

**A study on *Lomaptera rubens* Janson, 1905 species group
(Coleoptera: Scarabaeidae: Cetoniinae),
with description of a new species**

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Abstract. *Lomaptera rubens* Janson, 1905 species group is studied and in particular reorganised. *Lomaptera pseudorufa* Heller, 1899 placed by Schurhoff (1935) into *Lomaptera semicastanea* species group and *Lomaptera rufa* Kraatz, 1880 placed by the same author into *Lomaptera cinnamomea* J. Thomson, 1878 species group are considered here as members of *Lomaptera rubens* species group with following species: *Lomaptera rubens* Janson, 1905; *Lomaptera simbangensis* Schurhoff, 1935; *Lomaptera joallandi* Le Thuaud, 2005; *Lomaptera rufa* Kraatz, 1880 and *Lomaptera pseudorufa* Heller, 1899. A new species belonging to this species group is described as new to science, *Lomaptera submontana* sp. nov. from Arfak Mountains in western part of New Guinea Island (Indonesia). All species belonging to this species group are pictured, including aedeagi of males (if available). Distribution of species formerly described from Papua New Guinea and their occurrence in Indonesian part of New Guinea Island is discussed and new distributional data of some species are presented.

INTRODUCTION

All species of *Lomaptera rubens* species group belong to subgenus *Melanoptera*, which was established by Schurhoff (1935). Rigout & Allard (1997) did not accepted concept of Schurhoff with two different subgenera in genus *Lomaptera* Gory & Percheron, 1833, but synonymisation was officially provided by Krajčák (2016). Since then, this concept without any subgenera in *Lomaptera* Gory & Percheron, 1833 is accepted by most of authors.

Species of *Lomaptera rubens* species group share following characters: body medium-sized to large (22-29 mm); dorsal colour orange or chestnut brown to red (excepting only head, antennae, anterior and lateral margins of pronotum, which are black); ventrum, pygidium and legs always black; aedeagi of males stout, symmetrical or very slightly asymmetrical with well developed inner tongue; transversally running striolation of elytra developed usually nearly throughout its total length; abdominal groove of males large and deep. Pygidia of females usually differently shaped, but not in all species, therefore identification of some females might be very difficult or impossible. Great variability is found only in *Lomaptera pseudorufa* Heller, 1899, in all other species coloration of dorsum seems to be very constant, although melanistic specimens can be always found. Species of this group stay very close each other with very similarly looking habitus. They differ in size, dorsal colouration, length of elytral lateral border, colour of ventral setation, presence of notch in anal segment of males, structure of male parameres and in particular in shape of pygidia of females.

Schurhoff (1935) placed *Lomaptera rufa* Kraatz, 1880 into *cinnamomea* species group and *Lomaptera pseudorufa* Heller, 1899 into *semicastanea* species group. Both species are considered here as members of *Lomaptera rubens* species group, based on characters mentioned above.

Hitherto all currently known species were described from Papua New Guinea, excepting only *Lomaptera joallandi* Le Thuaud, 2005, which was described from western part of New Guinea Island belonging to Indonesia. Author of this article tried to identify specimens belonging to *rubens* group collected during the last twenty years in western part of New Guinea. Similarly as in eastern part of island species of *rubens* group are distributed across whole part of Indonesian, western part of the island, from Arfak Mountains and Sorong across central regions to the east of Papua Province, which is bordering with Papua New Guinea. Identification of approximately 150 specimens revealed following results. *Lomaptera rufa* Kraatz, 1880; *Lomaptera rubens* Janson, 1905 and *Lomaptera simbangensis* Schurhoff, 1935 were not found. Few specimens of *Lomaptera pseudorufa* Heller, 1899 have been found in eastern and central parts of Indonesian Papua. *Lomaptera joallandi* Le Thuaud, 2005 was confirmed in several places in central highlands and also in Fakfak area. Species with orange dorsum (as in *L. rufa* and *L. pseudorufa*), but with male parameres more close to species with chestnut brown to red dorsum (*L. rubens*, *L. simbangensis* and *L. joallandi*) coming from Arfak Mountains is described as a new to science in this article.

MATERIAL AND METHODS

The following codens of institutional and private collections are used in the text:

- DEIC Deutches Entomologisches Institut, Eberswalde, Germany;
- GFCP Gilles Flutsch private collection, Gometz le Chatel, France;
- JDCP Jacques Devecis private collection, Sainte Fortunade, France;
- PTCP Thuaud Patrick Le Thuaud private collection, Ris Orangis, France;
- RMNH Rijksmuseum van Natuurlijke Historie, Leiden, Netherland;
- SJCP Stanislav Jákl private collection, Praha, Czech Republic;
- SMTD Staatliches Museum für Tierkunde, Dresden, Germany;
- ZMHB Museum für Naturkunde, Leibniz_Gemeinschaft, Berlin, Germany.

Specimens of newly described species are provided with red and yellow printed labels, red for HOLOTYPUS, yellow for PARATYPUS. Each holotype or paratype labels are provided with sex symbol, number of paratype (in paratype label) and words St. Jákl det. Label data are cited for the material examined, individual labels are indicated by a double slash (//), individual lines by a single slash (/).

