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Phalangopsidae crickets (Orthoptera, Grylloidea) from the Mitaraka biological survey, French Guiana

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Couverture / *Cover* :
Aerial view of Chukuchipann, inselberg located near the study area in the Mitaraka massif (photo: Xavier Desmier). In medaillon: male of *Luzarida grandis* Desutter-Grandcolas, 1992 singing at night in its natural environment (photo: Sylvain Hugel).

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Phalangopsidae crickets (Orthoptera, Grylloidea) from the Mitaraka biological survey, French Guiana

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ABSTRACT
The long-legged crickets (Orthoptera, Grylloidea, Phalangopsidae Blanchard, 1845) collected during the 'Our Planet Reviewed' expedition of the Muséum national d'Histoire naturelle, Paris, and Pro-Natura International in 2015 in the Mitaraka region (Tumuc-Humac mountains, French Guiana) are studied. Among the 105 specimens, all collected by sight, 21 species (14 genera) have been identified. They include two new genera and eight new species, all described here: *Aracopsis hugeli* Desutter-Grandcolas, n. gen., n. sp., which calling song is described, close to *Phalangopsis* Serville, 1831 and *Philippopsis* Desutter-Grandcolas, 1992; *Mellomima guyanensis* Desutter-Grandcolas, n. gen., n. sp. close to *Mellopsis* Mews & Sperber, 2010, *Guabamima* de Mello, 1992 and *Pizacris* Sousa-Dias & Desutter-Grandcolas, 2015; and the following species: *Ectecous lamelliferus* Desutter-Grandcolas, n. sp., *Lerneca mitarakensis* n. sp., *Luzaridella miniata* n. sp., *Luzaridella maculata* n. sp., *Paraclodes cunicula* Desutter-Grandcolas, n. sp. and *Paraclodes furcata* Desutter-Grandcolas, n. sp. The genus *Paraclodes* Desutter-Grandcolas, 1992 n. stat. is restored from its subgeneric status, and the available name *Paraclodes guyanensis* Desutter-Grandcolas, 1992 n. stat. is used for *Paraclodes aptera* (Chopard, 1912) as this name is preoccupied by *Paraclodes aptera* (Giglio-Tos, 1897). The tribe Aclodini Desutter-Grandcolas n. tribe is defined within the Paragryllinae Desutter, 1987 subfamily for the genera *Aclodes* Hebard, 1928, *Paraclodes* n. stat. and *Uvaroviella* Chopard, 1923, previously included in the Heterogryllina Hebard, 1928 (Phalangopsinae Blanchard, 1845, Phalangopsini Blanchard, 1845). The diversity of Guianese Phalangopsidae is discussed, and an updated identification key for Phalangopsidae crickets from French Guiana is proposed.

KEY WORDS
Neotropical Region,
Our Planet reviewed,
new synonyms,
new tribe,
new species,
new genera.

RÉSUMÉ
Les grillons Phalangopsidae (Orthoptera, Grylloidea) de l'expédition du Mitaraka, Guyane.
Les grillons Phalangopsidae Blanchard, 1845 (Orthoptera, Grylloidea) collectés pendant l'expédition 'La Planète Revisitée' organisée par le Muséum national d'Histoire naturelle, Paris, et Pro-Natura International en 2015 dans la région du Mitaraka (Monts Tumuc-Humac, Guyane) sont étudiés : parmi les 105 spécimens, tous collectés à vue, 21 espèces (14 genres) ont été identifiées, dont deux nouveaux genres et huit espèces nouvelles, tous décrits ici : *Aracopsis hugeli* Desutter-Grandcolas, n. gen., n. sp., dont le chant d'appel est décrit, proche de *Phalangopsis* Serville, 1831 et de *Philippopsis* Desutter-Grandcolas, 1992 ; *Mellomima guyanensis* Desutter-Grandcolas, n. gen., n. sp. proche de *Mellopsis* Mews & Sperber, 2010, *Guabamima* de Mello, 1992 et *Pizacris* Sousa-Dias & Desutter-Grandcolas, 2015 ; et les espèces suivantes : *Ectecous lamelliferus* Desutter-Grandcolas, n. sp., *Lerneca mitarakensis* n. sp., *Luzaridella miniata* n. sp., *Luzaridella maculata* n. sp., *Paraclodes cunicula* Desutter-Grandcolas, n. sp. et *Paraclodes furcata* Desutter-Grandcolas, n. sp. Le statut du genre *Paraclodes* Desutter-Grandcolas, 1992 est reconsidéré, et le nom *Paraclodes guyanensis* Desutter-Grandcolas, 1992 n. stat., disponible, est utilisé pour *Paraclodes aptera* (Chopard, 1912) puisque ce nom est préoccupé par *Paraclodes aptera* (Giglio-Tos, 1897). La tribu des Aclodini Desutter-Grandcolas n. tribu est définie dans la sous-famille des Paragryllinae Desutter, 1987 pour les genres *Aclodes* Hebard, 1928, *Paraclodes* n. stat. et *Uvaroviella* Chopard, 1923, antérieurement classés dans les Heterogryllina Hebard, 1928 (Phalangopsinae Blanchard, 1845, Phalangopsini Blanchard, 1845). La diversité des Phalangopsidae en Guyane est discutée, et une clé d'identification actualisée des Phalangopsidae de Guyane est proposée.

MOTS CLÉS
Région néotropicale,
La Planète revisitée,
synonymies nouvelles,
tribu nouvelle,
espèces nouvelles,
genres nouveaux.

INTRODUCTION

Long-legged crickets (Orthoptera, Grylloidea, Phalangopsidae Blanchard, 1845) are highly diversified in the rainforests of the Neotropical Region. First well-documented and described in the famous papers of Morgan Hebard (1928a, b, c) for Colombia and Panama, they have been regularly studied and described only since the 1980s, especially for the western Amazon and the Brazilian Atlantic forest (Cigliano *et al.* 2020). A huge diversity of morphology, behavioral ecology and communication modalities has progressively been discovered (de Mello 1992; Desutter-Grandcolas 1991, 1992a, b, 1993a, b, 1994, 1995; de Mello & Dos Reis 1994; Zefa *et al.* 2008; Souza-Dias & Desutter-Grandcolas 2014; Souza-Dias *et al.* 2015, 2017, and references therein), revealing a neotropical diversification unequalled in other tropical regions (Otte & Alexander 1983; Desutter-Grandcolas & Jaiswara 2012; Desutter-Grandcolas 2015; Desutter-Grandcolas *et al.* 2016). Extended phylogenetic studies remain however still scarce (Campos *et al.* 2017), as species diversity is still badly known (Gorochov 2019).

In French Guiana, Phalangopsidae have been intensively studied in only few localities. Several new genera and species were described (Desutter-Grandcolas 1991, 1992a, b), including potential endemics, and an identification key was proposed for the 16 genera and 29 species then acknowledged in the territory (Desutter-Grandcolas 1992a). The present paper describes the material collected in the Tumuc-Humac Mountains.

The 'Our Planet Revisited' Expedition in the Mitaraka area provided material from a little explored area in the southwestern-most corner of French Guiana, close to Suriname and Brazil. In total, 105 specimens have been collected, representing 14 genera and 21 species, including two new genera, i.e., *Aracopsis* Desutter-Grandcolas, n. gen., close to *Phalangopsis* Serville, 1831 and *Philippopsis* Desutter-Grandcolas, 1992, and *Mellomima* Desutter-Grandcolas, n. gen., close to *Mellopsis* Mews & Sperber, 2010, *Guabamima* de Mello, 1992 and *Pizacris* Sousa-Dias & Desutter-Grandcolas, 2015. Among the species, eight are new to science and described here, *Aracopsis hugeli* Desutter-Grandcolas, n. gen., n. sp., *Ectecous lamelliferus* Desutter-Grandcolas, n. sp., *Lerneca mitarakensis* n. sp., *Luzaridella miniata* n. sp., *Luzaridella maculata* n. sp., *Mellomima guyanensis* Desutter-Grandcolas, n. gen., n. sp., *Paraclodes cunicula* Desutter-Grandcolas, n. sp. and *Paraclodes furcata* Desutter-Grandcolas, n. sp. The subgenera of the genus *Uvaroviella* Chopard, 1923 proposed by Gorochov (2007) are discussed; *Paraclodes* Desutter-Grandcolas, 1992 n. stat. is restored to genus level, following Cigliano *et al.* (2020) for *Aclodes* Hebard, 1928b. *Aclodes*, *Paraclodes* n. stat. and *Uvaroviella* are transferred from the Heterogryllina Hebard, 1928 (Phalangopsinae Blanchard, 1845, Phalangopsini Blanchard, 1845) to the Aclodini Desutter-Grandcolas n. tribe, here defined in the Paragryllinae. Finally, the key proposed by Desutter-Grandcolas (1992a) for Guianese Phalangopsidae is up-dated to include the new taxa, and the originality of the phalangopsid Guianese fauna is discussed in terms of habitat and distribution patterns.

MATERIAL AND METHODS

Studied material

The specimens have been collected during the 'Our Planet Revisited' Mitaraka 2015 Survey in the Tumuc-Humac Mountains, French Guiana (Fig. 1), co-organized by the Muséum national d'Histoire naturelle (MNHN) and the

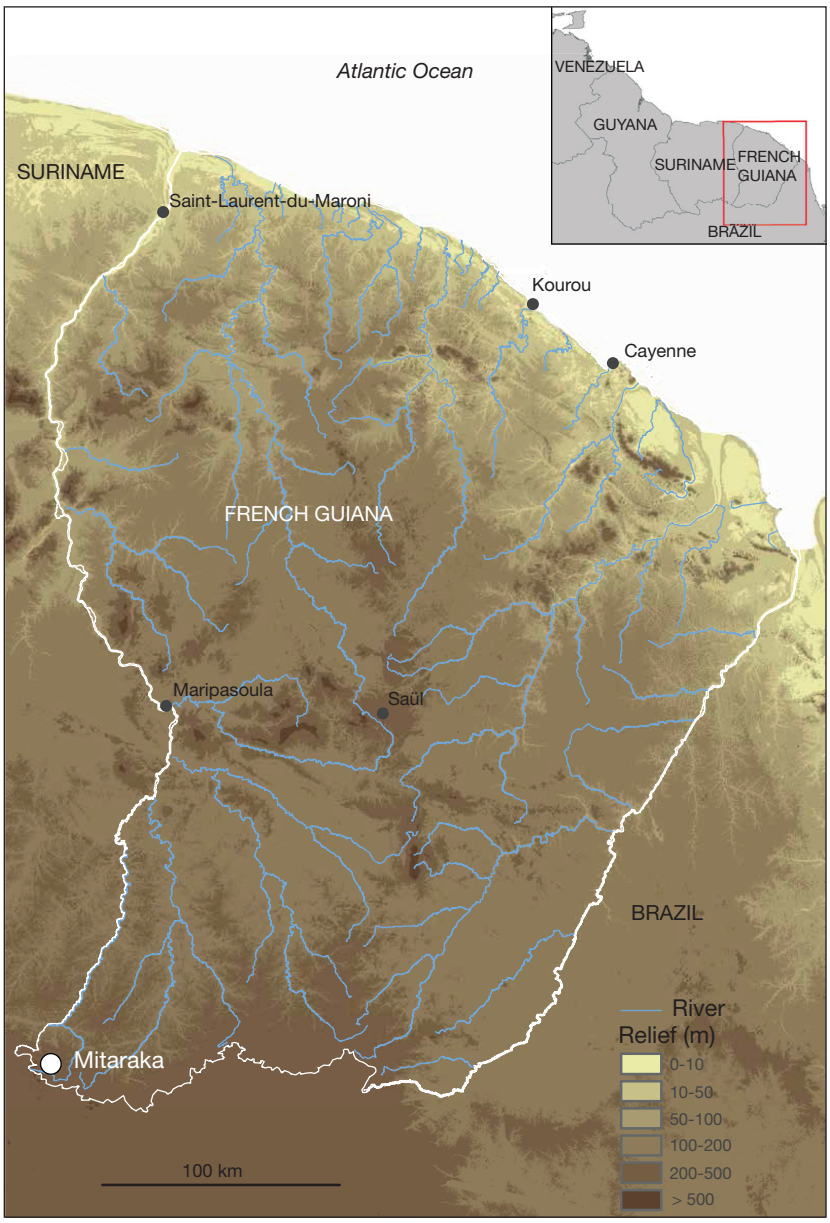

FIG. 1. — Location of 'Our Planet Revisited' Mitaraka survey (white circle). Map by L. Wilmé.

NGO Pro-Natura International (Touroult *et al.* 2018). The biological sampling benefited from the access and benefit sharing agreement 'APA973-1'. All the specimens collected during the survey are deposited in the Arthropod collection of the MNHN. Each type can be traced with its inventory number, MNHN-EO-ENSIFXXXX, in the collection data base of the MNHN at the following address, https://science.mnhn.fr/institution/mnhn/collection/eo/search

The first author (LDG) was the coordinator for the Orthoptera material. Grasshoppers (Caelifera, Acridomorpha) have been studied by Martina Pocco and Maria Marta Cigliano (CONICET-UNLP La Plata) (Pocco & Cigliano 2020), Katydids (Ensifera, Tettigonioidea) by Sylvain Hugel (CNRS, Strasbourg) (Hugel 2019) and crickets by several authors, including Tony Robillard (MNHN; Vicente & Robillard 2017), Lucas Denadai de Campos (USP, Sao Paulo) and the first author (Campos & Desutter-Grandcolas 2020).

SAMPLING METHODS

The methods of collection used as part of the standard protocol in the 'Our Planet Revisited' surveys (Touroult *et al.* 2018) are rather ineffective for crickets in general, and Phalangopsidae in particular, with specimens being collected only by chance. All the specimens studied here were collected by sight in the field by Sylvain Hugel (CNRS) and Frédéric Legendre (MNHN) from 22.II.2015 to 11.III.2015, during the day or at night. Each collected specimen has been given a unique field number, which is associated with collecting data (day/night, habitat, observed activity or behavior, reference of photos or sound recordings).

Descriptions

Genitalic structures are named after Desutter (1987) and Desutter-Grandcolas (2003). Membranous parts are figured with dots. In the legends, structures seen through the membranes are showed with dotted lines.

Movable and articulated leg outgrowths are called spurs whereas immovable outgrowths are called spines. Apical spurs are referred to according to their location on the tibia, i.e., on outer or inner side (o, i), and dorsal, median or ventral (d, m, v) on each side. Subapical spurs (sa) are counted from TIII apex upward, on inner and outer TIII margins, and their number is indicated as the following formula: "number of inner/number of outer" subapical spurs; when necessary, each spur is also named after its location: for example, osa1 is the first (i.e., most apical) outer subapical spur, and isa3 the third inner subapical spur. Apical spurs are named after their location on TIII sides, i.e., inner vs outer, and ventral, median or dorsal. Wing venation is named after Desutter-Grandcolas *et al.* (2017), modified after Schubnel *et al.* (2020), using observations in X-ray tomography.

Song recording and analysis

Males of *Aracopsis hugeli* Desutter-Grandcolas, n. gen., n. sp. have been recorded in captivity at the MNHN using a TASCAM DR100 (24 bit, 44.1 kHz) and a Sennheiser microphone K6/ME62 (frequency range 20 – 20 000 Hz +/- 2.5 dB). Songs have been analyzed with the software Avisoft SASLab-Pro (version 4.40, Specht 2008) and described using the terminology of Ragge & Reynolds (1998). Song files are deposited in the MNHN Sound Library, https://sonotheque.mnhn.fr/

Abbreviations and symbols

Specimens

fn	field number.

Male genitalia

A-, B-, C-Scl.	pseudepiphallic sclerites A, B and C, as defined by Desutter-Grandcolas (1992b);
arc	ectophallic arc;
ec. a.	ectophallic apodeme;
ec. f.	ectophallic fold;
en. a.	endophallic apodeme;
en. s.	endophallic sclerite;
EEI	epi-ectophallic invagination;
ps.a.	pseudepiphallic apodeme;
ps. a. l.	apical lobes of pseudepiphallus;
ps. a. sc.	pseudepiphallic apical sclerotization;
ps. p.	pseudepiphallic parameres;
r.	rami.

General morphology

I, II, III	anterior, median, posterior (leg, tarsomere);
CuA, P	anterior, posterior cubital vein;
DD	pronotum dorsal disc;
FW	forewing;
HW	hindwing;
iad/m/v	inner apical spur dorsal/median/ventral of tibia;
isa(n)	n^{th} inner subapical spur of hind tibia;
lat	forewing lateral field;
LL	pronotum lateral lobe;
M	forewing media vein;
oad/m/v	outer apical spur dorsal/median/ventral of tibia;
osa(n)	n^{th} outer subapical spur of hind tibia;
PCu	forewing postcubital vein (bearing the stridulatory file).

Repository

MNHN	Muséum national d'Histoire naturelle, Paris;
ZIN	Zoological Institute, Saint Petersbourg;
ZMUH	Zoologisches Museum der Universität Hamburg, Hamburg.

Data base

OSF	Orthoptera Species File online (http:www.orthoptera.speciesfile.org).

Measurements (in mm)

iod	intra-ocular distance;
FIII L	length of hind femur;
FIII w	width of hind femur;
FW L	forewing length;
FW w	median forewing width, measured at the level of mirror anterior angle unless noticed;
ovip L	length of ovipositor;
pron L	pronotum mid length;
pron Wa/p	anterior / posterior pronotum width;
TIII L	length of hind tibia.

Acoustics

dB	decibel;
kHz	kilo Hertz;
ms	millisecond;
s	second.

List of studied species

Acantoluzarida nigra Desutter-Grandcolas, 1992a
Aclodes pequegna Desutter-Grandcolas, 1992b
Aclodes spelaea Desutter-Grandcolas, 1992b
Aracopsis hugeli Desutter-Grandcolas, n. gen., n. sp.
Ectecous lamelliferus Desutter-Grandcolas, n. sp.
Kevanacla orientalis Desutter-Grandcolas, 1992a
Lerneca inalata inalata Saussure, 1874
Lerneca mitarakensis n. sp.
Luzarida grandis Desutter-Grandcolas, 1992
Luzaridella maculata n. sp.
Luzaridella miniata n. sp.
Mellomima guyanensis Desutter-Grandcolas, n. gen., n. sp.
Paraclodes cunicula Desutter-Grandcolas, n. sp.
Paraclodes furcata Desutter-Grandcolas, n. sp.
Paraclodes guyanensis Desutter-Grandcolas, 1992 n. stat.
Paraclodes subaptera Gorochov, 2007 n. stat.
Paraclodes sp.
Paragryllus elapsus Desutter-Grandcolas, 1992
Phalangopsis flavilongipes Desutter-Grandcolas, 1992
Phalangopsis longipes Serville, 1831
Rumea guyanensis Desutter-Grandcolas, 1992
Unithema sp.

TABLE 1. — Measurements of *Phalangopsis longipes* Serville, 1831 specimens from Mitaraka (in millimetres).

	iod	pron L	pron w	FIII L	FIII w	TIII L	FW L	ovip L
Females	2.1-2.6	3.6-4.3	4.3-4.7	25.9-27.3	3.5-4	29.4-32.8	–	15.2-19.3
Mean (n = 3)	2.3	3.9	4.5	26.6	3.7	31.2	–	16.8
Male (n = 1)	2.9	4	4.4	31.8	4	38	2.3	–

RESULTS

Order ORTHOPTERA Olivier, 1789
Superfamily GRYLLOIDEA Laicharting, 1781

Family PHALANGOPSIDAE Blanchard, 1845

REMARK

The monophyly of the Phalangopsidae cricket family was attested by the molecular phylogenetic analyses of Chintauan-Marquier *et al.* (2013, 2016), provided it includes part of the Gryllomorphinae crickets (previously classified within the Gryllidae Laicharting, 1781), and excludes the Pteroplistinae Chopard, 1936, which relationships within Grylloidea remain unclear. The resultant topology implied however that the subfamilies usually considered within the Phalangopsidae, at the exception of the Phaloriinae (*sensu* Desutter-Grandcolas 2015, i.e. including *Megacris* Desutter-Grandcolas, 2012) which were always recovered monophyletic, were to be critically reviewed: as a consequence, the morphological characters that were traditionaly used to define those subfamilies have to be reevaluated. Phalangopsidae is the most diverse family within Grylloidea and the study of Chintauan-Marquier *et al.* (2013, 2016), although based on 65 terminals, took into account only a fraction of the phalangopsid clade: for this reason, no classification was derived from the topology proposed by Chintauan-Marquier *et al.* (2013, 2016). Instead, additional terminals and additional markers were sequenced and are presently under study (see Warren *et al.* 2019 for preliminary results and discussion). In the present paper, the genera are classified within the subfamilies listed in Cigliano *et al.* (2020).

Subfamily PHALANGOPSINAE Blanchard, 1845
Tribe Phalangopsini Blanchard, 1845

Genus *Phalangopsis* Serville, 1831
(Fig. 2)

TYPE SPECIES. — *Phalangopsis longipes* Serville, 1831 by subsequent designation (Kirby 1906).

DISTRIBUTION. — Northern tropical regions of South America (French Guiana, Brazil, Suriname).

DIAGNOSIS. — See Desutter-Grandcolas (1992a).

HABITAT. — *Phalangopsis* species live in forests, where they are active at night in the leaf litter and hide during the day in cavities at ground level (Desutter-Grandcolas 1995).

Phalangopsis longipes Serville, 1831
(Fig. 2A-D; Table 1)

Phalangopsis longipes Serville, 1831: 167.

TYPE LOCALITY. — Amérique méridionale [Southern America] after Serville (1831), French Guiana and Suriname after Saussure (1878).

TYPE MATERIAL. — **Syntype**. 'Amérique méridionale' •1 ♂; MNHN-EO-ENSIF4009.

REMARK

Serville (1831) described this species on one male and one female, which he considered immature (but see Saussure 1874, 1878). The male type is correctly identified in the MNHN collection. One additional female is identified *Phalangopsis longipes* Serv. in Serville's handwriting, but it has posterior locality labels (Guyane française, Saint Laurent du Maroni, Collection Le Moult / septembre). It may have been labelled in a second time by error, as three other females have the same origin. This female may represent the female syntype observed by Serville (MNHN-EO-ENSIF6828).

MATERIAL FROM THE MITARAKA. — **French Guiana** • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka, layon A; entre 54.4509 O 2.2357 N et 54.4557 O 2.2405 N; alt. entre 280 m et 365 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH116, de nuit; MNHN • 2 ♀; Monts Tumuc-Humac, Massif du Mitaraka, GF DZ; 54.450137 O 2.233883 N; alt. 315 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH179, SH180, de nuit; MNHN • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, GF DZ; 54.450137 O 2.233883 N; alt. 315 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH178, de nuit; MNHN.

MEASUREMENTS (IN MM). — See Table 1.

REMARK

The length of the ovipositor of the females collected in Mitaraka is variable (see Table 1), but extends the values given earlier for the species (Desutter-Grandcolas 1992a, 13.6-16.6 mm, mean 14.8, n = 9). The copulatory papilla is however very similar to that reported for that species in the same paper. The number of tergites with yellow bands on posterior edge also varies in the material at hand, until the third tergite for the specimen SH116 (Fig. 1A). Male genitalia are illustrated on Fig. 2B-D.

TABLE 2. — Measurements of *Phalangopsis flavilongipes* Desutter-Grandcolas, 1992 specimen from Mitaraka (in millimetres).

	iod	pron L	pron w	FIII L	FIII w	TIII L	ovip L
Female SH075	2.1	4	4.6	24	3.9	30.3	22

Phalangopsis flavilongipes Desutter-Grandcolas, 1992 (Fig. 2E; Table 2)

Phalangopsis flavilongipes Desutter-Grandcolas, 1992a: 128.

TYPE LOCALITY. — French Guiana, Arataye, afflt. Approuague, 8 km NE du saut Pararé, station des Nouragues.

TYPE MATERIAL. — **Holotype by original designation. French Guiana** • 1 ♂; Arataye, afflt. Approuague, 8 km NE du saut Pararé, station des Nouragues; 4.IV.1988; L. Desutter leg; MNHN-EO-ENSIF4010.
Allotype. French Guiana • 1 ♀; same locality and collector as the holotype; 11.VI.1988; MNHN-EO-ENSIF4011.
Paratypes: 7 females. **French Guiana** • 2 ♀; same locality and collector as the holotype; VI.1988; MNHN-EO-ENSIF5541, 5542 • 2 ♀; Saül; VIII.1988; L. Desutter & P. Grandcolas leg.; MNHN-EO-ENSIF5543, 5544 • 1 ♀; Sinnamary, Paracou, forêt sur sable blanc; IX.1988; L. Desutter & P. Grandcolas leg.; MNHN-EO-ENSIF5545 • 2 ♀; Sinnamary, piste de St Elie, PK15; VII.1989; P. Grandcolas leg.; MNHN-EO-ENSIF5546, 5547.

MATERIAL FROM THE MITARAKA. — **French Guiana** • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka, layon A; 54.451125 O 2.234786 N; alt. 300 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH075, de nuit; MNHN.

MEASUREMENTS (IN MM). — See Table 2.

REMARKS

The length of the ovipositor of the Mitaraka female of *P. flavilongipes* (see Table 2) extends the range previously reported for the species (Desutter-Grandcolas 1992a, 17.5 – 18 mm, mean value 18 mm, n = 3). The copulatory papilla is similar to that illustrated for the species (Desutter-Grandcolas 1992a, figure 48).

Genus *Aracopsis* Desutter-Grandcolas, n. gen. (Figs 3-5; Table 3)

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TYPE SPECIES. — *Aracopsis hugeli* Desutter-Grandcolas, n. sp. by original designation.

DIAGNOSIS. — Size small. Mesonotum, metanotum, and tergite 1 well-developed, tergites 2 to 9 short and compressed. Head narrow in side view, very long in front view; eyes small but highly protruding; fastigium slanting from the vertex, with a faint basal transverse furrow; maxillary palpi elongate, article 5 much longer than article 4 and hardly widened in apical third. TI with an inner tympanum; outer tympanum absent. TIII with 3/3 apical spurs, the dorsal the longest on each side; 4/4 subapical spurs, small and alternate; serrulation small. Male: FWs small, overlapping, rounded distally, with a stridulatory file; tergites 3 to 6 with paired glandular structures. Male genitalia very small, compact; pseudepiphallic sclerite transverse, flat; apical lophi located on a narrow membranous projection between pseudepiphallic sclerite and ectophallic fold; pseudepiphallic arm small with simple and acute apex; ectophallic arc very wide, its width greater than ectophallic apodeme length; basal part of ectophallic apodemes greatly enlarged; endophallic sclerite long and narrow, with impaired lamella-shaped apodeme and a crest-like longitudinal apodeme. No phallic glands associated with pseudepiphallus. Female: apterous. Female genitalia: copulatory papilla elongate, conical, sclerotized.
By its external morphology, *Aracopsis* Desutter-Grandcolas, n. gen. is close to *Philippopsis* and *Phalangopsis*, and superficially resembles *Aracamby* and related genera (Souza-Dias & Desutter-Grandcolas 2014); it can readily be separated from all these genera:

– Similar to *Philippopsis* by its size, body shape, head shape and tibial spurs. Distinguished from *Philippopsis* by inner tympanum (lacking in *Philippopsis*), forewings and tergal glands in males (males with short flap-like forewings and without tergal glands in *Philippopsis*), TIII serrulation (sparse in *Philippopsis*) and male genitalia (arm long, narrow, curved, with bifid apex; ectophallic arc narrow, with two long evaginations, ectophallic apodemes short and high, in *Philippopsis*).
– Similar to *Phalangopsis* by maxillary palpi, leg shape and TIII serrulation. Distinguished from *Phalangopsis* by small size, inner tympanum (lacking in *Phalangopsis*), shape of maxillary palpi last article (much thinner and longer in *Phalangopsis*), male FWs (not overlapping in *Phalangopsis*) and male genitalia (pseudepiphallic lophi much more developed, ectophallic arc narrow, ectophallic apodemes long, almost parallel and thick, in *Phalangopsis*).
– Resembling *Aracamby* by small size and general body shape. Distinguished by tergites relative size, head shape (wider in *Aracamby*, with less protruding eyes), last article of maxillary palpi (article 5 strongly curved before mid length in *Aracamby*), TII apical spurs (four in *Aracamby*), TIII apical spurs (median spur the longest on inner and outer sides in *Aracamby*), tibial tympanum (variable in *Aracamby*), male FWs (long, covering most of abdomen, convex, with a full stridulum in *Aracamby*) and male genitalia (arm long, thick, almost straight, with bifid apex; ectophallic arc wide and narrow, ectophallic apodemes long and thin, in *Aracamby*).

Females apterous or with pad-like forewings in all four genera; separated by the same morphological characters as males (size, head shape, tympanum, tibial spurs). Female copulatory papilla short and conical in *Aracopsis* Desutter-Grandcolas, n. gen. and *Phalangopsis*; elongate and basally membranous in *Philippopsis* and *Aracamby*.

ETYMOLOGY. — Taxon named after its phylogenetic relationships to *Philippopsis* and *Phalangopsis*, and superficial resemblance to *Aracamby*.

DISTRIBUTION. — French Guiana.

DESCRIPTION

General morphology

Size small. Body (Fig. 3) convex, with well-developed pro-, meso-, metanota, and tergite 1; tergites 2 to 9 reduced and short. Head very long and narrow in side view. Fastigium slightly wider than half scape width, separated from vertex by a faint, transverse furrow (Fig. 4A). Eyes (Fig. 4A, B) small, strongly protruding. Ocelli small, set as a triangle; distance between lateral ocelli shorter than distance between median and one lateral ocelli; median ocellus not protruding. Maxillary palpi (Fig. 5A) very elongate, especially articles 3 to 5; articles 3 to 5 very thin; article 3 slightly shorter than article 4; article 5 the longest, little but regularly widened from mid length toward

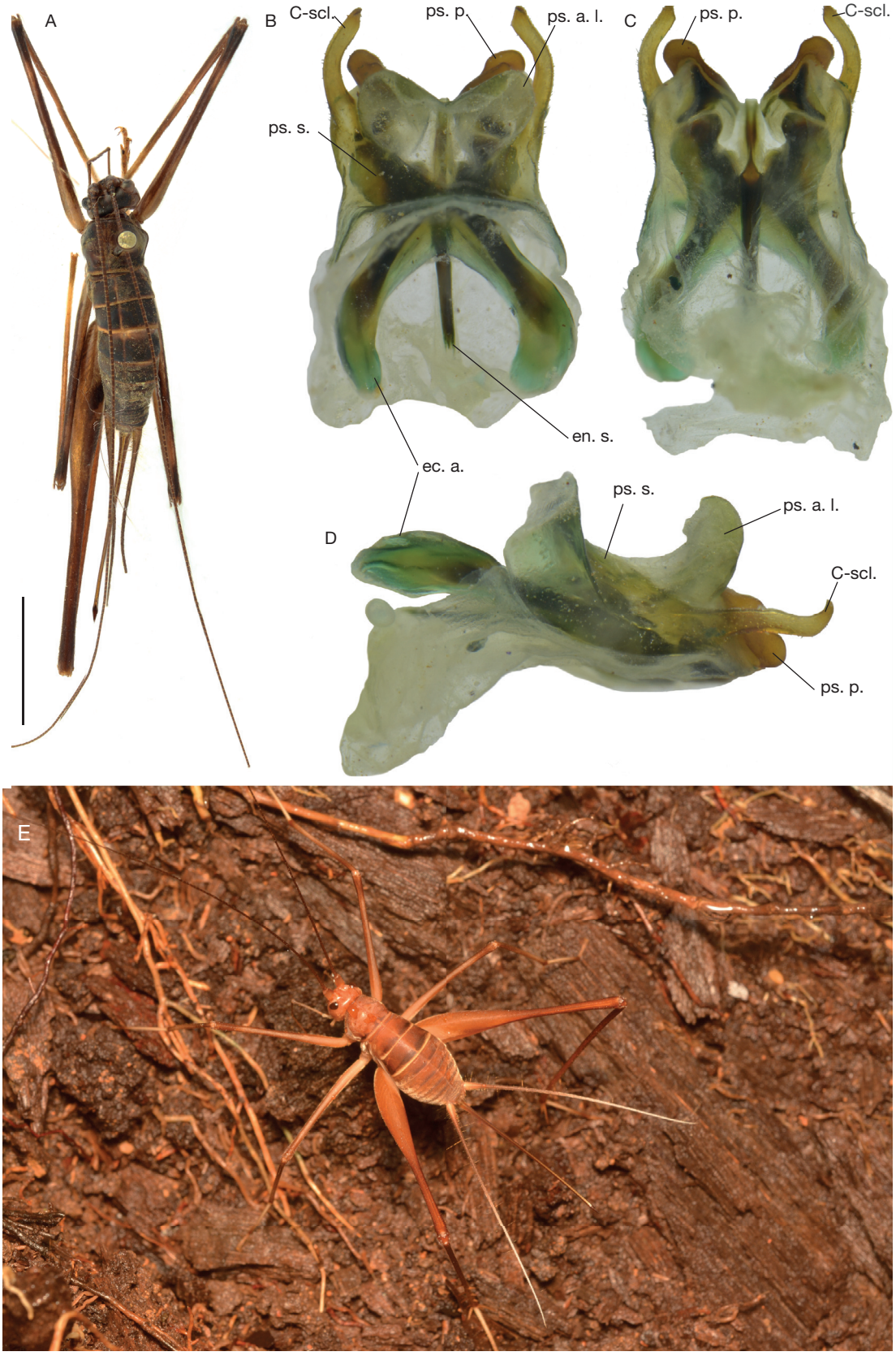

FIG. 2. — *Phalangopsis* Serville, 1831 from the Mitaraka: **A**-**D**, *Phalangopsis longipes* Serville, 1831: **A**, female SH116, tergites coloration, dorsal view; **B**, **C**, male genitalia, in dorsal (**B**), ventral (**C**) and side (**D**) views. **E**, *Phalangopsis flavilongipes* Desutter-Grandcolas, 1992a, female in leaf litter by night, specimen not collected. Abbreviations: see Material and methods. Scale bar: A, 1 mm. Photo: E, Sylvain Hugel.

