: 13.8–16.0; tegmina length/width: 3.1–3.4; tegmina width/pronotum length: 2.4–2.6

Material examined. CAMEROON. Barombi Station (♀ holotype). Lolodorf (2♀). 1897 (1♀) (MfN). (♂) (MNCN). Buea VI–VII.2015 (♂) (BMCP). Mukonje Farm, R. Rohde (1♂) (RBINS). EQUATORIAL GUINEA. Ebomeku VII.1948, Mateu (♂). Fernando Póo (♀). Fernando Póo, Punta Frailes (♀) (MSNG). CENTRAL AFRICAN REPUBLIC. Dzanga-Ndoki National Park, Lake 1 (light trap) 22.II.2012 (3♂) (PACT).

Characters. Karsch (1891) described the female, Sjöstedt (1902) reported both sexes from Bonge (Cameroon), Griffini (1906, 1908) from Fernando Póo (Equatorial Guinea) and Mukonje Farm (Cameroon), Chopard (1954) and Ragge (1968b) from the Ivory Coast, and Naskrecki (2009) from Ghana. Typical are the hexagonal areas in the tegmina and black spines present on the hind femora (Karsch 1891; Bolívar 1906) (Fig. 49). *A. galbana* has 6 spines on the fore femora, 5 on the mid and 7–8 black spines on inner ventral margin of the hind femora (with a black spot at their base). No spines are present dorsally on the hind femora. The lower margin of the lateral lobes of the pronotum is undulated. The stridulatory file of the left tegmen is rather short and consists of ca. 60 teeth (Fig. 69). Cerci of *A. galbana* are sinuate and end with a round hairy bulge (Fig. 104). Styli are absent.

Distribution. West and Central Africa (records from Cameroon, Equatorial Guinea, Ghana and Ivory Coast).

***Arantia (Goetia) purpurea* (Massa, 2013) n. comb. (Figs. 50, 71, 105)**

<http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:500651>

Massa (2013). J. Orth. Res. 22 (2): 148.

Type locality: CENTRAL AFRICAN REPUBLIC. Dzanga-Ndoki National Park. Depository: BMCP, Palermo. Kind of types: holotype male and allotype female.

Material examined. CENTRAL AFRICAN REPUBLIC. Dzanga-Ndoki National Park, Ndoki, Lake 1, Light trap, 11–12.II.2012, P. Moretto (♂ holotype, ♀ allotype) (BMCP). La Maboké, M’Baiki I.1966, M. Pavan (1♀) (MSNP).

Measurements. Male. Body length: 30.5; pronotum length: 6.1; pronotum height: 7.0; hind femur: 28.0; tegmina: 49.6; tegmina width: 10.7. Female. Body length: 33.5; pronotum length: 6.0; pronotum height: 6.9; hind femur: 29.0; tegmina: 50.1; ovipositor: 5.5; tegmina width: 10.8 (Massa 2013). Tegmina length/width: 4.6; tegmina width/pronotum length: 1.7–1.8.

Characters. Large species characterized by its purplish color (Fig. 50). Lower margin of lateral lobes of the pronotum with a small concavity. Anterior margin of pronotum straight, posterior margin rounded. Fore coxae armed, fore tibiae dorsally furrowed. Stridulatory area of left tegmen well-developed, elevated above the wing plane and accentuated by a swelling of the rib; the stridulatory file consists of 70–75 evenly spaced teeth (Fig. 71). Male cerci are long, sinuous, down- and in-curved, covered by sparse hairs, basally black and apically brown and slightly flattened, with round apices (Fig. 105). Subgenital plate has a straight concavity, delimited by two apical apices, without styli. Fore femora are armed, hind femora ventrally with 9 black spines, surrounded by a wide black spot. Ovipositor short, gently curved and toothed at the apex of ventral and dorsal valves. *A. purpurea* is distinguished at once by its purple colour and the presence of black spots ventrally on the femora (Massa 2013).

Distribution. Central Africa (Central African Republic).

