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TAXONOMY AND NOMENCLATURE

On the identity of *Chauliognathus flavipes* (Coleoptera: Cantharidae): revision of type specimens, new synonyms and new status

Gabriel Biffi[1]

[1]*Museu de Zoologia da Universidade de São Paulo. Avenida Nazaré 481, Ipiranga, 04263-000 São Paulo, SP, Brazil. E-mail: biffigabriel@gmail.com*

ABSTRACT. The identity, taxonomic history, type series and synonyms of *Chauliognathus flavipes* (Fabricius, 1781), *C. fallax* (Germar, 1823), *C. axillaris* (Fischer von Waldheim, 1823) and *C. basalis* Lacordaire, 1857 are herein discussed. Twenty-five new synonyms are proposed for *C. flavipes*, with designation of lectotypes: *C. fallax* var. *atrofasciata* Pic, 1925 **syn. nov.**, *C. fallax* var. *basireducta* Pic, 1925 **syn. nov.**, *C. fallax* var. *concolor* Pic, 1927 **syn. nov.**, *C. fallax* var. *medioreducta* Pic, 1928 **syn. nov.**, *C. fallax* var. *edmondi* Pic, 1948 **syn. nov.**, *C. fallax* var. *petri* Pic, 1948 **syn. nov.**, *C. fallax* var. *henrici* Pic, 1948 **syn. nov.**, *C. fallax* var. *reductemaculata* Pic, 1949 **syn. nov.**, *C. plagiatus* Blanchard, 1844 **syn. nov.**, *C. plagiatus* var. *latejuncta* Pic, 1925 **syn. nov.**, *C. plagiatus* var. *orbygnyi* Pic, 1948 **syn. nov.**, *C. plagiatus* var. *alcidei* Pic, 1948 **syn. nov.**, *C. inbasalis* Pic, 1925 **syn. nov.**, *C. bimaculatus* Pic, 1925 **syn. nov.**, *C. mendesensis* Pic, 1933 **syn. nov.**, *C. opacicollis* Pic, 1946 **syn. nov.**, *C. opacicollis* var. *freiburgana* Pic, 1946 **syn. nov.**, *C. bireductipennis* Pic, 1947 **syn. nov.**, *C. quadripunctatus* var. *lebisi* Pic, 1947 **syn. nov.**, *C. diversesignatus* Pic, 1949 **syn. nov.**, *C. neopici* Wittmer, 1951 **syn. nov.**, *C. rufipes* Pic, 1924 **syn. nov.**, *C. rufipes* var. *quadrinotata* Pic, 1928 **syn. nov.**, *C. rufipes* var. *haasi* Pic, 1928 **syn. nov.**, *C. ensellatus* var. *innotatithorax* Pic, 1944 **syn. nov.** The name *Chauliognathus neopici* var. *schneideri* Pic, 1934 **syn. nov.** is also proposed as a junior synonym of *Chauliognathus plicatus* Pic, 1915. *Chauliognathus plagiatus* var. *latebasalis* Pic, 1925 is elevated to species rank (= *C. latebasalis* Pic, 1925 **stat. nov.**) and the homonymy of *C. basalis* Lacordaire, 1857 and *C. basalis* LeConte, 1859 is discussed. Finally, a redescription and a distribution map of *C. flavipes* are given.

KEY WORDS. Description, distribution, Maurice Pic, taxonomy, variety.

Chauliognathus fallax (Germar, 1823), *C. axillaris* (Fischer von Waldheim, 1823) and *C. basalis* Lacordaire, 1857 are currently considered junior synonyms of *C. flavipes* (Fabricius, 1781) (Waterhouse 1878, Wittmer 1961). However, each has been considered valid species in different publications on various related subjects. The purpose of this work is to resolve the confusion regarding the identity of *C. flavipes* and the status of its putative junior synonyms.

Chauliognathus flavipes is one of the most common species in central and southern Brazil, Paraguay and northern Argentina, sometimes found in large aggregations composed of hundreds or thousands of individuals (e.g., Machado & Araújo 1998, 2001, G. Biffi pers. obs.). This makes them suitable for studies in different fields of science, such as parasitism (Borgmeier 1937), chemical defense (Klitzke & Trigo 2000), ecology (Machado & Araújo 1998) and genetics (Machado et al. 2001a, 2004) (Table 1). However, these aggregations are often composed simultaneously by a group of species closely related to *C. flavipes* belonging to the so-called "*flavipes*-group", "*fallax*-group" (Wittmer 1977) or "yellow-black complex" (Machado & Araújo 2001). Species of this group have a remarkable chromatic polymorphism with black spots or stripes over a yellow background on the elytra and pronotum, such that there is no exclusive pattern for any of the species involved. These complexes have been observed to consist of up to eight species, sometimes even with interspecific mates (Machado & Araújo 1998, 2001, G. Biffi pers. obs.). The absence of a clear definition on the identity of *C. flavipes* and its closely related species in addition to questionable identifications (especially of live specimens in field-based studies) has misled several authors who were not experts in Cantharidae (e.g., Costa Lima 1953, Costa et al. 1988, Diehl-Fleig & Araújo 1991, Machado & Araújo 1995, Del-Claro & Vasconcellos-Neto 1992) (Table 1). Moreover, *C. flavipes* and *C. fallax* are frequently treated as distinct species, disregarding the synonymy proposed by Wittmer (1961), although their supposed differences have never been pointed out. Even Wittmer himself identified museum specimens as different species for unexplained reasons. More recently, Machado's concepts of these species were based