TABLE 3. — Measurements of *Aracopsis hugeli* Desutter-Grandcolas, n. gen., n. sp. (in millimetres).

	iod	pron L	Ppron w	pron wmx	FIII L	FIII w	TIII L	FW L	FW w	tar1-III L	ovip L
Male holotype	1.3	2.4	2.9	2.8	9.1	1.9	10.3	1.4	2.4	2.8	–
Female Allotype	1.4	2.4	2.9	3.2	10.5	2.3	11.1	–	–	3.2	5.8
Female paratypes (n = 2)	1.4	2.3-2.4	2.9-3.1	3.1-3.3	10-10.1	2.2-2.3	10.8-11.6	–	–	3-3.3	5.9-6.1
Mean (n = 3)	1.4	2.37	2.97	3.2	10.2	2.27	11.17	–	–	3.15	5.93

the tip, truncate at apex. Legs setose, elongate and very thin. TI with a small inner tympanum; outer tympanum absent; two apical, ventral spurs. TII with two long, apical, ventral spurs; no dorsal spurs. TIII with 4/4 subapical spurs, short and alternate; 3/3 apical spurs (Fig. 5B, C); inner apical spurs longer than outer spurs; dorsal apical spur the longest on both sides. FIII with a filiform apical part (Fig. 4C, D). Basitarsomeres all very long and thin. Basitarsomeres III with few small dorsal spines, in addition to apical ones (Fig. 5B, C). Cerci very long.

Coloration (Fig. 3)
Contrasting black, light orange, yellow and brown; face yellowish with wide longitudinal, brown bands; scapes yellowish, antennae black brown; pronotum black, more or less mottled with light orange; legs annulated yellow and brown; cerci brown with a wide yellow ring at their base.

Male
No metanotal gland. FWs (Figs 4A; 5D) present, very short, fully overlapping; dorsal field rounded in shape; venation faint; stridulatory file with very small teeth. HWs lacking. Tergites 3 to 6 with a pair of dorsal projections (Fig. 4E), smaller on tergite 6. Supra anal plate depressed along mid line basally; short and strong setae on basal half, very long ones on distal half.

Male genitalia (Fig. 4F-H)
Pseudepiphallic sclerite short and transverse, without extended rami; distal margin V-shaped; apical lobes making a very narrow projection posterior to pseudepiphallic sclerite, well separate the one from the other by a V-shaped indentation; pseudepiphallic arms very short, C-sclerite having the shape of a thin and very long spine. Ectophallic fold very short, hardly distinct between apical lobes and pseudepiphallic parameres; ectophallic apodemes very short, greatly enlarged at the level of the arc. Endophallic sclerite long and narrow, with very short endophallic apodemes (both longitudinal crest and distal lamella). No phallic glands.

Female
Similar to male, but without FWs and tergal glands. Ovipositor short, about half TIII length, and gently curved upwards (Fig. 4I); apex slightly widened, without distal teeth.

Female genitalia
Copulatory papilla (Fig. 5E-G) short, conical, with acute apex.

Aracopsis hugeli Desutter-Grandcolas, n. sp.
(Figs 3-5; Table 3)

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ETYMOLOGY. — Species named after our colleague and friend Sylvain Hugel (CNRS), who collected the specimens in the field.

TYPE LOCALITY. — French Guiana, Mont Tumuc-Humac, Mitaraka.

TYPE MATERIAL. — **Holotype by present designation. French Guiana** • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, entre C100 et C1000; entre 54.44768 O 2.235494 N et 54.4419 O 2.233664 N; alt. entre 350 m et 415 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn SH175, de nuit, sur une souche d'arbre surélevée; MNHN-EO-ENSIF3984.
Allotype. French Guiana • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka, entre C1000 et savane roche; entre 54.4419 O 2.23366 N et 54.4346 O 2.238655 N; alt. entre 415 m et 390 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn SH221, de nuit, dans un terrrier abandonné; MNHN-EO-ENSIF3985.
Paratypes: 1 male, 3 females. French Guiana • 1 ♂ 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka, entre B100 et un chablis; entre 54.448813 O 2.236462 N et 54.444953 O 2.243543 N; alt. entre 325 m et 360 m; 28.II.2015; F. Legendre & S. Hugel leg.; fn SH283-284, de nuit, sur une souche d'arbre renversée; MNHN-EO-ENSIF3975, 3977 • 1 ♀; same data as holotype; fn SH176, de nuit, sur une souche d'arbre surélevée; MNHN-EO-ENSIF3976 • 1 ♀; same data as allotype; fn. SH223, de nuit, en mauvais état, dans un terrrier abandonné; MNHN-EO-ENSIF3978.

ADDITIONAL MATERIAL EXAMINED. — **French Guiana** • 1 juvenile; Monts Tumuc-Humac, Massif du Mitaraka, entre C100 et C1000; entre 54.44768 O 2.235494 N et 54.4419 O 2.233664 N; alt. entre 350 m et 415 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn SH222, de nuit, dans un terrrier abandonné; molecular sample LDG 515, 549; MNHN-EO-ENSIF3986 • 1 juvenile; Monts Tumuc-Humac, Massif du Mitaraka, vers sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N; alt. entre 370 m et 470 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH420, de nuit; MNHN.

DIAGNOSIS. — In addition to the characters of the genus, last three articles of maxillary palpi black; face yellowish with a wide brown band under each eye, the area below median ocellus somewhat darker; pronotum deep black with a faint and irregular longitudinal orange line; hindfemur outer side lightly colored in lower half; tergites very dark brown, almost black with dirty-yellow flecks.

DESCRIPTION
In addition to the characters of the genus.

General morphology
TI inner apical spur longer than the outer. TII apical spurs subequal. TIII apical spurs: median spur longer on outer side (Fig. 5B, C), dorsal spur much longer on inner side, going

FIG. 3. — *Aracopsis hugeli* Desutter-Grandcolas, n. gen, n. sp. in its natural environment in French Guiana: **A**, female paratype MNHN-EO-ENSIF3976, dorsal view; **B**, male, front view; **C**, male, rear view, showing abdominal dorsal glands. Photos: Sylvain Hugel.

beyond basitarsomere III mid length (Fig. 5C). TIII serrulation made of very small teeth, hardly visible among strong and numerous black setae; serrulation lacking between dorsal subapical and apical spurs; on inner side, no spine between isa1 and isa2, and between isa2 and isa3, one or two (mean 1.5) spines between isa3 and isa4, 10-14 spines (mean 12) in males, and 15 spines in females above isa4; on outer side, no spine between osa1 and osa2, no spine in males, zero to two (mean 1) spines in females between osa2 and osa3, two to three (mean 2.8) spines between osa3 and osa4, 9-13 spines

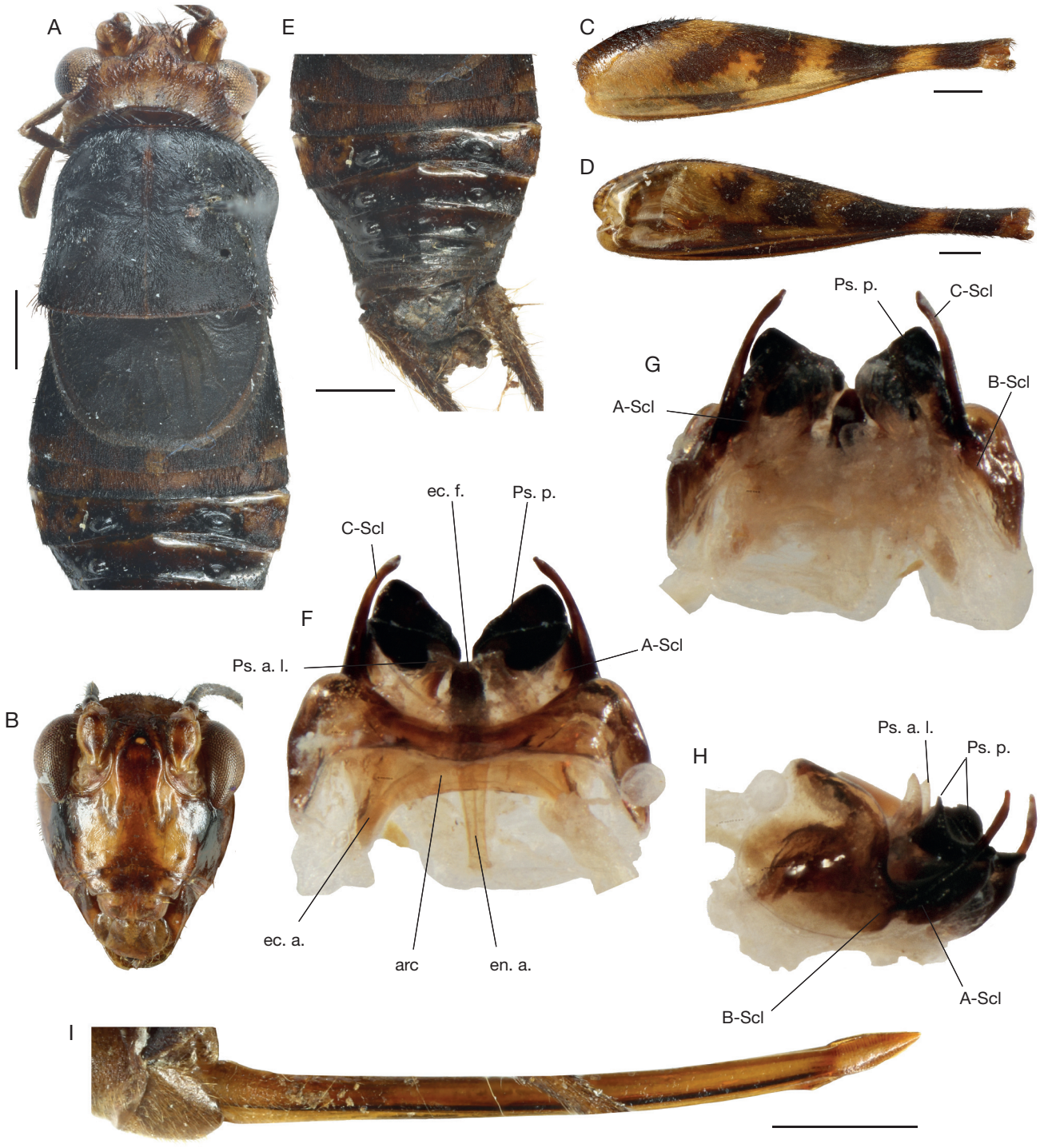

FIG. 4. — *Aracopsis hugeli* Desutter-Grandcolas, n. gen, n. sp.: **A**, male pronotum and FWs, dorsal view; **B**, face; **C**, FIII outer side; **D**, FIII inner side; **E**, male abdominal glands; **F**-**H**, male genitalia, in dorsal (**F**), ventral (**G**) and side (**H**) views; **I**, female ovipositor. Photos of male holotype MNHN-EO-ENSIF3984 (**A**, **D**-**H**), female allotype MNHN-EO-ENSIF3985 (**C**, **I**) and female paratype MNHN-EO-ENSIF3976 (**B**). Scale bars: 1 mm.

(mean 11) in males, and 15-19 (mean 17) spines in females above osa4. Tarsi very long; second tarsomeres not widened; basitarsomeres III very long and thin, without dorsal inner spine except one apical, with one to three (mean two) in males, three to four (mean 3.8) in females outer dorsal spines, in addition to distal one.

Coloration

Face (Fig. 4B) yellowish, cheeks darker; a wide longitudinal band beneath each eye; area beneath median ocellus also darker; scapes light orange, antennae dark brown. Pronotum (Fig. 4A) black brown to black, with a faint light orange median longitudinal line. TI, TII dirty yellow with brown

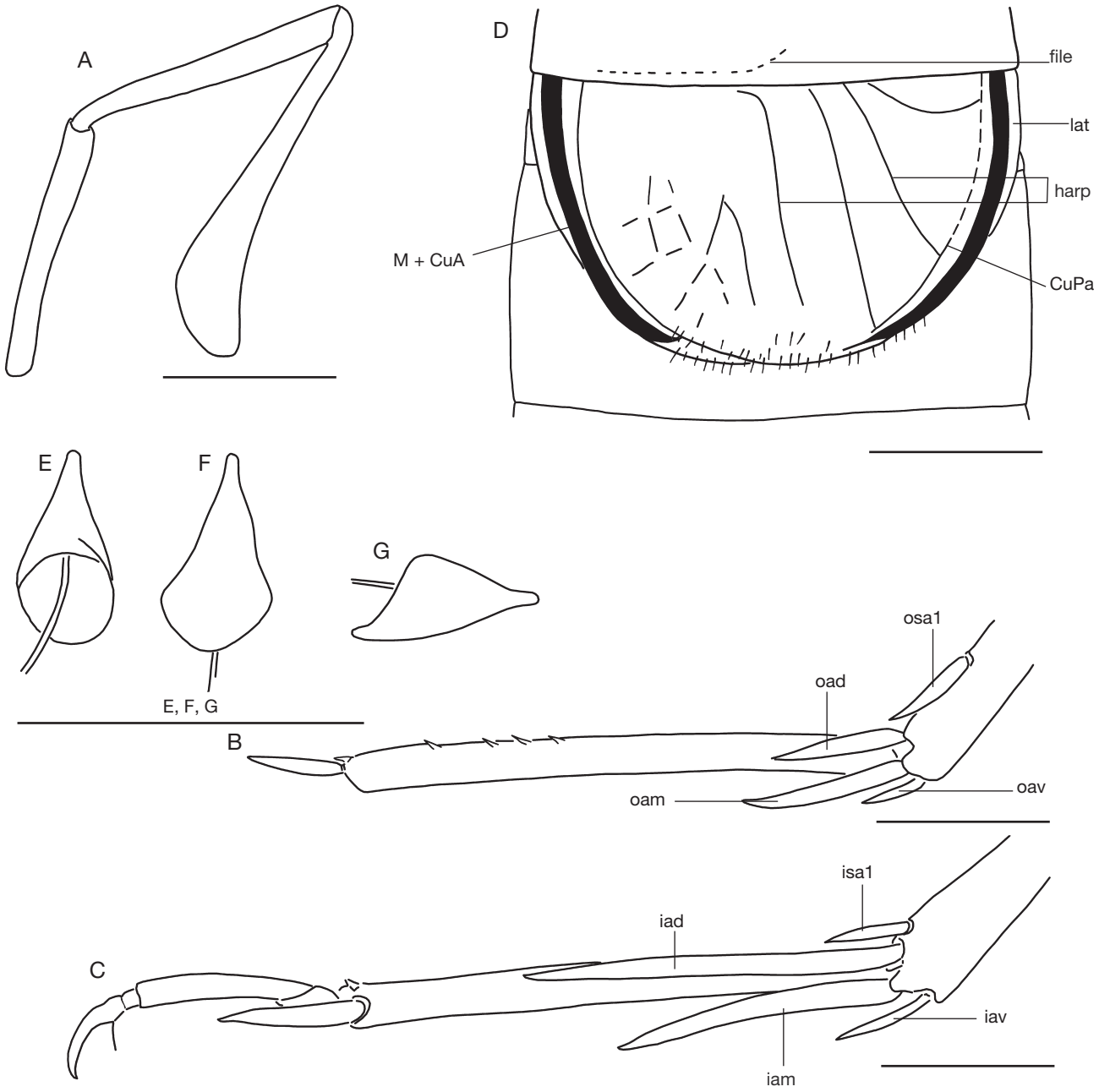

Fig. 5. — *Aracopsis hugeli* Desutter-Grandcolas, n. gen, n. sp. morphology: **A**, last three articles of maxillary palpus in female allotype MNHN-EO-ENSIF3985; **B**, **C**, hindtibia outer (**B**) and inner (**C**) apical spurs in female allotype MNHN-EO-ENSIF3985; **D**, forewings in male holotype MNHN-EO-ENSIF3984, note that the file (PCu) is hiden under pronotum; **E**-**G**, copulatory papilla of female paratype MNHN-EO-ENSIF3977 in dorsal (**E**), ventral (**F**) and side (**G**) views. Abbreviations: see Material and methods. Scale bars: 1 mm.

rings. FI, FII (Fig. 3C) dirty yellow with brown rings, and a small, basal brown spot. TIII (Fig. 3C) dirty yellow with brown dorsal flecks; ventral margin yellow; spurs yellowish with brown tips. FIII (Fig. 4C, D) dirty yellow marked with brown: in distal half, two brown rings; in basal half, two larger flecks, the first one divided on outer side, simple on inner side, the second simple with additional oblique yellow lines; two additional brown spots on inner side at about one third of FIII length. Basitarsomeres brown with yellow base. Tergites black with dirty-yellow spots (Fig. 3).

Male (Fig. 3B, C)

Metanotum without glandular structure. FWs short, not reaching metanotum distal margin (Fig. 4A); venation (Fig. 5D) faint, except for a strong M+CuA vein, separating dorsal and lateral fields; file (PCu) extending over half FW width only; harp with three to four widely separated veins; lateral field short and narrow, triangular, without venation; distal margins with short setae, without inflated areas. Stridulatory file with about 40 very small teeth (n = 1). FWs black, with slightly yellowish M+CuA vein. Tergites 3 to 6 with paired transverse

TABLE 4. — Measurements of *Acantoluzarida nigra* Desutter-Grandcolas, 1992 specimens from Mitaraka (in millimetres).

	iod	pron L	pron w	FIII L	FIII w	TIII L	FW L	ovip L
Females	1.8-2.3	3.7-4.1	4.4-5.1	11.8-14	3.9-4.6	9.4-11.1	2.4-2.8	8-9.5
Mean (n = 9)	2	3.9	4.7	13.2	4.2	10.6	2.5	8.8
Males	1.5-1.7	2.5-3.1	3.6-3.9	10.1-11.4	3.2-3.9	8.9-9.6	3-3.6	–
Mean (n = 6)	1.6	2.8	3.8	10.7	3.6	9.2	3.3	–

projections; each projection with a rounded median conical apex (Fig. 4E). Supra anal plate as on Fig. 4E. Subgenital plate short and relatively low; distal margin straight.

Male genitalia (Fig. 4F-H)
Very small, about half the size of *Philippopsis guianae* genitalia. Pseudepiphallic sclerite transverse, without separate rami. Posterior part of pseudepiphallus membranous located below the transverse pseudepiphallic sclerite and narrowed before apex; apical lophi membranous, separate by a V-shaped indentation. B-sclerite very reduced. C-sclerite long and acute, not bifurcate apically as in *P. guianae*. A-sclerite quadrangular, about twice as long as wide. Pseudepiphallic parameres well-sclerotized, their surface granular; each paramere comprising a flat ventral sclerite (PsP1 *sensu* Souza-Dias *et al.* 2015) and a slightly concave dorsal sclerite (PsP2 *sensu* Souza-Dias *et al.* 2015). Ectophallic fold sclerotized. Ectophallic arc flat and very wide; ectophallic apodemes very short, flat, except for a large dorsal hump at arc level, and not developed ventrally (*contra P. guianae*). Endophallic sclerite very long and narrow; apodemes very reduced (dorsal crest and anterior lamella).

Female (*Fig. 3A)*
Subgenital plate small, transverse; distal margin bisinuate. Ovipositor small, about half TIII length; dorsal valve apex lanceolate, with many parallel lines, as leaf veins (Fig. 4I).

Female genitalia (*Fig. 5E-G)*
Copulatory papilla small, conical with a very thin apex; well-sclerotized, except for its very apex.

Measurements (in mm)
See Table 3.

HABITAT AND ECOLOGY
Aracopsis hugeli Desutter-Grandcolas, n. gen., n. sp. has been found only by night, foraging in the leaf litter. It has been observed several times on the bare ground beneath the stump of a fallen tree (Fig. 3, S. Hugel, pers. comm.). As *Phalangopsis* and *Philippopsis*, it may hide during the day in cavities at ground level (Desutter-Grandcolas 1992a).

CALLING SONG
The song has been recorded at 23°C in rearing conditions with several individuals of different species singing altogether, which precludes detailed analysis and illustration of the call. The song of *Aracopsis hugeli* Desutter-Grandcolas, n. gen., n. sp. consists in a series of short buzzing trills emitted at length. Each trill has a mean duration of 3.4 s (min 2.6, max 4.1, n = 7), but longer trills have also been recorded (6.1s and 8.3 s, n = 2); it is made of very short syllables (mean duration: 62 ms, min 48 ms, max 76 ms, n = 30) regularly and rapidly emitted. Dominant and fundamental frequency averages 3.5 kHz, with four additional harmonics of regularly decreasing amplitude.

PHYLOGENETIC RELATIONSHIPS
Molecular phylogenetic evidence confirm the close relationships of *Aracopsis* Desutter-Grandcolas, n. gen., *Philippopsis* and *Phalangopsis* (Warren *et al.* 2019).

Subfamily LUZARINAE Hebard, 1928

Genus *Acantoluzarida* Desutter-Grandcolas, 1992 (Fig. 6)

TYPE SPECIES. — *Acantoluzarida nigra* Desutter-Grandcolas, 1992a by original designation.

DISTRIBUTION. — French Guiana.

DIAGNOSIS. — See Desutter-Grandcolas (1992a: 110).

HABITAT. — Straminicolous species (Desutter-Grandcolas 1995).

Acantoluzarida nigra Desutter-Grandcolas, 1992 (Fig. 6; Table 4)

Acantoluzarida nigra Desutter-Grandcolas, 1992a: 111.

TYPE LOCALITY. — French Guiana: Arataye, Affluent Approuague, 8 km NE saut Pararé, Nouragues research station.

TYPE MATERIAL. — **Holotype by original designation. French Guiana** • 1 ♂; Arataye, afflt. Approuague, 8 km NE du saut Pararé, station des Nouragues; 19.VI.1988; L. Desutter & P. Grandcolas leg.; MNHN-EO-ENSIF3105.
Allotype. **French Guiana** • 1 ♀; same locality and collector as the holotype; 19.VI.1988; MNHN-EO-ENSIF3104.
Paratypes: 5 males, 14 females. **French Guiana** • 1 ♂; same locality as the holotype; 31.III.1988; L. Desutter leg.; MNHN-EO-ENSIF5880 • 1 ♂; 1.IV.1988; L. Desutter leg.; MNHN-EO-ENSIF5881 • 1 ♀; same locality and collector as the holotype; 31.IV.1988; MNHN-EO-ENSIF3104 • 1 ♂ 8 ♀; 3-15.VI.1988; MNHN-EO-ENSIF5882, 5885-5892 • 1 ♂ 1 ♀; 13-17.VII.1988; MNHN-EO-ENSIF5883, 5893 • 1 ♂; 4 ♀; Sinnamary, piste de St Elie, PK15; 28.VI.- 24.VII.1989; P. Grandcolas leg.; MNHN-EO-ENSIF5884, 5894-5897.

Fig. 6. — *Acantoluzarida nigra* Desutter-Grandcolas, 1992a from the Mitaraka, pattern of coloration: **A**, head dorsum, with forked stripe on occiput; **B**, pronotum and forewing; **C**, lateral parts of tergites; **D**, **E**, male (**D**) and female (**E**) foraging at night in the leaf litter. Scale bars: 1 mm. Photos: D, E, Sylvain Hugel.

Material from the Mitaraka. — **French Guiana** • 2 ♂; Monts Tumuc-Humac, Massif du Mitaraka, vers sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N; alt. entre 370 m et 470 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH395, SH456, de nuit; MNHN • 5 ♀; same data as for preceding; fn. SH396, SH397, SH399, SH503, SH536, de nuit; MNHN • 1 ♂; same data as for preceding; fn. SH434, de jour; MNHN • 1 ♀; same data as for preceding; fn. SH435, de jour; MNHN • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, D2; 54.451125 O 2.234786 N; alt. 300 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH077, de nuit; MNHN • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, entre C100 et C1000; entre 54.44768 O 2.235494 N et 54.4419 O 2.233664 N; alt. entre 350 m et 415 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH173, de nuit; MNHN • 1 ♀; same data as for preceding; fn. SH174, de nuit; MNHN • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, Prox Borne 1; entre 54.4365 O 2.2269 N et 54.4355 W2.2125 N; alt. entre 300 m et 445 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH353, de nuit; MNHN • 1 ♀; same data as for preceding; fn. SH354, de nuit; MNHN • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka, Layon A; entre 54.4509 O 2.2357 N et 54.4547 O 2.2405 N; alt. entre 280 m et 365 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH309, de nuit; MNHN.

Complements of description

In addition to the characters given by Desutter-Grandcolas (1992a).

TABLE 5. — Measurements of *Luzaridella miniata* n. sp. (in millimetres).

	iod	pron L	pron w	FIII L	FIII w	TIII L	FW L	FW w	ovip L
Male holotype	1.7	3.1	4.5	12.7	3.7	11.3	6.6	4.7	–
Female allotype	1.7	4.4	5.2	16	4.2	15.2	4.3	–	14.2
Female paratypes (n=2)	2.1-2.4	4.4	5-5.8	16.6-16.8	4.4-4.9	14.5-15.7	3.8-4.2	–	14.5-14.8
Mean (n=3)	2.1	4.4	5.4	16.5	4.6	15.2	4.1	–	14.5

Coloration
Lateral yellow stripes extended on occiput, vertex, FWs and metanotum, sometimes forked on occiput (Fig. 6); muscular inscriptions interrupting the stripes at pronotum one third. FIII outer side and base of inner side striped with brown; dorsal side and apical part of inner side speckled with brown especially at apex; spurs yellowish, dark at base and apex. Tergites speckled with yellow on lateral margins (Fig. 6C), this pattern often obscured in males (Fig. 6D).

Female (Fig. 6E)
Bigger than male.

Measurements (in mm)
See Table 4.

Variation
Size highly variable. Mouthparts sometimes marked with white. Cerci brown or light brown at base. Yellow rings sometimes present on TI and TII. Females with sometimes five veins on FW lateral field. Females tend to lose their forewings

Genus *Luzaridella* Desutter-Grandcolas, 1992
(Figs 7-11)

TYPE SPECIES. — *Luzaridella obscura* Desutter-Grandcolas, 1992a by original designation.

DISTRIBUTION. — French Guiana and Brazil (Amazonas).

DIAGNOSIS. — See Desutter-Grandcolas (1992a: 103).

HABITAT. — Straminicolous species (Desutter-Grandcolas 1995).

Luzaridella miniata n. sp.
(Figs 7, 8, 9A-E; Table 5)

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TYPE LOCALITY. — French Guiana, Monts Tumuc-Humac, Massif du Mitaraka.

TYPE MATERIAL. — **Holotype by originalpresent designation. French Guiana** • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka vers sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N; alt. entre 370 m et 470 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH412, de nuit; MNHN-EO-ENSIF9752 (male in bad condition, covered with dry mold).
Allotype. French Guiana • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka vers sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N; alt. entre 370 m et 470 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH398, de nuit; MNHN-EO-ENSIF9757.
Paratypes: 2 females. French Guiana • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka, Layon A; entre 54.4509 O 2.2357 N et 54.4547 O 2.2405 N; alt. entre 280 m et 365 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH111, de nuit; MNHN-EO-ENSIF9755 • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka, D2; 54.451125 O 2.234786 N; alt. 300 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH080, de nuit; MNHN-EO-ENSIF9745.

OTHER MATERIAL EXAMINED. — **French Guiana** • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka, D2; 54.451125 O 2.234786 N; alt. 300 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH027, de nuit; MNHN.

ETYMOLOGY. — Species named after its slender shape compared to other species of the genus.

DIAGNOSIS. — Within the genus, species relatively large, with thin PIII at least in males (Fig. 7A). Male FWs relatively soft, compared to other species of the genus, covering abdomen up to tergite 7; stridulum complete. Male genitalia distinctive (A-sclerite protruding as a thick curved spine; pseudepiphallic apical sclerotization X-shaped, delimiting a pair of distal cavities very lightly sclerotized dorsally, and a free sclerotized process more ventrally; distal two-third of ectophallic apodemes rubbon-like and thin, curved ventrally toward pseudepiphallic parameres, anterior third vertical). Female copulatory papilla oval, with dorsal and ventral sides little sclerotized. Species differing from *Luzaridella maculata* n. sp. by male and female genitalia (compare Fig. 7D-G and Fig. 11E-G), male stridulatory file, a bigger size (compare Table 5 and 6) and sternite coloration (light brown with median part darker). More similar to *Luzaridella annulata* Desutter-Grandcolas,1992 from which it can be separated by its larger size, darker coloration (especially for annulated legs), and female copulatory papilla (compare Fig. 9C-E and Desutter-Grandcolas 1992a, figure 9).