Arantia tibiaspinosa n. sp.
paratype

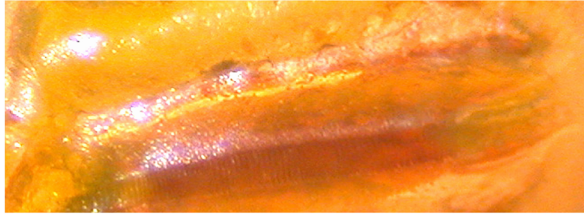


Arantia griffinii n. sp.
holotype

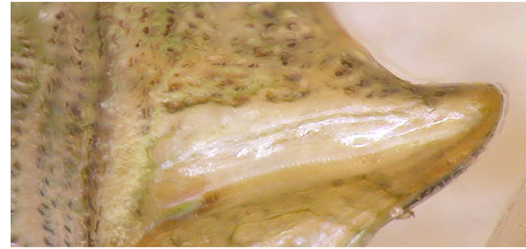


FIGURES 45–50. Habitus of *Arantia* (*Euarantia*) *tibiaspinosa* n. sp. (45a), inset expanded spiny base at joint with femur of hind tibia (45b), *A. (Euarantia) griffinii* n. sp. (46), *Arantia* (*Goetia*) *gestri* (holotype) (= *A. dimidiata*) (47), *A. (Goetia) dimidiata* (syntype) (48), *A. (Goetia) galbana* (49) and *A. (Goetia) purpurea* (holotype) (50).