RESULTS

Lomaptera joallandi Le Thuaut, 2005

(Figs. 1-5)

Lomaptera joallandi Le Thuaut, 2005: 60 (original description).

Type locality. Indonesia, Irigina (Wamena Province), Irian Jaya, Batut.

Type material. Holotype (♂), Allotype (♀) (PTCP), Paratypes: (13 ♂♂, 18 ♀♀), (PTCP), (5 ♂♂, 2 ♀♀), (GFPC), (1 ♂, 1 ♀), (JDCP).

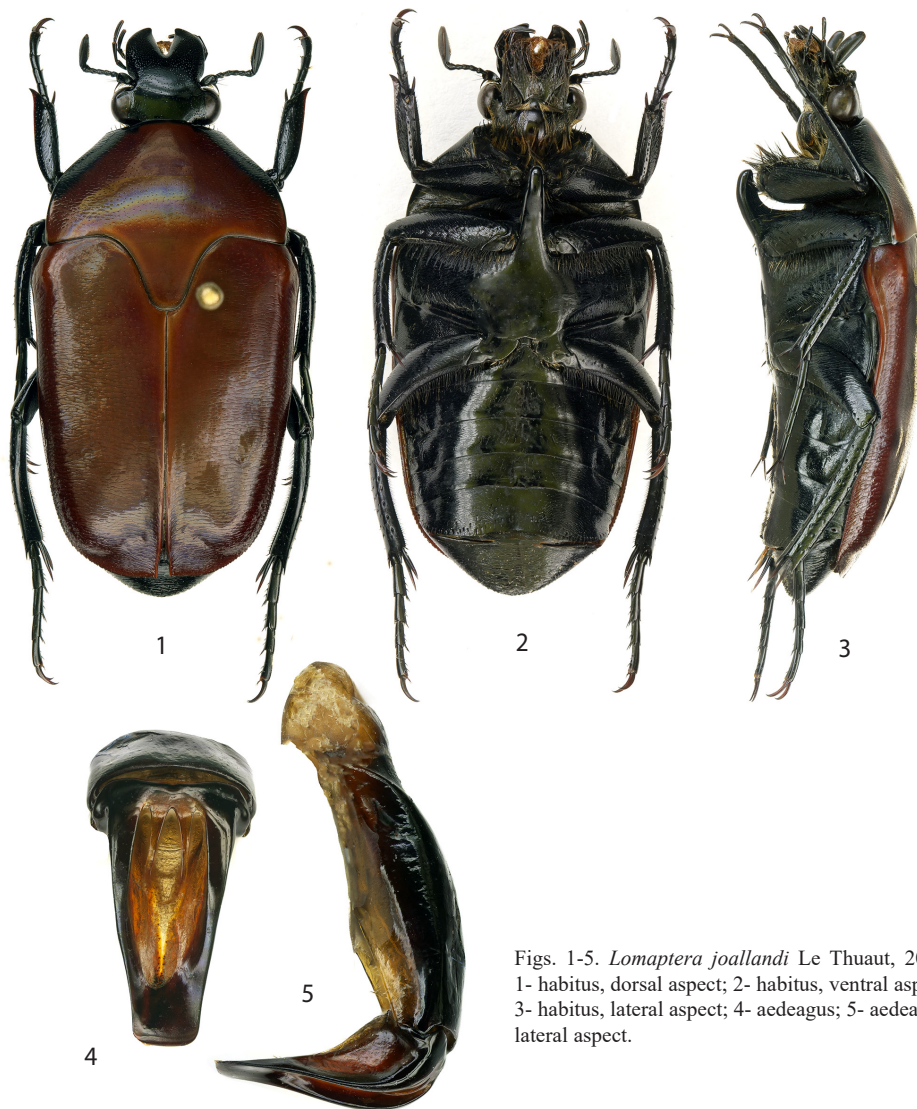
Additional examined material: 2 ♂♂, 2 ♀♀ (SJCP) labelled: Indonesia, West Papua / KALADIRI env., cca 20 km / S of Nabire, 300 m alt. / I. 2009, local collector lgt; 3 ♂♂, 1 ♀ (SJCP) labelled: Indonesia, West Papua / KALADIRI env., cca 20 km / S of Nabire, 300 m alt. / 12. 2009, local collector leg; 1 ♂, 1 ♀ (SJCP) labelled: Indonesia, Irian Jaya centr. / NABIRE REGION, 4. 2003 / local collectors lgt; 1 ♂, 1 ♀ (SJCP) labelled: INDONESIA, West Papua / prov., NABIRE env. / IX. 2003 / local collector lgt; 2 ♂♂, 1 ♀ (SJCP) labelled: Indonesia, SW Irian Jaya / FAK FAK REGION, 12. 2002 / local collectors lgt.

Diagnosis. Dorsal coloration chestnut brown to red, excepting black head, antennae, anterior and lateral margins of pronotum. Ventrums, pygidium and legs black. Shining with silvery tinge. Body size 26-30 mm (excluding pygidium). Punctuation of pronotum fine and simple, pronotal sides with rather dense striolation. Elytra with transversally running rather dense striolation developed nearly throughout total length. Abdomen of male with deep and long impression, abdomen of female arched. Setation of abdomen and posterior margins of femora black, prosternum and mentum with cover of more rich ginger setae. Male parameres nearly symmetrical, from phallobase gradually narrowing to obtuse apex, inner tongue of parameres reaching approximately middle length, branches of tongue growing from the base. Pygidium of females only slightly flattened in ventral side.