DESCRIPTION
In addition to characters of the genus (Desutter-Grandcolas 1992a):

General morphology
TIII serrulation lacking between subapical spurs and apical spurs on both sides; on inner side, two to four spines (mean 2.5 in male, 3.5 in females) between isa1 and isa2, two to four (mean 2.5 in male, 3.3 in females) spines between isa2 and isa3, three to four spines (mean 4 in male, 3.8 in females) between isa3 and isa4, 12-13 spines in male (mean 12.5) and 11-15 spines (mean 13.5) in females above isa4; on outer side, three to four spines (mean 3 in male, 3.3 in females) between osa1 and osa2, three to four spines (mean 3 in male, 3.5 in females) between osa2 and osa3, four to six spines (mean 4 in male, 5.3 in females) between osa3 and osa4, 11-12 spines (mean 11.5) in male, and 12-13 (mean 12.5) spines in fe-

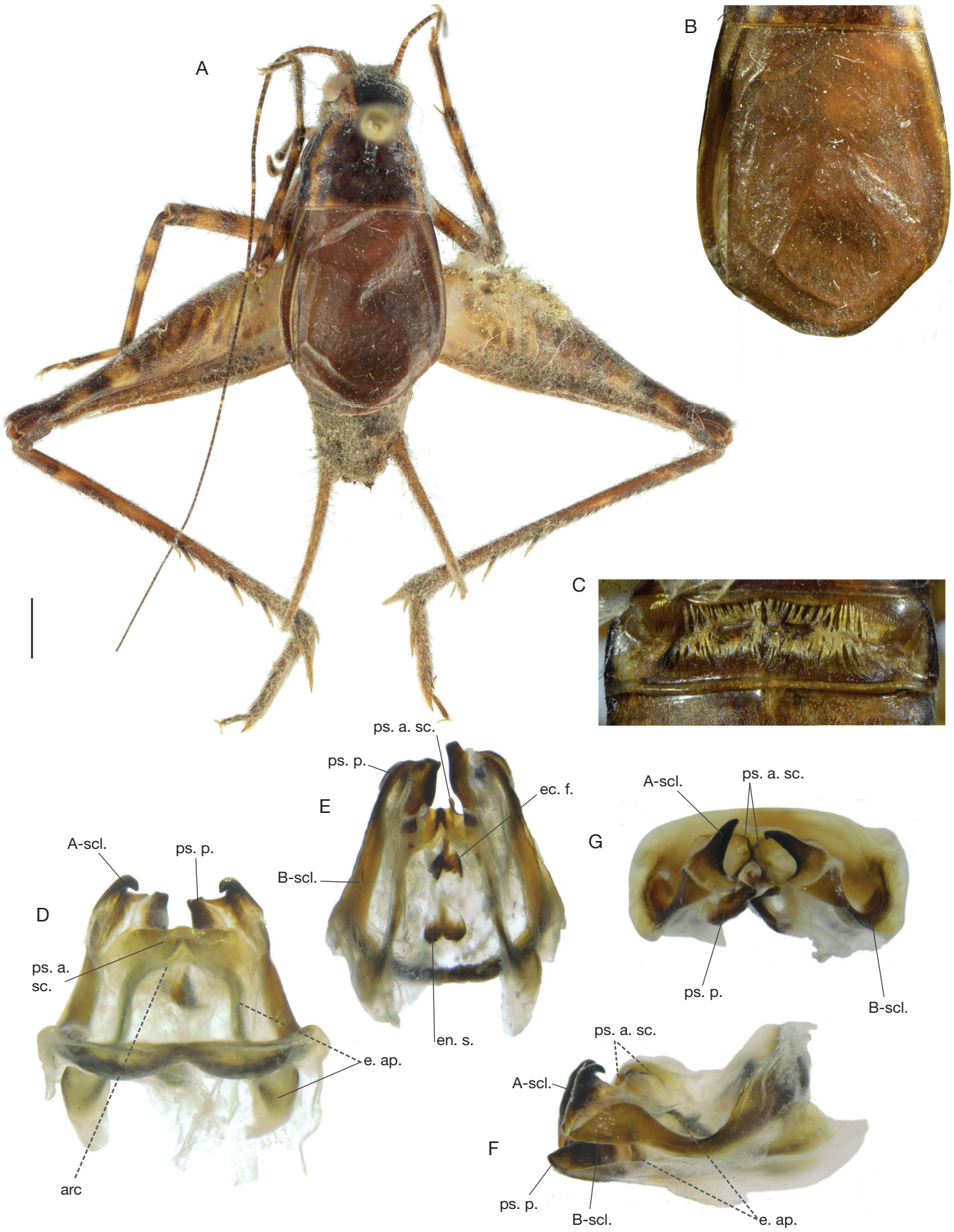

FIG. 7. — *Luzaridella miniata* n. sp. male, holotype MNHN-EO-ENSIF9752: **A**, habitus; **B**, tegmina (note that the right tegmen is rolled on its anal margin); **C**, glandular metanotum, forewings raised; **D**-**G**, genitalia, in dorsal (**D**), ventral (**E**), side (**F**) and apical (**G**) views. Abbreviations: see Material and methods. Scale bar: A, 2 mm.

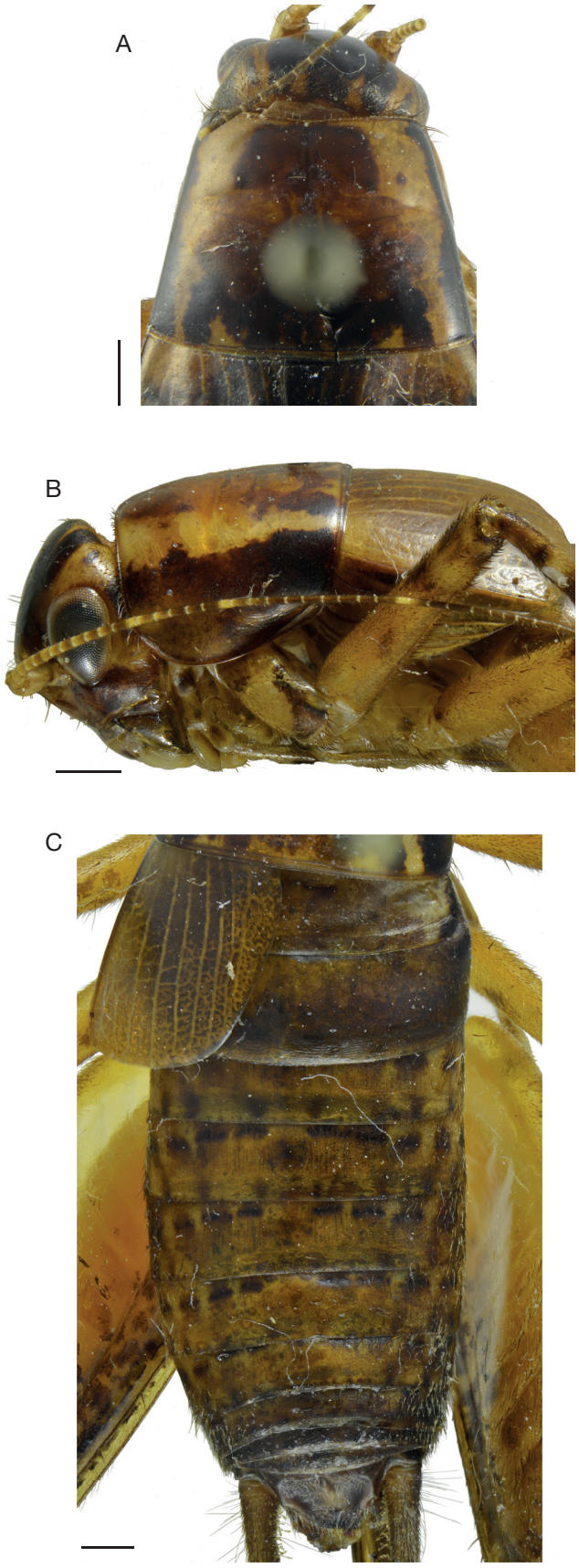

FIG. 8. — *Luzaridella miniata* n. sp. female: **A**-**C**, patterns of coloration on head and pronotum in dorsal (**A**) and side (**B**) views; **C**, abdomen, dorsal. Scale bars: 1 mm.

males above osa4. Basitarsomere III serrulation: six to seven inner spines (mean 6.5 in male, 6.8 in females), six to nine outer spines (mean 6.5 in male, 7.3 in females) in addition to apical spines.

Coloration

Head: Face light brown marked with yellow; cheeks darker than face; ocelli marked with black; vertex and occiput dark brown, with four longitudinal yellow lines (Fig. 8A): two outer lines starting at median ocellus, reaching lateral ocelli, forked at beginning of vertex, and extending to pronotum; two inner lines, shorter than outer stripes. Eyes grey. Antennal pits whitish. Scapes yellow with two brown rings, one at base, one at apex. Antennae yellow at base, then brown with yellow rings. Mouthparts white with light brown spots. Palpi light brown, white on their dorsal and ventral sides. Pronotum DD and LL separated by a wide yellow stripe (Fig. 8A, B); DD light brown with lighter muscular inscriptions and two yellow spots (close to yellow stripes) on posterior margin; LL ferruginous brown, light brown to yellow close to anterior angle. Legs: FI and FII yellow with three brown rings. TI and TII brown with two and three yellow rings, respectively. Tarsomeres I and II brown, yellow at their base. FIII yellow with brown pattern: outer side and inner base striped with brown; a brown ring near apex; apex brown. TIII brown on dorsal side, lighter on ventral side; with two yellow rings barely visible; spurs yellowish, their base and apex dark; tarsomeres III light brown. Tergites light brown with dark brown and yellow pattern (Fig. 8C). Sternites light brown with a darker median part. Cerci light brown, with a brown ring close to brown apex.

Male

Metanotum glandular, covered with many long setae (Fig. 7C). Forewings (Fig. 7B) wider than pronotum and abdomen, trapezoidal (wider posteriorly than anteriorly); long for the genus, reaching tergite 7. Venation faint (Fig. 9A, B); lateral field with four parallel longitudinal veins, the second branched distally; stridulum complete, harp without vein, mirror much wider than long, not crossed by any vein; PCu very oblique, bearing a very short file located very high on the vein and with only five teeth.

Male genitalia (Fig. 7D-G)

Genitalia slightly wider than long, with very short rami (Fig. 7D). Pseudepiphallic arms well-developed; membrane separating them sclerotized apically as two cup-like sclerites connected together and extending toward sclerotized parts of EEI and ectophallic fold as a pair of free sclerotized processes (Fig. 7D, G); A-sclerite hook-like; B-sclerite (Fig. 7F) widened before apex, then regularly narrowed toward acute apex; pseudepiphallc parameres simple, not hook-like, between pseudepiphallic apical sclerites and A-sclerites (Fig. 7D, E, G). Ectophallic apodemes thin and rubbon-like on anterior two-third, as a curved, vertical lamella on posterior third (Fig. 7D); arc fully sclerotized, sinuous (Fig. 7D); pseudepiphallic sclerite anterior part vertical, abutting against ectophallic apodeme

TABLE 6. — Measurements of *Luzaridella maculata* n. sp. (in millimetres)

	iod	pron L.	pron w	FIII L	FIII w	TIII L	FW L	FW w	ovip L
Male holotype	1.7	3.2	3.8	11.9	3.4	10.8	4.8	4	–
Male paratypes (n = 8)	1.5-1.7	2.7-3.2	3.4-4	10.4-11.7	3.1-3.8	9.4-10.4	3.6-4.8	3.2-3.9	–
Mean (n = 9)	1.6	2.9	3.7	11	3.5	10	4.3	3.5	–
Female allotype	2	4.1	5.1	15.9	4.8	13.5	2.9	–	15.6
Female paratypes (n = 4)	1.9-2.2	3.9-4.1	5-5.3	13.4-15	4.2-4.9	12.7-13.3	2.4-3.1	–	13-15.7
Mean (n = 5)	2.1	4	5.1	14.5	4.5	13.1	2.9	–	14.8

(Fig. 7D). Ectophallic fold short, with a trifid apical sclerite (Fig. 7E). Endophallic sclerite very short, distal apex trifid (Fig. 7E); endophallic apodeme very short, lamella-like. No dorsal cavity.

Female

Larger than male. FWs short, not overlapping, reaching tergite 3. Dorsal field with seven to nine longitudinal veins, lateral field with four or five longitudinal veins.

Female genitalia

Copulatory papilla (Fig. 9C-E) small (less than 1 mm long), nearly oval in shape, distal margin bisinuate, ventral and dorsal sides less sclerotized.

Measurements (in mm)

See Table 5.

Variation

Size highly variable in females. First ring of FI and FII sometimes hardly marked. Dorsal disc and tergites sometimes darker.

Luzaridella maculata n. sp.
(Figs 9F-H, 10, 11; Table 6)

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TYPE LOCALITY. — French Guiana, Monts Tumuc-Humac, Massif du Mitaraka.

TYPE MATERIAL. — **Holotype by present designation. French Guiana** • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, Layon A; entre 54.4509 O 2.2357 N et 54.4547 O 2.2405 N; alt. entre 280 m et 365 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH310, de nuit; MNHN-EO-ENSIF9740).

Allotype. French Guiana • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka, D2; 54.451125 O 2.234786 N; alt. 300 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH076, de nuit; MNHN-EO-ENSIF9753.

Paratypes: 8 males, 9 females. French Guiana • 4 ♂ 2 ♀; Monts Tumuc-Humac, Massif du Mitaraka, same data as the holotype; fn. SH112, SH121, SH562, SH564, fn. SH123, SH266, de nuit; MNHN-EO-ENSIF9742, 9749, 10765, 10768, 10769, 10771 • 1 ♂ 3 ♀; Monts Tumuc-Humac, Massif du Mitaraka, vers sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N; alt. entre 370 m et 470 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH513, SH511, SH512, SH537, de nuit; MNHN-EO-ENSIF10767, 10774, 10775, 10776 • 1 ♂ 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka, D2; 54.451125 O 2.234786 N; alt. 300 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH010, SH011, de jour; MNHN-EO-ENSIF10766, 10770 • 1 ♂ 3 ♀; same data as preceding; fn. SH081, SH042, SH025, SH082, de nuit; MNHN-EO-ENSIF9741, 10773, 10772, 10777 • 1 ♂ Monts Tumuc-Humac, Massif du Mitaraka, Prox Borne 1; entre 54.4365 O 2.2269 N et 54.4355 O 2.2125 N; alt. entre 300 m et 445 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH352, de nuit; MNHN-EO-ENSIF9753.

OTHER MATERIAL EXAMINED. — **French Guiana** • 2 ♂; Monts Tumuc-Humac, Massif du Mitaraka, Layon A; entre 54.4509 O 2.2357 N et 54.4547 O 2.2405 N; alt. entre 280 m et 365 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH113, SH563, de nuit; MNHN • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, vers sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N; alt. entre 370 m et 470 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH547, de nuit; MNHN • 1 juvenile; Monts Tumuc-Humac, Massif du Mitaraka, D2; 54.451125 O 2.234786 N; alt. 300 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH002, de jour; MNHN.

ETYMOLOGY. — Species named after its pattern of coloration.

DIAGNOSIS. — Within the genus, species close to *Luzaridella clara* Desutter-Grandcolas, 1992 by its light coloration (Fig. 11), its small and globular male genitalia, and the shape of female copulatory papilla (rectangular and entirely sclerotized); it can be separated from this species by its coloration and length of ovipositor (less than 10 mm in *L. clara*, i.e., well shorter than FIII and TIII, versus > 13 mm in *L. maculata* n. sp., longer than TIII).

Also resembling *Luzaridella miniata* n. sp. by general coloration, but differing from that species by sternite coloration (light brown marked with black), male stridulatory file (16 teeth against five in *L. miniata* n. sp.), male genitalia (compare Figs 7D-G and 11E-G), female genitalia (oval and partly desclerotized dorsally and ventrally in *L. miniata* n. sp.), and a smaller size (compare Tables 5 and 6).

DESCRIPTION

In addition to the character of the genus (see Desutter-Grandcolas 1992a).

General morphology

TIII serrulation lacking between subapical spurs and apical spurs on both sides; on inner side, three to five spines (mean 3.8) in males, four to six spines (mean 4.9) in females between isa1 and isa2, four to five spines (mean 4.1) in males, four to six spines (mean 4.8) in females between isa2 and isa3, four to six spines (mean 4.5) in males, four to five spines (mean 4.9) in females between isa3 and isa4, 9-14 spines (mean 11.8) in males, 13-15 spines (mean 14.4) in females above isa4; on outer side, two to four spines (mean 3) in males, three to four spines (mean 3.4) in females between osa1 and osa2, four to five spines (mean 4.3) in males, five spines in females between osa2 and osa3, four to five spines (mean 4.4) in males, four

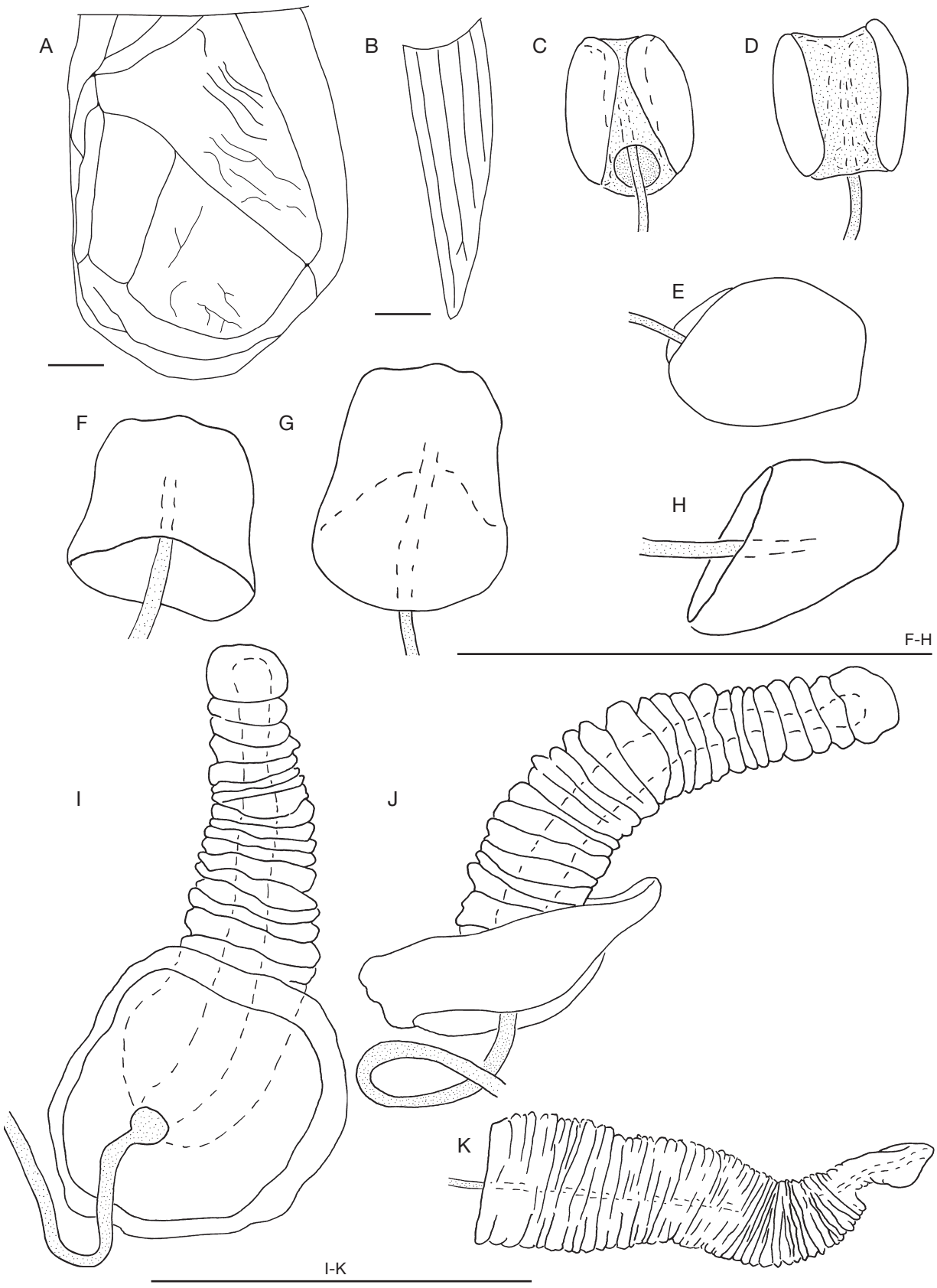

FIG. 9. — *Luzaridella miniata* n. sp. (**A**-**E**), *Luzaridella maculata* n. sp. (**F**-**H**), *Lerneca mitarakensis* n. sp. (**I**, **J**) and *L. inalata inalata* Saussure, 1874 (**K**): **A**, **B**, male forewing, dorsal (**A**) and lateral (**B**) fields of *L. miniata* n. sp. **C**-**H**, female copulatory papilla, in dorsal (**C**, **F**), ventral (**D**, **G**) and side (**E**, **H**) views of *Luzaridella miniata* n. sp. (**C**-**E**) and *Luzaridella maculata* n. sp. (**F**-**H**); **I**-**K**, female copulatory papilla, in dorsal (**I**) and side (**J**, **K**) views of *Lerneca mitarakensis* n. sp. (**I**, **J**) and *Lerneca inalata inalata* Saussure, 1874 (**K**). Scale bars: 1 mm.

FIG. 10. — *Luzaridella maculata* n. sp.: male perched at night on understorey plant, specimen not collected. Photo: Sylvain Hugel.

to six spines (mean 5) in females between osa3 and osa4, 9-13 spines (mean 10.6) in males, 12-14 spines (mean 13.1) in females above osa4. Barsitarsomere III serrulation: five to nine inner spines (mean 8.6 in males, 7.8 in females) and five to nine outer spines (mean 5.8 in males, 7.5 in females) in addition to apical spines.

Coloration

Face yellowish with light brown marks, including a curved line between lower angle of eyes and epistomal suture and sometimes a light yellow, median longitudinal line under median ocellus (Fig. 11D); clypeus and labrum light yellow, with a pair of brown spots on clypeus; cheeks light to dark brown with an elongate yellowish spot close to the eye more or less prolonged toward mandibula; ocelli partly circled with black. Fastigium and vertex light to dark brown, fastigium sometimes lighter; with five longitudinal yellow lines: two external ones from lateral ocelli to occiput, sometimes forked behind the eyes, extending to pronotum and forewings (Fig. 11A, C); two inner ones, transparent, shorter than external stripes, joining at vertex mid length; one median and longitudinal, very thin, short and most often barely visible. Scapes yellow marked with brown, especially at base and apex. Antennae yellow at base, then brown with yellow rings. Palpi light brown laterally, lighter on dorsal and ventral margins (Fig. 11C, D). Pronotum DD and LL separated by a wide yellow stripe (Fig. 11C); DD light brown with lighter muscular inscriptions; posterior margin largely bordered with black brown, except for two yellow spots close to longitudinal yellow stripes; LL light brown to yellow on lower margin, with a wide black brown band dorsally. Legs (Fig. 11A): FI and FII yellow with two brown rings. TI and TII brown with two and three yellow rings, respectively. Basitarsomeres I and II brown, yellow at base; tarsomeres 2 and 3 yellow. FIII yellow with brown pattern: outer side and inner base striped with brown; a brown ring near the knee; knee brown. TIII (Fig. 11A) brown dorsally, lighter ventrally; near the knee, a short black ring and a larger yellow ring; an additional yellow fleck on each side, more or less distinct; spurs yellowish, their base and apex dark. Basitarsomeres III light brown with darker spot near apex; tarsomeres 2 and 3 yellowish. Tergites light brown with dark brown and yellow pattern (Fig. 11B). Sternites light brown marked with black. Cerci light brown, lighter at base with yellow ring near apex.

Male

Metanotum glandular, with a wide bunch of long setae along both anterior and posterior margins, separated by a deep transverse furrow. FWs (Fig. 11A) as wide as pronotum and

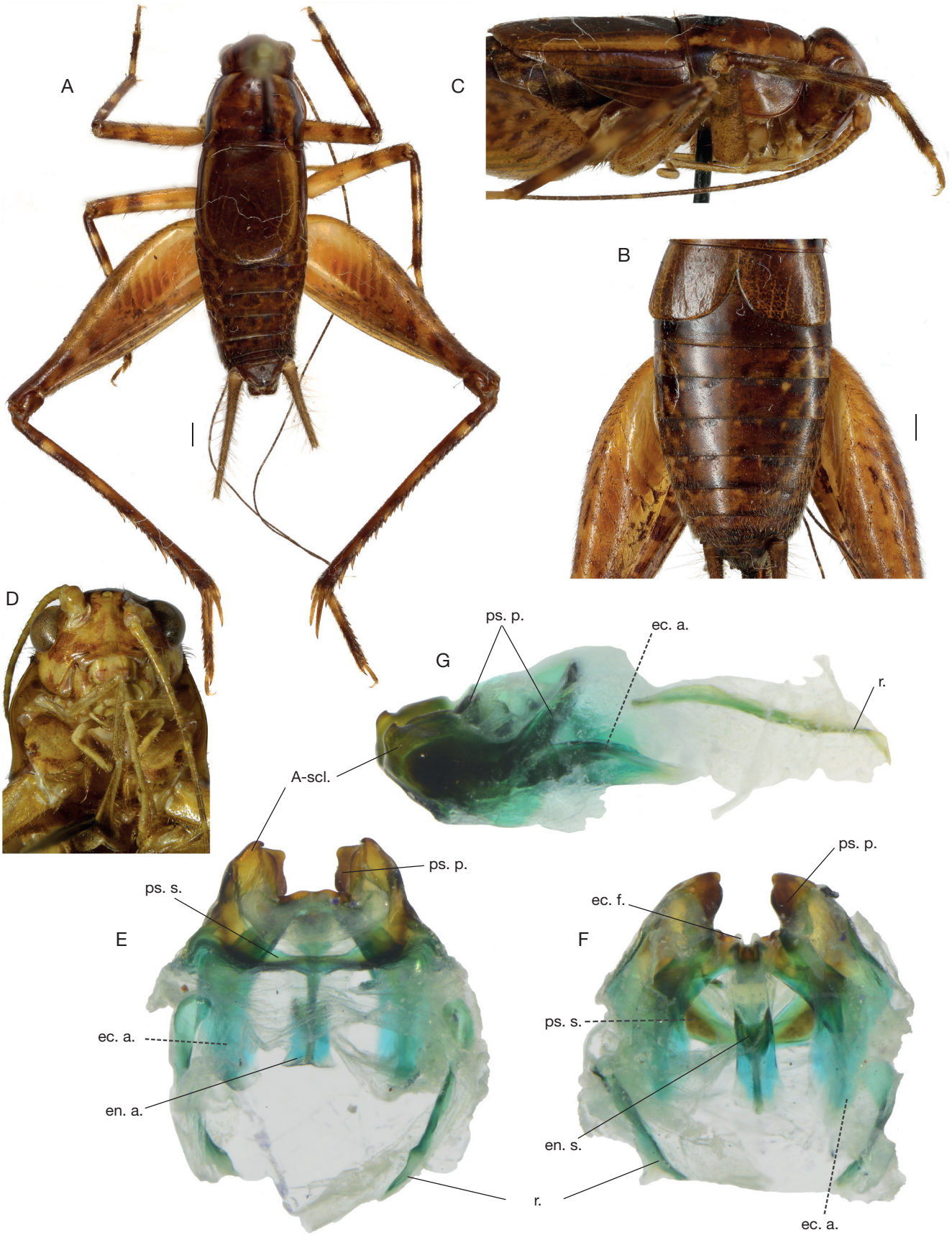

FIG. 11. — *Luzaridella maculata* n. sp.: **A**, male habitus; **B**, pattern of coloration on female abdomen; **C**, male coloration on side head, pronotum and FWs; **D**, face and palpi coloration; **E**-**H**, male genitalia in dorsal (**E**), ventral (**F**) and side (**G**) views. Abbreviations: see Material and methods. Scale bars: 1 mm.

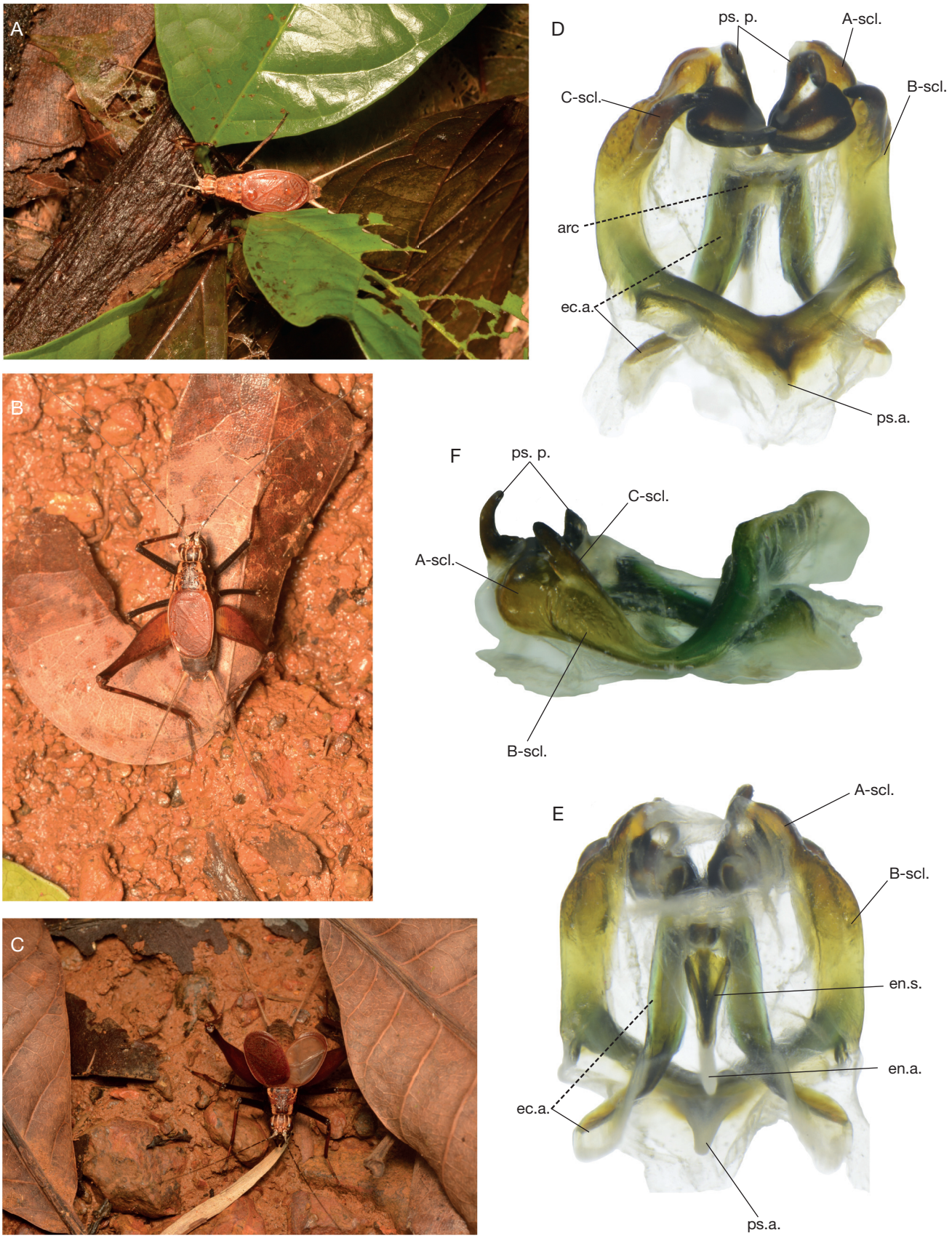

FIG. 12. — *Luzarida grandis* Desutter-Grandcolas, 1992a from the Mitaraka: **A**, male specimen SH308 photographed in its natural environment; **B**, **C**, male specimen SH622 photographed in its natural environment (**B**) and singing (**C**); **D**-**G**, male genitalia of *L. grandis* specimen SH308, in dorsal (**D**), ventral (**E**) and side (**F**) views. Abbreviations: see Material and methods. Photos: Sylvain Hugel.

TABLE 7. — Measurements of *Luzarida grandis* Desutter-Grandcolas, 1992 specimen from Mitaraka (in millimetres).

	iod	pron L	pron w	FIII L	FIII w	TIII L	FW L	FW w
Male (n = 1)	2	4.3	6	18	4.9	18.3	11.4	7.3

abdomen, reaching tergite 4. Venation visible but sometimes interrupted; lateral field with five parallel longitudinal veins; stridulum complete, harp without vein, mirror much wider than long, not crossed by any vein; stridulatory file with 16 teeth. Subgenital plate short and high.