51 *Arantia brevipes*



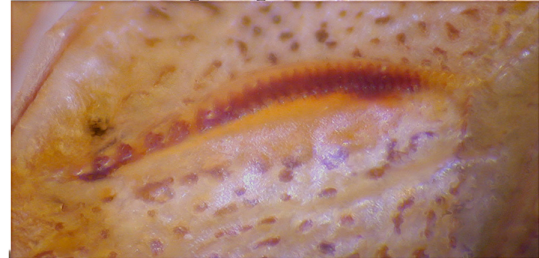
Arantia ivoriana n. sp. 52



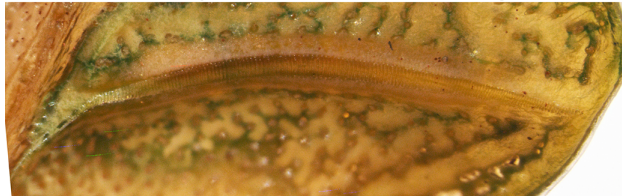
53 *Arantia simplicinervis*



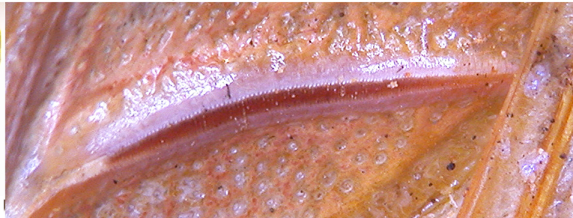
Arantia quinquemaculata n. sp. 54



55 *Arantia fasciata* Mt. Kilimanjaro



Arantia fasciata South Africa 56



57 *Arantia rectifolia*



Arantia tanzanica n. sp. 58



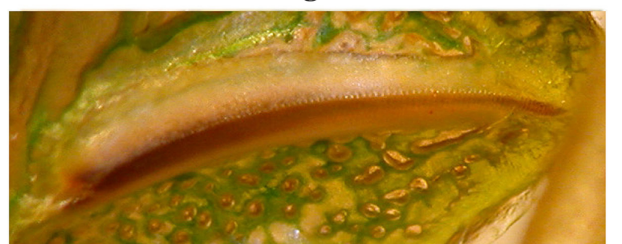
59 *Arantia regina*



Arantia marmorata 60



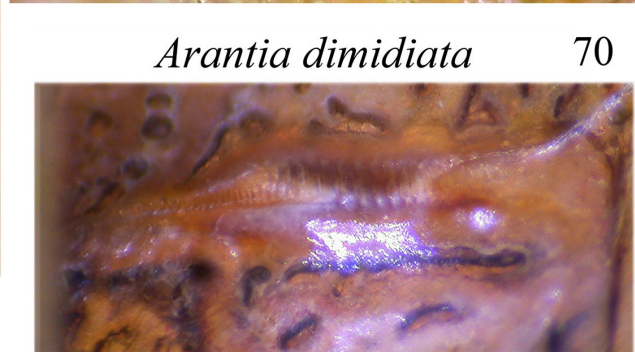
61 *Arantia congensis*



