

A taxonomic revision of the Malagasy genus *Emphania* Erichson, 1847 (Insecta, Coleoptera, Scarabaeidae, Sericini)

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ABSTRACT

KEY WORDS

Insecta,
Coleoptera,
Scarabaeidae,
Melolonthinae,
Emphania,
key to species,
new species,
Madagascar.

The taxonomy of the endemic Malagasy genus *Emphania* Erichson, 1847 is revised according to the recently defined type species, *Heptomera metallica* Blanchard, 1850. Five new species are described: *Emphania erichsoni* n. sp., *E. lacroixi* n. sp., *E. ranomafanae* n. sp., *E. semiviridis* n. sp. and *E. subsmaragdina* n. sp. The lectotypes of *E. nitida* Moser, 1911 and *E. sulcipennis* Moser, 1911 are designated and redescribed. In addition to the morphological descriptions, male genitalia are figured and distribution of the species so far known is shown. A key for identification of the species is given.

RÉSUMÉ

Révision taxonomique du genre malgache Emphania Erichson, 1847 (Insecta, Coleoptera, Scarabaeidae, Sericini).

MOTS CLÉS

Insecta,
Coleoptera,
Scarabaeidae,
Melolonthinae,
Emphania,
clé des espèces,
espèces nouvelles,
Madagascar.

Le genre endémique malgache *Emphania* Erichson, 1847 est révisé par rapport à l'espèce type récemment définie, *Heptomera metallica* Blanchard, 1850. Cinq espèces nouvelles sont décrites: *Emphania erichsoni* n. sp., *E. lacroixi* n. sp., *E. ranomafanae* n. sp., *E. semiviridis* n. sp. et *E. subsmaragdina* n. sp. Des lectotypes sont désignés pour *E. nitida* Moser, 1911 et *E. sulcipennis* Moser, 1911 et redécrits. En plus des descriptions morphologiques, les génitalia mâles sont figurés et la distribution connue des espèces est présentée. Une clé d'identification des espèces est fournie.

INTRODUCTION

One of the first genera established for the very diverse but poorly known Malagasy fauna of Sericini was *Emphania* Erichson, 1847. The genus included so far only three species, and its taxonomic status was uncertain until its type species was designated (Ahrens 2004a; ICZN 2005). In completion to the proposal of the designation of type species by the International Commission of Zoological Nomenclature (ICZN 2005) lectotypes for *Heptomera metallica* Blanchard, 1850 and *Emphania chloris* Burmeister, 1855 were designated and redescribed (Ahrens 2004b). In the present paper the remaining taxa of *Emphania* are revised according to the redefined genus identity.

ABBREVIATIONS

BMNH	The Natural History Museum, London;
CASC	Californian Academy of Science Collection, San Francisco;
coll. DA	Dirk Ahrens collection, Munich;
coll. PP	Petr Pacholátko collection, Brno;
MLUH	Martin-Luther-Universität, Wissenschaftsbereich Zoologie, Halle/Saale;
MNHN	Muséum national d'Histoire naturelle, Paris;
TMSA	Transvaal Museum South Africa, Pretoria;
ZMHB	Zoologisches Museum der Humboldt-Universität, Berlin.

SYSTEMATICS

Genus *Emphania* Erichson, 1847

Emphania Erichson, 1847: 695. — Blanchard 1850: 80. — Burmeister 1855: 180. — Brenske 1899: 238. — Ahrens 2004a: 32; 2004b: 38. — ICZN 2005: 177.

Heptomera Blanchard, 1850: 89. — Brenske 1899: 238. — Ahrens 2004a: 32; 2004b: 38. — ICZN 2005: 177.

TYPE SPECIES (fixed by decision of the ICZN [2005: 177]). — *Heptomera metallica* Blanchard, 1850.

DIAGNOSIS. — Body surface brown with greenish shine, completely shiny and glabrous, except for a few small setae on the head. Labroclypeus shiny and subtrapezoidal, with the lateral border and ocular

canthus producing an indistinct blunt angle, margins weakly reflexed, anteriorly shallowly sinuate medially. Antenna dark brown, with nine antennomeres, club in both sexes with three antennomeres. Mentum anteriorly weakly elevated. Hypomeron ventrally with an acute edge which is produced ventrally. Elytra oblong, widest at middle, apical border of elytra chitinous, without short microtrichomes. Ventral surface shiny, thorax and metacoxa with moderately large and moderately dense punctures, sparsely setose. Metasternum produced anteriorly, between mesocoxae 1.5 times as wide as mesofemur, mesosternum protruding anteriorly forming a small mesosternal process. Each abdominal sternite, in addition to generally distributed fine and moderately dense punctures, with a distinct transverse row of coarse punctures each bearing a short and robust seta, penultimate sternite apically with a shiny smooth chitinous border which is one fourth as long as sternite. Legs moderately wide; metacoxa large and long, glabrous except for a few long setae laterally; femora with two longitudinal rows of setae, finely and (moderately) densely punctate; metafemur with the anterior edge acute, lacking an adjacent serrated line, posterior ventral margin medially weakly convex, weakly widened in apical half and not serrate, dorsally not serrate, finely setose; apex of metatibia interiorly near tarsal articulation sharply truncate with an angle of approximately 45°; protibia short, bidentate. All claws symmetrical, feebly curved and long, with normally developed basal tooth. Basal tooth of protarsal claws normally pointed. Parameres symmetric.