Male genitalia (Fig. 11E-H)
Very small and globular, with relatively long and thin rami. Pseudepiphallic arms less than half rami length. Dorsal membrane of pseudepiphallus (between arms) present as a small, broadly triangular area, with relatively big apical structures; B-sclerite short, wide over its whole length, not narrowed distally; A-sclerite with a very small apical spine. Pseudepiphallic parameres globular with a non-protruding, small, broad apical tooth. Ectophallic apodemes not extending beyond rami anterior tip; very wide and concave along their whole length, regularly narrowed anteriorly; arc fully sclerotized, narrow compared to ectophallic apodemes. Ectophallic fold very short, sclerotized. Endophallic sclerite with trifid distal margin. Endophallic apodeme very well developed, with a high median longitudinal crest, connected to ectophallic fold, and lamellas along and beyond endophallic sclerite. No dorsal cavity.

Female
Larger than male. FWs short, little recovering, reaching tergite 1 (Fig. 11B). Dorsal field with six to eight longitudinal veins, lateral field with four longitudinal veins. Subgenital plate distal margin deeply sinuate. Ovipositor as long or slightly longer than FIII, but longer than TIII.

Female genitalia
Copulatory papilla (Fig. 9F-H) entirely sclerotized and short, less than one millimetre long; almost rectangular in shape; upper part with small protuberance.

Measurements (in mm)
See Table 6.

Variation
Vertex sometimes brown ferruginous. In darker specimens, tergite coloration sometimes dark brown. In males veins 3 and 4 on FW lateral field sometimes extended near FW lower margin. Some specimens at hand seem in bad condition and present very dark coloration for cheek (light coloration barely visible), vertex (yellow forks sometimes difficult to see), scapes (entirely brownish), base of antennae (brown), palpi (uniform coloration), pronotum (yellow spots not visible), sternites (coloration very variable with black margins or middle part), or metanotum (light brown to yellowish).

Genus *Luzarida* Hebard, 1928
(Fig. 12)

TYPE SPECIES. — *Luzarida annuliger* Hebard, 1928a by original designation.

DIAGNOSIS. — See Hebard (1928a) and Desutter-Grandcolas (1992a).

DISTRIBUTION. — Northwest South America (Colombia, Ecuador, Guyana, French Guiana, Brazil, Trinidad).

HABITAT. — Species most often found at ground level, active at night, or hiding during the day. They may perched at night on diverse low structures, such as fallen dead trunks, raised twigs or leaves, or low plants.

Luzarida grandis Desutter-Grandcolas, 1992
(Fig. 12; Table 7)

Luzarida grandis Desutter-Grandcolas, 1992a: 102.

TYPE LOCALITY. — French Guiana, Arataye, Affl. Approuague, 8 km NE pied du Saut Pararé.

TYPE MATERIAL. — **Holotype by original designation**. **French Guiana** • 1 ♂; Arataye, afflt. Approuague, 8 km NE du saut Pararé, station des Nouragues; 19.V.1988; L. Desutter leg.; MNHN-EO-ENSIF3035.
Allotype. **French Guiana** • 1 ♀; same locality and collector as the holotype; 11.V.1988; MNHN-EO-ENSIF3032.
Paratypes: 1 male, 6 females. **French Guiana** • 1 ♂ 6 ♀; same locality as the holotype; VI.1988; L. Desutter & P. Grandcolas leg.; MNHN-EO-ENSIF5942-5948.

MATERIAL FROM THE MITARAKA. — **French Guiana** • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, Layon A; entre 54.4509 O 2.2357 N et 54.4547 O 2.2405 N; alt. entre 280 m et 365 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH308, de nuit; MNHN.

COMPLEMENT OF DESCRIPTION
In addition to the characters given by Desutter-Grandcolas (1992a).

Coloration
Mouthparts dark brown with whitish specks. Four brown specks on posterior margin of pronotum. FIII outer side and base of inner side striped with brown. TIII light brown. Spurs yellowish, with dark base and apex. Cerci whitish dorsally; ventrally black on basal third, with a black ring at second third, and black at apex.

Male genitalia
As on Fig. 12D-F.

Measurements (in mm)
See Table 7.

Variation
Mirror crossed by two or three veins.

TABLE 8. — Measurements of *Lerneca mitarakensis* n. sp. (in millimetres)

	iod	pron L	pron w	FIII L	FIII w	TIII L	FW L	FW w	ovip L
Male holotype	1.6	2.2	4	9.2	2.8	7.9	10.2	5.2	–
Male paratypes (n = 3)	1.5-1.7	2.2	3.6-4	8.7-9.2	2.7-3.3	7.4-7.9	10.1-10.4	5.2-5.6	–
Mean (n = 4)	1.6	2.2	3.8	9	2.9	7.7	10.3	5.3	–
Female allotype	1.7	2.5	3.7	8.8	3.1	6.9	–	–	7.6
Female paratypes (n = 4)	1.6-1.7	2.3-2.5	3.7-3.9	8.7-9.5	3-3.1	6.8-7.7	–	–	7.3-7.7
Mean (n = 5)	1.7	2.4	3.8	9	3	7	–	–	7.4

REMARK

Two specimens of *L. grandis* have been photographed in the field: both were found active (Fig. 12A, B), even singing (Fig. 12C), in the leaf litter. The photos show a large variation in coloration, especially for head, pronotum and cerci, which can be almost whitish.

Genus *Lerneca* Walker, 1869

TYPE SPECIES. — *Lerneca varipes* Walker, 1869 by original monotypy.

DISTRIBUTION. — Tropical areas of South and Central America.

DIAGNOSIS. — See Desutter-Grandcolas (1992a).

HABITAT. — Diurnal or nocturnal straminicolous species (Desutter-Grandcolas 1995).

Lerneca mitarakensis n. sp.
(Figs 9I, J, 13-15A-C; Table 8)

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TYPE LOCALITY. — French Guiana, Monts Tumuc-Humac, Massif du Mitaraka.

TYPE MATERIAL. — **Holotype by present designation. French Guiana** • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, Layon A; entre 54.4509 O 2.2357 N et 54.4547 O 2.2405 N; alt. entre 280 m et 365 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH281, de nuit; MNHN-EO-ENSIF10757.

Allotype. French Guiana • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka, D2; 54.451125 O 2.234786 N; alt. 300 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH078, de nuit; MNHN-EO-ENSIF10761.

Paratypes. 3 males, 4 females. French Guiana • 2 ♂ 2 ♀; Monts Tumuc-Humac, Massif du Mitaraka; same data and collectors as the holotype; fn. SH118, SH280, fn. SH119, SH282; MNHN-EO-ENSIF10755, 10758, 10759, 10762 • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, vers sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N; alt. entre 370 m et 470 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH411, de nuit; MNHN-EO-ENSIF10756 • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka, D2; 54.451125 O 2.234786 N; alt. 300 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH013, de jour; MNHN-EO-ENSIF10760 • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka, vers Sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N; alt. entre 370 m et 470 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn SH514, de nuit; MNHN-EO-ENSIF10763.

OTHER MATERIAL EXAMINED. — **French Guiana** • 1 ♂ juvenile; Monts Tumuc-Humac, Massif du Mitaraka, D2; 54.451125 O 2.234786 N; alt. 300 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH003, de jour; MNHN • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, Layon A; entre 54.4509 O 2.2357 N et 54.4547 O 2.2405 N; alt. entre 280 m et 365 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH120, de nuit; MNHN • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, layon A; entre 54.4509 O 2.2357N et 54.4547 O 2.2405N; alt. entre 280 m et 365 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn SH335, de nuit; MNHN • 1 ♀; same data as for preceding; fn SH110, de nuit; MNHN • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka, vers sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N; alt. entre 370 m et 470 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH538, de nuit; MNHN.

ETYMOLOGY. — Species named after the type locality.

DIAGNOSIS. — Species very close to *Lerneca fuscipennis* (Saussure, 1874) by male FW venation and genitalia, female FW and genitalia, and general coloration (Fig. 13). It differs from that species by details in coloration (PI and PII, sternites brown except for a wide longitudinal yellow band on each side), male genitalia (C-sclerite bifid, pseudepiphallic parameres as on Fig. 15C), and a bigger size (in particular lengths of FIII, TIII, pronotum, male FW female ovipositor).

HABITAT. — *Lerneca mitarakensis* n. sp. has been collected during the day and at night in the leaf litter.

DESCRIPTION

In addition to characters of the genus (Desutter-Grandcolas 1992a).

General morphology

TIII serrulation lacking between subapical spurs and apical spurs on both sides; on inner side, one spine between isa1 and isa2, one to two spines between isa2 and isa3 (mean 1.3), two spines between isa3 and isa4, seven to eight spines (mean 7.3) in males, six to seven spines (mean 6.3) in females above isa4; on outer side, zero to one spine between osa1 and osa2 (mean 0.5 in males, mean 0.8 in females), one to two spines between osa2 and osa3 (mean 1.8 in males, 1.5 in females), two to three (mean 2.5) spines between osa3 and osa4, 12-14 spines (mean 13) in males, 12-15 (mean 13.3) spines in females above osa4. Barsitarsomeres III serrulation: one to three inner spines (mean 2) and five to seven outer spines (mean 6 in males, mean 5.8 in females) in addition to apical spines.

Fig. 13. — *Lerneca mitarakensis* n. sp.: male paratype MNHN-EO-ENSIF10758 foraging in the leaf litter. Photo: Sylvain Hugel.

Coloration. Face black, up to lower margins of antennal pits, and behind eyes; under median ocellus, a short transverse yellow line, with upper and lower margins both straight. Ocelli circled with black. Vertex yellowish brown with six yellow longitudinal lines in addition to a variable, thin median line. Eyes grey brown, usually light yellow dorsally. Mouthparts black. Palpi coloration different in males and females (see below). Antennae brown with yellowish base; scapes yellowish brown, inner margin ivory. Pronotum LL black, anterior angle of lower margin possibly yellow; DD yellowish brown, anterior and posterior margins marked with yellow to light brown flecks, two light yellow stripes along lateral margins. Legs I and II yellow, tibiae and femora brown dorsally. FIII yellow with brown pattern: brown stripes on outer side and on base of inner side, brown spots on dorsal side and on inner apical part. TIII brown, lighter on ventral side; subapical spurs brown, light near apex. Tergites dark brown; sternites brown, with lateral part prolonged ventrally as two longitudinal yellow stripes. Cerci light brown, lighter at base.

Male

Maxillary palpi light brown. Metanotum brown with two median semicolon projections and an ellipse-shaped projection near posterior margin. FWs brown, speckled with lighter brown. Venation as in *L. fuscipennis*, especially for the oblique file vein with about 40 teeth close to plectrum; FW membrane longitudinally plicated between stridulatory veins. HWs longer than FWs by less than 1 mm. Tergite I yellow. Supra anal plate with two tufts of large bristles close to posterior margin. Subgenital plate brown.

Male genitalia

Quite similar to those of *L. fuscipennis* (compare Fig. 15A-C and D and Desutter-Grandcolas 1992a, figures 26-27), but spine of C-sclerite bifid, with a shorter branch on outer side; B-sclerite large and concave; outer margin denticulate; subapical spine on ventral margin of pseudepiphallic parameres more narrow than in *L. fuscipennis*.

Female

Apterous. Maxillary palpi with articles 4 and 5 lighter. Leg coloration lighter than in males. Tergites brown, speckled with yellow, lateral parts dark brown; metanotum and tergite 1 more spotted than other tergites. Supra anal plate brown. Subgenital plate small, truncated at apex, distal margin concave, not bisinuate. Ovipositor smaller than FIII (see measurements).

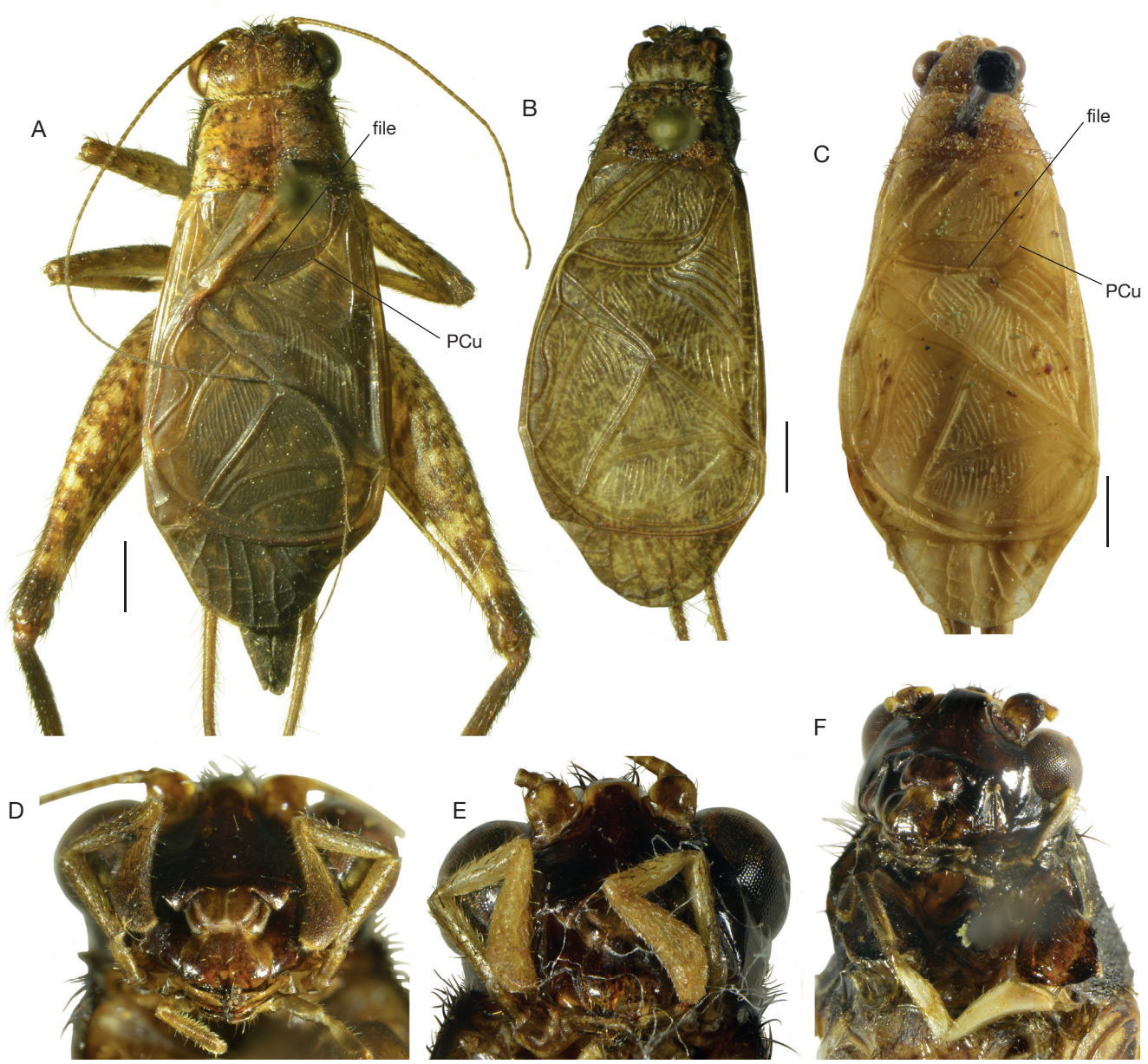

FIG. 14. — *Lerneca* ssp.: **A**-**C**, habitus in dorsal view of *Lerneca mitarakensis* n. sp. (**A**) and *Lerneca inalata inalata* (Saussure, 1874), from Mitaraka (**B**) and Venezuela (**C**); **D**-**F**, coloration of face and maxillary palpi in *Lerneca mitarakensis* n. sp., male (**D**) and female (**E**), and *Lerneca inalata inalata*, male from Mitaraka (**F**). Scale bars: 1 mm.

Female genitalia
Similar to those of *L. fuscipennis* (Fig. 9I, J).

Measurements (in mm)
See Table 8.

Variation
Few specimens with yellow legs I and II, even on top. Tibiae III not always lighter on ventral side, especially in females. Yellow stripes on pronotum usually extended on metanotum and tergites (female), or on forewings (male).

Lerneca inalata inalata (Saussure, 1874)
(Figs 9K, 14-15E-G, Tables 9, 10)

Diplacusta inalata Saussure, 1874: 435.

Diplacustes inalatus – Saussure 1878: 545.

Lerneca inalata – Kirby 1906: 63. — Hebard 1928a: 20. — Chopard 1968: 265. — Desutter-Grandcolas 1992a: 118.

REMARK
The most informative characters given by Saussure (1878) to separate *Lerneca inalata* (Saussure, 1874) from *L. fuscipennis*

TABLE 9. — *Lerneca inalata inalata* (Saussure, 1874), comparison of tibia III and basitarsomere III serrulation, between and above inner and outer subapical spurs, in specimens from French Guiana (Mitaraka, Kourou) and Venezuela (mean number in parentheses).

	isa 1-2	isa 2-3	isa 3-4	above 4	osa 1-2	osa 2-3	osa 3-4	above 4	tarsomere III i / o spines
Male Mitaraka	0-1 (0.5)	1-2 (1.5)	2	7	0-1 (0.5)	1-2 (1.5)	3-4 (3.5)	7-8 (7.5)	4 / 7-8 (7.5)
Male Kourou	1-2 (1.5)	1-2 (1.5)	2	8-9 (8.5)	2	2-3 (2.5)	2-3 (2.5)	12	2 / 7
Males (n=3) Venezuela	1	1-2 (1.2)	1-2 (1.8)	7-11 (9)	1-2 (1.2)	2-3 (2.4)	3-4 (3.4)	11-12 (11.4)	3-4 (3.4) / 5-8 (6.4)
Females (n=3) Venezuela	1 (1)	1-2 (1.33)	1-3 (2)	8-11 (9.33)	1-2 (1.17)	2-3 (2.5)	3-4 (3.5)	10-12 (10.67)	2-4 (3) / 6-8 (7.4)

TABLE 10. — Measurements of *Lerneca inalata inalata* (Saussure, 1874) specimens from French Guiana (Mitaraka, Kourou) and Venezuela.

	iod	pron L	pron w	pron L/w	FW L	FW w	FIII L	FIII w	TIII L	File	ovip L
Holotype Surinam (after Saussure 1874)	ND	1.5	3	0.5	9	4.5	8	ND	7	ND	–
Male Mitaraka	1.15	1.7	3.2	0.53	10	5.2	8.55	2.1	8.2	182	–
Male Kourou	1.15	1.9	3.1	0.61	9.3	5.1	8.1	1.9	7.5	200	–
Males											
Venezuela (n=3)	1.15-2	1.55-1.6	3.1-3.2	0.49-0.5	9.9-10.5	4.9-5.1	7.4-7.9	1.85-2.05	7-7.4	175-182	–
Mean	1.18	1.57	3.15	0.5	10.1	5.02	7.63	1.95	7.17	178.5 (n=2)	–
Females Venezuela	1.2-1.3	1.8-1.95	3.05-3.4	0.54-0.62	10.3-10.5	2.7-2.95	7.6-8.05	2.25-2.35	6.8-7.4	–	7.4-7.45
Mean (n=3)	1.23	1.85	3.22	0.57	10.4	2.82	7.78	2.3	7.23	–	7.42

(Saussure, 1878) are the shape of the pronotum (trapezoidal, twice as wide as long, against more quadrangular in *L. fuscipennis*), the shape of the FWs (very wide, against little widened in *L. fuscipennis*), the shape of the stridulatory file (transverse and straight, against short and oblique in *L. fuscipennis*) and the slender shape of the legs. These characters are similarly well-contrasted between *L. inalata inalata* and *Lerneca mitarakensis* n. sp. (see Figs 13, 14). All the subspecies recently described in *L. inalata* differ from the description given by Saussure for pronotum, FW and file shapes, as shown by figures in original papers (Gorochov 2007, 2014; Lima *et al.* 2016). The taxonomic status and relationships of these taxa will have to be reconsidered with the analysis of the type of *L. inalata*, and through molecular studies

TYPE MATERIAL. — **Holotype by original designation. Suriname** • 1 ♂ (ZMUH, not examined).

MATERIAL EXAMINED. — **French Guiana** • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, Savane roche; 54.4347 O 2.2387 N; alt. 390 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH206, de nuit; MNHN • 1 ♂; Roche de Kourou; MNHN.
Venezuela • 3 ♂ 9 ♀, identified Diplacustes varipes Walker, 1869 by A. Finot, ex coll. Finot; MNHN.

DIAGNOSIS. — See Saussure (1874) and Saussure (1878) for general morphology and coloration, and Desutter-Grandcolas (1992a) for characters of male and female genitalia.

HABITAT. — During the Mitaraka expedition, *L. inalata* has been found de nuit in bedrock grown savannas, i.e., in dryer and more open areas than the surrounding forest.

COMPLEMENT TO DESCRIPTION

General morphology
TIII serrulation as on Table 9. HWs longer than FWs in both males and females by 4-5 mm.

Male
Stridulatory file with 175 – 200 teeth (see Table 10).

Male genitalia
As in Desutter-Grandcolas (1992a, figures 28-29) and on Fig. 15E-G.

Female (after specimens from Venezuela)
Ovipositor straight, shorter than FIII and TIII. Subgenital plate short and transverse; distal margin almost straight.

Female genitalia
Copulatory papilla elongate and plicate, as in all the species of the genus; abruptly narrowed distally as in *Lerneca inalata beripocone* Lima, Martins & Lhano, 2016; widened before apex (Fig. 9K).

Measurements (in mm)
See Table 10.

REMARK

The specimens from French Guiana (Mitaraka, Kourou) and Venezuela correspond to Saussure's 1874 description of *L. inalata* except for their larger size (Table 9). The specimens originating from Venezuela are also lighter in coloration and their HWs go well beyond FW tip by a mean length of 4.4 mm. HWs are absent or rudimentary in the type of *L. inalata* according to Saussure's description, while they are shorter than FWs in Guianese specimens, showing a possible polymorphism for wing length, as documented in other cricket species. All observed specimens have very similar male genitalia (compare Desutter-Grandcolas 1992a, figures 28, 29 and Fig. 15E-G); female genitalia are known for Venezuelan specimens only (Fig. 9K).

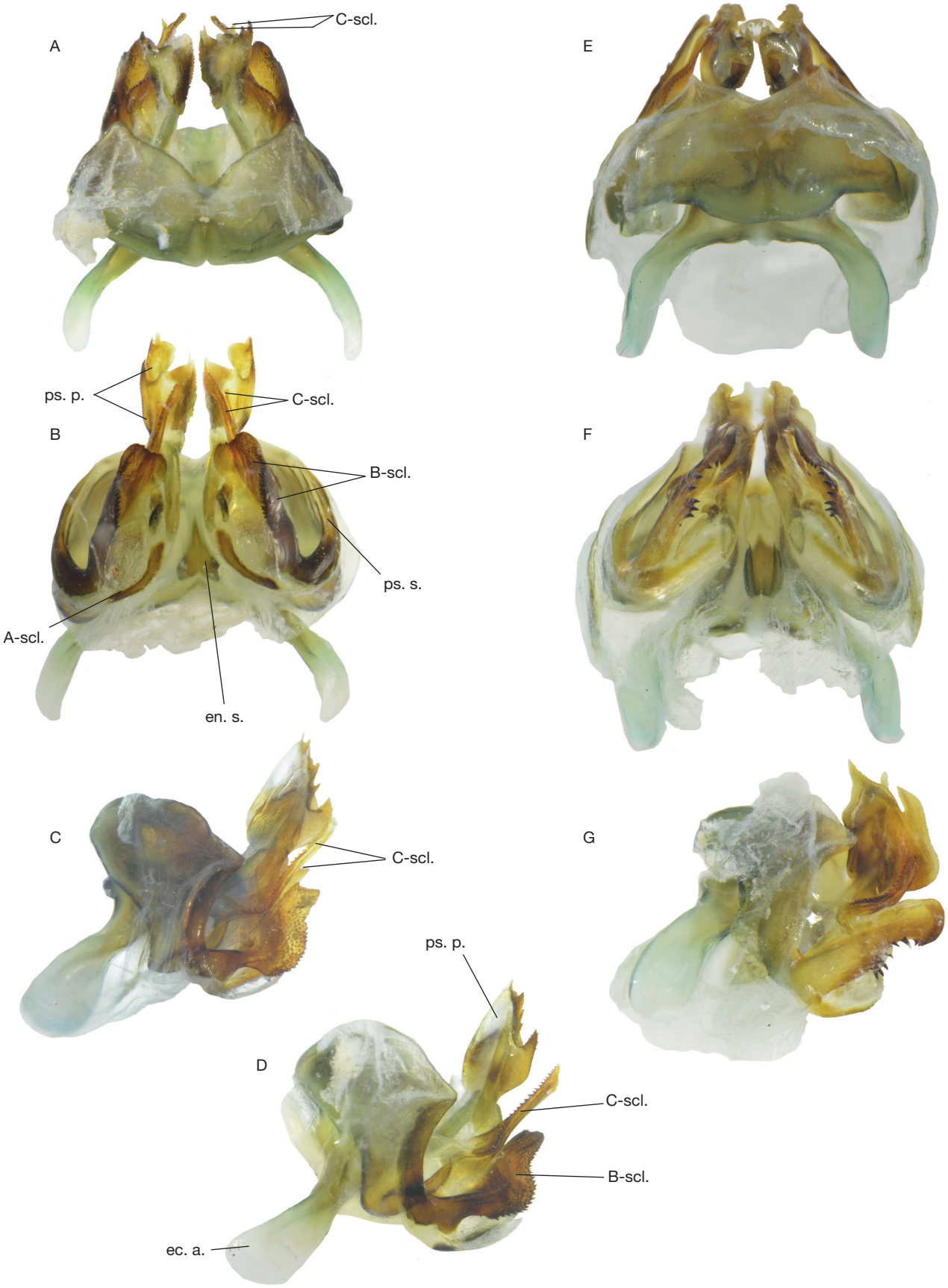

FIG. 15. — *Lerneca* ssp.: male genitalia in dorsal (**A**, **E**), ventral (**B**, **F**) and side (**C**, **D**, **G**) views of *Lerneca mitarakensis* n. sp. (**A**-**C**), *Lerneca fuscipennis* (Saussure, 1874) (**D**) and *Lerneca inalata inalata* (Saussure, 1874) (**E**-**G**) from Mitaraka. Abbreviations: see Material and methods.

Genus *Mellomima* Desutter-Grandcolas, n. gen.
(Figs 16-17)

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TYPE SPECIES. — *Mellomima guyanensis* Desutter-Grandcolas, n. sp. by present designation.

DISTRIBUTION. — French Guiana and Brazil (P. Souza Dias, pers. comm.).

ETYMOLOGY. — Taxon named after the genera *Mellopsis* Mews & Sperber, 2010 and *Guabamima* De Mello, 2010.

DIAGNOSIS. — Genus close to *Pizacris* Souza-Dias & Desutter-Grandcolas, 2015, *Mellopsis* Mews & Sperber, 2010 and *Guabamima* De Mello, 2010 (see Souza-Dias *et al.* 2015) by its male genitalia (pseudepiphallic sclerite and arms well reduced, pseudepiphallic parameres contrastingly very large and apical, endophallic apodeme well-developed and V shaped) and general morphological traits (tympana, head shape, tibial apical and subapical spurs, and serrulation). *Mellomima* Desutter-Grandcolas, n. gen. differs from all three genera by its coloration (uniform, except for a longitudinal yellow band from labrum tip to pronotum DD), its shiny appearance (body not at all setose), its pronotum shape (longer than wide, not transverse), its thin and elongate body shape, resembling *Amusodes* Hebard, 1928, with FIII filiform on half their length, and the presence of two bunches of thick setae on distal margin of male supra anal plate.
Mellomima Desutter-Grandcolas, n. gen. also differs from *Guabamima* by its reduced and rounded FWs and its very small pseudepiphallic arms in males; from *Mellopsis* by the wide lateral field of its FWs and the stocky shape of pseudepiphallic parameres; and from *Pizacris* by the coloration of the maxillary palpi (brown with only the upper and lower sides white), its partly overlapping FWs and the stocky shape of pseudepiphallic parameres.
Female unknown.

DESCRIPTION

General morphology
Medium size crickets with elongate and thin shape; body shiny and not setose (Fig. 16A). Fastigium wider than scape at base, thinner at apex, not separated from vertex by a transverse furrow or a shallow depression (Fig. 16B). Eyes (Fig. 16C, D) small, not protruding. Ocelli not reduced, set as a triangle; distance between lateral ocelli equal to distance between median and one lateral ocelli; median ocellus vertical, almost apical on vertex. Maxillary palpi (Fig. 16C) very elongate and extremely thin; article 3 slightly shorter than article 4; article 5 a little longer than article 4, regularly widened toward apex, truncate obliquely at apex. Pronotum longer than wide, not at all transverse (Fig. 16B). Legs elongate and very thin. TI with a small inner and a small outer tympanum; two apical, ventral spurs, small compared to basitarsomere I. TII with two ventral, apical spurs. TIII with 4/4 subapical spurs, very short and alternate, in TIII distal half; with 3/3 apical spurs (Fig. 16E, F): inner spurs longer than outer spurs; median and dorsal inner spurs subequal and very long, dorsal apical spur as long as half basitarsomere III; ventral and dorsal outer spur subequal, median outer spur twice as long as ventral and dorsal outer spurs. TIII serrulation strong between and above subapical spurs. FIII with a long filiform apical part, about half its total length (Fig. 16A). Basitarsomeres all very long and thin (Fig. 16A). Basitarsomeres III with small inner and outer dorsal spines, in addition to apical ones. Cerci shorter than abdomen.

Coloration
Uniform, except for a yellow longitudinal band running from labrum through the face, occiput, pronotum DD and perhaps tergite I. Legs almost completely uniformly colored.

Male
FWs (Fig. 16B, C) very short, not reaching tergite I distal margin; not completely overlapping dorsally; without glandular structures; left FW apparently not membranous. Venation: no stridulatory structures; lateral field with four longitudinal parallel veins. HWs lacking. Tergites without glandular structures. Supra anal plate quadrangular; a pair of strong setae bunches on distal margin, the setae regularly arranged according to their size (Fig. 16G). Subgenital plate short, high, deeply furrowed on apical third.

Male genitalia (Fig. 17)
Pseudepiphallic sclerite rounded and vertical, without extended rami; inner side of pseudepiphallic sclerite with a pair of projections that come against ectophallic apodemes; pseudepiphallic arms very short, A-sclerite well developed, having the shape of concave lamellas; pseudepiphallic parameres very small, located on inner margin of A-sclerites. Ectophallic fold very short; ectophallic apodemes short and wide, thinner toward apex. Endophallic sclerite short, with well developed endophallic apodemes (both a high longitudinal crest and a distal lamella). No phallic glands.

Female
Unknown.

Mellomima guyanensis Desutter-Grandcolas, n. sp.
(Figs 16-17; Table 11)

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TYPE LOCALITY. — French Guiana, Monts Tumuc-Humac, Massif du Mitaraka.

TYPE MATERIAL. — **Holotype by present designation. French Guiana** • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka vers sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N; alt. entre 370 m et 470 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH546, de nuit; molecular sample LDG557; MNHN-EO-ENSIF9754.

OTHER MATERIAL EXAMINED. — **French Guiana** • 1 juvenile; Monts Tumuc-Humac, Massif du Mitaraka, Layon A; entre 54.4509 O 2.2357 N et 54.4547 O 2.2405 N; alt. entre 280 m et 365 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH130, de nuit; molecular sample LDG551; MNHN.

ETYMOLOGY. — Species named after its origin in French Guiana.

DIAGNOSIS. — As for the genus.