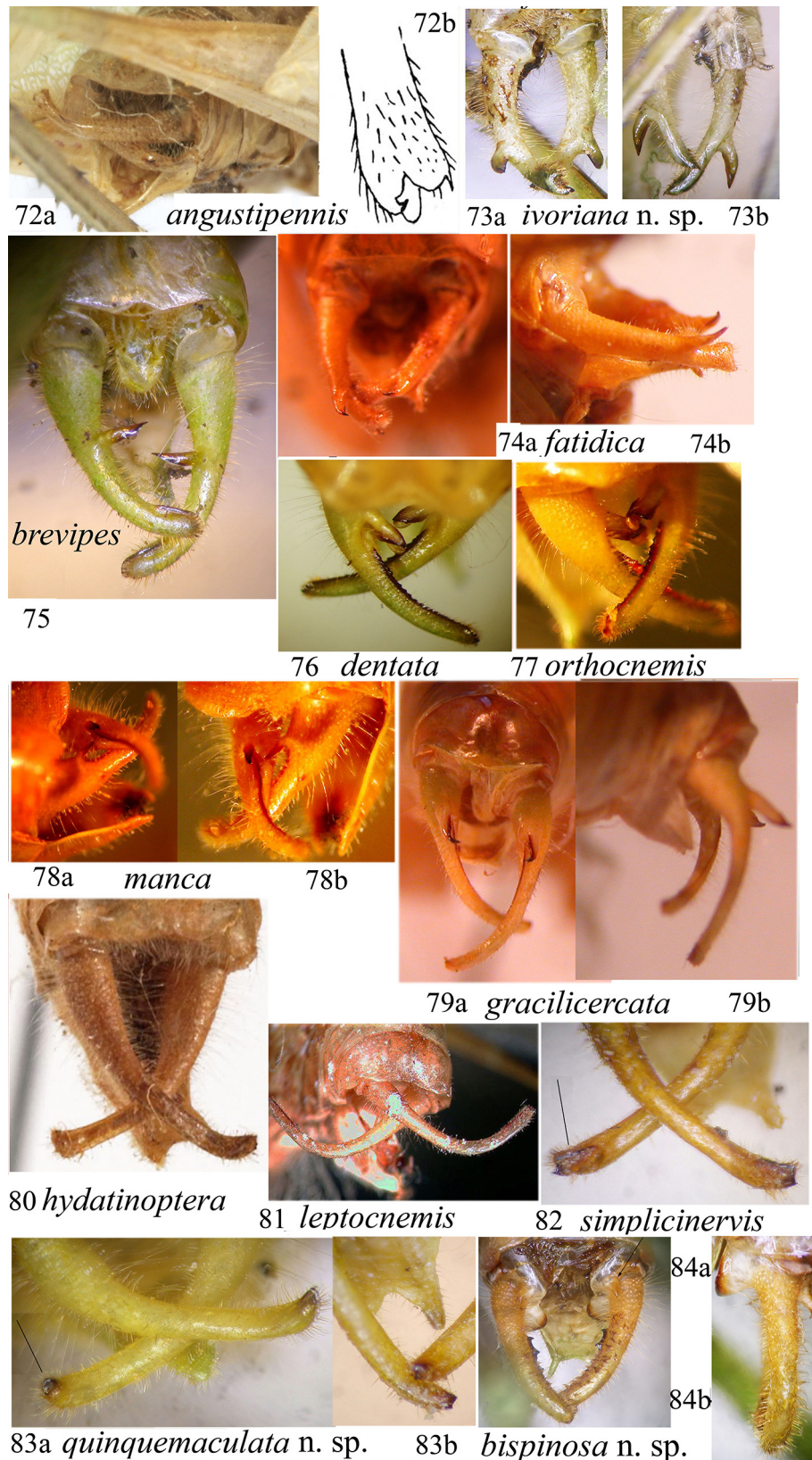
Arantia melanota 62



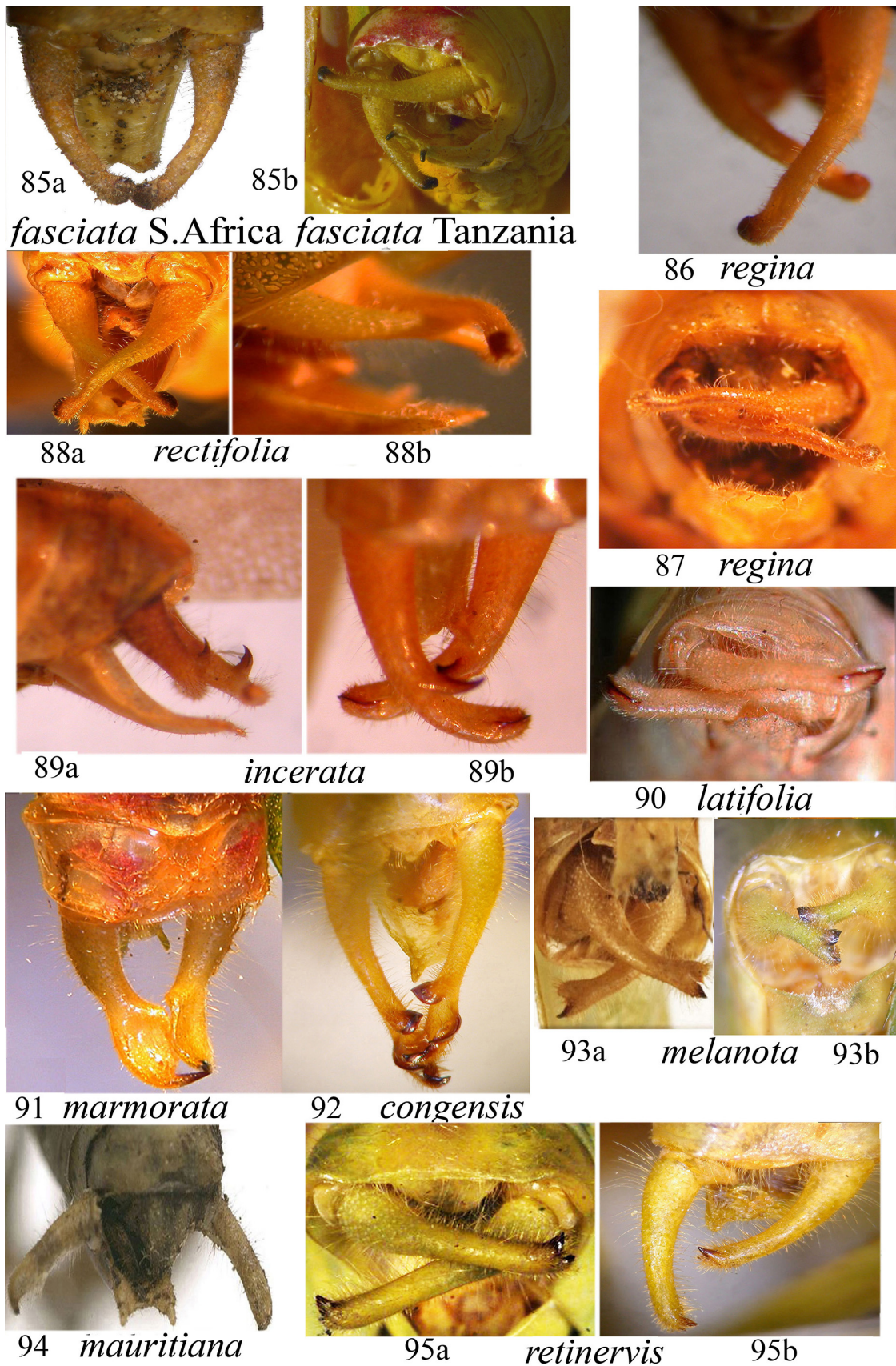
FIGURES 51–62. Stridulatory files of *Arantia brevipes* (51), *Arantia ivoriana* n. sp. (52), *Arantia simplicinervis* (53), *Arantia quinquemaculata* n. sp. (54), *Arantia fasciata* from Mt. Kilimanjaro (55), *Arantia fasciata* from South Africa (56), *Arantia rectifolia* (57), *Arantia tanzanica* n. sp. (58), *Arantia regina* (59), *Arantia marmorata* (60), *Arantia congensis* (61) and *Arantia melanota* (62).