NOMENCLATURAL HISTORY

The genus *Emphania* Erichson, 1847 was established without any included nominal species, with a short but significant morphological description and distributional data ("Madagascar"). Blanchard (1850) was the first author who subsequently used the name *Emphania* with reference to Erichson (1847). He included 17 new species in *Emphania* which he considered a "divisio" within the genus *Omaloplia* Schoenherr, 1817. The original specimen, on which the description by Erichson was based, was later studied and described as a new species (*Emphania chloris*) by Burmeister (1855). Based on the revisionary work by Brenske (1899) who synonymized *Emphania chloris* with *Heptomera metallica* Blanchard, 1850 and considered the genus to be monospecific, the name *Emphania* was defined in the sense of Burmeister and Brenske.

No taxon included by Blanchard in *Emphania* fits the original description of the genus by Erichson (1847: 695, translated from German): “*Pleophylla* m., *Emphania* m. (in both the metasternum produces a robust anteriorly protruding process; in the first, from the ‘Kaffernländern’ [old term for territories of Bantu people in Southeast Africa], the antennal club has six joints, in the second from Madagascar the antennal club has three joints)”. The name *Emphania* Erichson was redefined (Ahrens 2004a; ICZN 2005) since no type species had been designated before. In order to conserve the taxonomic identity and the prevailing usage of *Emphania*, any of the nominal species included subsequently by Blanchard (1850) was selected as the type species of *Emphania* but the species *Heptomera metallica*, the senior synonym

of *E. chloris*, on which *Emphania* was originally established. This decision (ICZN 2005) to override Article 67.2.2 (ICZN 1999) was mainly based on the fact that a type species designation of any of the species named by Blanchard under *Emphania* would affect the synonymy and definition of five additional generic names: *Comaserica* Brenske, 1897; *Hyposerica* Brenske, 1897; *Maladera* Mulsant & Rey, 1871; *Neuroserica* Brenske, 1900; and *Tamnoserica* Brenske, 1899. These genera were used by Brenske (1897, 1900) for the 17 species described under “*Emphania*” by Blanchard (1850). All these nominal genera have been used as valid names since they were erected. For all of these genera whose type species designation was still pending recently also a type species was designated (Ahrens 2007).

KEY TO THE SPECIES OF *EMPHANIA* ERICHSON, 1847 (MALES)

1. External angle of metacoxa posteriorly right-angled 2
— External angle of metacoxa posteriorly produced forming a sharp tooth 3
2. Intervals of elytra flat *E. nitida*
— Intervals of elytra convex *E. sulcipennis*
3. Pronotum laterally with distinct robust basal marginal line 3
— Pronotum laterally with very fine indistinct basal marginal line 5
4. Elytra with convex semicircular declivity distinctly separated from apical portion of elytra. Apex of parameres strongly bent upwards and interiorly (Fig. 1B, C) *E. metallica*
— Elytra without convex declivity separated from apical portion of elytra. Apex of parameres only slightly curved interiorly (Fig. 2K) *E. erichsoni* n. sp.
5. Antennal club slightly (max 1.5 times) longer than the remaining antennomeres combined 6
— Antennal club twice as long as the remaining antennomeres combined
..... *E. subsmaragdina* n. sp.
6. Parameres fused with the phallobasis, aedeagus strongly elongate (Fig. 2P, Q)
..... *E. ranomafanae* n. sp.
— Parameres not fused with the phallobasis, aedeagus moderately elongate (Figs 1E; 2G)
..... 7
7. Body size: 6.5 mm. Parameres less than one quarter as long as the phallobasis (Fig. 2G)
..... *E. semiviridis* n. sp.
— Body size: 8.2-9.9 mm. Parameres almost half as long as the phallobasis (Fig. 1E)
..... *E. lacroixi* n. sp.

Emphania metallica (Blanchard, 1850)

Heptomera metallica Blanchard, 1850: 89. — Brenske 1899: 238. — Ahrens 2004a: 32; 2004b: 38.

Emphania metallica – Brenske 1899: 238. — Ahrens 2004a: 32; 2004b: 38.

Emphania chloris Burmeister, 1855: 180. — Ahrens 2004a: 32; 2004b: 38; synonymized by Brenske (1899: 238).