This species stays close to *Lomaptera rubens* Janson, 1905 and *Lomaptera simbangensis* Schurhoff, 1935. In size and coloration all three species look very similar. Dorsum with silvery developed tinge, which is missing in both congeners. Setae in abdomen and posterior margins of femora black, but ginger to yellowish in both congeners. Parameres of male more close to *Lomaptera simbangensis* Schurhoff, 1935, but longer. Pygidium of female with longitudinal carina as in female of *Lomaptera simbangensis* Schurhoff, 1935.

Distribution. Indonesia: West Papua and Papua Provinces.

Note. *Lomaptera joallandi* Le Thuaut, 2005 is distinct species. Descriptor of this species compared insect with *Lomaptera rubens* Janson, 1905, but the species is actually closer to *Lomaptera simbangensis* Schurhoff, 1935.



Figs. 1-5. *Lomaptera joallandi* Le Thuaut, 2005:
1- habitus, dorsal aspect; 2- habitus, ventral aspect;
3- habitus, lateral aspect; 4- aedeagus; 5- aedeagus,
lateral aspect.

***Lomaptera pseudorufa* Heller, 1899**
(Figs. 6-10)

Lomaptera semicastanea pseudorufa Heller, 1899: 9 (original description); Schenkling 1921: 116 (catalogue).
Lomaptera (Melanoptera) pseudorufa Heller, 1899: Schurhoff 1935: 84 (in key); Valck Lucassen 1961: 9 (key, males), 15 (key, females), 73, figs. 15-16, 198-201 (monograph); Krajčik 1999: 27 (catalogue).
Lomaptera pseudorufa Heller, 1899: Allard 1997: 63 (monograph).

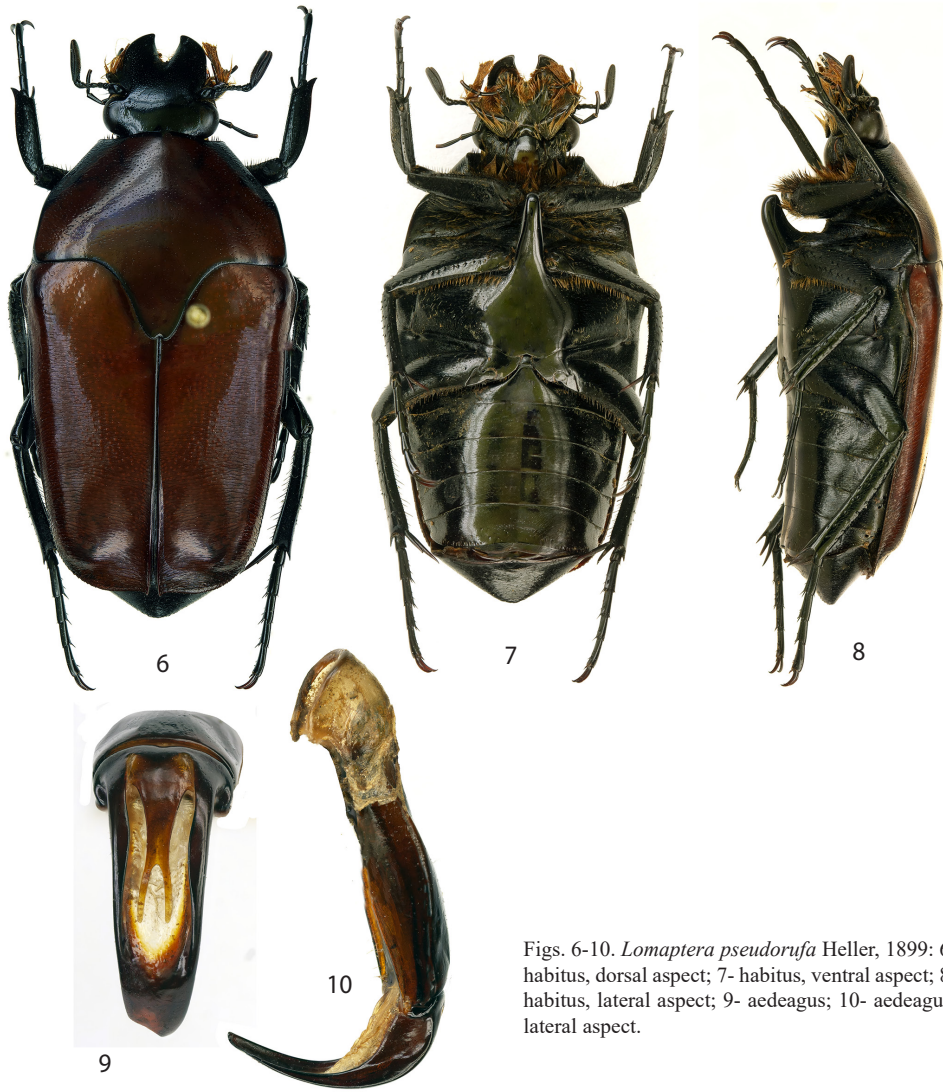
Type locality. „Nova Guinea britannica, meridionalis, mons Victoria“ (= Papua New Guinea, south, Mt. Victoria).