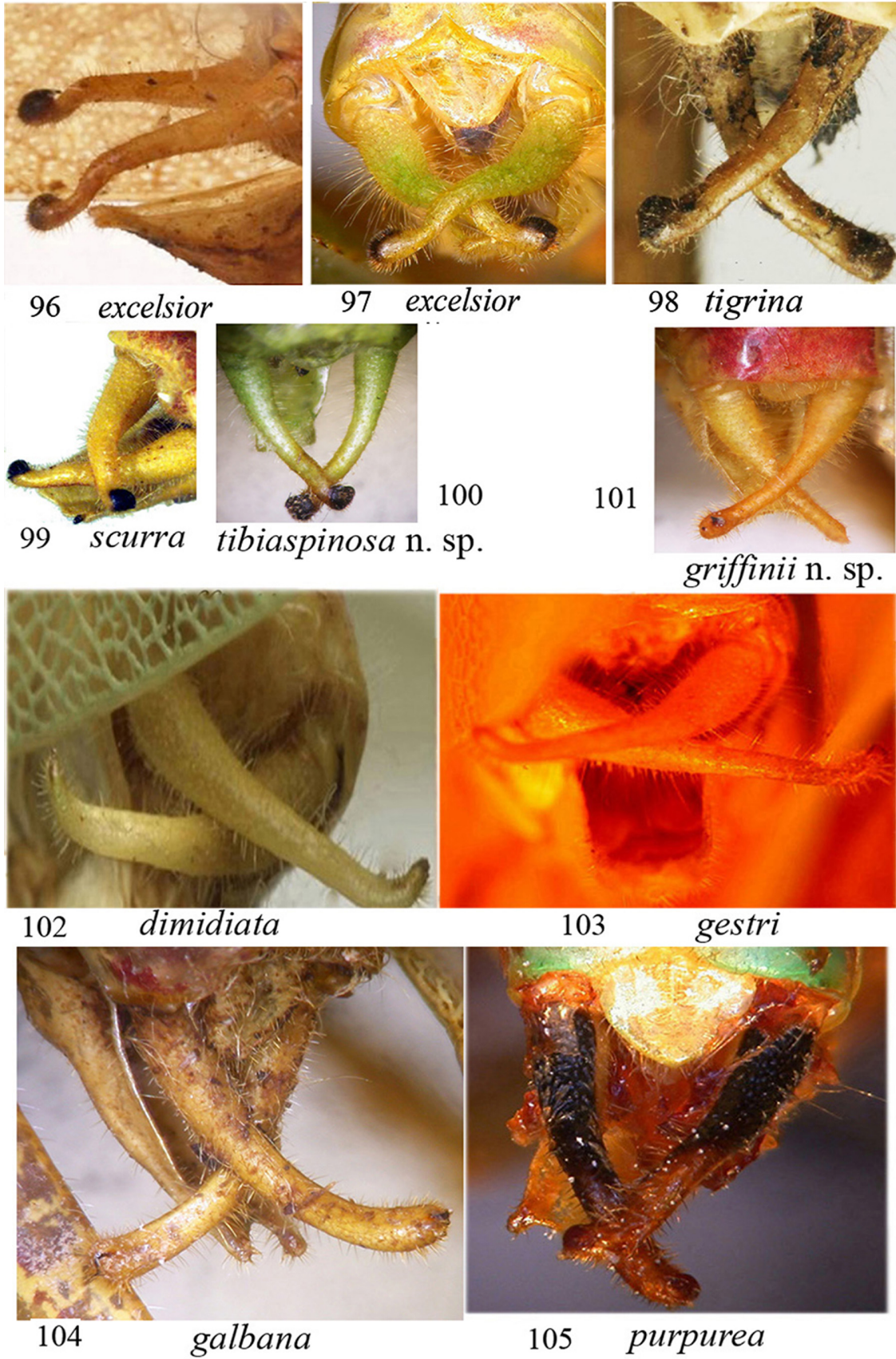
FIGURES 63–71. Stridulatory files of *Arantia retinervis* (63), *Arantia excelsior* (64), *Arantia scurra* (65), *Arantia tibiaspinosa* n. sp. (66), *Arantia griffinii* n. sp. (67), *Arantia bispinosa* n. sp. (68), *Arantia galbana* (69), *Arantia dimidiata* (70) and *Arantia purpurea* (71).