TYPE MATERIAL. — *Heptomera metallica* Blanchard, 1850: “*H. metallica* Cat. Mus. Madagascar [blue label]/Museum Paris”, lectotype ♂ (MNHN); “Muséum Paris Madagascar Goudot [blue label]/477 34”, 1 paralectotype ♀ (MNHN).

Emphania chloris Burmeister, 1855: “24966/*chloris* N. Madag. Goud. [blue label]”, lectotype ♀ (ZMHB); “24966”, 1 paralectotype ♀ (ZMHB); “MLU Halle WB Zoologie S.-Nr. 8/3/12 [white label]/*chloris* Kl. Madag. MB. [blue label]”, 1 paralectotype ♀ (MLUH).

ADDITIONAL MATERIAL EXAMINED (list not all sexed). — **Madagascar.** Forêt de la Mandraka, XII.1946, J. Millot, 1 ex. (MNHN). — La Mandraka, 4.XII.1946, RA, 1 ♀ (MNHN). — Fianarantsoa, 2^e semestre 1892, Perrot Frères, 2 ex. (MNHN). — Antisianaka, 2^e semestre 1893, Perrot Frères, 13 ex. (MNHN). — Antisianaka et lac Alaotra, 2^e trimestre 1889, Perrot Frères, 11 ex. (MNHN). — H. Perrot, 2 ex. (MNHN). — Feneriva, H. Perrot, 6 ex. (MNHN). — Ambohitsritondroina Inst. Scient., Maroantsetra, 15.II.1949, Vadon, 1 ♀ (MNHN). — Est Marojejy Rés. nat. int. XII, Beondraka, 1200 m, XII.1960, P. Soga, 1 ♀ (MNHN). — Madagascar E, 30 km E of Moramanga, Maromizaha, 1200 m, 7-10.XII.1996, Bednarik leg., 3 ex. (coll. PP). — Madagascar C., Moramanga env., 10-18.XII.1997, P. Pacholátko leg., 7 ex. (coll. PP). — Tamatave distr., Moramanga env., 14-18.XII.1995, Ivo Jeniš leg., 1 ex. (coll. PP). — Tamatave distr., Moramanga env., 21-24.XII.1995, Ivo Jeniš leg., 8 ex. (coll. PP). — Tamatave distr., Moramanga env., 27-30.XII.1995, Ivo Jeniš leg., 3 ex. (coll. PP). — Madagascar Est, Moramanga env., 17-24.XII.1998, leg. Jiri Moravec, 1 ex. (coll. PP). — Fianarantsoa, Ranomafana National Park, Talatakely, Trail FF 4, 915-1000 m, 20.XI.1998, V. F. Lee, K. J. Ribardo leg., 2 ♂♂ (CASC). — East Andasibe (Perinet), 18.56°S, 48.25°E, 14.XI.1998, E-Y: 3374, on vegetation, leg. R. Müller, 1 ex. (TMSA).

REDESCRIPTION OF LECTOTYPE

Length: 8.0 mm; length of elytra: 5.9 mm; width: 4.8 mm. Body oval, dorsal surface brown with greenish shine, ventral surface metallic-green, completely shiny and glabrous, except for a few small setae on the head (habitus Fig. 1A).

Labroclypeus subtrapezoidal, little wider than long, widest at base, lateral margins unevenly convex and convergent to moderately rounded anterior angles, lateral border and ocular canthus producing an indistinct blunt angle, margins weakly reflexed, anteriorly shallowly sinuate medially; entire surface weakly convex, shiny, finely and densely punctate, with a few short, erect setae anteriorly; frontoclypeal suture feebly impressed and weakly curved medially; smooth area in front of eye approximately twice as wide as long; ocular canthus short and sharply pointed, finely and sparsely punctate, with a short single terminal hair. Frons with fine, moderately dense punctures, glabrous except for a few setae beside eyes. Eyes small, ratio of diameter/interocular width: 0.6. Antenna brown, with nine antennomeres, antennomeres 3-5 fused; club with three antennomeres, a little longer than the remaining antennomeres combined.

Pronotum subtrapezoidal, widest at base, lateral margins very weakly and evenly convex and strongly convergent anteriorly, anterior angles moderately produced but sharp, posterior angles blunt, anterior marginal line complete, margin weakly convexly produced medially; basal marginal line fine and widely interrupted medially; surface sparsely and finely punctate, glabrous; anterior and lateral borders sparsely setose. Scutellum wide, triangular, apex sharp, with fine and moderately dense punctures, glabrous.

Elytra oblong, widest at middle, with convex semicircular declivity distinctly separated from apical portion of elytra, apical interior angle right-angled, apical external angle blunt but moderately rounded in the tip, apical border straight; striae not impressed and impunctate, almost invisible, intervals completely flat, with fine, moderately dense punctures, glabrous; epipleural edge robust, ending at the external apical angle of elytra, epipleura very sparsely setose (setae in lectotype lost).