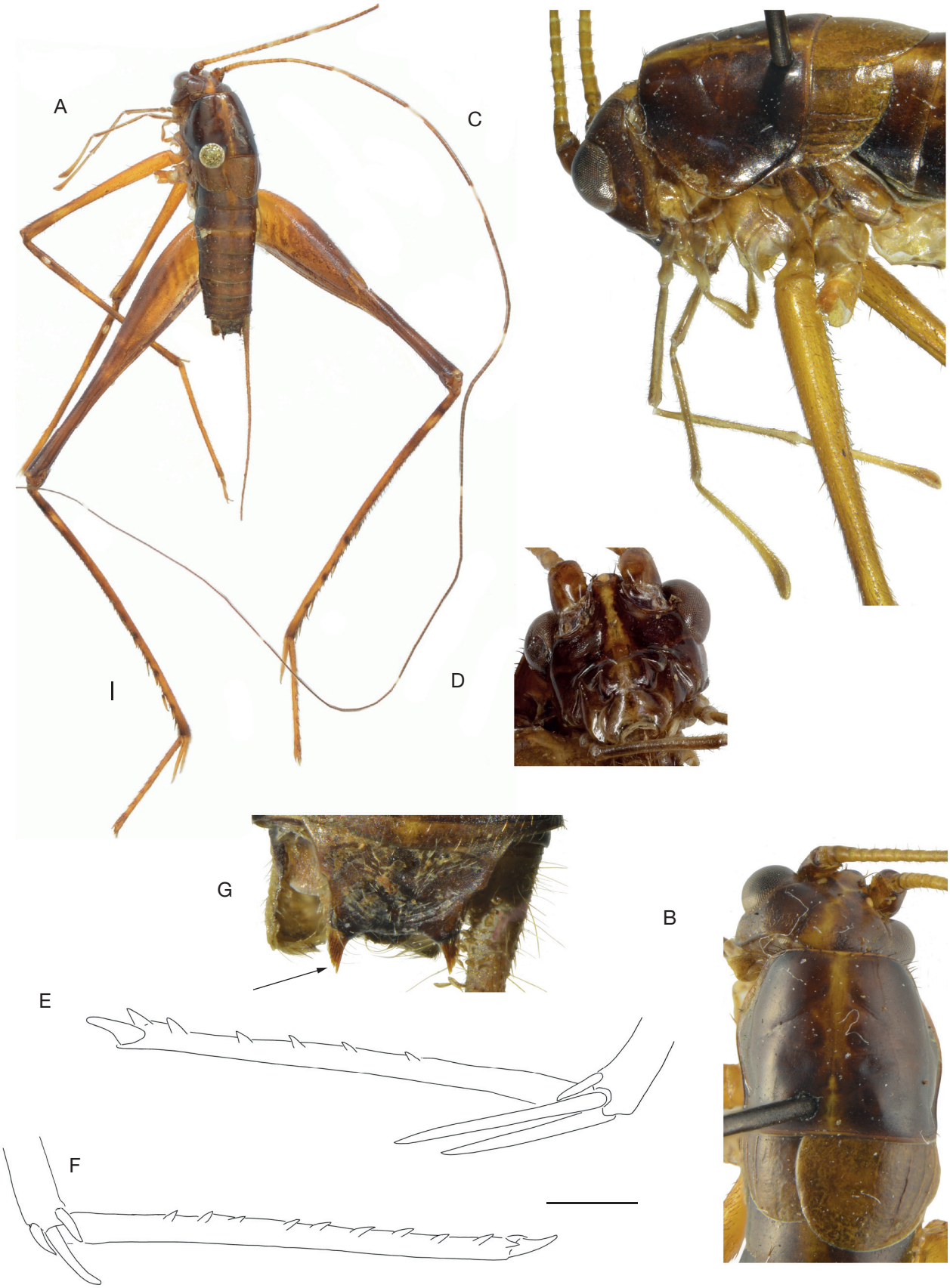

FIG. 16. — *Mellomima guyanensis* Desutter-Grandcolas,n. gen., n. sp.: male holotype MNHN-EO-ENSIF9754: **A**, habitus; **B**, **C**, head, pronotum and FWs, dorsal (**B**) and side (**C**) views; **D**, face; **E**, F, inner (**E**) and outer (**F**) apical spurs of hind tibia; **G**, supra anal plate, with two distal bunches of setae (arrow). Scale bars: 1 mm.

TABLE 11. — Measurements of *Mellomima guyanensis* Desutter-Grandcolas, n. gen., n. sp. (in millimetres).

	iod	pron L	pron w	FW L	FIII L	FIII w	TIII L	Tars1-III L
Holotype male	1.25	2.9	2.7	1.7	14.1	2.6	15.8	4.9

HABITAT. — The juvenile specimen has been collected by beating the leaf litter during the day, and the male has been found at night, in the leaf litter, in a windfall with dead branches. *Mellomima guyanensis*, n. gen., n. sp. could be a nocturnal straminicolous species.

DESCRIPTION

In addition to the morphological characters of the genus.

General morphology

TIII serrulation lacking between subapical spurs and apical spurs on both sides; on inner side, two spines between isa1 and isa2, three to four spines between isa2 and isa3, five spines between isa3 and isa4, 20-23 spines above isa4; on outer side, three to four spines between osa1 and osa2, five spines between osa2 and osa3, six spines between osa3 and osa4, 16-19 spines above osa4. Barsitarsomeres III serrulation: five inner spines and eight outer spines, in addition to apical spines.

Coloration

Head and pronotum reddish brown, except for yellow longitudinal band (Fig. 16A, B, D). Maxillary palpi light brown with white lower and upper margins. Antennae yellow at base, light brown with white rings on flagellum length; scapes brown with yellowish ventral side (Fig. 16D). Abdomen black brown, lighter dorsally without distinct yellow band or spot, except on tergite I. Sternites light brown. Cerci white basally, very light brown otherwise. FI, FII uniformly yellowish brown. TI, TII light reddish brown. FIII reddish brown, lighter at base; few unclear yellow spots on dorsal side (but see juvenile coloration). TIII yellowish brown, darker at base, with a dark ring and an irregular yellow ring near the knee; a small black brown spot at and near the base of each subapical spur; subapical spurs otherwise yellow with black apex; apical spurs yellowish with black apex. Tarsi yellowish to light yellowish brown.

Male

FWs not reaching tergite I distal margin (Fig. 16A). FWs as on Figure 16B, C; dorsal field venation with one faint, longitudinal vein. Supra anal plate as on Figure 16G.

Male genitalia

As on Figure 17.

Female

Unknown.

Juveniles

Longitudinal yellow band running from labrum to supra anal plate. FIII light yellow on dorsal base; outer side striated with yellow; upper side with many yellow rounded spots. Metanotum and tergite I uniformly brown; tergites 2 – 6 lighter with dark spots and yellow lines near anterior margin.

Measurements (in mm)

See Table 11.

Subfamily PARAGRYLLINAE Desutter, 1987

Tribe Aclodini Desutter-Grandcolas, n. tribe

Aclodae – Desutter-Grandcolas 1992b: 172 (name not available in the frame of the International Code of Zoological Nomenclature.)

TYPE GENUS. — *Aclodes* Hebard, 1928b.

REMARK

Saussure (1874) defined the genus *Heterogryllus* for one female originating from Brazil, described as *Heterogryllus ocellaris*. Two other species have been described in the genus, *Heterogryllus crassicornis* Saussure, 1878 and *Heterogryllus bordoni* Chopard, 1970, transferred to *Aclodes* Hebard, 1928 and *Paraclodes* Desutter-Grandcolas, 1992 n. stat. respectively (see Desutter-Grandcolas 1992b, 2014). In molecular-based phylogenetic analyses (Chintauan-Marquier *et al.* 2013, 2016; Warren *et al.* 2019), *Aclodes* and *Paraclodes* n. stat. constitute a well-separate clade within the Paragryllinae. According to the morphological characters used to define the 'Aclodae' group of genera (Desutter-Grandcolas 1992b), *Uvaroviella* Chopard, 1923 also belongs to this clade. Among other genera, *Heterogryllus*, *Aclodes*, *Paraclodes* n. stat. and *Uvaroviella* are presently classified in the subtribe Heterogryllina of the subfamily Phalangopsinae (Cigliano *et al.* 2020), a relationship not supported by the morphological characteristics of *Heterogryllus* (Saussure 1874, Desutter-Grandcolas pers. obs.). The tribe Aclodini Desutter-Grandcolas n. tribe is defined here for *Aclodes*, *Paraclodes* n. stat. and *Uvaroviella*.

DIAGNOSIS. — After Desutter-Grandcolas (1992b). Size small to medium. General coloration dark brown, marbled with black and light brown; face usually ornated with yellow marks; tibiae and apex of femura circled with yellow, outer side of femora striated with yellow. TI with a small, oval inner tympanum; no outer tympanum. TIII with 4/4 subapical spurs; with 2/3 apical spurs, inner ventral apical spur regressed. Basitarsomere III with only one row of dorsal spines (lost in *Paraclodes bordoni* (Chopard, 1970)). Head small and vertical, longer than wide in front view; fastigium very narrow; article 5 of maxillary palpi little widened toward apex, truncated straight. Wings never developed in both males and females. Cerci and antennae very long. Male genitalia: pseudepiphallic sclerite well-developed but flat, more or less triangular; median lophi flat, prolonging pseudepiphallic sclerite;

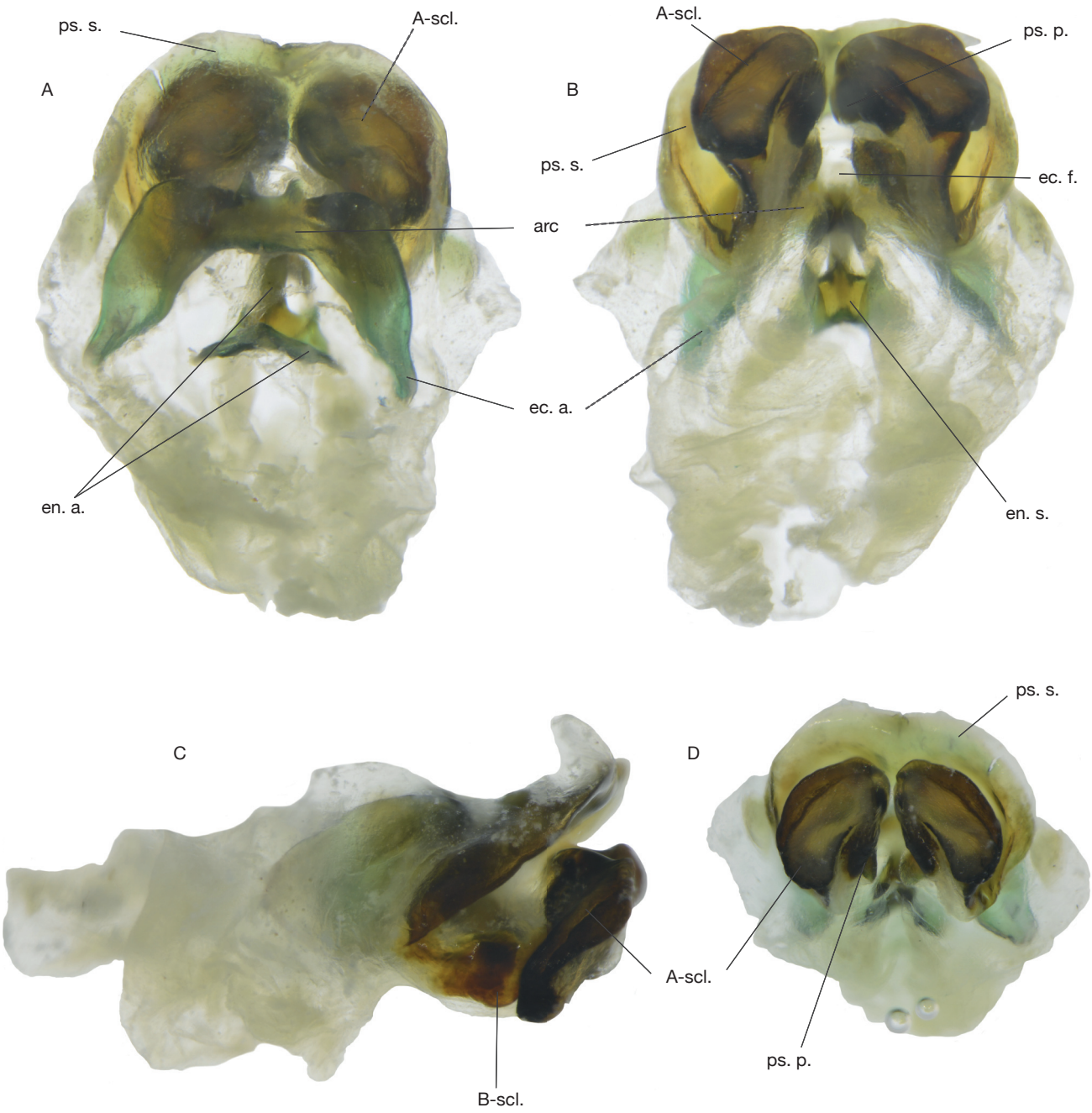

FIG. 17. — *Mellomima guyanensis* Desutter-Grandcolas, n. gen., n. sp.: male holotype MNHN-EO-ENSIF9754, male genitalia in dorsal (**A**), ventral (**B**), side (**C**) and apical (**D**) views. Abbreviations: see Material and methods.

rami elongated; endophallic sclerite long and narrow; endophallic apodemes (both lateral lamellae and longitudinal median crest) little developed. Females: FWs shorter than in males or absent. Ovipositor straigth, compressed laterally, with short apex. Female genitalia: copulatory papilla very small and little sclerotized, never plicated nor greatly elongate.

Aclodini Desutter-Grandcolas n. tribe is a very homogenous clade as far as morphology and male genitalia are concerned. Differences between genera and species relate mainly to male and female genitalia, size, length of FW and ovipositor, number of stridulatory teeth in males and face coloration.

Aclodini Desutter-Grandcolas n. tribe can be superficially confused with other genera of Paragryllinae, from which they can be easily separated by the number of TIII subapical and apical spurs, spines of basitarsomere III, FW shape in males, and male and female genitalia.

HABITAT. — Aclodini Desutter-Grandcolas n. tribe are nocturnal species, active at night on tree trunks. They hide during the day in cavities such as burrows, hollow trees, or cave entrance when available (see Desutter-Grandcolas 1992b).

INCLUDED GENERA. — *Aclodes* Hebard, 1928, *Paraclodes* Desutter-Grandcolas, 1992 n. stat., *Uvaroviella* Chopard, 1923 *s. str.* (see below). Gorochov (2007) subdivided *Uvaroviella* into nine subgenera (including *Aclodes* and *Paraclodes*), defined in an identification

TABLE 12. — Measurements of *Aclodes spelaea* Desutter-Grandcolas, 1992 specimens from Mitaraka (in millimetres).

	iod	pron L	pron w	FW L	FW w	FIII L	FIII w	TIII L
Males n = 2	2.1-2.3	4-4.05	5-5.15	9-10.2	5.95-6.2	18.7-18.85	4.6-4.8	16.9-17.2

key mostly after non-discrete characters of male genitalia added with variable wing characters. These taxonomic entities, which are based on a very incomplete study of the characters of the taxa, are at least inadequate for taxonomic studies and their monophyly cannot be reasonably assessed. In the *Orthoptera Species File Online*, *Aclodes* is restored as a genus, but neither the position of all the species described in *Aclodes* and subsequently transferred in diverse *Uvaroviella* subgenera by Gorochov (2007 and later papers), nor the status of the other subgenera are reconsidered (see Cigliano *et al.* 2020). To stabilize the classification and avoid non-monophyletic taxa, we here follow Cigliano *et al.* for *Aclodes* and similarly restore *Paraclodes* as an independent genus, using the original definitions of the two genera: several subgenera are consequently synonymized with *Aclodes* or *Paraclodes* n. stat. The analysis of the variation of their morphological characters will have to be really performed to further study species relationships.

Genus *Aclodes* Hebard, 1928
(Figs 18-20)

Aclodes Hebard, 1928b: 94. — Desutter-Grandcolas 1992b: 174.

Uvaroviella (*Aclodes*) – Gorochov 2007: 1185.

Uvaroviella (*Topacla*) Gorochov, 2007: 1189, **n. syn.**

Uvaroviella (*Euacla*) Gorochov, 2007: 1187, **n. syn.**

Uvaroviella (*Reacla*) Gorochov, 2007: 1187, **n. syn.**

Uvaroviella (*Holacla*) Gorochov, 2007: 1187, **n. syn.**

Acla Hebard, 1928b: 91. Synonymy in Desutter-Grandcolas (2014: 413) after Desutter-Grandcolas (1992b).

TYPE SPECIES. — *Aclodes nicuesa* Hebard, 1928b by original designation.

INCLUDED SPECIES. — *Aclodes affinis* (Gorochov, 2011), *Aclodes andensis* (Gorochov, 2007), *Aclodes antennalis* (Gorochov, 2007), Aclodes babyas (Otte & Perez-Gelabert, 2009), *Aclodes bora* Desutter-Grandcolas, 1992, *Aclodes cavicola* Chopard, 1954 (restored), *Aclodes chamacoru* (Nischk & Otte, 2000), *Aclodes crassicornis* (Saussure, 1878), *Aclodes demissa* (Gorochov, 2007), *Aclodes dispar* (Redtenbacher, 1892), *Aclodes feredemissa* (Gorochov, 2007), *Aclodes finitima* (Gorochov, 2007), *Aclodes grandis* Desutter-Grandcolas, 1992, *Aclodes herpon* Otte, 2006, *Aclodes hypxyros* (Nischk & Otte, 2000), *Aclodes infuscata* Desutter-Grandcolas, 1992, *Aclodes iserskyi* (Gorochov, 2011), *Aclodes leleupae* Chopard, 1970, *Aclodes maculatum* (Caudell, 1912), *Aclodes meioptera* (Gorochov, 2007), *Aclodes mococharu* Nischk & Otte, 2000, *Aclodes morona* (Gorochov, 2011), *Aclodes nebulosa* (Gorochov, 2007), *Aclodes orchestes* Otte, 2006, *Aclodes parantennalis* (Gorochov, 2007), *Aclodes pastaza* (Gorochov, 2007), *Aclodes pequegna* Desutter-Grandcolas, 1992, *Aclodes pequegnita* Desutter-Grandcolas, 1992, *Aclodes rumococha* Desutter-Grandcolas, 1992, *Aclodes scandens* Otte, 2006, *Aclodes spelaea* Desutter-Grandcolas, 1992, *Aclodes turbidus* Otte, 2006, *Aclodes ucayali* (Gorochov, 2011), *Aclodes vittatum* Chopard, 1937.
Incertae sedis. Aclodes cryptos (Nischk & Otte, 2000).

DISTRIBUTION. — Northern South America, Central America, Trinidad and Saint-Vincent (Cigliano *et al.* 2020).

DIAGNOSIS. — See Hebard (1928b) and Desutter-Grandcolas (1992a, b).

Aclodes spelaea Desutter-Grandcolas, 1992
(Fig. 18; Table 12)

Aclodes spelaea Desutter-Grandcolas, 1992b: 177. — Desutter-Grandcolas 1992a: 134.

Uvaroviella (*Topacla*) *spelaea* – Gorochov 2007: 1189.

TYPE LOCALITY. — French Guiana, Arataye, tributary to the Approuague river, 8 km NE from the saut Pararé, Nouragues research station.

TYPE MATERIAL. — **Holotype by original designation. French Guiana** • 1 ♂; Arataye, Afflt. Approuague, 8 km NE saut Pararé, station de recherche des Nouragues; 10.VI.1988; L. Desutter & P. Grandcolas leg.; abri sous roche; MNHN-EO-ENSIF3061.
Allotype. French Guiana • 1 ♀; same locality and collector as the holotype; 1.VI.1988; abri sous roche; MNHN-EO-ENSIF3062.
Paratypes: 37 males, 25 females. French Guiana • 1 ♂ 3 ♀; same locality as the holotype; IV.1988; L. Desutter leg.; MNHN-EO-ENSIF5310, 5263, 5265, 5286 • 11 ♂ 4 ♀; same locality as the holotype; V.1988; L. Desutter leg.; MNHN-EO-ENSIF5272, 5264, 5284, 5285, 5289, 5291-5293, 5307, 5308, 5311-5315 • 5 ♂ 6 ♀; same locality and collector as the holotype; V.1988; MNHN-EO-ENSIF5266-5271, 5290, 5309, 5316, 3139, 3140 (both males recorded) • 15 ♂ 11 ♀; same locality and collector as the holotype;. VI.1988; MNHN-EO-ENSIF5273-5283, 5287, 5288, 5294-5305, 5306 • 3 ♂; same locality and collector as the holotype; VII.1988; MNHN-EO-ENSIF5317, 5318, 5320 • 1 ♂; same locality as the holotype; XI.1989; P. Grandcolas leg.; MNHN-EO-ENSIF5319 • 1 ♂ 1 ♀; same locality as the holotype; ZIN.

MATERIAL FROM THE MITARAKA. — **French Guiana** • 2 ♂; Monts Tumuc-Humac, Massif du Mitaraka vers sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N. alt. entre 370 m et 470 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH403, 404, de nuit; MNHN, • 1 juvenile; same data as for preceding; fn SH405, de nuit; MNHN.

DIAGNOSIS. — See Desutter-Grandcolas (1992a: 134, 1992b: 177).

COMPLEMENT OF DESCRIPTION
General morphology
TIII serrulation lacking between subapical spurs 1 and 2 on both sides; on inner side, no spine between isa2 and isa3, two to five spines (mean 3.75) between isa3 and isa4, 9-14 (mean 11.25) spines above isa4; on outer side, one to two spines (mean 1.75) between osa2 and osa3, four spines between osa3 and osa4, 11-14 (mean 12.25) spines above osa4. Barsitarsomeres III serrulation: no inner spine and two outer spines, in addition to apical spines.

Coloration
Face coloration as on Fig. 18A.

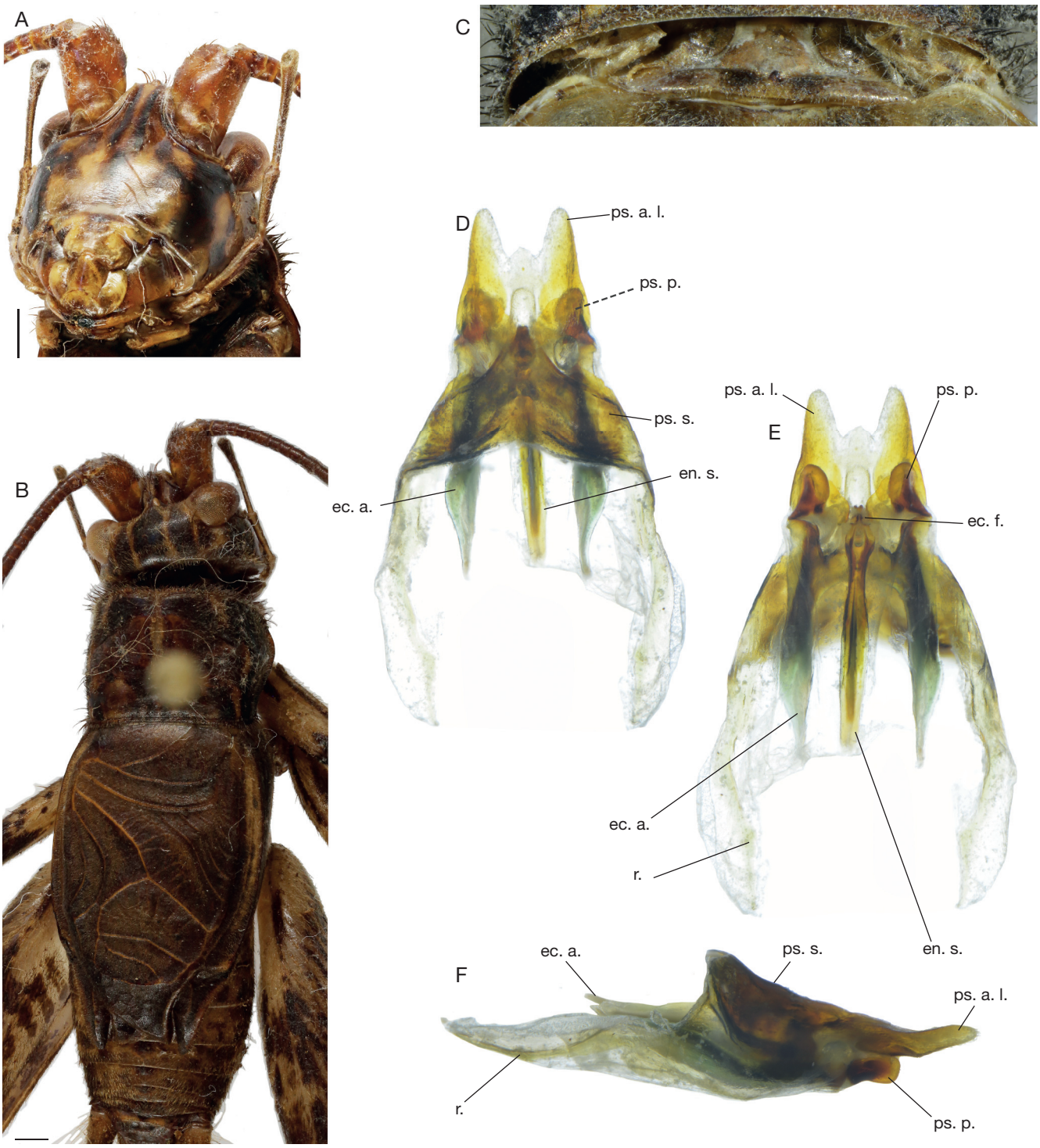

FIG. 18. — *Aclodes spelaea* Desutter-Grandcolas, 1992b from the Mitaraka, males SH403 (**A**, **B**) and SH404 (**C**-**F**): **A**, face coloration; **B**, male head, pronotum and forewings in dorsal view; **C**, male metanotum; **D**-**F**, male genitalia in dorsal (**D**), ventral (**E**) and side (**F**) views. Abbreviations: see Material and methods. Scale bar: 1 mm.

Male
FWs as on Fig. 18B. Metanotum with two rounded glandular areas (Fig. 18C).

Male genitalia
As on Fig. 18D-F.

Measurements (in mm)
See Table 12.

Variation
The two males from Mitaraka correspond to the description of *A. spelaea*, except for their larger size (see Table 12). The

FIG. 19. — *Aclodes pequegna* Desutter-Grandcolas, 1992b from the Mitaraka, male SH127 foraging at night on a tree trunk. Photo: Sylvain Hugel.

number of stridulatory teeth of their file (496 teeth, n = 1) fits the upper number found in the type series (385-495 teeth, mean 459, n = 11). Their FWs have the particular shape found in the species, but lateral part of dorsal field is much longer (Fig. 18B). Their male genitalia are also similar, though larger (Fig. 18D-F). Slight variations in coloration include, in one or both males, entirely dark LL, variously dark cerci, one or two yellow spots near anterior margin of supra anal plate, and entirely dark subgenital plate.

CALLING SONG

See Desutter-Grandcolas (1992a) and recordings in the MNHN sound library (data reference: MNHN-SO-2014-359 to 361).

Aclodes pequegna Desutter-Grandcolas, 1992 (Figs 19, 20; Table 13)

Aclodes pequegna Desutter-Grandcolas, 1992b: 179.

TYPE LOCALITY. — French Guiana, Arataye, tributary to the Approuague river, 8 km NE from the saut Pararé, Nouragues research station.

TYPE MATERIAL. — **Holotype by original designation. French Guiana** • 1 ♂; Arataye, Afflt. Approuague, 8 km NE saut Pararé, station de recherche des Nouragues; 8.VI.1988; L. Desutter leg.; MNHN-EO-ENSIF3063.

Allotype. French Guiana • 1 ♀; same locality and collector as the holotype; 5.VI.1988; MNHN-EO-ENSIF3028.

Paratypes: 2 males, 2 females. French Guiana • 1 ♀; same locality and collector as the holotype; V.1988; MNHN-EO-ENSIF5262 • 2 ♂ 1 ♀; same locality and collector as the holotype;.VI.1988; MNHN-EO-ENSIF5259-5261.

MATERIAL FROM THE MITARAKA. — **French Guiana** • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, Layon A; entre 54.4509 O 2.2357 N et 54.4547 O 2.2405 N; alt. entre 280 m et 365 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; de jour, fn. SH127; MNHN • 1 ♀; same data as for preceding; de jour, fn SH128; MNHN.

COMPLEMENT OF DESCRIPTION

General morphology

TIII serrulation lacking between subapical spurs 1 and 2 on both sides; on inner side, one spine in male, zero to one spine in female between isa2 and isa3, two to three spines in male, two spines in female between isa3 and isa4, six spines in male, five to six spines in female above isa4; on outer side, zero to one spine in male, no spine in female between osa1 and osa2, two spines in male, one spine in female between osa2 and osa3, three spines in male, two to three spines in female between osa3 and osa4, 12-13 spines in male, six to seven spines in female above osa4. Barsitarsomeres III serrulation: zero to two inner spines in male, no inner spine in female; two outer spines in male, one to two outer spines in female, in addition to apical spines.

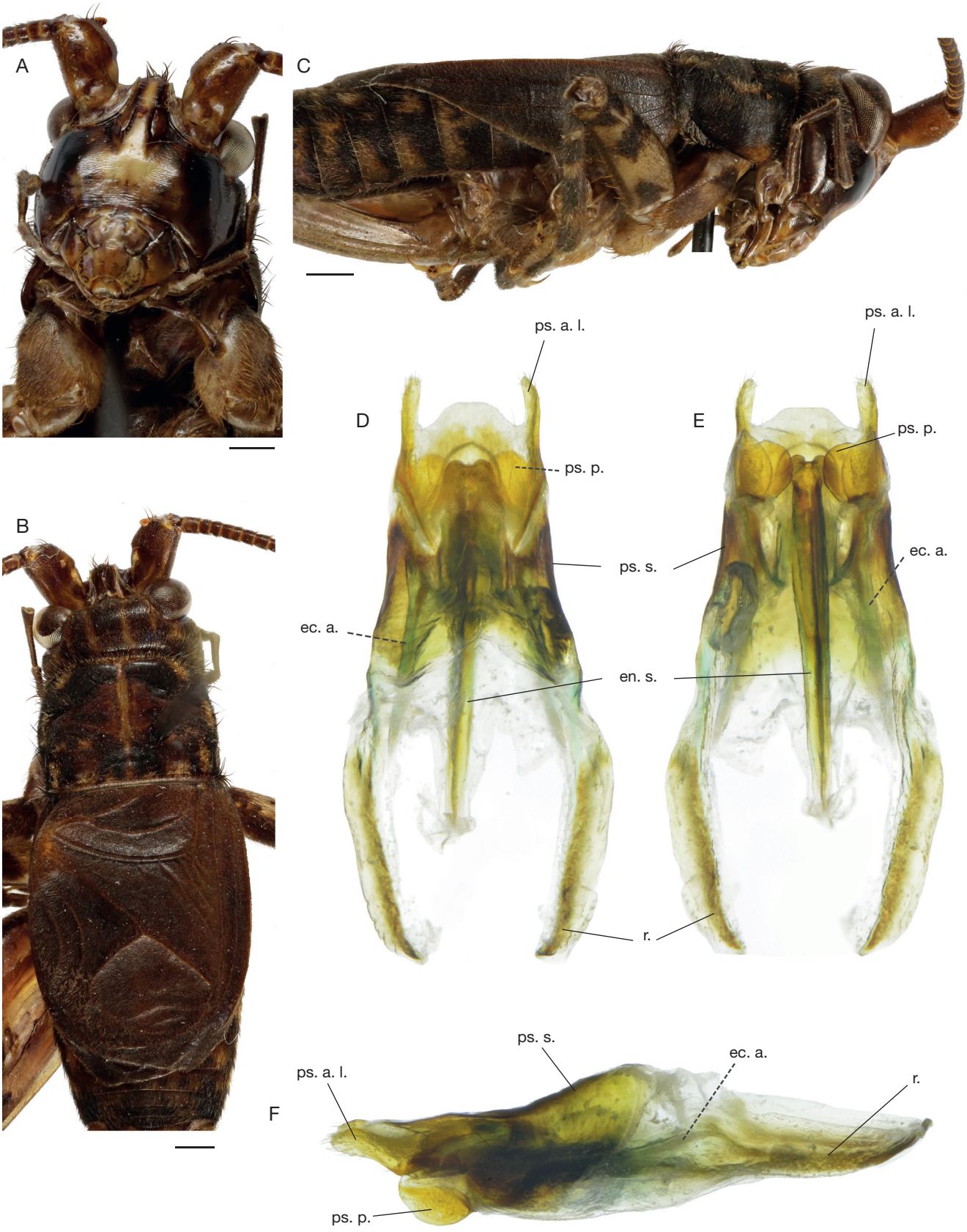

FIG. 20. — *Aclodes pequegna* Desutter-Grandcolas, 1992b from the Mitaraka: **A**, face coloration; **B**, **C**, male head, pronotum and forewings in dorsal (**B**) and side (**C**) views; **D**-**F**, male genitalia in dorsal (**D**), ventral (**E**) and side (**F**) views. Abbreviations: see Material and methods. Scale bars: 1 mm.