Type material. Heller described species from several syntypes of both sexes (SMTD).

Additional examined material: 2 ♂♂ (SJCP) labelled: Indonesia, 11. 1998 / Timika - Kuala Kencana / native collectors lgt; 1 ♂ (SJCP) labelled: Indonesia, 1. 2009 / West Papua Prov. / KALADIRI env. Cca / 20 km S of Nabire / local collector leg; 3 ♂♂ (SJCP) labelled: INDONESIA, West Papua / Pr., Nabire reg. / KALADIRI v. env., XII. 2008 / local collector leg; 1 ♂ (SJCP) labelled: INDONESIA, West / Papua pr., NABIRE / env., XII. 2008 / local collector leg; 1 ♂, 1 ♀ (SJCP) labelled: Indonesia, Irian Jaya, centr. / NABIRE REGION, 4. 2003 / local collectors leg; 1 ♀ (SJCP) labelled: INDONESIA, West Papua / pr. NABIRE env. / V. 2017 / local collector leg; 1 ♂ (SJCP) labelled: Indonesia, Irian Jaya centr. / NABIRE REGION, 12. 2003 / local collectors lgt; 1 ♂ (SJCP) labelled: IND., IRIAN JAYA / FAK FAK REGION / local collector / 12/00.

Diagnosis. Dorsal side orange with black head, antennae and anterior and lateral margins of pronotum. Body size 26-30 mm (excluding pygidium). Pronotum simply and rather sparsely punctured, especially in disc and pronotal lobe. Sides of pronotum transversally striolated. Elytra with transversally running striolation nearly throughout total length. Lateral border of elytra not reaching level of apical calli. Both elytral calli very obtuse. Sutural ridge flat, in apex slightly elevated and shortly drawn out over elytral apex. Pygidium of male conically shaped sides not flattened. Pygidium of female completely flattened in ventral side, central carina present. Ventrums black, ventral setation yellowish to ginger. Setation of abdomen and metasternum much sparser than in prosternum and mentum. Broad sides of abdomen, metasternum, whole prosternum and mentum with deep striolation. Abdominal groove in male deep and long, abdomen of female arched. Mesometasternal process heading downwards, its apex obtusely rounded. Legs black, rather long, protibia unidentate. Parameres of male very elongated, inner tongue reaching at least middle of length. Length of male parameres and shape of pygidium in female are diagnostical in all representatives of *rubens* species group.

Distribution. Papua New Guinea; Indonesia: Papua Province, Timika.



Figs. 6-10. *Lomaptera pseudorufa* Heller, 1899: 6- habitus, dorsal aspect; 7- habitus, ventral aspect; 8- habitus, lateral aspect; 9- aedeagus; 10- aedeagus, lateral aspect.

Lomaptera rubens Janson, 1905

(Figs. 11-15)

Lomaptera rubens Janson, 1905: 15 (original description); Schenkling 1921: 116 (catalogue); Allard 1997: 73 (monograph); Sakai & Nagai 1998: 200, pl. 25, figs. 438-1 male, 438-2 female (iconography).

Lomaptera (Melanoptera) rubens Janson, 1905: Schurhoff 1935: 84, fig. 25 (key, parameres); Valck Lucassen 1961: 9 (key, males), 12 (key, females), 99, figs. 24, 268-278 (monograph); Krajčič 1999: 27 (catalogue).

Lomaptera (Melanoptera) tamiensis Valck Lucassen, 1961: 7 (key, males), 12 (key, females), 103, figs. 26-27, 282-289 (original description, monograph); Krajčič 1999: 27 (catalogue); Allard 1997: 73 (= *Lomaptera rubens* Janson); Type locality. "Nouvelle Guinée néerlandaise: Hollandia, Fl. Tami" (= Indonesia, Papua, Tami River).

Lomaptera (Melanoptera) occidentalis Valck Lucassen, 1961: 12 (key, females), 103, figs. 290-295 (original description, monograph); Krajčič 1999: 27 (catalogue); Allard 1997: 73 (= *Lomaptera rubens* Janson); Type locality. "FakFak, 1700'" (= Indonesia, West Papua, Fakfak region, 1700 feet).