External angle of metacoxa posteriorly produced forming a sharp tooth, lateral marginal line in posterior half slightly reflexed; mesal process of metacoxa slender and longer than remainder metacoxa and its ventral surface longitudinally convex. Ratio of length of metepisternum/metacoxa: 1/2.0. Pygidium weakly

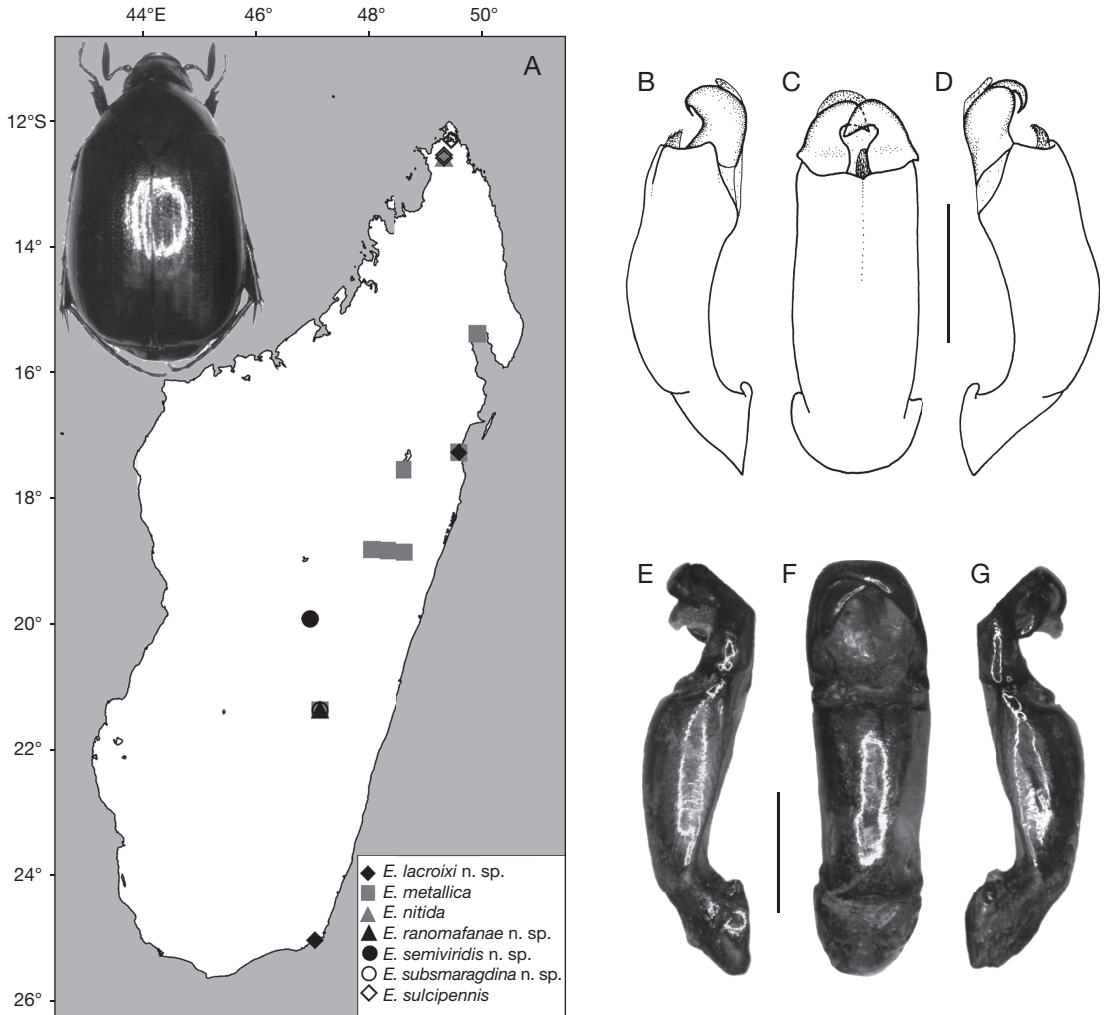


FIG. 1. — **A**, Distribution of the species of *Emphania* (*Emphania erichsoni* n. sp. could not be localized due to insufficient label information "Madagascar"), the habitus of the type species *E. metallica* (Blanchard, 1850) is shown (not scaled) in upper left corner; **B-D**, *E. metallica* (Blanchard, 1850) (lectotype); **E-G**, *E. lacroixi* n. sp. (holotype); **B**, **E**, aedeagus, left side lateral views; **C**, **F**, aedeagus, dorsal views; **D**, **G**, aedeagus, right side lateral views. Scale bars: 1 mm.

convex, very finely and sparsely punctate, without smooth midline, punctures without microscopic setae and with a few long setae apically.