FIGURES 72–84. Cerci of *Arantia angustipennis* (72a) and original drawing of Chopard (1954) (72b), *Arantia ivoriana* n. sp. (dorsal and ventral view) (73a, 73b), *Arantia fatidica* (dorsal and lateral view) (74a, 74b), *Arantia brevipes* (75), *Arantia dentata* (76), *Arantia orthocnemis* (77), *Arantia manca* (lateral and dorsal view) (78a, 78b), *Arantia gracilicercata* (dorsal and lateral view) (79a, 79b), *Arantia hydatinoptera* (80), *Arantia leptocnemis* (81), *Arantia simplicinervis* (82), *Arantia quinquemaculata* n. sp. (83a, 83b), and *Arantia bispinosa* n. sp. (dorsal view and lateral view of left cercus) (84a, 84b).



FIGURES 85–95. Cerci of *Arantia fasciata* from South Africa (85a) and Tanzania (85b), *Arantia regina* (86, 87), *Arantia rectifolia* (dorsal and lateral view) (88a, 88b), *Arantia incerata* (lateral and dorsal view) (89a, 89b), *Arantia latifolia* (90), *Arantia marmorata* (91), *Arantia congensis* (92), *Arantia melanota* (93a, 93b), *Arantia mauritiana* (94) and *Arantia retinervis* (95a, 95b).



FIGURES 96–105. Cerci of *Arantia excelsior* (96, 97), *Arantia tigrina* (= *A. excelsior*) (98), *Arantia scurra* (99), *Arantia tibiaspinosa* n. sp. (100), *Arantia griffinii* n. sp. (101), *Arantia dimidiata* (102), *Arantia gestri* (= *A. dimidiata*) (103), *Arantia galbana* (104) and *Arantia purpurea* (105).

Remarks on the genus *Arantia*

The genus *Arantia* at present consists of 31 species, 12 in the subgenus *Arantia*, 16 in the subgenus *Euarantia* and 3 in the newly erected subgenus *Goetia*.