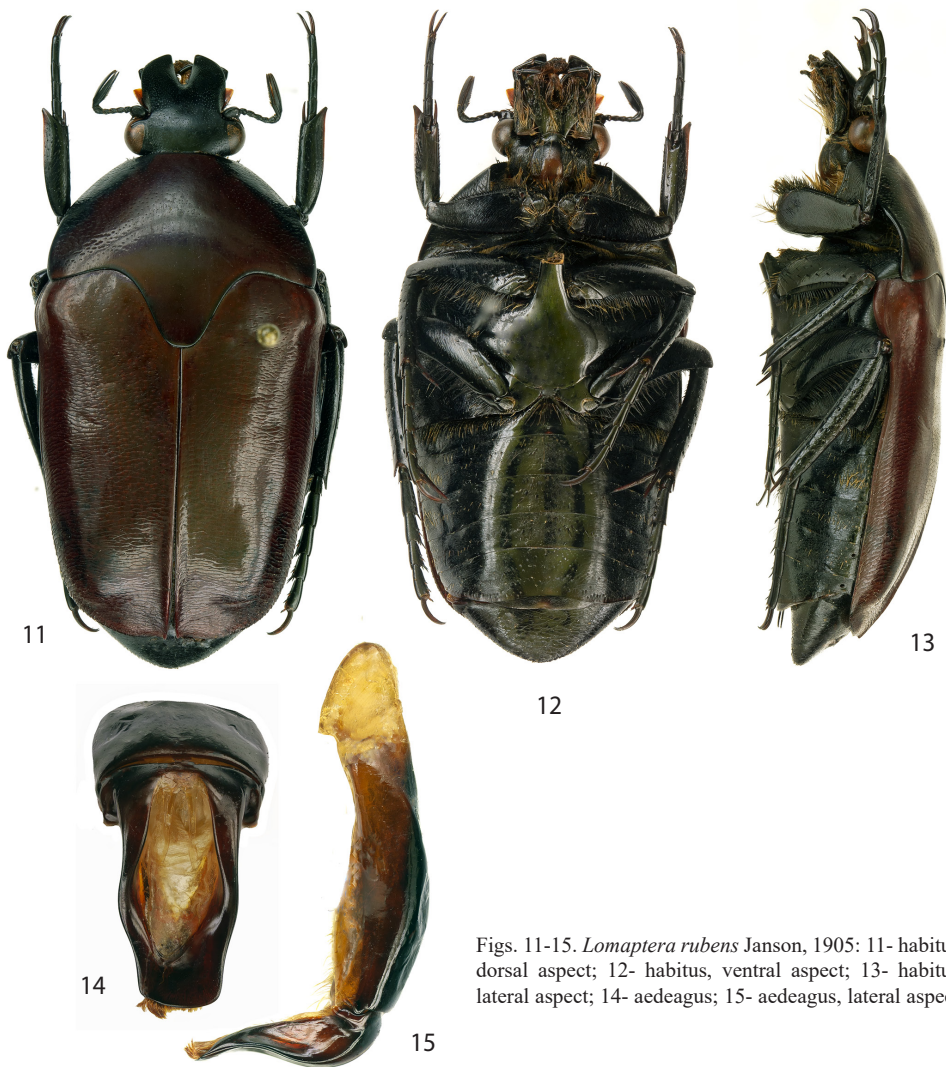
Type locality. „Babooni, British New Guinea“ (= Papua New Guinea, Babooni).

Type material. *Lomaptera rubens*: syntypes of both sexes (RMNH); *Lomaptera (Melanoptera) occidentalis*: holotype (♀) (RMNH); *Lomaptera (Melanoptera) tamiensis*: holotype, allotype and paratypes (RMNH).

Diagnosis. Large cetonina with body size 27-30 mm (excluding pygidium). Dorsal coloration dark red to chestnut brown. Head, antennae, part of lateral margins of pronotum and anterior margin of pronotum black. Pygidium, ventrum and leg also black. Head with fine and rather sparse punctation, especially in frons. Lateral declivities of head gently striolated. Antennae with few yellowish setae, antennal stalk longer than club. Pronotum with fine and simple punctation in pronotal disc, pronotal basal lobe nearly impunctate. Sides of pronotum striolated. Basal lobe of pronotum without incision in its apex. Striation of elytra transversally running, excepting only small subscutellar area, which is impunctate. Lateral border of elytra not reaching level of apical calli. Both elytral calli obtuse. Sutural ridge flat, in front of apex slightly elevated and drawn out over elytral apex. Pygidium of male moderately compressed from both sides. Ventrum black with yellowish to ginger setation. Abdominal groove of male deep and long, in female abdomen arched. Broad sides of abdomen, metasternum and prosternum with rather dense transversally running striolation. Posterior haunches drawn out and turned up. Parameres of male rather wide, slightly asymmetrical, inner tongue slender with slender branches reaching approximately to middle length. Legs black, rather long. Femora striolated throughout total length, protibia unidentate.

Distribution. Papua New Guinea.

Note. Author did not see any specimens from Indonesian part of island. Valck Lucassen (1961) described *Lomaptera tamiensis* (all 4 specimens completely black) from northeastern part of Indonesian Papua Province and *Lomaptera occidentalis* (only holotype female) from Fakfak region, both taxa have been synonymised by Allard (1997). Author was not able to examine both taxa due to long time closure of Leyden Museum.



Figs. 11-15. *Lomaptera rubens* Janson, 1905: 11- habitus, dorsal aspect; 12- habitus, ventral aspect; 13- habitus, lateral aspect; 14- aedeagus; 15- aedeagus, lateral aspect.

Lomaptera rufa Kraatz, 1880

Lomaptera rufa Kraatz, 1880: 215 (original description); Schenkling 1921: 116 (catalogue); Allard 1997: 74 (monograph).