Metatibia moderately wide and long, widest at apex, ratio width/length: 1/3.4, dorsally longitudinally convex, with two groups of spines, basal one at one third, apical one at two thirds of metatibial length; lateral face longitudinally convex, with dense and fine longitudinally impressed punctures,

glabrous; ventral edge not serrate, with five strong spines equidistant from each other, medial face not punctate. Tarsomeres dorsally smooth, ventrally with sparse, short setae; metatarsomeres ventrally with a strongly serrated ridge, beside which is a strong longitudinal carina, first metatarsomere a little shorter than the two following segments combined and a little longer than the upper tibial spur.

Aedeagus: Figure 1B-D.

VARIATION

Length: 7.9-8.5 mm; length of elytra: 5.8-6.1 mm; width: 4.5-5.3 mm. The female has the antennal club slightly shorter.

Emphania lacroixi n. sp.

TYPE MATERIAL. — Holotype: ♂ “Madagascar (Sud, forêts Nord Ft. Dauphin Allaud 1900/Muséum Paris)” (MNHN).

Paratypes: 2 ♂♂ “Madagascar (Sud, forêts Nord Ft. Dauphin Allaud 1900/Muséum Paris)” (MNHN, coll. DA); 1 ♀ “Madagascar Fénerive E. Perrot” (MNHN).

ETYMOLOGY. — This new species is dedicated to Marc Lacroix (Paris) for his merits in study of melolonthine chafer beetles of Madagascar.

DESCRIPTION OF HOLOTYPE

Length: 8.2 mm; length of elytra: 5.9 mm; width: 4.2 mm. Body surface brown with greenish shine. Head and antenna as in *E. metallica*; eyes small, ratio of diameter/interocular width: 0.58. Antennomeres 3-5 not fused; club a little longer than the remaining antennomeres combined. Pronotum and scutellum as in *E. metallica*, except the basal marginal line of pronotum being more distinct and widely interrupted medially and its surface bearing a single long seta on the center of each pronotal half. Elytra as in *E. metallica*. Metacoxa and pygidium as in *E. metallica*. Ratio of length of metepisternum/metacoxa: 1/1.89. Legs as in *E. metallica*; ratio of metatibial width/length: 1/4.17, medial face of metatibia with one or two punctures beside the dorsal margin.

Aedeagus: Figure 1E-G.

VARIATION

Length: 8.2-9.9 mm; length of elytra: 5.9-6.2 mm; width: 4.2-5.3 mm. The colour varies from blackish green to reddish purple. The female has the antennal club slightly shorter and the punctures on pygidium are very indistinct.

REMARKS

The species is very similar in external morphology to *E. metallica* and may externally only be distinguished by the unfused antennomeres 3-5. The shape of

parameres provides more confidence for separating both taxa; parameres are longer in *E. lacroixi* n. sp. with a widely curved apical hook.

Emphania sulcipennis Moser, 1911

Emphania sulcipennis Moser, 1911: 513.

TYPE MATERIAL. — Lectotype (here designated): ♀ “Madagascar Amber Geb./*Emphania sulcipennis* Type Mos.” (ZMHB).

ADDITIONAL MATERIAL EXAMINED (list not sexed). — Madagascar. Madagascar Nord, Mont. d'Ambre, Vadon et Peyrieras, 1 ♂ (MNHN). — Madagascar [Inst. Scient.], Mont. d'Ambre, XII.1948, 1 ♀ (MNHN). — Antsiranana prov., Ambohitra, 30.XI-2.XII.1996, Ivo Jeniš leg., 1 ex. (coll. PP). — Diego Suarez, Nevinson Coll., 2 ex. (BMNH 1918[-14]). — Diego Suarez, [17] 1893, Ch. Allaud, 1 ♂ (MNHN).

REDESCRIPTION OF LECTOTYPE

Length: 6.7 mm; length of elytra: 4.5 mm; width: 4.2 mm. Dorsal body surface dark brown with greenish or partly reddish shine. Head and antenna as in *E. metallica* but the labroclypeus is only as wide as long being widest at base, with lateral margins evenly convex and convergent to moderately rounded anterior angles; entire clypeal surface very weakly convex, finely and densely punctate, entire surface sparsely covered with long, erect setae. Eyes moderately small, ratio of diameter/interocular width: 0.68 (♂). Antennomeres 3-5 not fused. Pronotum as in *E. metallica*; but its basal marginal line is laterally more distinct although widely interrupted medially; surface glabrous with a single long seta on the center of each pronotal half; anterior and lateral borders sparsely setose. Scutellum as in *E. metallica* but punctures evenly dense. Elytra with the apical interior angle strongly convex, apical external angle almost blunt and moderately rounded in the tip, apical border weakly convex, without distinct declivity separated from apical portion of elytra; striae distinctly impressed and finely punctate, intervals convex, with fine, dense punctures along the striae, glabrous; epipleural edge robust, ending at the external apical angle of elytra, epipleura sparsely setose. Metacoxa as in *E. metallica*, but its external angle posteriorly

right-angled. Ratio of length of metepisternum/metacoxa: 1/2.19. Mesosternal process indistinct. Pygidium as in *E. metallica*, but on basal half almost smooth and with a few long setae on apical half. Legs as in *E. metallica*, but basal one of dorsal spines at basal quarter of metatibial length; punctures on lateral face sparse, glabrous and medial face with one to four coarse punctures beside the dorsal margin; first metatarsomere about one third of its length longer than the upper tibial spur.