Most species of the subgenus *Arantia* seem very closely related to each other as suggested by a uniform habitus, being of slender built with almost translucent elongate and light green tegmina and a similar genital system of the males. *A. leptocnemis* and *A. hydatinoptera* males have slender elongate cerci while those of *A. simplicinervis* and *A. quinquemaculata* **n. sp.** are comparatively stout. In *A. leptocnemis* the male cerci are more slender, also at their base and not flattened at their apical parts as in *A. hydatinoptera*. The bases of the male cerci are stout in *A. hydatinoptera* and the apical parts flattened and incurved. Also *A. manca*, *A. orthocnemis* and *A. gracilicercata* have long and slender male cerci but differ from the latter two species in having an inner cercal process or spine and an inner sclerotized ridge stretching from the base to the apex of the male cerci. Beside differences in body size (*A. manca* is smaller than the other two species of this group) these species may be distinguished by the different shape of the inner cercal process of the male cerci. This inner process is large with a conspicuous sclerotized ridge encircling the process in *A. orthocnemis*. In *A. gracilicercata* the inner cercal process is strongly developed with an inwardly curved tip but without a sclerotized ridge. In *A. manca* the inner cercal spine is tiny and thorn-like and of brown colour. Further in *A. manca* the male cerci are stouter than in the other *Arantia* species with an inner cercal process. *A. fatidica* is characterized by comparatively stout male cerci that wear sclerotized dents at their tips and an inner stout spine midway on the cerci. *A. dentata*, a species known from Mauritius only is morphologically very similar to *A. orthocnemis*. A syntype of *A. dentata* was studied in the collection of Geneva coming from Cameroon. However, this latter specimen for sure belongs to *A. orthocnemis* rather than *A. dentata*. Both localities lie so far apart from each other that it is not very likely that a species occurs both in the Indian Ocean on a remote island and in Central Africa. This shows that both species are morphologically so closely related that they had been synonymized if they occurred geographically more closely. Also of small size are the West African species *A. brevipes* and *A. angustipennis*, with stout male cerci and a sclerotized ridge at the apices. The male cerci of *A. brevipes* have an inner tooth midway on the cerci, similar to *A. fatidica*. However, the cercal tips are flattened in comparison to the male cerci of *A. fatidica*. Most species of the subgenus *Arantia* have elongate light green and almost translucent tegmina.

Sixteen species belong to the subgenus *Euarantia*. Study of types in different collections in Europe showed that several species are synonymous. Few species of *Euarantia* have strongly oval-shaped tegmina, the tegmina of other species of this subgenus are more elongate. Especially *A. rectifolia*, has very narrow tegmina, and is thus intermediate between the subgenera *Arantia* and *Euarantia*. Thus, we consider the choice of placing species within subgenera only an easy way to separate species into three main groups until more information e.g. on the molecular phylogeny gets available.

A. rectifolia is a widespread taxon with some morphological variation suggesting a species complex. At first specimens collected in Tanzania in Miombo woodlands were considered as belonging to *A. rectifolia*. Only the study on the stridulatory file and some size differences showed that it belonged to a new taxon, described here as *A. tanzanica* **n. sp.**

Very striking is also that several *Arantia* species occur syntopically in forests in Central and West Africa. Thus, individuals of *A. scurra* were collected at the same time at light traps with *A. tibiaspinosa* **n. sp.** At first they were considered being one species because of the very similar striking colour pattern of striped legs and dark joints of the knees and the dark brown coloured metanotum. Only closer studies of the individuals showed that two species were caught at the same time. *A. scurra* was at present only known from the male holotype coming from Cameroon. Thus the second population now recorded from the Ivory Coast suggests a larger distribution of this beautiful species. Also *A. regina*, *A. rectifolia*, *A. brevipes*, *A. bispinosa* **n. sp.** and *A. ivoriana* **n. sp.** were trapped at the same locality during the same time of the year (March 2017, Tai Forest National Park).

In this study we place three species of the former *Goetia* under *Arantia* as a subgenus since *Goetia* only differs from species of the subgenus *Arantia* by the presence of a coxal spine. Since *A. gestri* was the only species in the genus *Arantia* with a coxal spine we transferred this species to the here newly erected subgenus *Goetia* and synonymized it with *G. dimidiata*. Both species were described at the same time by Bolívar and Griffini in 1906 (only 4 days apart) and both authors were not aware of the species description of the other.

Our study of *Arantia* shows that also fully alate and large species underwent rapid speciation in Africa. *Arantia*

is one of the species richest genera of tropical African Phaneropterinae (beside *Eurycorypha* Stål, 1873 or *Catoptropteryx* Karsch, 1890). Still some species are known only from the types and nothing is known about the biology, habitat and song of most *Arantia* species. More studies on this genus will shed light on large scale speciation patterns of an African taxon.

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