Lomaptera (Melanoptera) rufa Kraatz, 1880: Schurhoff 1935: 84, fig. 27 (key, parameres); Valck Lucassen 1961: 7 (key, males), 12 (key, females), 109, figs. 30, 307-320 (monograph); Krajččík 1999: 27 (catalogue).

Type locality. “Nova Guinea mer. or.” (= Papua New Guinea, southeast).

Type material. Kraatz described this species from one male (DEIC).

Distribution. Papua New Guinea.

Note. Author was not able to examine this species. According to Allard (1997) insect is smaller than other species in *rubens* group. Parameres of male are very diagnostic, extremely elongated, apical half of parameres completely chitinised.

***Lomaptera simbangensis* Schurhoff, 1935**

(Figs. 16-20)

Lomaptera (Melanoptera) simbangensis Schurhoff, 1935: 71, fig. 26 (original description); Valck Lucassen 1961: 9 (key, males), 12 (key, females), 101, figs. 25, 251, 279-281 (monograph); Krajčák 1999: 27 (catalogue).

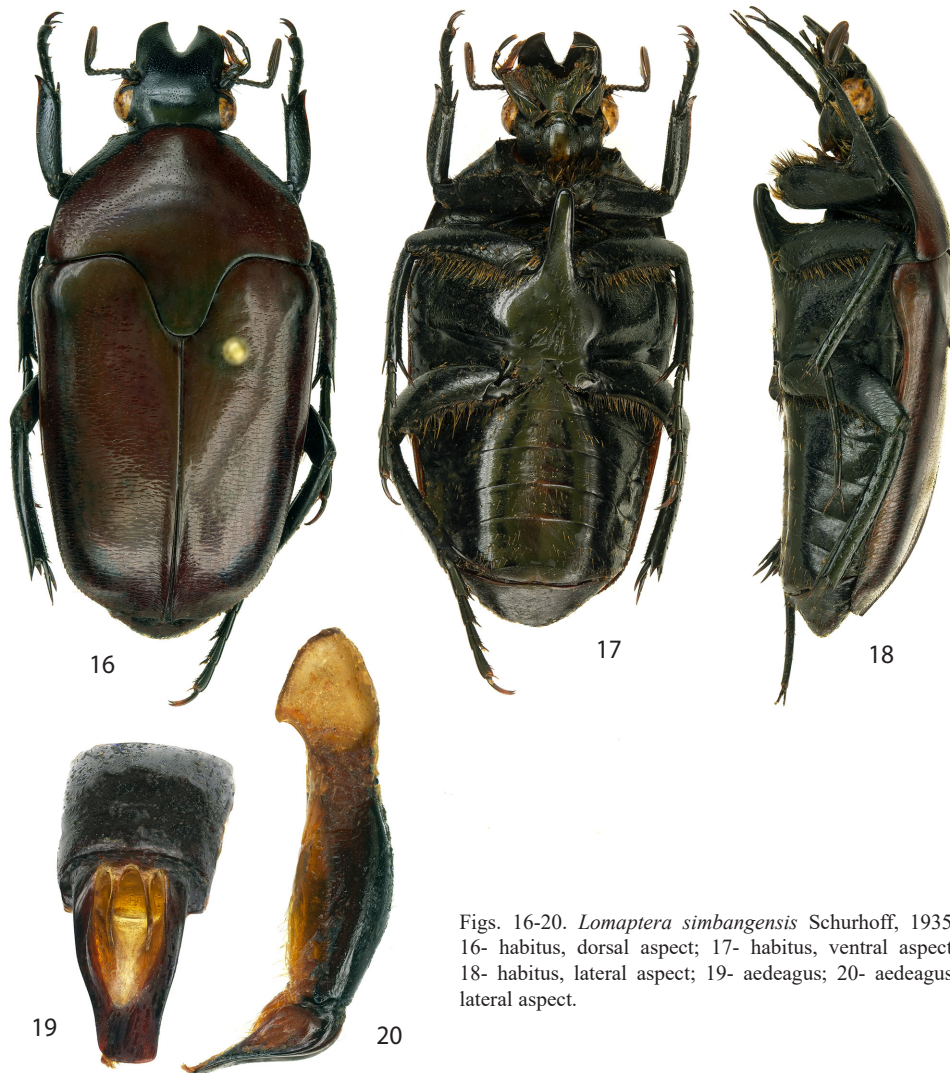
Type locality. “D. N. Guinea, Sattelberg und Wareo“ (= Papua New Guinea, Port Moresby and Wareo).

Type material. Holotype (♀), Allotype (♂), several paratypes (ZMHB (ex coll. Schurhoff)).

Diagnosis. Large species, with body size 27-30 mm (excluding pygidium). Dorsal side dark red to chestnut brown, excepting black head antennae, lateral and anterior margins of pronotum. Ventrums, pygidium and legs black. Habitually very similar to *Lomaptera rubens* Janson, 1905 and *Lomaptera joallandi* Le Thuaut, 2005.