Aedeagus: Figure 2D-F.

VARIATION

Length: 6.6-7.0 mm; length of elytra: 4.4-4.7 mm; width: 4.0-4.4 mm.

REMARKS

The species differs from *E. metallica* in numerous characters such as the smaller body size, the distinctly incised elytral striae and the shape of the posterior margin of the metacoxa, the unfused antennomeres 3-5, and the shape of male genitalia. Since in the original description there is no comment on the number of specimens the description was based, the only available syntype was designated as lectotype.

Emphania nitida Moser, 1911

Emphania nitida Moser, 1911: 513.

TYPE MATERIAL. — Lectotype (here designated): ♂ “Madagascar Amber Geb./*nitida* Mos.” (ZMHB). Paralectotype: 1 ♂ “Madagascar Amber Geb.” (ZMHB).

REDESCRIPTION OF LECTOTYPE

Length: 6.2 mm; length of elytra: 4.2 mm; width: 3.9 mm. Dorsal body surface dark brown with greenish or partly reddish shine. Head and antenna as in *E. metallica*, but lateral margins of labroclypeus evenly convex and convergent to anterior angles, clypeal surface almost flat and beside the fine and dense punctures sparsely covered with coarse punctures each bearing a long, erect seta; punctures on frons more sparse; eyes, ratio of diameter/interocular width: 0.65; antennomeres 3-5 not fused. Pronotum as in *E. metallica*; lateral margins weakly and more

evenly convex; basal marginal line laterally distinct; surface glabrous with a single long seta on the centre of each pronotal half. Scutellum as in *E. metallica*, punctures evenly dense. Elytra and metacoxa as in *E. metallica*, external angle of metacoxa posteriorly right-angled. Ratio of length of metepisternum/metacoxa: 1/2.1. Mesosternal process indistinct. Pygidium moderately convex, finely and very sparsely punctate, on basal half almost smooth, with a few long setae on apical half. Legs as in *E. metallica*, but metatibia widest shortly before apex, ratio of metatibial width/length: 1/3.5, its basal groups of spines at the basal quarter of metatibial length and longitudinally impressed punctures sparse; metatibial medial face with one to four coarse punctures beside the dorsal margin.

Aedeagus: Figure 2A-C.

VARIATION

Length of elytra: 4.2-4.5 mm; width: 3.8-3.9 mm.

REMARKS

The species differs from *E. metallica* in numerous characters such as the significantly smaller body size, the distinctly incised elytral striae and the shape of the posterior margin of the metacoxa, the unfused antennomeres 3-5, and the shape of male genitalia. It is in shape of genitalia very similar to *E. sulcipennis*, and may be distinguished by the generally shorter aedeagus, the smaller body and the flat elytral intervals.

Since in the original description there is no comment on the number of specimens the description was based, one of the two available syntypes was designated as lectotype. The genitalia of the paratype was dissected by Moser but it is lacking on the cartoon attached to the specimen.

Emphania semiviridis n. sp.

TYPE MATERIAL. — Holotype: ♂ “Chaînes anosyennes Massif nord, 1050 m moyenne Ranomandry 11/30-XI-1971/Muséum Paris Madagascar Est mission C.N.R.S. R.C.P. n° 225” (MNHN).

ETYMOLOGY. — Derived from Latin, *semi-* (half), *viridis* (green).

DESCRIPTION OF HOLOTYPE

Length: 6.5 mm; length of elytra: 4.5 mm; width: 3.8 mm. Body surface dark green with greenish shine, partly reddish. Head as in *E. metallica*; ocular canthus without terminal setae. Eyes, ratio of diameter/interocular width: 0.63. Antennomeres 3-5 fused; antennal club 1.5 times longer than the remaining antennomeres combined. Pronotum and scutellum as in *E. metallica*. Elytra as in *E. metallica* but without convex semicircular declivity, apical interior angle convex, apical external angle oblique, and apical border convex. Metacoxa and pygidium as in *E. metallica*; tooth of posterior external angle of metacoxa moderately sharp. Ratio of length of metepisternum/metacoxa: 1/2.0. Legs as in *E. metallica*; posterior legs lacking in the holotype.

Aedeagus: Figure 2G-I.

REMARKS

The species shares the fused antennomeres 3-5 with the similar *E. metallica*. *Emphania semiviridis* n. sp. differs from *E. metallica* by the smaller body size, the lacking posterior elytral declivity, the longer antennal club being 1.5 times longer than the remaining antennomeres combined, and the shape of male genitalia having the distinctly shorter parameres with a sharply pointed apical hook.