TABLE 13. — Measurements of *Aclodes pequegna* Desutter-Grandcolas, 1992 specimens from Mitaraka (in milimetres)

	iod	pron L	pron w	FW L	FW w	FIII L	FIII w	TIII L	tars1-III L	ovip L
Male	1.6	3	3.95	6.6	5.1	13.3	3.8	11.7	3.1	–
Female	1.4	2.9	4	1.7	–	11.4	3.6	9.6	2.7	9.2

Coloration
Face (Fig. 20A, B) with contrasting yellow pattern; last three articles of maxillary palpi (Fig. 20C) brown; scapes brown with three yellow lines on basal half of inner side, the innermost with a series of small teeth. Pronotum and FWs as on Fig. 20B, C: most lateral yellow line of vertex wider than the median one and extending on DD lateral margins.

Male
FWs (Fig. 20B, C) reaching tergite 6.

Male genitalia
As on Fig. 20D-F (compare with Desutter-Grandcolas 1992b Fig. 25).

Female
Distance between FWs longer than FW width, but shorter than FW length.

Measurements (in mm)
See Table 13.

Variation
The Mitaraka specimens are larger than the specimens originating from the type locality. They fit however the description of *A. pequegna*, with the following variation: FW venation (Fig. 20B, C) with two main veins in the harp, and six shorter ones (five in total in type material); stridulatory file with 282 teeth (304 in dissected paratype); lateral field with five longitudinal parallel veins (four in type material). In the male at hand, the genitalia are somewhat longer and more narrow than type genitalia; the posterior projection of pseudepiphallic distal margin is slightly more narrow and longer than in the Nouragues material, and in lateral view, dorsal margin of pseudepiphallic lophi is less angulate (Fig. 20D-F).

Genus *Paraclodes* Desutter-Grandcolas, 1992 n. stat.
(Figs 21-25)

Paraclodes Desutter-Grandcolas, 1992b: 136.

Uvaroviella (*Paraclodes*) – Gorochov 2007: 1187.

Uvaroriella (*Subacla*) Gorochov, 2007: 1185, **n. syn.**

TYPE SPECIES. — *Paraclodes guyanensis* Desutter-Grandcolas *n. nov.* for *Paraclodes aptera* (Chopard, 1912), with which *P. guyanensis* Desutter-Grandcolas, 1992, the designated type species of *Paraclodes*, was synonymized (Desutter-Grandcolas 1994: 324). Homonymy with *Paraclodes aptera* (Giglio-Tos, 1897).

INCLUDED SPECIES. — *Paraclodes aptera* (Giglio-Tos, 1897), *Paraclodes bordoni* (Chopard, 1970), *Paraclodes cunicula* Desutter-Grandcolas, n. sp., *Paraclodes furcata* Desutter-Grandcolas, n. sp., *Paraclodes guyanensis* Desutter-Grandcolas, n. stat., *Paraclodes nouragui* Desutter-Grandcolas, 1992, *Paraclodes subaptera* Gorochov, 2007.

DISTRIBUTION. — French Guiana, Venezuela, Panama.

DIAGNOSIS. — See Desutter-Grandcolas (1992a, b).

Paraclodes furcata Desutter-Grandcolas, n. sp.
(Figs 21-23A-C; Table 14)

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TYPE LOCALITY. — French Guiana, Monts Tumuc-Humac, Massif du Mitaraka.

TYPE MATERIAL. — **Holotype by present designation. French Guiana** • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, Layon A; entre 54.4509 O 2.2357 N et 54.4547 O 2.2405 N; alt. entre 280 m et 365 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn SH115, de nuit; MNHN-EO-ENSIF10778.
Allotype. French Guiana • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka; 54.451125 O 2.234786 N; alt. 300 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH040, D2, de nuit; MNHN-EO-ENSIF10785.
Paratypes: 6 males, 4 females. French Guiana • 1 ♂; same data as the holotype; fn SH264; MNHN-EO-ENSIF10779 • 1 ♀; same data as the allotype; fn SH041; MNHN-EO-ENSIF10786 • 2 ♂; Monts Tumuc-Humac, Massif du Mitaraka, D2; 54.451125 O 2.234786 N; alt. 300 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH071, SH073, de nuit; MNHN-EO-ENSIF10780, 10781 • 2 ♂ 3 ♀; Monts Tumuc-Humac, Massif du Mitaraka, vers sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N; alt. entre 370 m et 470 m; 23 II.et 10.III.2015; F. Legendre & S. Hugel leg.; fn. SH421, SH462, SH535, SH461, SH460, de nuit; MNHN-EO-ENSIF10782, 10783, 10787-10789 • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, entre C1000 et savane roche; entre 54.4419 O 2.23366 N et 54.4346 O 2.238655 N; alt. entre 415 m et 390 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH232, de nuit; MNHN-EO-ENSIF10784.

ETYMOLOGY. — Species named after the very long size of the pseudepiphallic lobes in male genitalia, making like a wide fork.

DIAGNOSIS. — Within the genus, species very close to *Paraclodes nouragui* Desutter-Grandcolas, 1992 n. stat., and *P. subaptera* Gorochov, 2007 n. stat., but fully apterous and with distinct male and female genitalia, and coloration. It can be separated from *P. nouragui* n. stat. by a bigger size, the lack of FWs in males, male genitalia (pseudepiphallic sclerite more narrow, pseudepiphallic apical lobes very long, slightly divergent, not crenulated at base; pseudepiphallic parameres more rounded and vertical), female ovipositor length and copulatory papilla (much bigger, higher, with a smaller aperture dorsally).

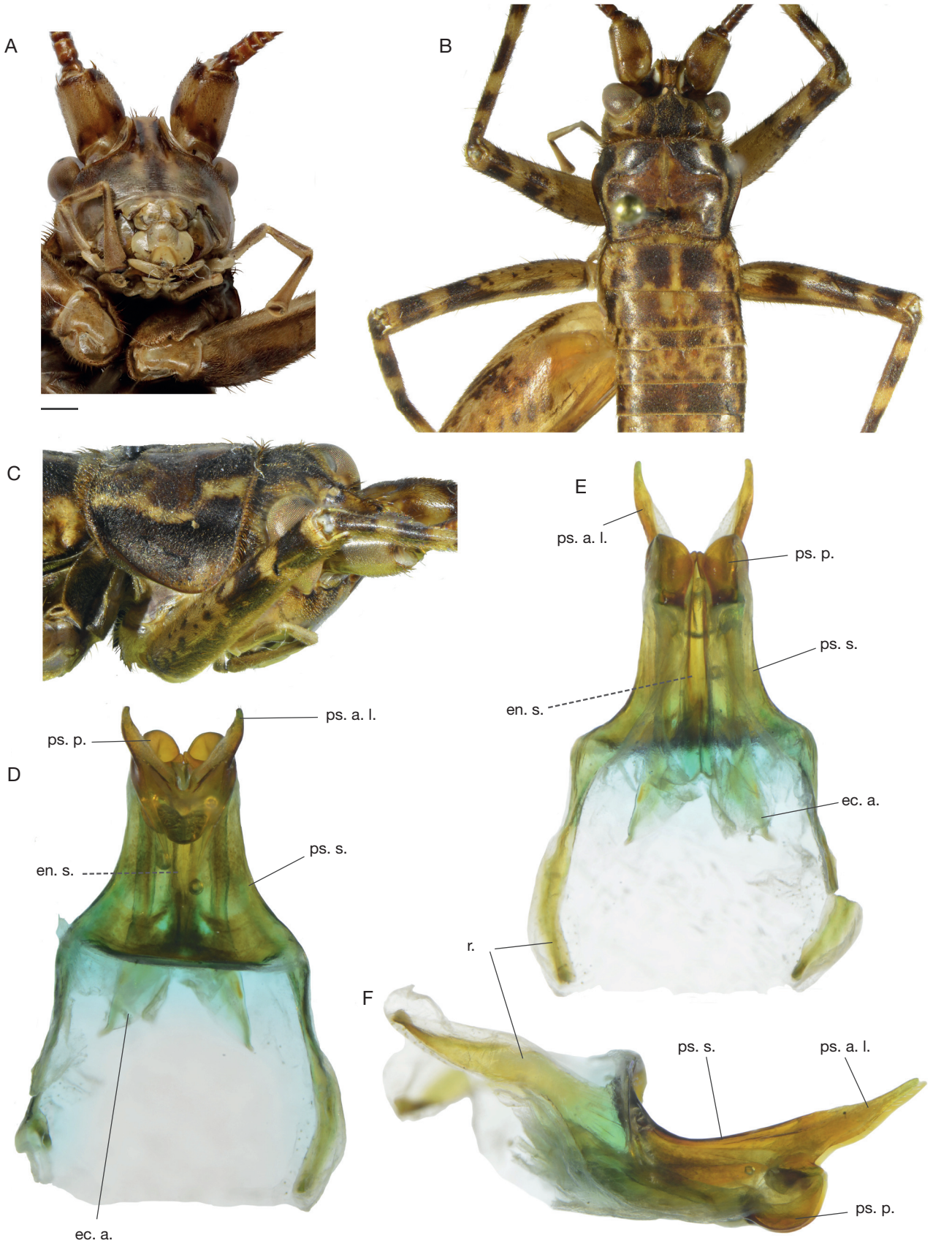

FIG. 21. — *Paraclodes furcata* Desutter-Grandcolas, n. sp. male paratype MNHN-EO-ENSIF10780: **A**, face; **B**, head, pronotum and first tergites in dorsal view; **C**, head and pronotum in side view; **D**-**F**, male genitalia in dorsal (**D**), ventral (**E**) and side (**F**) views. Abbreviations: see Material and methods. Scale bar: 1 mm.

TABLE 14. — Measurements of *Paraclodes furcata* Desutter-Grandcolas, n. sp. (in millimetres)

	iod	pron L	pron w	FIII L	FIII w	TIII L	Tar1-III L	ovip L
Male holotype	2.35	3.85	4.4	19.5	4.7	14.8	3.9	–
Male paratypes (n=3)	2.2-2.4	3.75-4.3	4.7-4.8	18.4-19.2	4.75-4.9	15.9-16.7	4.1-5.05	–
Mean (n=4)	2.3	4	4.65	18.9	4.8	16	4.4	–
Female Allotype	2.3	4	5.7	19.6	4.6	16.9	4.6	25.1
Female paratypes (n=2)	2.2-2.3	4	5.1-5.3	19.8-20.4	4.7-5.1	17.1-17.9	4-4.2	23-23.7
Mean (n=3)	2.27	4	5.4	19.9	4.8	17.3	4.3	23.9

P. furcata Desutter-Grandcolas, n. sp. can be separated from *P. subaptera* n. stat. by its male genitalia (pseudepiphallic apical lobes longer, distinctly narrowed and curved toward apex, separated by a very narrow distance at base, but this distance increasing sharply close to apical lobes base (Fig. 21D, E), pseudepiphallic parameres rounded and vertical, but half the size of *P. subaptera* n. stat.) and its female genitalia (higher, with a smaller aperture dorsally).

DESCRIPTION

In addition to the characters of the genus.

General morphology

Maxillary palpi not very elongated (Fig. 21A); article 3 shorter than article 4, article 5 the longest. DD posterior margin largely concave (Fig. 21B). TI with a small inner tympanum; outer tympanum absent. FIII with filiform apical part. TIII lacking spines between subapical spurs and apical spurs on both sides; on inner side, no spine in males and females between isa1 and isa2, zero to one spine (mean 0.1) in males, zero to two spines (mean 1) in females between isa2 and isa3, two to four spines (mean 2.7) in males, three to four spines (mean 3.6) in females between isa3 and isa4, six to eight spines (mean 7.1) in males, nine to ten spines (mean 9.4) in females above isa4; on outer side, one to two spines (mean 1.9 in males, 1.6 in females) between osa1 and osa2, two to four spines (mean 3 in males and females) between osa2 and osa3, three to six spines (mean 4.9) in males, three to seven spines (mean 5) in females between osa3 and osa4, 12-15 spines (mean 13.4) in males, 14-15 spines (mean 14.4) in females above osa4. Barsitarsomere III serrulation: no inner spines in males and females; three to four outer spines (mean 3.3) in males, three to five outer spines (mean 3.4) in females in addition to apical spines.

Coloration

Face (Fig. 21A) with a yellow line below median ocellus, bordered with a black line and separated from antennal pit by light brown; face light to dark brown, with two median, wide yellow spots and a small yellow spot below each antennal pit; an additional yellow spot, variable in size and color, close to inner angle of eye. Cheeks yellow, sometimes separated from subgena by light brown; a brown spot behind posterior margin of eye. Fastigium black dorsally, more or less marked with light brown or yellowish laterally (Fig. 21A). Head dorsum black; vertex with four thin yellow longitudinal lines, the most lateral ones joining a wider yellow band behind the eyes from which it is separated by a triangular brown spot (Fig. 21B). Scapes yellow, upper margin black brown; inner side darker with more or less delimited yellow spots. Antennae light brown. Maxillary palpi light yellow, last three articles marked with brown on lateral sides (Fig. 21A). Pronotum: anterior margin yellow; DD (Fig. 21B) with wide longitudinal yellow band, an irregular yellow band on each lateral margin, two and four black spots near anterior and posterior margins respectively, pyriform inscriptions ochre; LL black, anterior angle largely yellowish (Fig. 21C). FI, FII (Fig. 21B, C) yellow, inner and outer lower margins black brown; two black rings in distal half; a large black patch on each side and several small black spots dorsally and laterally. Metanotum with a yellow, longitudinal band, bordered by two lateral black brown spots, prolonged on tergites I and II by a very thin line (Figs 21B; 22). Legs as on Fig. 22: TI, TII yellow, lower side light ochre; four incomplete black rings. FIII yellow with black brown pattern: outer side with oblique black stripes and a longitudinal black line close to lower margin; two black rings on apical filiform part; inner side less marked with dark brown. TIII yellow, light ochre ventrally; with four incomplete black rings. Spurs and claws yellow with black apex. Tarsomeres 1 brown with yellow base; tarsomeres 2 yellowish; tarsomeres 3 brown. Abdomen variegated yellow, brown and black (Fig. 22). Cerci yellowish, densely covered with black setae.

Male

Antennae with bunches of long setae. Apterous. Supra anal plate brown with two transverse yellowish spots at base. Subgenital plate brown.

Male genitalia (Fig. 21D-F)

Pseudepiphallic sclerite distinctly long and narrow, as long as rami, with abruptly raised base. Pseudepiphallic apical lobes very long, as long as pseudepiphallic sclerite, regularly narrowed toward apex; regularly curved on outer side; inner side abruptly narrowed close to base, the indentation between lobes sharp and of regular width. Pseudepiphallic parameres with large lower part and small upper part; lower part lamella-like, almost vertical in side view, triangular in ventral view. Ectophallic apodemes only slightly longer than endophallic sclerite; apex abruptly widened, as in *P. nouragui* n. stat.. Endophallic sclerite and apodeme as in *P. nouragui* n. stat. and *P. subaptera* n. stat.

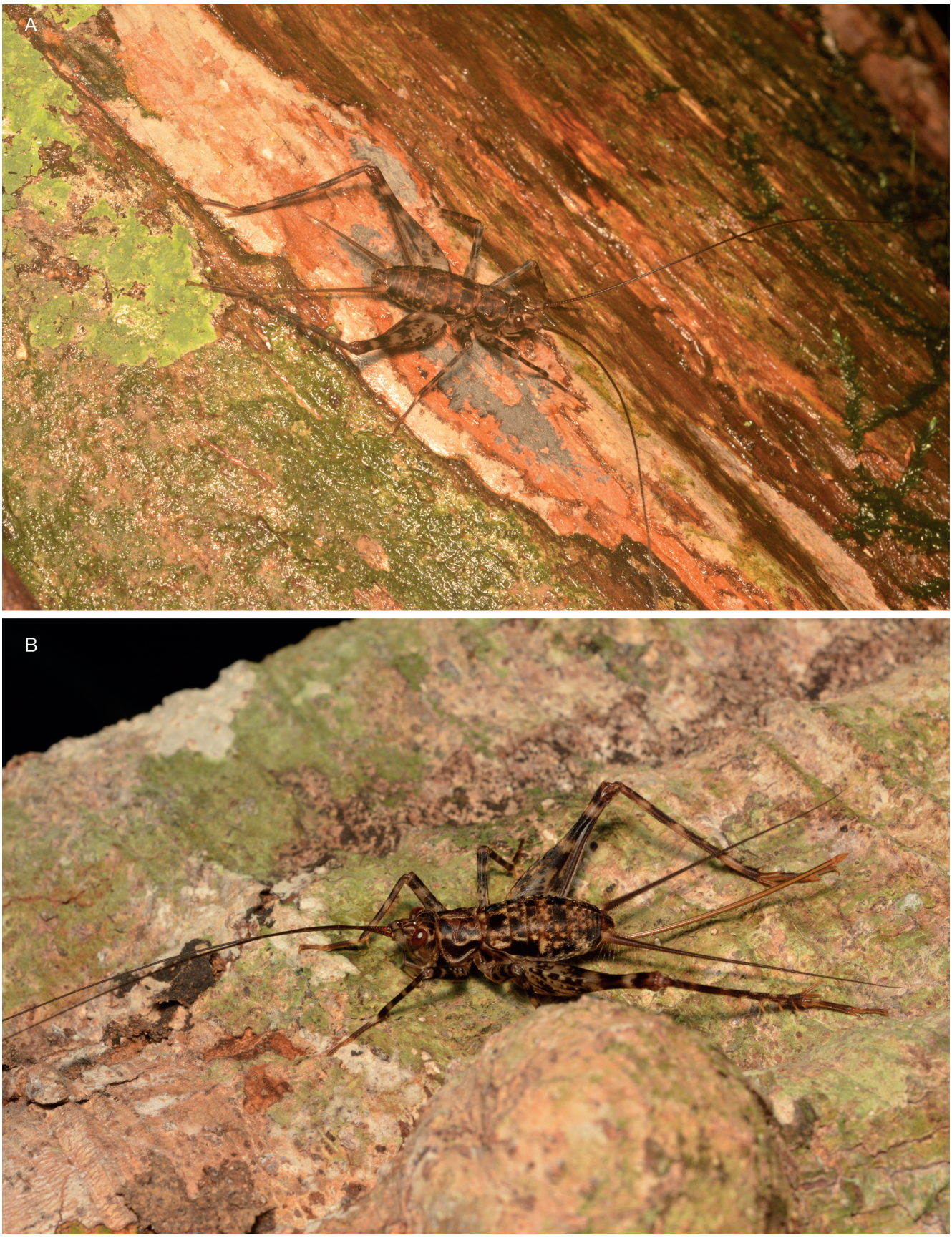

Fig. 22. — *Paraclodes furcata* Desutter-Grandcolas, n. sp. male holotype MNHN-EO-ENSIF10778 (**A**) and female MNHN-EO-ENSIF10785 (**B**) foraging at night on tree trunks. Photos: Sylvain Hugel.

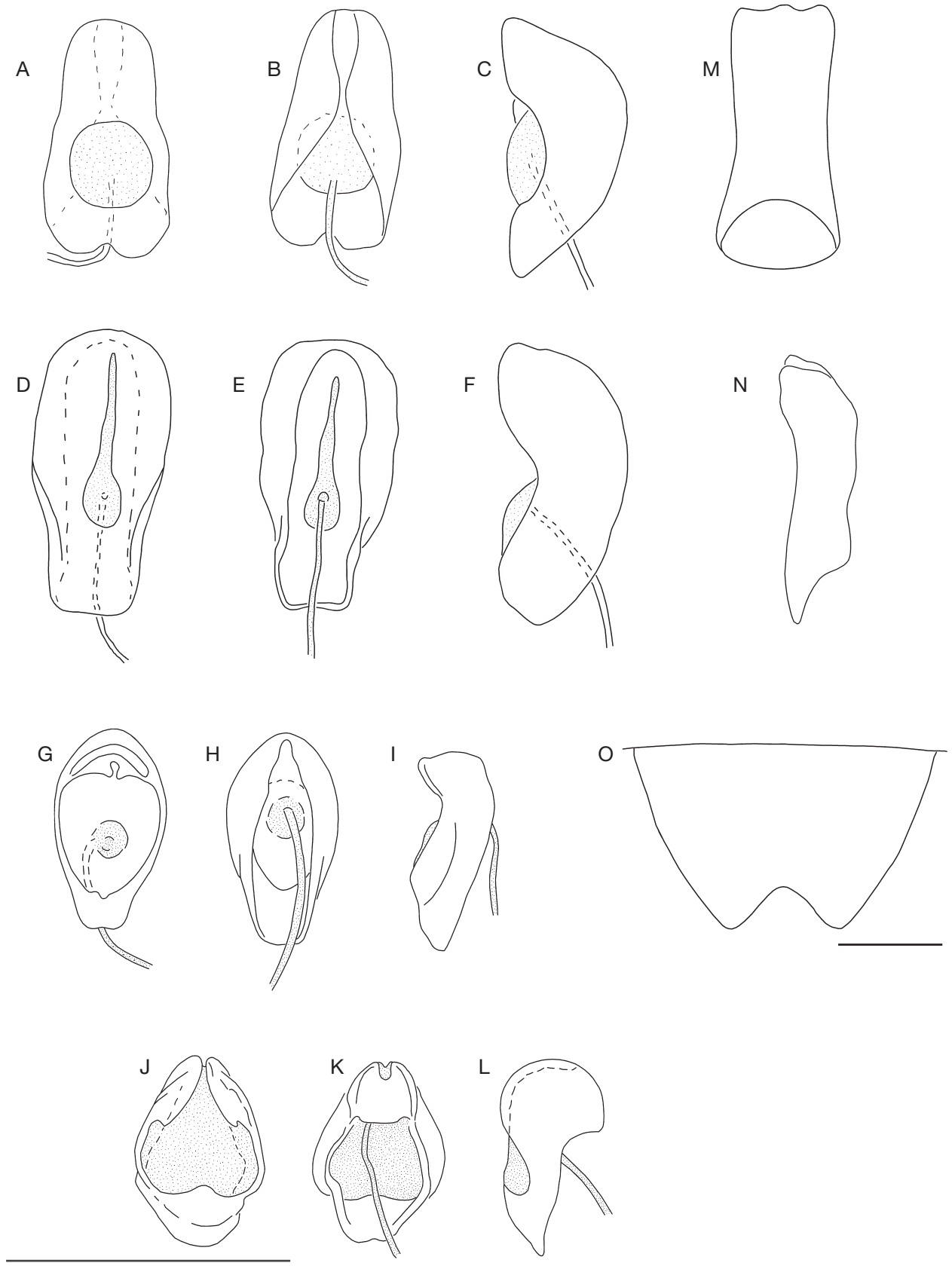

FIG. 23. — *Paraclodes* Desutter-Grandcolas, 1992 n. stat. and *Paragryllus* Guérin-Méneville, 1844 species from the Mitaraka: female copulatory papilla in ventral (**A**, **D**, **G**, **J**), dorsal (**B**, **E**, **H**, **K**, **M**) and side (**C**, **F**, **I**, **L**, **N**) views: **A**-**C**, *Paraclodes furcata* Desutter-Grandcolas, n. sp.; **D**-**F**, *Paraclodes subaptera* Gorochov, 2007 n. stat.; **G**-**I**, *Paraclodes cunicula* Desutter-Grandcolas, n. sp.; **J**-**L**, *Paraclodes* sp.; **M**, **N**, *Paragryllus elapsus* Desutter-Grandcolas, 1992a, female from Mitaraka; **O**, *Paragryllus elapsus* Desutter-Grandcolas, 1992a, female from Mitaraka, subgenital plate. Scale bars: 1 mm.

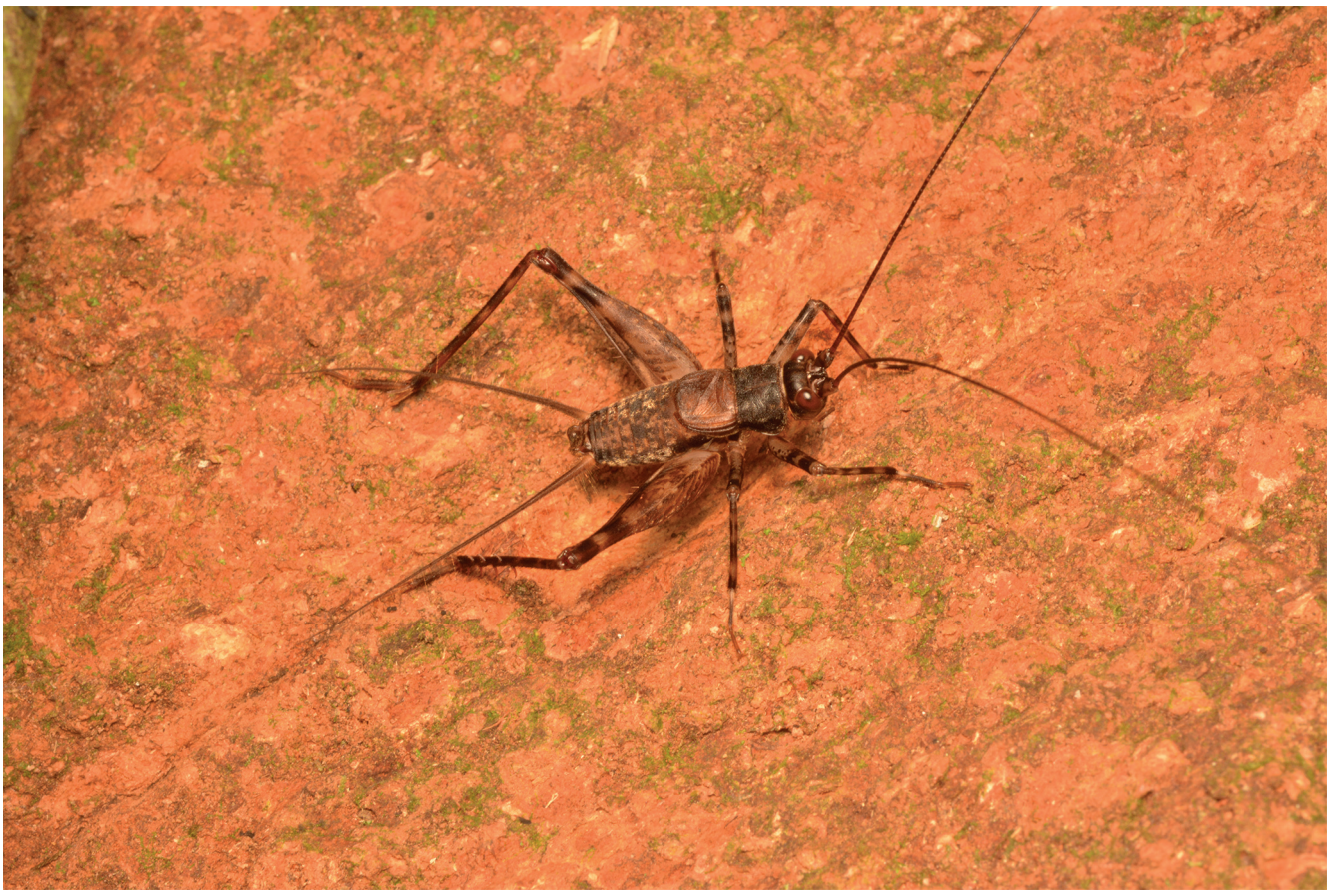

FIG. 24. — *Paraclodes* guyanensis Desutter-Grandcolas, 1992 n. stat. from the Mitaraka, male SH265 foraging at night on a tree trunk. Photo: Sylvain Hugel.

Female
Apterous, without even flap-like FWs laterally. Supra anal plate brown with two transverse yellowish spots at base. Subgenital plate short, transverse; distal margin straight, not sinuate. Ovipositor very long, much longer than FIII and TIII; apex outer sides crenulated.

Female genitalia (Fig. 23A-C)
Copulatory papilla broadly triangular in side view, higher laterally than the papilla of *P. nouragui* n. stat. and *P. subaptera* n. stat.; dorsal aperture smaller than in the last two species, and not as wide as the papilla over its whole length; papilla more narrow apically than basally in dorsal view (compare Fig. 23A-C and D-F).

Measurements (in mm)
See Table 14.

Variation
Face most often lighter in males than in females (depending on the condition of the specimens?). LL sometimes wholly black, without yellow near lower margin. Fastigium coloration from yellowish to dark brown.

Paraclodes guyanensis Desutter-Grandcolas, 1992
(Fig. 24; Table 15)

Laranda aptera Chopard, 1912: 404 (secondary homonymy of *Endacustes apterus* Giglio-Tos, 1897, valid as *Paraclodes aptera* (Giglio-Tos, 1897)).

Paraclodes guyanensis Desutter-Grandcolas 1992b: 189 (synonymy in Desutter-Grandcolas 1994: 324).

Uvaroviella (*Paraclodes*) *guyanensis* – Gorochov 2007: 1187.

TYPE LOCALITY. — French Guiana, Saint-Laurent-du-Maroni.

TYPE MATERIAL OF *LARANDA APTERA*. — **Holotype by original designation. French Guiana** • 1 female juvenile; St Laurent du Maroni; collection Le Moult; MNHN-EO-ENSIF6827.