Head black, moderately shining, punctation simple and fine in clypeus, sparser in frons. Lateral declivities striolated. Clypeus deeply incised. Antennae black to dark brown, antennal stalk longer than club. Pronotum dark red to chestnut brown, two anterior thirds of lateral sides and anterior margin black. Punctation of pronotal disc simple and fine, pronotal basal lobe nearly impunctate. Sides striolated. Apex of pronotal lobe without incision. Elytra same coloured as pronotum, without any black parts. Transversally running striolation running nearly throughout total length, excepting only small subscutellar area. Both elytral calli completely flattened. Apical half of sutural ridge slightly elevated and shortly drawn out over elytral apex. Lateral border of elytra not reaching level of apical calli. Pygidium black, slightly flattened from both sides in male, in female pygidium with median carina. Ventrums black, broad sides of abdomen, metasternum and whole prosternum with dense striolation. Abdominal groove in male deep and long. Ventral setation reddish, rather abundant, especially in metasternal sides and prosternum. Posterior haunches not turned up. Disc of metasternum glabrous, mesometasternal process slightly heading downwards, its apex rounded. Legs black and rather long. Femora striolated throughout total length, protibia unidentate in both sexes. Meso- and metatibia with short black setae in inner sides. Parameres of male shorter, nearly gradually narrowing from base to apex. Inner tongue of parameres reaching halfway of length.

Distribution. Papua New Guinea.



Figs. 16-20. *Lomaptera simbangensis* Schurhoff, 1935: 16- habitus, dorsal aspect; 17- habitus, ventral aspect; 18- habitus, lateral aspect; 19- aedeagus; 20- aedeagus, lateral aspect.

***Lomaptera submontana* sp. nov.**
(Figs. 21-25)

Type locality. Indonesia, West Papua, Arfak Mountains, Duebei env., 20 km S of Warmere, 1200 m alt.

Type material. Holotype (♂) (SJCP) labelled: Indonesia, West Papua pr. / ARFAK MTS., 1200m alt. / DUEBEI env., cca 20 km / S of Warmere, 21.1.-8.2. / 2008, St. Jákl lgt. Paratypes: (Nos. 1-10 ♂♂, Nos. 11-16 ♀♀) (SJCP) labelled: same as holotype.

Description of holotype. Dorsal side orange with black head, antennae, anterior and lateral sides of pronotum. Body size 27.5 mm (excluding pygidium).

Head. Completely black, moderately shining. Punctuation of frons simple and fine, punctuation of clypeus much denser with mixture of rather deep and dense punctuation and shortly developed striolation. Lateral declivities striolated. Apex of clypeus deeply incised. Antennae black, coloration of antennal club paler. Antennal stalk longer than club.

Pronotum. Orange, lateral sides and anterior margin black. Punctuation of disc very fine and simple, basal lobe impunctate. Sides with broad and rather dense striolation. Anterior margin with vague border, sides unbordered. Apex of basal lobe without incision.

Elytra. Coloration orange, transversally running striolation developed throughout total length, including subscutellar area, which is usually in other species of same group impunctate. Humeral and apical calli completely obtuse. Elytral disc gradually merging into lateral ridge. Lateral border of elytra fragmentally reaching level of apical calli. Subhumeral emargination very vague, elytra nearly parallel developed. Apical half of sutural ridge slightly elevated and drawn out very shortly over elytral apex.

Pygidium. Black, sharply flattened from both sides, but especially from ventral side. Pygidial striolation deep and dense.

Ventrum. Black with yellowish setation of posterior haunches, metasternum, prosternum and mentum and black setation of abdomen. Abdominal impression deep and long. Disc of abdomen with setiferous punctures, rest of ventrites striolated. Posterior haunches, sides of metasternum and whole prosternum striolated. Metasternal plate with simple punctuation. Mesometasternal process heading downwards, its apex curved and obtusely rounded.