Emphania subsmaragdina n. sp.

TYPE MATERIAL. — Holotype: ♂ “Madagascar Fianarantsoa Perrot Frères, 2^e semestre 1892” (MNHN).

ETYMOLOGY. — Derived from Latin, *sub-* (dark), *smaragdinus* (smaragd green).

DESCRIPTION OF HOLOTYPE

Length: 6.9 mm; length of elytra: 5.1 mm; width: 4.4 mm. Body surface dark green with greenish shine, partly reddish. Head as in *E. metallica*; labroclypeus more subrectangular and anterior angles strongly rounded. Eyes small, ratio of diameter/interocular width: 0.56. Antennal club twice as long as the remaining antennomeres combined and slightly reflexed; antennomeres 3 and 4 almost fused. Pronotum and scutellum as in *E. metallica*, but basal marginal line of pronotum very fine and indistinct, widely interrupted

medially. Elytra as in *E. metallica*, but apical interior angle blunt, apical external angle convexly rounded, and apical border convex. Metacoxa and pygidium as in *E. metallica*, ratio of length of metepisternum/metacoxa: 1/2.0. Legs as in *E. metallica*; metatibia more slender and long, widest shortly before apex; ratio width/length: 1/5.4; the basal group of spines at basal quarter of metatibial length; medial metatibial face with one to four coarse punctures beside the dorsal margin; first metatarsomere a quarter of its length, longer than the upper tibial spur.

Aedeagus: Figure 2M-O.

REMARKS

The species is, in shape of parameres, very similar to *E. semiviridis* n. sp. It differs from *E. semiviridis* n. sp. by the slightly larger body size, the presence of an elytral declivity, the longer antennal club being twice as long as the remaining antennomeres combined. The hook of each paramere in *E. subsmaragdina* n. sp. is more abruptly bent backwards and the paramere is more slender.

Emphania erichsoni n. sp.

TYPE MATERIAL. — Holotype: ♂ “Madagascar A. Mocquers 99-96.” (BMNH).

ETYMOLOGY. — The new species is named after W. F. Erichson who established the genus *Emphania* in 1847.

DESCRIPTION OF HOLOTYPE

Length: 6.9 mm; length of elytra: 4.7 mm; width: 4.5 mm. Body surface brown with greenish shine. Head and antenna as in *E. metallica*; clypeal surface flat; eyes, ratio of diameter/interocular width: 0.57; antennomeres 3-5 unfused. Pronotum and scutellum as in *E. metallica*; basal marginal line of pronotum lacking. Elytra as in *E. metallica*, without convex semicircular declivity; intervals with fine and dense punctures that are superficially slightly longitudinally impressed. Metacoxa as in *E. metallica*, posteriorly produced forming a moderately sharp tooth. Ratio of length of metepisternum/metacoxa: 1/2.2. Pygidium as in *E. metallica*. Legs as in *E. metallica*. Posterior legs lacking in the holotype.

Aedeagus: Figure 2J-L.