TYPE MATERIAL OF *PARACLODES GUYANENSIS*. — **Holotype by original designation. French Guiana** • 1 ♂; Arataye, Afflt. Approuague, 8 km NE saut Pararé, station de recherche des Nouragues; 9.VI.1988; L. Desutter leg.; MNHN-EO-ENSIF3042.
Allotype. French Guiana • 1 ♀; same locality, date and collector as the holotype; MNHN-EO-ENSIF5422.
Paratypes: 66 males, 46 females. French Guiana • 7 ♂ 5 ♀; same locality and collector as the holotype; IV.1988; MNHN-EO-ENSIF5428, 5429, 5434, 5439, 5442, 5476, 5481, 5484, 5486, 5506-5508 • 3 ♂ 3 ♀; same locality and collector as the holotype;

TABLE 15. — Measurements of *Paraclodes guyanensis* Desutter-Grandcolas, 1992 n. stat. specimen from Mitaraka (in millimetres).

	iod	pron L	pron w	FW L	FIII L	FIII w	TIII L	Tars1-III	ovip L
Males (n = 2)	2-2.1	4-4.2	4.7-5.1	3.4-3.8	18.6-19.3	4.6-4.8	17-17.8	4.2-4.4	–
Female (n = 1)	2.3	4.4	5.3	0.3	20.9	5.6	18.2	4.5	20.9

TABLE 16. — Table 16. Measurements of *Paraclodes subaptera* Gorochov, 2007 n. stat. specimen from Mitaraka (in millimetres).

	iod	pron L	pron w	FIII L	FIII w	TIII L	ovip L
Female (n = 1)	1.9	–	–	18.2	4	17.2	20

V.1988; MNHN-EO-ENSIF5430, 5431, 5436, 5479, 5492, 5500 • 19 ♂ 8 ♀; same locality as the holotype; VI.1988; L. Desutter & P. Grandcolas leg.; MNHN-EO-ENSIF5424, 5426, 5427, 5433, 5435, 5443, 5454, 5469, 5475, 5478-5480, 5482, 5483, 5485, 5487-5491, 5493, 5495, 5496, 5501, 5502, 5504, 5505 • 4 ♂ 6 ♀; same data as preceding; VII.1988; MNHN-EO-ENSIF5425, 5437, 5438, 5440, 5441, 5544, 5494, 5497, 5498, 5503 • 1 ♀; same locality as the holotype; IX.1989; P. Grandcolas leg.; MNHN-EO-ENSIF5432 • 16 ♂ 11 ♀; Arataye, Afflt. Approuague, aval du saut Pararé; VII.1988; L. Desutter & P. Grandcolas leg.; MNHN-EO-ENSIF5509-5524, 5423, 5455-5464 • 4 ♂ 1 ♀; Sinnamary, Paracou, forêt sur sable blanc: VIII.1988; L. Desutter & P. Grandcolas leg.; MNHN-EO-ENSIF5526-5529, 5465 • 2 ♂ 3 ♀; same data as preceding; IX.1988; MNHN-EO-ENSIF5525, 5530, 5466-5468 • 8 ♂ 1 ♀; Sinnamary, Piste de St Elie, PK15; VIII.1988; L. Desutter & P. Grandcolas leg.; MNHN-EO-ENSIF5531-5538, 5474 • 1 ♂; Sinnamary, crique Grégoire; XI.1968; A. Delplanque & J. Bonfils leg.; MNHN-EO-ENSIF5539 • 1 ♂ 4 ♀; Saül; VIII.1988; L. Desutter & P. Grandcolas leg.; MNHN-EO-ENSIF5540, 5470-5473 • 1 ♂ 1 ♀; ZIN.

MATERIAL FROM THE MITARAKA. — **French Guiana** • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, Layon A; entre 54.4509 O 2.2357 N et 54.4547 O 2.2405 N; alt. entre 280 m et 365 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; SH265, de nuit; MNHN • 1 ♀; same data as for preceding; fn SH311, de nuit; MNHN • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, D2; 54.451125 O 2.234786 N; alt. 300 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH074, de nuit; MNHN.

REMARK

Specimens (see Fig. 24) fitting the description of *P. guyanensis* for their general shape and male FW size and venation (Desutter-Grandcolas 1992b, figure 37), face coloration (Desutter-Grandcolas 1992b, figure 41), the structure of male genitalia (Desutter-Grandcolas 1992b, figure 38), and female copulatory papilla (Desutter-Grandcolas 1992b, figure 44). They differ by their larger size (compare measurements) and number of stridulatory teeth (n = 118, n = 1, against 60-83 teeth in the specimens from the type locality), and a very short yellow line between median ocellus and the face (in the place of two yellow spots in type material). Male and female genitalia are too similar to *P. guyanensis* to consider these specimens as a different species, and the lack of samples through the guianese territory impedes a correct appreciation of species variation.

MEASUREMENTS (IN MM). — See Table 15.

Paraclodes subaptera Gorochov, 2007 n. stat.
(Fig. 23D-F; Table 16)

Paraclodes aptera Desutter-Grandcolas, 1992b: 194 (Secondary homonym of *Laranda aptera* Chopard, 1912, valid as *Paraclodes aptera* (Chopard, 1912)).

Uvaroviella (*Paraclodes*) *subaptera* Gorochov, 2007: 1187.

TYPE LOCALITY. — French Guiana, Arataye, Approuague tributary, Nourrague Research Station.

TYPE MATERIAL. — **Holotype. French Guiana** • 1 ♂; Arataye, Afflt. Approuague, 8 km NE saut Pararé, station de recherche des Nouragues, abri sous roche; 13.IV.1988; L. Desutter leg.; MNHN-EO-ENSIF5413.
Allotype. French Guiana • 1 ♀; same locality and collector as the holotype; 4.IV.1988; MNHN-EO-ENSIF5414.
Paratypes: 5 males, 2 females. French Guiana • 4 ♂ 1 ♀; same locality and collector as the holotype; IV.1988; MNHN-EO-ENSIF5415-5417, 5419, 5420 • 1 ♀; same locality as the holotype; V.1988; L. Desutter & P. Grandcolas leg.; MNHN-EO-ENSIF5421 • 1 ♂; same locality as the holotype; X.1988; P. Grandcolas leg.; MNHN-EO-ENSIF5418.

MATERIAL FROM THE MITARAKA. — **French Guiana** • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka, entre C100 et C1000; entre 54.44768 O 2.235494 N et 54.4419 O 2.233664 N; alt. entre 350 m et 415 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH177, de nuit; MNHN.

REMARK

Specimen fitting the description of *P. subaptera* n. stat. by its face coloration (Desutter-Grandcolas 1992b, fig. 43), the presence of very short lobe-like FWs, the relative size of ovipositor and FIII (but ovipositor longer, see Table 16) and the shape of copulatory papilla (compare Fig. 23D-F and Desutter-Grandcolas 1992b, figure 46). Its size extends the variation of the species, up to now known by type locality only.

MEASUREMENTS (IN MM). — See Table 16.

Paraclodes cunicula Desutter-Grandcolas, n. sp.
(Fig. 23G-I, 25; Table 17)

TYPE LOCALITY. — French Guiana, Monts Tumuc-Humac, Massif du Mitaraka.

TYPE MATERIAL. — **Holotype by present designation. French Guiana** • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, vers sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N; alt. entre 370 m et 470 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH406, de nuit; MNHN-EO-ENSIF10790.
Allotype. French Guiana • 1 ♀; same data as the holotype; fn. SH409; MNHN-EO-ENSIF10791.

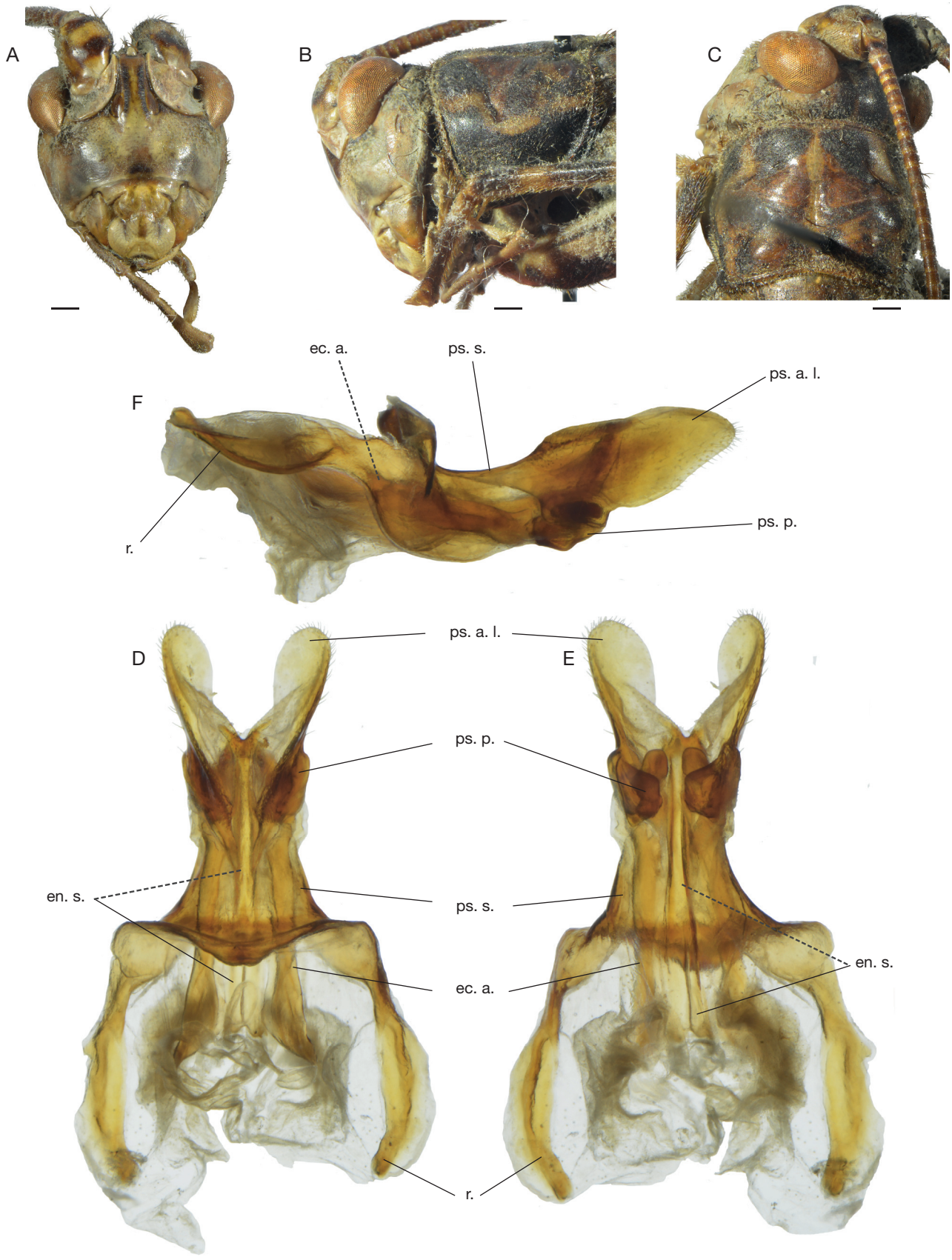

FIG. 25. — *Paraclodes cunicula* Desutter-Grandcolas, n. sp. male holotype MNHN-EO-ENSIF10790: **A**, face; **B**, **C**, head and pronotum in dorsal (**B**) and side (**C**) views; **D**-**F**, male genitalia in dorsal (**D**), ventral (**E**) and lateral (**F**) views. Abbreviations: see Material and methods. Scale bars: 1 mm.

TABLE 17. — Measurements of *Paraclodes cunicula* Desutter-Grandcolas, n. sp. (in millimetres).

	iod	pron L	pron w	FW L	FIII L	FIII w	TIII L	Tars1-III	ovip L
Male holotype	1.7	3.5	4.2	0.2	16.1	4	14	3.8	–
Female Allotype	1.8	3.5	4.2	–	16.9	4.5	14.3	3.4	14.6
Female paratype	1.8	3.6	4.6	–	16.3	4.4	14.3	3.4	13.8
Mean (n = 2)	1.8	3.55	4.4	–	16.6	4.45	14.4	3.4	14.2

TABLE 18. — Measurements of *Paraclodes* sp. female from Mitaraka (in millimetres).

	iod	pron L	pron w	FIII L	FIII w	TIII L	Tar1-III	ovip L
Female (n = 1)	2	3.9	4.8	18	4.9	17.1	3.9	15.3

Paratypes: 2 females. French Guiana • 2 ♀; same data as the holotype; fn SH408, SH459; MNHN-EO-ENSIF10792, 10793. Type material more or less covered with fungi, not in good condition.

ETYMOLOGY. — Species named after the shape of pseudepiphallic apical lobes in male genitalia, which resembles the ears of a rabbit (cunicula, in Latin). Name in apposition.

DIAGNOSIS. — Within the genus, small species close to *P. subaptera* n. stat. by the lack of developed FWs in males and females, and by the general shape of male and female genitalia. It is characterized by its male genitalia (pseudepiphallic sclerite long and very narrow, more so than in *P. subaptera* n. stat.; pseudepiphallic lobes very long and wide, twisted over their length, resembling rabbit ears; pseudepiphallic parameres short, the lower part narrowed toward apex, the upper part short and broadly squared), its low number of dorsal spines on TIII and basitarsomere III, and its female genitalia (lateral margins rounded in dorsal view, dorsal aperture narrowed distally).

DESCRIPTION

In addition to the characters of the genus (Desutter-Grandcolas 1992b).

General morphology

Size small. Maxillary palpi not very elongated (Fig. 25A); article 3 shorter than article 4, article 5 the longest. DD posterior margin largely concave (Fig. 25C). TI with a small inner tympanum; outer tympanum absent. FIII with filiform apical part. TIII lacking spines between subapical spurs and apical spurs on both sides; on inner side, no spine in male and females between isa1 and isa2, and between isa2 and isa3, three spines in male, two spines in females between isa3 and isa4, five spines in male, three to five spines (mean 4.2) in females above isa4; on outer side, one spine in male and females between osa1 and osa2, two spines in male and females between osa2 and osa3, five spines in male, four to five spines (mean 4.4) in females between osa3 and osa4, eight to ten spines (mean 9) in male, nine to 12 spines (mean 10.2) in females above osa4. Barsitarsomere III serrulation: no inner spines in male and females; two outer spines in male, three outer spines in females, in addition to apical spines.

Coloration

Face (Fig. 25A) variably yellow, from almost fully yellow below antennal pits to light brown with large yellow spots and indistinct brownish areas close to epistomal suture and below anterior angles of eye; with a yellow line below median ocellus, bordered with a black line and separated from antennal pit by a short light yellow and light brown coloration. Cheeks light yellowish, with light brown area behind posterior margin of eye. Fastigium black (Fig. 25C), ocelli ivory. Head dorsum black; vertex with five indistinct yellow longitudinal lines (Fig. 25C). Anterior side of scapes with a transverse yellow spot, surrounded with black brown. Antennae brown, apical margin of articles yellow. Maxillary palpi very light yellow or brown, last three articles marked with brown on lateral sides (Fig. 25A). Pronotum: anterior margin light brown; DD (Fig. 25C) with a wide longitudinal yellow band over its whole length, bordered by two wide black spots close to anterior margin, and an irregular yellow band on each lateral margin; DD otherwise light brown, black brown and black, with yellowish posterior margin; LL black, lower margin bordered with light brown (Fig. 25B). Metanotum with a yellow, longitudinal band, bordered by two lateral black brown spots, prolonged on tergites I and II by a very thin line. Legs: TI, TII yellow, lower side light ochre; four black rings. FI, FII light yellow, inner and outer lower margins black; one and two (respectively) black rings in distal half; a large black patch on each side and several small black spots dorsally and laterally. FIII yellow with black brown pattern: outer side with many oblique black stripes and a longitudinal black line close to lower margin; two black rings on apical filiform part; inner side less marked with dark brown. TIII black brown with a bright yellow transverse line close to the knee; irregular yellow flecks on the sides, more or less prolonged dorsally. Spurs and claws yellowish with brown apex. Tarsomeres 1 brown with yellow base; tarsomeres 2 and 3 light brown. Cerci light brown.

Male

Antennae without bunches of strong and long setae. Apterous. Supra anal plate brown with two indistinct transverse yellowish spots at base. Subgenital plate brown; very long, going beyond supra anal plate distal margin by half of its length.

Male genitalia (Fig. 25D-F)
Pseudepiphallic sclerite very narrow dorsally, abruptly raised anteriorly. Pseudepiphallic apical lobes very wide and flat, separate by a narrow U-shaped depression. Pseudepiphallic parameres small; lower part wider on its outer side, acute distally; upper part close to midline, broadly squared. Rami wide, slightly concave, widened anteriorly and posteriorly. Ectophallic apodemes reaching only rami mid length; apex abruptly widened, triangular and acute.

Female
Apterous, without even flap-like FWs laterally. Supra anal plate brown with yellowish base. Subgenital plate short, transverse; distal margin straight, not sinuate. Ovipositor very short, shorter than FIII; apex outer sides very faintly crenulated, almost smooth.

Female genitalia (Fig. 23G-I).
Copulatory papilla small, close to that of *P. subaptera* n. stat., but apical two-third of the papilla more rounded than quadrangular in dorsal view, lower and straighter in side view; dorsal aperture regularly narrowed toward distal margin; apex small, with a distinct sclerotized edge.

Measurements (in mm)
See Table 17.

Paraclodes sp.
(Fig. 23J-L; Table 18)

MATERIAL EXAMINED. — **French Guiana** • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka, vers sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N; alt. entre 370 m et 470 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; de nuit, fn. SH407; MNHN.

REMARK
We separate here one female which differs by its very short ovipositor (less than 16 mm), its female copulatory papilla (short, rounded with a laterally strongly compressed apex: see Fig. 23J-L), and its size (see Measurements). The specimen is in very bad condition, but clearly belongs to a new species that will have to be described with additional material.

MEASUREMENTS (IN MM). — See Table 18.

Tribe Paragryllini Desutter, 1987

Subtribe Neoaclina Desutter, 1988

TYPE GENUS. — *Neoacla* Desutter, 1988.

DIAGNOSIS. — See Desutter (1987, 1988).

Genus *Ectecous* Saussure, 1878

TYPE SPECIES. — *Ectecous hedyphonus* Saussure, 1878 by original monotypy.

DISTRIBUTION. — Northeastern South America (French Guiana, Brazil).

DIAGNOSIS. — See Desutter-Grandcolas (1992a).

Ectecous lamelliferus Desutter-Grandcolas, n. sp.
(Figs 26, 27; Table 19)

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TYPE LOCALITY. — French Guiana, Monts Tumuc-Humac, Massif du Mitaraka.

TYPE MATERIAL. — **Holotype by present designation**. **French Guiana** • 1 ♂; Monts Tumuc-Humac, Massif du Mitaraka, D2; 54.451125 O 2.234786 N; alt. 300 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH028, de nuit; MNHN-EO-ENSIF10794.
Paratypes: 2 males. French Guiana • 2 ♂; Monts Tumuc-Humac, Massif du Mitaraka, vers sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N; alt. entre 370 m et 470 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH422, SH423, de nuit; MNHN-EO-ENSIF10795, 10796.

ETYMOLOGY. — Species named after the lamella-shape of pseudepiphallic apical lobes in male genitalia.

DIAGNOSIS. — Species very close to *E. tenebrosus* Desutter-Grandcolas, 1992 by its size, coloration, male FW size and venation, but separated from that species by male genitalia (as in *E. tenebrosus*, except for lamella-shaped dorsal valves), its slightly more narrow FWs (length/width ratio 1.42, n = 3, against 1.53, n = 6, in *E. tenebrosus*), with fewer stridulatory teeth (232 against 259-264, n = 6, mean 262, in *E. tenebrosus*).

DESCRIPTION
In addition to the character of the genus.

General morphology
Size only slightly bigger than *E. tenebrosus*. Fastigium, ocelli and palpi as in *E. tenebrosus*; with lateral ocelli separate by a distance shorter than their own width.

Coloration
General coloration as on Fig. 26. Face as in *E. tenebrosus:* black, with reversed Y-shaped line under median ocellus, a small yellow spot under antennal pit (in an area with many long setae), and a wider yellow area under lower angle of eye; but median yellow line thinner between antennal pits and spot under anterior angle of eye smaller (Fig. 27A). Maxillary palpi as in *E. tenebrosus*, but article 5 darker (Fig. 27A). Vertex (Fig. 27B) as in *E. tenebrosus*, with the most lateral yellow lines (behind the eyes) prolonged as a semi-circular line on the occiput (unnoticed in *E. tenebrosus* description). Pronotum (Fig. 27B, C) and legs (Fig. 26) as in *E. tenebrosus*.

FIG. 26. — *Ectecous lamelliferus* Desutter-Grandcolas, n. sp., male paratype MNHN-EO-ENSIF10795 foraging at night on a tree trunk. Photos: Sylvain Hugel.

TABLE 19. — Measurements of *Ectecous lamelliferus* Desutter-Grandcolas, n. sp. (in millimetres).

	iod	pron L	pron w	FW L	FW w	FIII L	FIII w	TIII L	Tars1-III
Male holotype	1.4	2.5	3.9	7.8	5.4	12.7	2.9	10.7	2.4
Paratype male (n=2)	1.4	2.5-2.6	4.3	8-8.8	5.8-6.1	12-12.2	3.1	10.3-10.8	2.7-2.8
Mean (n=3)	1.4	2.53	4.17	8.2	5.77	12.3	3.03	10.6	2.63

Male
FWs covering abdomen up to half supra anal plate, as in *E. tenebrosus*. Venation (Fig. 27D): harp with 6 – 8 veins, mirror crossed by 4 – 5 concentric veins. Stridulatory file with 232 teeth (n = 1). Subgenital plate short, truncated apically. Distal margin of supra anal plate with many long and thick setae (Fig. 27E).

Male genitalia (Fig. 27F-H)
Pseudepiphallic sclerite, rami, ectophallic apodemes, ectophallic fold (short and bifid) and endophallic apodeme as in *E. tenebrosus* (see Desutter-Grandcolas 1992b, Figs 59-61), but dorsal valves wide and thick, having the shape of nearly vertical lamellas (Fig. 27H), with sharp, curved denticles on lower margin (Fig. 27G); median lophi (= apical lobes) entirely membranous (Fig. 27F, G), convex on outer side, concave with abruptly vertical base on inner side.

Female
Unknown.

Measurements (in mm)
See Table 19.

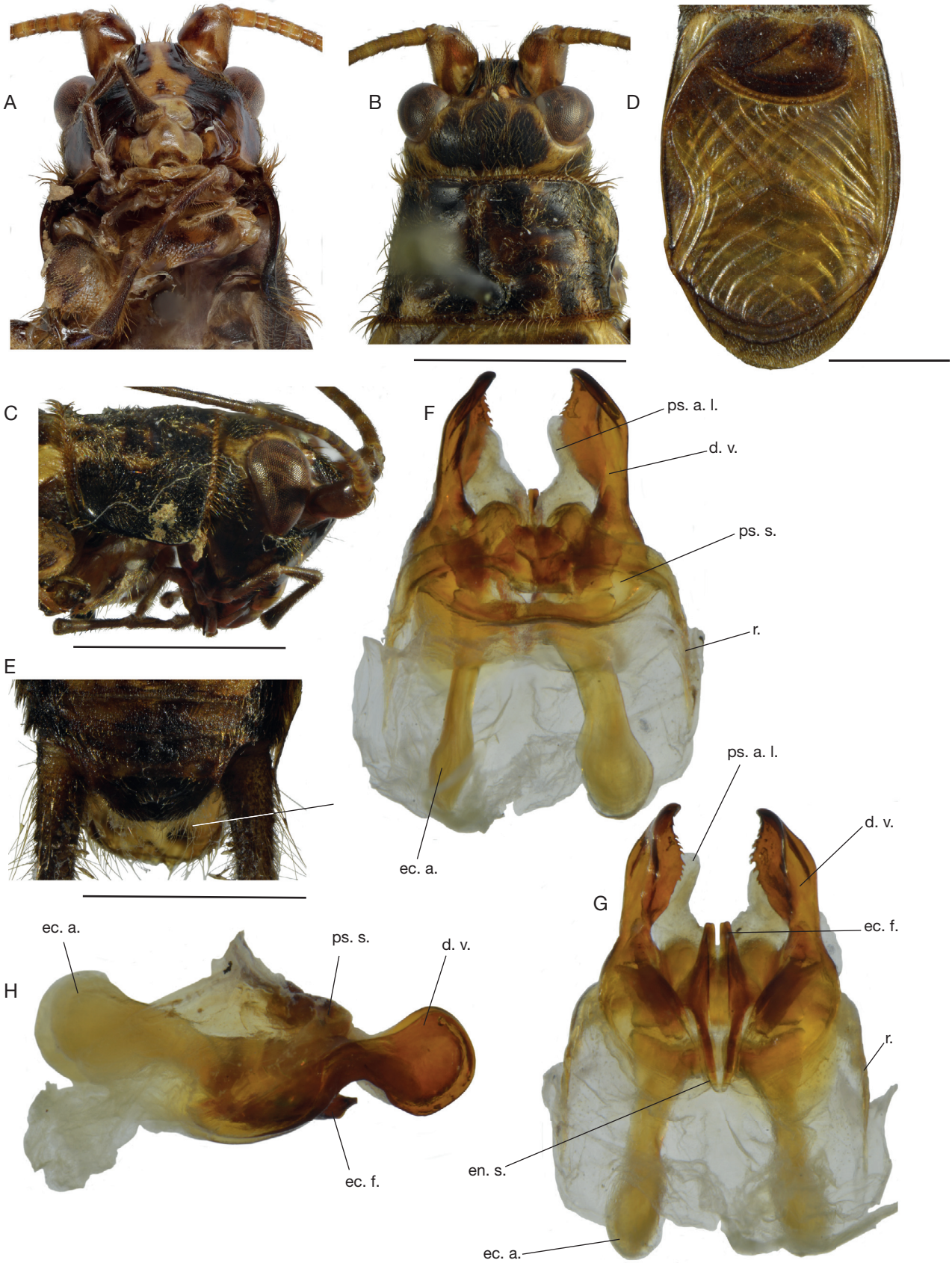

Fig. 27. — *Ectecous lamelliferus* Desutter-Grandcolas, n. sp., male holotype MNHN-EO-ENSIF10794: **A**, face; **B**, **C**, head and pronotum in dorsal (**B**) and side (**C**) views; **D**, forewings, dorsal view; **E**, supra anal plate, dorsal view (arrow showing distal setae); **F**-**H**, male genitalia in dorsal (**F**), ventral (**G**) and side (**H**) views. Abbreviations: see Material and methods. Scale bars: B, C,1 mm; D, E, 0.5 mm.

TABLE 20. — Measurements of *Kevanacla orientalis* Desutter-Grandcolas, 1992 female from Mitaraka (in millimetres).

	iod	pron L	pron w	FIII L	FIII w	TIII L	ovip L
Female (n = 1)	1.8	3.4	4.3	14	3.6	12.	16.9

Genus *Kevanacla* Desutter-Grandcolas, 1992

TYPE SPECIES. — *Kevanacla orientalis* Desutter-Grandcolas, 1992a: 142 by original designation.

DISTRIBUTION. — Northeastern South America (French Guiana).

DIAGNOSIS. — See Desutter-Grandcolas (1992a).

Kevanacla orientalis Desutter-Grandcolas, 1992 (Figs 28, 29A, B; Table 20)

Kevanacla orientalis Desutter-Grandcolas, 1992a: 142.

TYPE LOCALITY. — French Guiana, Arataye, tributary of Approuague, downstream the saut Pararé.

TYPE MATERIAL. — **Holotype by original designation. French Guiana** • 1 ♂; Arataye, Afflt. Approuague, aval du saut Pararé; 18.VII.1988; L. Desutter leg.; MNHN-EO-ENSIF5189.
Allotype. French Guiana • 1 ♀; same locality, date and collector as the holotype; MNHN-EO-ENSIF5190.
Paratypes: 1 male, 2 females. French Guiana • 1 ♀; Arataye, Afflt. Approuague, 8 km pied du saut Pararé, station de recherche des Nouragues; VI.1988; L. Desutter & P. Grandcolas leg.; MNHN-EO-ENSIF5193 • 1 ♀; same locality and collector; VII.1988; MNHN-EO-ENSIF5192.
Brazil • 1 ♂; Haut Carsevenne; 1898; F. Geai leg.; MNHN-EO-ENSIF5191.

MATERIAL FROM THE MITARAKA. — **French Guiana** • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka, Layon A; entre 54.4509 O 2.2357 N et 54.4547 O 2.2405 N; alt. entre 280 m et 365 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; de nuit, SH129; MNHN.

DIAGNOSIS. — See Desutter-Grandcolas (1992a).

COMPLEMENT OF DESCRIPTION

General morphology

TIII serrulation: spines lacking between subapical spurs and apical spurs, and between subapical spurs 1 and 2 on both sides; on inner side, one spine between isa2 and isa3, 15 spines above isa3; on outer side, three spines between osa2 and osa3, two spines between osa3 and osa4, 17 spines above osa4. Barsitarsomere III serrulation: no inner spine and four outer spines, in addition to apical spines.

Coloration

General coloration as on Figs 28, 29A. Antennae black brown; yellow ring present every five to seven articles, not on the distal margin of all articles.

Measurements (in mm)

See Table 20.

Variation

Maxillary palpi: dorsal part of article 3 lighter than its sides, but not as light as on articles 4 and 5 (Fig. 29A). LL anterior angle with a small yellowish spot. DD coloration pattern as on Fig. 29A.

Subtribe Strogulomorphina Desutter, 1988

Genus *Unithema* Desutter-Grandcolas, 1991

TYPE SPECIES. — *Unithema guadelupensis* Desutter-Grandcolas, 1991: 358 by original designation.

DIAGNOSIS. — See Desutter-Grandcolas (1991).

DISTRIBUTION. — French Guiana and Lesser Antilles (Guadeloupe).

Unithema sp.

MATERIAL FROM THE MITARAKA. — **French Guiana** • 1 juvenile ♂; Monts Tumuc-Humac, Massif du Mitaraka vers sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N; alt. entre 370 m et 470 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; de nuit, fn. SH499; MNHN. Specimen in bad condition (fungi).

REMARK

Unithema is the only strogulomorphine genus recorded today in French Guiana. As the juvenile male at hand present very short FWs, it could belong to this genus. The specimen has a very dark coloration: its pronotum is almost entirely black, without a yellow band along posterior margin, and with only a very thin longitudinal line on DD; its palpi, abdomen and cerci are entirely black. It shows also particular details of coloration, such as alternate black and ivory lines on scape anterior side, a yellow band on posterior margin of metanotum (as in *Unithema xanthochosmea* Desutter-Grandcolas, 1991), black antennae with yellow articles widely spaced on flagellum, and a thin ivory line under median ocellus, bordered by two yellowish lines along antennal pits. This specimen could belong to a new species.

Subtribe Paragryllina Desutter, 1987

Genus *Paragryllus* Guérin-Méneville, 1844

TYPE SPECIES. — *Paragryllus martinii* Guérin-Méneville, 1844 by original monotypy.

DIAGNOSIS. — See Desutter-Grandcolas (1992a).

DISTRIBUTION. — Tropical areas in Africa and South and Central America, including Trinidad. Only one species known in French Guiana.

FIG. 28. — *Kevanacla orientalis* Desutter-Grandcolas, 1992a from the Mitaraka, female SH129 foraging at night on a tree trunk. Photos: Sylvain Hugel.

Paragryllus elapsus Desutter-Grandcolas, 1992
(Figs 23M-O, 29C; Table 21)

Paragryllus elapsus Desutter-Grandcolas, 1992a: 151.

REMARK

Two subspecies have been separated in *P. elapsus* (see Desutter-Grandcolas 1992a) to acknowledge variations in size, coloration, male stridulatory file, female ovipositor length and female copulatory papilla. The only female at hand (Fig. 29C) does not fully fit neither of the subspecies, and its status will have to be reconsidered with additional specimens.

TYPE LOCALITY. — French Guiana, aval du saut Pararé (*Paragryllus elapsus elapsus* Desutter-Grandcolas, 1992) and Sinnamary (*Paragryllus elapsus incertus* Desutter-Grandcolas, 1992).

TYPE MATERIAL. — *Paragryllus elapsus elapsus* Desutter-Grandcolas, 1992: **Holotype by original designation. French Guiana** • 1 ♂; Arataye, aval du saut Pararé; 9.VII.1988; L. Desutter leg.; MNHN-EO-ENSIF5138.
Allotype. French Guiana • 1 ♀; same locality and collector as the holotype; 12.VII.1988; MNHN-EO-ENSIF5139.
Paratypes: 1 male, 1 female: French Guiana • 1 ♂ 1 ♀; same locality and collector as the holotype; VII.1988; MNHN-EO-ENSIF5140, 5141.
Paragryllus elapsus incertus Desutter-Grandcolas, 1992: **Holotype by original designation. French Guiana** • 1 ♂; Sinnamary; VII.1977; M. Descamps leg.; MNHN-EO-ENSIF5142.
Allotype. French Guiana • 1 ♀; same locality, date and collector as the holotype; MNHN-EO-ENSIF5143.
Paratype, 1 male: French Guiana • 1 ♂; same locality, date and collector as the holotype; MNHN-EO-ENSIF5144.