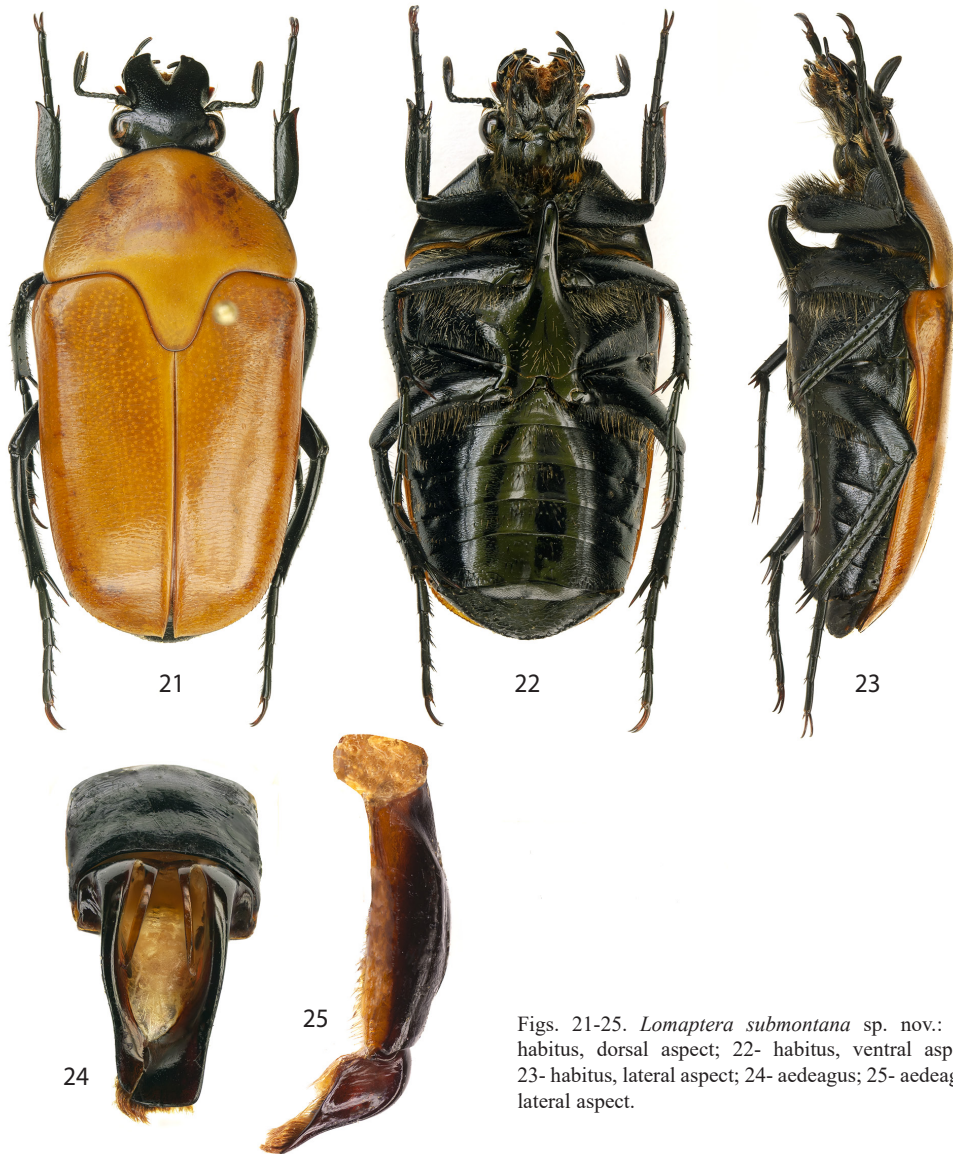
Legs. Black and rather long. Tarsal claws and tibial spurs brownish. Femora striolated, meso- and metafemora with carina (developed throughout total length) in front of posterior margins. Protibia unidentate. Meso- and metatibia slender and long, inner sides with short, black setation.

Genitalia. Parameres moderately long, rather wide, slender branches of inner tongue starting from base and reaching halfway of parameral length. Ventral side of parameral apex with abundant, orange setation (Figs. 24-25).

Variability. Body size 26-28 mm (excluding pygidium). In some males black, lateral area of pronotum not reaching posterolateral margins. In other aspects identical.

Sexual dimorphism. Size of females 25.5-28 mm (excluding pygidium). Abdomen arched, fifth abdominal ventrite with very deep and dense punctures bearing long, black setae, punctuation, striolation and setation in rest of abdomen same as in males. Pygidium flattened, especially on ventral side. Striation of dorsal side deep and dense running transversally, in ventral side much shallower, running longitudinally. Median carina in ventral side of pygidium reaching only halfway of total length. Legs shorter and more robust.

Differential diagnosis. Newly described species from Arfak Mountains (West Papua) differs from all representatives of *rubens* species group in complex of following characters: coloration of dorsum orange; black, lateral vitta in pronotum usually reaching posterolateral margins; body size 25.5-28 mm (excluding pygidium); clypeus in particular striolated; basal lobe of pronotum without incision; transversally running striolation in elytra running



Figs. 21-25. *Lomaptera submontana* sp. nov.: 21- habitus, dorsal aspect; 22- habitus, ventral aspect; 23- habitus, lateral aspect; 24- aedeagus; 25- aedeagus, lateral aspect.

throughout total length; elytral calli completely flat; ventral setation of abdomen black, in rest of ventrum yellowish; abdomen with setiferous punctures; apex of mesometasternal process curved downwards; pygidium of male very flattened from both sides; pygidium of female with median carina running only to halfway of the length; parameres of male moderately long, slender branches of inner tongue reaching approximately halfway.

New species is habitually most similar with *Lomaptera rufa* Kraatz, 1880 and *Lomaptera pseudorufa* Heller, 1899. Males of newly described species can be separated by completely

different structure of parameres, which are rather short in new species, but extremely elongated in both congeners. Females can be separated by shape of pygidia, ventral side of pygidium very flattened in new species, but much less in congeners. From profile view pygidia of both currently known species more or less conically developed, but clearly flattened in new species.

From dark red or chestnut coloured species (*Lomaptera joallandi* Le Thuaut, 2005; *Lomaptera rubens* Janson, 1905 and *Lomaptera simbangensis* Schurhoff, 1935) can be newly described species distinguished by orange colour of dorsal side. Parameres of males with wide parameral apex, nearly as wide as in base, but narrowing from base to apex in all three congeners. Pygidia of females are rather similar, but author did not see any bright orange females of discussed species.

Etymology. Refers to submontane type of fauna in type locality of newly described species, lying in altitude 1200 m.

Distribution. Indonesia: West Papua Province, Arfak Mountains.

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