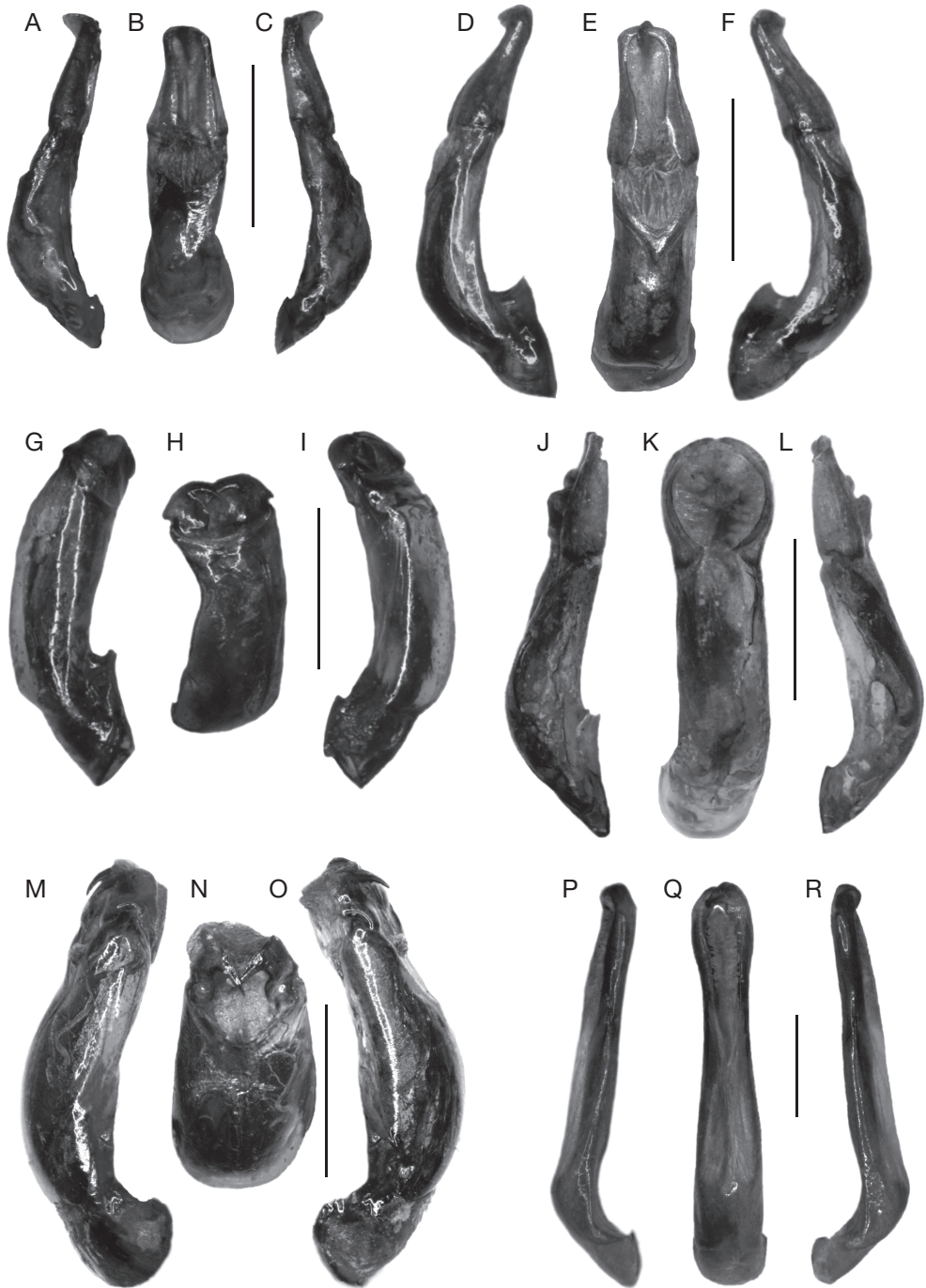


FIG. 2. — **A-C**, *Emphania nitida* Moser, 1911 (lectotype); **D-F**, *E. sulcipennis* Moser, 1911 (Madagascar Nord, Montagne d'Ambre); **G-I**, *E. semiviridis* n. sp. (holotype); **J-L**, *E. erichsoni* n. sp. (holotype); **M-O**, *E. subsmaragdina* n. sp. (holotype); **P-R**, *E. ranomafanae* n. sp. (holotype); **A, D, G, J, M, P**, aedeagus, left side lateral views; **B, E, H, K, N, Q**, aedeagus, dorsal views; **C, F, I, L, O, R**, aedeagus, right side lateral views. Scale bars: 1 mm.

REMARKS

The new species differs from *E. metallica* in the smaller body size, the lacking posterior elytral declivity, the longitudinally impressed elytral punctures, the unfused antennomeres 3-5, and the shape of male genitalia having the parameres more elongate and weakly curved interiorly, without an apical hook.

Emphania ranomafanae n. sp.

TYPE MATERIAL. — Holotype: ♂ “Madagascar: Fianarantsoa: Ranomafana National Park, Talatakely, research 1998 V. F. Lee, K. J. Ribardo, leg. Calif. Acad. Sci. Collection/Casent 8006559” (CASC).

Paratype: 1 ♀ “Madagascar: Fianarantsoa: Ranomafana National Park, Talatakely, research 1998 V. F. Lee, K. J. Ribardo, leg. Calif. Acad. Sci. Collection/Casent 8006560” (CASC).

ETYMOLOGY. — The new species is named after its occurrence in the Ranomafana National Park.

DESCRIPTION OF HOLOTYPE

Length: 8.5 mm; length of elytra: 5.8 mm; width: 5.3 mm. Body surface brown with reddish to greenish shine. Labroclypeus and antenna as in *E. metallica*; eyes, ratio of diameter/interocular width: 0.53; antennomeres 3-5 not fused. Pronotum, scutellum and elytra as in *E. metallica*. Metacoxa and pygidium as in *E. metallica*. Ratio of length of metepisternum/metacoxa: 1/1.87. Legs as in *E. metallica*; ratio metatibial width/length: 1/4.25, medial face of metatibia with one or two punctures beside the dorsal margin.

Aedeagus: Figure 2P-R.

VARIATION

No variation in body measurements observed. Colour varies from blackish green to reddish purple. The female has the antennal club slightly shorter and the punctures on pygidium are less distinct.

REMARKS

The species is very similar in external morphology to *E. metallica*, and may externally only be distinguished by the unfused antennomeres 3-5. The elongate shape of aedeagus and the weakly curved parameres

provide best features for separating the taxon from all other so far known *Emphania* species.

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