MATERIAL FROM THE MITARAKA. — **French Guiana** • 1 ♀; Monts Tumuc-Humac, Massif du Mitaraka vers sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N; alt. entre 370 m et 470 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; fn. SH458, de nuit; MNHN.

REMARK

Compared to the two subspecies, the female at hand differs by the small size of its ovipositor, well shorter than FIII and TIII (longer in *P. elapsus elapsus* and *P. elapsus incertus*), its larger size, the shape of its copulatory papilla (short, not concave laterally, bisinuous distally, Fig. 23M, N) and details of coloration, such as area between eyes light yellow, this coloration prolonged on occiput; LL black, with a short median yellow line along lower margin; DD yellowish marked with brown and black, with a wide longitudinal, median yellow band bordered distally by a pair of Y-shaped black spots, muscular inscriptions marked with black (Fig. 29C).

TIII serrulation: spines lacking between subapical spurs and apical spurs on both sides; on inner side, one spine between isa1 and isa2, one to two spines between isa2 and isa3, 20 spines above isa3; on outer side, one to two spines

FIG. 29. — *Kevanacla orientalis* Desutter-Grandcolas, 1992a, specimen SH129 (**A**, **B**) and *Paragryllus elapsus* Desutter-Grandcolas, 1992a, specimen SH458 (**C**) from the Mitaraka. (**A**, **C**) habitus; B, face (**B**). Scale bars: 2 cm.

TABLE 21. — Measurements of *Paragryllus elapsus* Desutter-Grandcolas, 1992 specimen from Mitaraka (in millimetres).

	iod	pron L	pron w	FW L	HW L	FIII L	TIII L	ovip L
Female SH458	1.6	4	4.9	16.9	18	18.3	12.4	13.6

TABLE 22. — Measurements of *Rumea guyanensis* Desutter-Grandcolas, 1992 specimen from Mitaraka (in millimetres).

	iod	pron L	pron w	FW L	HW L	FIII L	TIII L	ovip L
Females (n = 2)	1.7	3.7-3.8	5-5.1	17-18.4	19.3-20.2	16.6-16.8	12.8-13.2	16.2-17.2

between osa1 and osa2, two spines between osa2 and osa3, 18-19 spines above osa3. Barsitarsomeres III serrulation: one to two inner spines and five to six outer spines, in addition to apical spines. Subgenital plate as on Fig. 23O.

MEASUREMENTS (IN MM). — See Table 21.

Genus *Rumea* Desutter-Grandcolas, 1988

TYPE SPECIES. — *Rumea gaschei* Desutter, 1988: 358 by original designation.

DIAGNOSIS. — See Desutter-Grandcolas (1992a).

DISTRIBUTION. — Amazon region (Peru, Brazil, French Guiana).

Rumea guyanensis Desutter-Grandcolas, 1992 (Table 22)

Rumea guyanensis Desutter-Grandcolas, 1992a: 162.

TYPE LOCALITY. — French Guiana, Sinnamary, Paracou.

TYPE MATERIAL. — **Holotype by original designation. French Guiana** • 1 ♂; Sinnamary, Paracou, forêt sur sables blancs; II.IX.1988; L. Desutter leg.; MNHN-EO-ENSIF5102.
Paratypes: 2 males. French Guiana • 1 ♂; same locality and collector as the holotype; IX.1988; MNHN-EO-ENSIF5103 • 1 ♂; Mana, Acarouany; 11.XI.1968; J. Bonfils leg.; MNHN-EO-ENSIF5104.

MATERIAL FROM THE MITARAKA. — **French Guiana** • 2 ♀; Monts Tumuc-Humac, Massif du Mitaraka vers sommet en Cloche; entre 54.4541 O 2.2349 N et 54.4646 O 2.2329 N; alt. entre 370 m et 470 m; 23.II.-10.III.2015; F. Legendre & S. Hugel leg.; de nuit, fn. SH410, SH457; MNHN. Specimens in bad condition (fungi).

DIAGNOSIS. — See Desutter-Grandcolas (1992b: 162) for males.

REMARK

Females are not known from the type locality, but only from near the Arataye river, a tributary of Approuague. The females from Mitaraka are close to the types of *R. guyanensis* as far as size and coloration are concerned, as are the females of Arataye.

MEASUREMENTS (IN MM). — See Table 22.

IDENTIFICATION KEY OF PHALANGOPSIDAE CRICKETS FROM FRENCH GUIANA (MODIFIED FROM DESUTTER-GRANDCOLAS 1992A)

1 Hind tibiae with four inner and four outer subapical spurs 2
— Hind tibiae with less than four subapical spurs on at least one side 27

2. Ventral inner apical spur on hind tibiae regressed. Maxillary palpi article 5 only slightly widened toward apex and truncated straight at apex. Forewings never coriaceous 3
— Ventral inner apical spur on hind tibiae not regressed, longer than ventral outer apical spur. Maxillary palpi article 5 more or less largely widened at apex, truncated obliquely. Forewings often coriaceous 10

3. Male forewings covering more than half of abdomen. Female forewings well-developed, often reaching first abdominal tergite posterior margin; venation with strong parallel longitudinal veins ..... *Aclodes* Hebard, 1928*b*..... 4
— Male forewings covering less than one third of abdomen. Female forewings barely visible, much smaller than metanotum; venation missing or weak ..... *Paraclodes* Desutter-Grandcolas, 1992a n. stat. 5

4. Size large (hind femora > 14 mm in males and females, ovipositor > 10.4 mm). Male stridulatory file with 385-459 teeth ..... *Aclodes spelaea* Desutter-Grandcolas, 1992*a.*
— Size small (hind femora < 9.3 mm in males and females, ovipositor < 9 mm). Male stridulatory file with about 300 teeth ..... *Aclodes pequegna* Desutter-Grandcolas, 1992*a.*

5. Forewings present and with a functional stridulum in males, lacking in females 6
— Males and females apterous, or with very short forewings, devoid of a stridulum in males 7

6. Face with two light yellow flecks surrounded by four small yellow spots arranged in a rectangle. Male: forewing lateral field with three parallel longitudinal veins; stridulatory file: 60-80 teeth (118 in Mataraka specimen). Ovipositor > 15.5 mm. Very abundant species in French Guiana ..... *Paraclodes guyanensis* Desutter-Grandcolas, 1992*a* n. stat.
— Face with a large yellow band under each antennal pit. Male: forewing lateral field with two parallel longitudinal veins; stridulatory file: 140-160 teeth. Ovipositor < 14.5 mm. Distribution more limited (Arataye) ..... *Paraclodes nouragui* Desutter-Grandcolas, 1992*a* n. stat.

7. Size small (hind femora < 17mm in males and females, ovipositor < 15 mm). Male genitalia: pseudepiphallic sclerite very narrow, apical lobes long and wide, twisted (Fig. 25D, E). Female copulatory papilla low in lateral view, with rounded lateral margins, wider apically than basally, with protruding distal margin; dorsal aperture narrowing distally (Fig. 23G-I) ..... *Paraclodes cunicula* Desutter-Grandcolas, n. sp.
— Size large (hind femora > 17mm in males and females, ovipositor > 20 mm, except in *Paraclodes* sp.) 8

8. Female copulatory papilla short; apex rounded and very high in lateral view, compressed laterally; dorsal aperture wide and short (Fig. 23J-L) ..... *Paraclodes* sp.
— Female copulatory papilla elongate, apex not laterally compressed 9

9. Male genitalia: pseudepiphallic apical lobes long and widely divergent (Fig. 21D, E). Female copulatory papilla narrower distally than basally; dorsal aperture small, closed distally; apex regularly narrowed in lateral view (Fig. 23A-C) ..... *Paraclodes furcata* Desutter-Grandcolas, n. sp.
— Male genitalia: pseudepiphallic apical lobes shorter, less and regularly divergent (Desutter-Grandcolas 1992b, figure 40). Female copulatory papilla wider distally than basally; dorsal aperture wide and equal over its whole length; apex not regularly narrowed in lateral view (Fig. 23D-F) .... *Paraclodes subaptera* Gorochov, 2007 n. stat.

10. Size small to medium. Legs not particularly elongate compared to the body. Hind femora thick, without a filiform apical part. Palpi and tarsi not elongate. Forewings variable in males and females 11
— Size medium to very large; legs greatly elongated relative to the body. Hind femora thinner, with a long filiform apical part. Palpi and tarsi very long and thin. Forewings always missing in female (females unknown in *Mellomima* Desutter-Grandcolas, n. gen.), variably regressed in male 23

11. Small species with soft and thin forewings 12
— Larger species with coriaceous forewings 16

12. Pronotum rounded, not transverse. Fore tibiae with inner tympanum, no outer tympanum. Male forewings short and very wide (ratio mean W / mean L =.77); venation as on Desutter-Grandcolas 1992a, figure 37 (note the mirror and lateral field) ..... *Lernecella minuta* Desutter-Grandcolas, 1992a.
— Pronotum variably, but always wider than long. Fore tibiae with inner and outer tympana. Male FW more elongated and narrower (ratio = .55); venation as on Desutter-Grandcolas 1992a, figure 32 (note the mirror, apical field and lateral field) ..... *Lerneca* Walker, 1869 13

13. Small, very dark species with black brown legs and contrastingly tricolor antennae (black, yellow, white); palpi brown with black article 5 in males and females. Female fore wings longer than pronotum and partly overlapping, but shorter than abdomen ..... *Lerneca ornata* Desutter-Grandcolas, 1992a.
— Species of bigger size and lighter coloration, with clearly annulated legs. Antennae uniform in coloration, with lighter base; palpi light brown with articles 4 and 5 lighter or even whitish in females. Female fore wings either longer than abdomen, or shorter than pronotum or lacking 14

14. Head distinctively small and narrow (iod < 1.3). Body and legs lightly colored; antennae yellowish. Male fore wing: PCu straight accross the whole fore wing (Fig. 14B, C); stridulatory file with more than 170 teeth. Female fore wing longer than abdomen and fully overlapping ..... *Lerneca inalata inalata* (Saussure, 1874).
— Head wider (iod > 1.5). Body and legs darkly colored; antennae brown to black with lighter base. Male fore wing: PCu sinuate (Fig. 14A); stridulatory file with about 40 teeth. Female fore wing pad like, shorter than pronotum length and largely separated, or lacking 15

15. Sternites light brown-yellow. Male genitalia with C-sclerite simple (Fig. 15D). Size smaller (FW length ≤ 9 mm, FW width < 5 mm) ..... *Lerneca fuscipennis* (Saussure, 1874).
— Sternites brown with 2 yellow longitudinal stripes on lateral edges. Male genitalia with C-sclerite bifurcated laterally (Fig. 15A-C). Size bigger (FW length ≥ 9.2 mm, FW width ≥ 5 mm) ..... *Lerneca mitarakensis* n. sp.

16. Venation of stridulatory apparatus clear on right, coriaceus forewing. Head and pronotum dorsal parts yellowish or whitish ..... *Luzarida* Hebard, 1928*a* 17
— Venation of stridulatory apparatus obsolete on right coriaceous forewing, even in acoustic species. Head and pronotum dorsal parts with 2 lateral yellow stripes, extended on forewings 18

17. Size: femora III ≤ 17.6 mm in male and in female; median length of pronotum ≤ 3.8 mm in male, = 4.4 mm in female ..... *Luzarida guyana* Desutter-Grandcolas, 1992a.
— Size: femora III ≥ 18 mm in male, > 20.4 mm in female; median length of pronotum > 4 mm in male, > 4.5 mm in female ..... *Luzarida grandis* Desutter-Grandcolas, 1992a.

18. Forewings regressed and almost without venation on dorsal field, barely overlapping in males, not overlapping in females. Males without a functional stridulatory apparatus. Male and female genitalia as on Desutter-Grandcolas, 1992a, figures 20-24 ..... *Acantoluzarida* nigra Desutter-Grandcolas, 1992a.
— Forewings overlapping in males and females. Males with a functional stridulatory apparatus, even when venation is hardly visible. Male and female genitalia as on Figs 7D-G, 11E-G or Desutter-Grandcolas, 1992a, figures 12-18 ..... *Luzaridella* Desutter-Grandcolas, 1992a 19

19. Size small (FW length < 5 mm in males, ≤ 3.1 mm in females). Male forewings narrow, almost not widened apically. Male genitalia compact; arms very short; A-sclerite very short without a protruding spine (Desutter-Grandcolas 1992a, figures 17, 18, and Fig. 11E-G). Female copulatory papilla short and fully sclerotized, its apex truncated 20
— Size larger (FW length > 5 mm in males, ≥ 3.1 mm in females). Male forewings clearly widened toward apex. Male genitalia with well-developed arms; A-sclerite with a long, protruding apical spine. Female copulatory papilla longer and narrower (except in *L. miniata* n. sp., see Fig. 9C-E) 21

20. Small, very lightly colored species (female ovipositor < 8.6 mm). Female copulatory papilla with straight apical margin (Desutter-Grandcolas 1992a, figure 10) ..... *Luzaridella clara* Desutter-Grandcolas 1992a.
— Larger species (female ovipositor > 13 mm), with darker general coloration. Female copulatory papilla with sinuate apical margin (Fig. 9F-H) ..... *Luzaridella maculata* n. sp.

21. Darkly colored species, with dark brown head, pronotum, FWs and abdomen, contrasting with light brown, not clearly annulated legs. Male FWs reaching tergite 5, only slightly widened toward apex. Male genitalia: A-sclerite apical spine straight (Desutter-Grandcolas 1992a figures 12-14). Female ovipositor < 10.5 mm .... *Luzaridella obscura* Desutter-Grandcolas, 1992a.
— More lightly colored species. Male FWs longer, reaching tergite 7 or 8, clearly widened toward apex. Male genitalia: A-sclerite apical spine well-curved (Desutter-Grandcolas 1992a figures 15-16, and Fig. 7D-G). Female ovipositor > 11.5 mm 22

22. Very lightly colored species with contrastingly annulated legs. Size smaller, female ovipositor ≤ 13 mm. Female copulatory papilla rounded (Desutter-Grandcolas 1992a, figure 9) .... *Luzaridella annulata* Desutter-Grandcolas, 1992a.
— Darker species; legs annulated, but not so contrastingly. Size larger, female ovipositor > 14mm. Female copulatory papilla as on Fig. 9C-E ..... *Luzaridella miniata* n. sp.

23. Both inner and outer tympana present. Forewings nearly fully overlapping, coriaceous and rounded laterally in males (females unknown). Body cylindrical; uniformly shining yellowish brown, with a yellow band running from labrum to pronotum distal margin, through the face and head dorsum .... *Mellomima guyanensis* Desutter-Grandcolas, n. gen., n. sp.
— Both tympana lacking, or inner tympanum only present. Forewings reduced to two small flap-like lobes, or longer but not coriaceous. Body shape and coloration different, without a yellow longitudinal band on head dorsum and pronotum; cuticle not shining 24

24. Medium to large size species. Metanotum and tergite I not particularly developed compared to tergites 2-9; tergites not glandular in males ..... *Phalangopsis* Serville, 1831 25
— Smaller species. Metanotum and tergite I three to four times longer than tergites 2-9, which appear compressed. Tergites glandular or not in males 26

25. Species brown, with whitish rings near tibia apex. Hindtibiae inner apical spurs: median spur longer than dorsal spur. Male genitalia with well-developed C-sclerite, elongate and acute (Desutter-Grandcolas, 1992a, figures 43, 44). Female genitalia: copulatory papilla entirely sclerotized, long and rounded laterally (Desutter-Grandcolas, 1992a, figure 45) ..... *Phalangopsis longipes* Serville, 1831.
— Species uniformly light yellowish brown, even the legs. Hind tibiae inner apical spurs: median spur shorter than dorsal spur. Male genitalia: C-sclerite short, broad and rounded at apex (Desutter-Grandcolas, 1992a, figures 46, 47). Female genitalia: copulatory papilla small, not sclerotized basally, triangular (Desutter-Grandcolas, 1992a, figure 48) ..... *Phalangopsis flavilongipes* Desutter-Grandcolas, 1992a.

26. Hind tibiae with sparse serrulation. Inner tympanum absent. Fore wings reduced to two small lobes in males, lacking in females. Tergites not glandular in males. Male genitalia as on Desutter-Grandcolas, 1992a figures 50-52. Female copulatory papilla long and narrow, curved, membranous basally (Desutter-Grandcolas, 1992a, figure 53) ..... *Philippopsis guianae* Desutter-Grandcolas, 1992a.

— Hind tibiae serrulated. A small inner tympanum present. Fore wings short, not coriaceous, rounded distally in males, lacking in females. Tergites glandular in males. Male genitalia as on Figure 4F-H. Female copulatory papilla small, triangular with acute apex and wholly sclerotized (Fig. 5E, F) ..... *Aracopsis hugeli* Desutter-Grandcolas, n. gen., n. sp.

27. Hind tibiae with four outer and three inner subapical spurs, not particulary close to tibia apex. Wings always regressed 28
— Hind tibiae with three outer and three (or less) inner subapical spurs, close to tibia apex. Wings always presents, truncated at apex, exceeding forewings 34

28. Very small species, apterous or with regressed forewings. Fastigium very wide ..... *Unithema* Desutter-Grandcolas, 1991 29
— Larger species, forewings size variable but well developed (male with stridulatory apparatus). Fastigium narrow 31

29. Very contrasted colorotion, with black palpi, pronotum, cerci, and abdomen; scapes with black and ivory bands; antennae black with spaced yellow articles on flagellum ..... *Unithema* sp.
— Coloration not as contrasted 30

30. Posterior margin of metanotum bordered with yellow, this band wider in females than in males. Cerci with a white ring at base smaller than supra anal plate. General coloration brown; face with large yellow spots. Size: hind femora > 7.2 mm in females, > 6.6 mm in males, ovipositor lenght 5 mm ..... *Unithema xanthochosmea* Desutter, 1991.
— Posterior margin of metanotum discontinuously yellow in females (male unknown). White ring at cerci base slightly longer than supra anal plate. Coloration brown almost black, bright; face black, bright, with 6 small light yellow spots. Size: hind femora < 6.9 mm, ovipositor < 4.7 mm ..... *Unithema hypomelaena* Desutter, 1991.

31. Fore tibiae with only one tympanum, on inner side. Hind basitarsomeres with a single row of spines. Forewings reduced in male, not exceeding tergite 3; venation not complete. Male genitalia: pseudepiphallic sclerite elongated, with a median process; dorsal valves not hypertelic. Female copulatory papilla hoof-shaped copulatory papilla, surrounding the base of spermathecal duct ..... *Kevanacla orientalis* Desutter-Grandcolas, 1992a.
— Fore tibiae with only one tympanum, on outer side. Hind basitarsomeres with two rows of spines (inner reduced to a few spines). Male forewings covering at least tergite 7; venation complete. Male genitalia: pseudepiphallic sclerite regressed, without a median process; dorsal valves more or less hypertelic. Female copulatory papilla with a ventral sclerite, not surrounding the base of spermathecal duct ..... *Ectecous* Saussure, 1878 32

32. Face almost entirely black. Male fore wings wide; mirror elliptical in shape, anterior angle barely marked. Male genitalia: ectophallic fold extremely long. Female: ovipositor shorter than hind femora ..... *Ectecous cantans* Saussure, 1897.
— Face with a wide, Y-shaped longitudinal yellow band. Male fore wings not as wide; mirror more triangular. Male genitalia: ectophallic fold much shorter. Female: ovipositor longer than find femora (unknown in *Ectecous lamelliferus* Desutter-Grandcolas, n. sp.) 33

33. Male genitalia: dorsal valves more or less cylindrical and acute (Desutter-Grandcolas 1992a figures 59-61). FW length/width ratio 1.53, n = 6. Number of stridulatory teeth: 259-264, mean 262, n = 6 ..... *Ectecous tenebrosus* Desutter-Grandcolas, 1992a.
— Male genitalia: dorsal valves wide and vertical with spiny margins (Fig. 27F-H). FW length/width ratio 1.42, n = 3. Number of stridulatory teeth: 232, n = 1 ..... *Ectecous lamelliferus* Desutter-Grandcolas, n. sp.

34. Hind tibiae with three outer and one inner subapical spurs. Species flattened in shape (head wider than high in front view, pronotum lateral lobes very short). Forewings not exceeding or slightly exceeding abdominal tip. Fastigium wide. Median ocellus subapical on fastigium 35
— Hind tibiae with three outer and two or three inner (sometimes only one in *Rumea* Desutter, 1988, in which the second inner spur can be regressed or even disappear) subapical spurs. Species not so flattened (head longer than wide in front view, pronotum lateral lobes longer). Forewings exceeding abdominal tip in males and females. Fastigium narrower. Median ocellus nearly apical 37

35. Tibiae very short, hind tibiae thick. Female genitalia: copulatory papilla sclerotized, cone-shaped, more or less elongated at apex (Desutter-Grandcolas 1992a, figure 77). Male genitalia as in Desutter-Grandcolas 1992a figures 74-76 ..... *Benoistella guyanensis* (Chopard, 1920)
— Tibiae more elongated, not or little thickened. Female genitalia: copulatory papilla barely sclerotized, long, plicated over its whole length (fig. 81-82). Male unknown ..... *Silvastella* Desutter-Grandcolas, 1992a 36

36. Size large (hind femora > 11 mm; ovipositor > 14 mm). Head lightly colored with many dark transversal stripes on face and vertex ..... *Silvastella grahamae* Desutter-Grandcolas, 1992a.

— Size smaller (hind femora < 9 mm; ovipositor < 8 mm). Face brown-black; vertex with two brown-black transversal stripes at level of ocelli ..... *Silvastella fuscofasciata* Desutter-Grandcolas, 1992a.

37. Hind basitarsomeres with a single row of spines. Hind tibiae with three inner subapical spurs. Male genitalia: pseudepiphallic sclerite and parameres not regressed; ectophallic fold simple, membranous, its apex visible dorsally between pseudepiphallic parameres. Female forewings: transversal veins as marked as longitudinal veins. ..... *Paragryllus elapsus* Desutter-Grandcolas, 1992a.
— Hind basitarsomeres with 2 rows of spines. Hind tibiae with two inner subapical spurs (sometimes only one). Male genitalia: pseudepiphallic sclerite and parameres regressed; ectophallic fold hypertelic, sclerotized. Female forewings: longitudinal veins stronger than transversal veins ..... *Rumea* Desutter, 1988 38

38. Size large (hind femora about 15 mm; male forewings > 15 mm, stridulatory file with approximately 280 teeth). Male genitalia as in Desutter-Grandcolas 1992a, figures 83-84 ... *Rumea guyanensis* Desutter-Grandcolas 1992a
— Size smaller (hind femora < 11.5 mm; male forewings < 11 mm, stridulatory file with approximately 110-130 teeth). Male genitalia as in Desutter-Grandcolas 1992a, figures 85-86 .... *Rumea micra* Desutter-Grandcolas 1992a.

DISCUSSION

Phalangopsidae crickets are very diversified worldwide from a morphological point of view, which is in accordance with the high diversity of their habitats (Desutter-Grandcolas 1995, 2015; Desutter-Grandcolas & Jaiswara 2012). Cavicolous – straminicolous species are characterized by long and thin legs wide apart from a small, rounded body, like *Phalangopsis*, *Philippopsis*, *Aracopsis* Desutter-Grandcolas, n. gen., but also *Phaeophilacris* Walker, 1871 and *Phasmagryllus* Desutter-Grandcolas, 2015 in Africa, *Arachnomimus* Saussure, 1897 or *Opiliosina* Desutter-Grandcolas, 2012 in Asia, among many other genera. The taxa foraging on tree trunks are characterized by shorter legs, reduced forewings, and darkly spotted coloration, as Aclodini Desutter-Grandcolas n. tribe in the Neotropical Region, but also *Caltathra* Otte, 1987 and *Protathra* Desutter-Grandcolas, 1997 in New Caledonia, or *Paragryllodes* Karny, 1909 in Africa. The arboricolous species which hide under barks, have a more flattened body and often much shorter legs and brighter colorations. Finally, the species which forage and hide in the leaf litter are most often stocky, short-legged taxa: many occur in South and Central America, but several exist in Africa (as some phaloriine genera, see Desutter-Grandcolas 2015) and perhaps in India (Chopard 1969).

In French Guiana, all the morpho-ecological syndromes defined in the Neotropical phalangopsid crickets (Desutter-Grandcolas 1995) are present among the 18 genera and 37 species now acknowledged in the territory. Most are abundant in rain forests and so they certainly assume an active part in forest ecosystem functioning, including as vertebrate and invertebrate preys (Fig. 30).

More species will certainly be discovered in the future, as only a small portion of the whole Guianese region has been surveyed for crickets. The necessity to look for phalangopsids by sight, and most often at night, limit the discovery of new taxa, even though many species could be found by tracking their loud calls. "Traditional" collecting methods, like passive traps and light trap, are not efficient for crickets and this has a deep influence on our knowledge of tropical cricket diversity. In New Caledonia for example, most "sampled" localities are known by one to five cricket species, while an extensive survey with both diurnal and nocturnal collecting effort by sight and hearing, brings more than 20 different cricket species in each locality (Desutter-Grandcolas *et al.* 2016). This inadequacy of standard collecting may strongly restrict the use of crickets as bio-indicators for environmental surveys, even though this clade fits the definition of "good" bio-indicators, thanks to the biological diversity of the species and their sensitivity to environmental conditions (Gasc *et al.* 2018).

Another consequence of the lack of extensive sampling of crickets in French Guiana is the lack of sound evaluation of species variation. It is surprising that many crickets found in the Mirataka fit species described in other Guianese areas except for their larger size. In Orthoptera, body size, as well as mass or growth rate, can potentially be influenced by many environmental factors (Whitman 2008), so that size alone cannot be used to separate the species. The observed size difference may actually be related to differences in climatic conditions, as the Tumuc-Humac mountains have a lower annual mean rainfall, with several relatively drier months, and are colder (CNRS/ORSTOM 1979). A larger size actually increases resistance to desiccation (Chown & Gaston 2010), as demonstrated by Winterhalter & Mousseau (2008) in a wild population of the straminicolous nemobiine cricket *Allonemobius socius* (Scudder, 1877). The larger size of Mitaraka crickets may also be an additional example of the 'Temperature Size Rule', which predicts that insect size decreases when raised at increasing temperature (Uvarov 1931), although observed here in the natural environment (see Wellington 1957) and for quite large insects (see Klok & Harrison 2013).

From a biogeographical point of view (Table 23), the neotropical distributions of the phalangopsid genera present in French Guiana are very diverse. According to present-day available data, they extend from potential endemics, known only by one guianese species (*Acantoluzarida*, *Aracopsis* Desutter-Grandcolas, n. gen., *Philippopsis*), to widely distributed genera, occuring in the whole tropical parts of Central and South America (*Lerneca*) including sometimes the Smaller

TABLE 23. — Distributions of Guianese Phalangopsidae genera and species. Abbreviations: **AR**, Amazon Region; **FG**, French Guiana; **GR**, Guianese Region. Symbol: *****,** genera known from French Guiana only (potential endemics); ****/***, genera with restricted/wide distribution in the Neotropical Region outside French Guiana: °, genus distributed outside the Neotropics. After Cigliano *et al.* (2020).

Genus	Genus distribution (after Cigliano *et al.* 2020)		Species	Species distribution FG	GR	AR
Acantoluzarida Desutter-Grandcolas, 1992	French Guiana	***	*nigra* Desutter-Grandcolas, 1992	*		
Aclodes Hebard, 1928	Northern Neotropics	*	*pequegna* Desutter-Grandcolas, 1992	*		
			spelaea Desutter-Grandcolas, 1992	*		
Aracopsis Desutter-Grandcolas, n. gen.	French Guiana	***	*hugeli* Desutter-Grandcolas, n. sp.	*		
Benoistella Uvarov, 1939	French Guiana, Venezuela	**	*guyanensis* Desutter-Grandcolas, 1992	*		
Ectecous Saussure, 1878	French Guiana, Brazil	**	*cantans* Saussure, 1897	*		
			lamelliferus Desutter-Grandcolas, n. sp.	*		
			tenebrosus Desutter-Grandcolas, 1992	*		
Kevanacla Desutter-Grandcolas, 1992	French Guiana, Peru	**	*orientalis* Desutter-Grandcolas, 1992			*
Lerneca Walker, 1869	Neotropics	*	*fuscipennis* (Saussure, 1874)			*
			inalata inalata (Sausure, 1874)		*	
			mitarakensis n. sp.	*		
			ornata Desutter-Grandcolas, 1992	*		
Lernecella Hebard, 1928	Costa Rica, French Guiana, Trinidad	**	*minuta* Desutter-Grandcolas, 1992	*		
Luzarida Hebard, 1928	Amazonia, Trinidad	*	*grandis* Desutter-Grandcolas, 1992	*		
			guyana Desutter-Grandcolas, 1992	*		
Luzaridella Desutter-Grandcolas, 1992	Amazonia	*	*annulata* Desutter-Grandcolas, 1992	*		
			clara Desutter-Grandcolas, 1992	*		
			maculata n. sp.	*		
			miniata n. sp.	*		
			obscura Desutter-Grandcolas, 1992	*		
Mellomima Desutter-Grandcolas, n. gen.	French Guiana	**	*guyanensis* Desutter-Grandcolas, n. sp.	*		
Paraclodes Desutter-Grandcolas, 1992 n. stat.	French Guiana, Panama	**	*cunicula* Desutter-Grandcolas, n. sp.	*		
			furcata Desutter-Grandcolas, n. sp.	*		
			guyanensis Desutter-Grandcolas, 1992 n. stat.	*		
			nouragui Desutter-Grandcolas, 1992 n. stat.	*		
			sp.	*		
			subaptera Gorochov, 2007 n. stat.	*		
Paragryllus Guérin-Méneville, 1844	Neotropics, Africa	°	*elapsus* Desutter-Grandcolas, 1992	*		
Phalangopsis Serville, 1831	French Guiana, Brazil	**	*flavilongipes* Desutter-Grandcolas, 1992	*		
			longipes Serville, 1831			*
Philippopsis Desutter-Grandcolas, 1992	French Guiana	***	*guianae* Desutter-Grandcolas, 1992	*		
Rumea Desutter-Grandcolas, 1992	Amazonia	*	*guyanensis* Desutter-Grandcolas, 1992	*		
			micra Desutter-Grandcolas, 1992	*		
Silvastella Desutter-Grandcolas, 1992	Amazonia	*	*fuscofasciata* Desutter-Grandcolas, 1992	*		
			grahamae Desutter-Grandcolas, 1992	*		
Unithema Desutter-Grandcolas, 1991	French Guiana, Lesser Antilles	**	*hypomelaena* Desutter-Grandcolas, 1991	*		
			xanthochosmea Desutter-Grandcolas, 1991	*		
			sp.	*		

Antilles (*Paragryllus*), or at least northern Neotropics (*Aclodes*). Many genera occur in French Guiana and Brazil (*Mellomima* Desutter-Grandcolas, n. gen.), either in the Atlantic Forest (*Ectecous*), or in Amazonia (*Luzaridella*, *Luzarida*, *Phalangopsis*, *Rumea*, *Silvastella*), extending or not to Trinidad. Finally some genera are present in the western and eastern parts of the Amazonian Region (*Kevanacla*), while others seem restricted to the Guyanas (*Benoistella*), with or without species known westward in southern Central America and/or northward in the Lesser Antilles (*Lernecella*, *Paraclodes* n. stat., *Unithema*). This diversity of distributional patterns, connected to the diversity of habitats and ecologies, shows the richness and evolutionary interest of the phalangopsid fauna in French Guiana. This is actually true for the Neotropics in general, which hosts the largest taxonomic, phylogenetic and ecological diversity of the whole Phalangopsidae cricket family.

FIG. 30. — Predation of phalangopsid crickets by spiders in the Mitaraka. Photos: Sylvain Hugel.

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