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Table 1. Checklist of papers dealing with *Chauliognathus flavipes* or *Chauliognathus fallax*.

Subject	References
Distribution records	Bruch (1914)[b], Costa Lima (1953)[b1], Guérin (1953)[b]
Parasitism	Borgmeier (1937)[b]
Mimicry	Del-Claro & Vasconcellos-Neto (1992)[b1], Machado & Araújo (2001)[c], Machado et al. (2001a)[c], Nascimento et al. (2010)[b]
Color polymorphism	Vernalha et al. (1980)[b], Diehl-Fleig & Araújo (1991)[b], Machado & Araújo (1995)[a2], Machado et al. (2001a)[c], Machado & Araújo (1999)[a], Machado & Araújo (2003)[b], Machado & Valiati (2006)[c]
Larva description	Costa et al. (1988)[a3]
Emergence patterns	Machado & Araújo (1998)[a]
Chemical defence	Klitzke & Trigo (2000)[b]
Morphology	Zwetsch & Machado (2000)[c]
Morphometrics	Machado et al. (2001a)[c]
Cytogenetics	Machado et al. (2001b)[c]
Phylogenetic relationships	Machado et al. (2004)[c]
Effects of pesticides	Gorri et al. (2015)[a], Fernandes et al. (2016)[a]

a) Referred as *Chauliognathus flavipes* (Fabricius, 1781); b) Referred as *Chauliognathus fallax* (Germar, 1823); c) Referred *C. flavipes* and *C. fallax* as different species; 1) The authors present illustrations of *Chauliognathus quadripunctatus* Pic, 1927; 2) *C. flavipes* mixed with *Chauliognathus expansus* Waterhouse, 1878 (Machado & Araújo 1998); 3) *C. opacipennis* Pic, 1925.

on specimens in Brazilian museums that had been identified by Wittmer, who was no longer certain about some of his identifications and nomenclaturial acts (V. Machado, pers. comm.). Unfortunately, for most of the above-mentioned papers, written by non-taxonomists, there are no voucher specimens, so their correct identity might never be confirmed.

In this work, the type specimens of *C. flavipes* are revisited and those of *C. fallax*, *C. axillaris* and *C. basalis* are discussed in order to resolve the complex taxonomic history regarding the species and to provide clear guidelines to their identification. New synonyms, ranks and replacement names are proposed for several species and a redescription of *C. flavipes* is presented based on type specimens and copious additional material.

MATERIAL AND METHODS

Acronyms used in the text correspond to the following institutions: BMNH – Natural History Museum, London, England; HMUG – The Hunterian Museum and Art Gallery, Glasgow, Scotland; MNHN – Muséum national d'Histoire naturelle, Paris, France; MZUSP – Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil; NMB – Naturhistorisches Museum Basel, Basel, Switzerland; RBINS – Royal Belgian Institute of Natural Sciences, Brussels, Belgium; ZIH – Zoologisches Institut der Martin-Luther-Universität, Halle, Germany; ZMHB – Museum für Naturkunde der Humboldt-Universität, Berlin, Germany; ZMMU – Zoological Museum of Moscow University, Moscow, Russia; ZMUC – Zoological Museum, University of Copenhagen, Copenhagen, Denmark.

The type specimens analyzed may be found in the BMNH (Joseph Banks collection) and MNHN (former collections of M. Pic and C.E. Blanchard, now in separate boxes in the general collection).

Lectotype designations for Pic's species-group names were based on specimens bearing the name of the taxon and labeled by him as "Type". Usually Pic organized specimens from the same taxon in a row, then in columns for large series, such that only the first specimen in each row was identified as a type. Therefore, it was impossible to determine whether any of the other specimens were included in the type series and only those labeled as "type" were recognizable syntypes and here designated as lectotypes. Additional specimens bearing a "type" label and from the same type locality as mentioned in the original description were designated paralectotypes. The designation of lectotypes for Pic's taxa is advisable in order to unambiguously associate the species' names, since the type series were sometimes composed of more than one species.

Morphological terminology used in the redescription follows Brancucci (1980), except for the orientation of the aedeagus, which follows Champion (1914) and Sharp & Muir (1912). The orientation used by these authors is the inverse of that established by Magis & Wittmer (1974) and followed by subsequent authors.

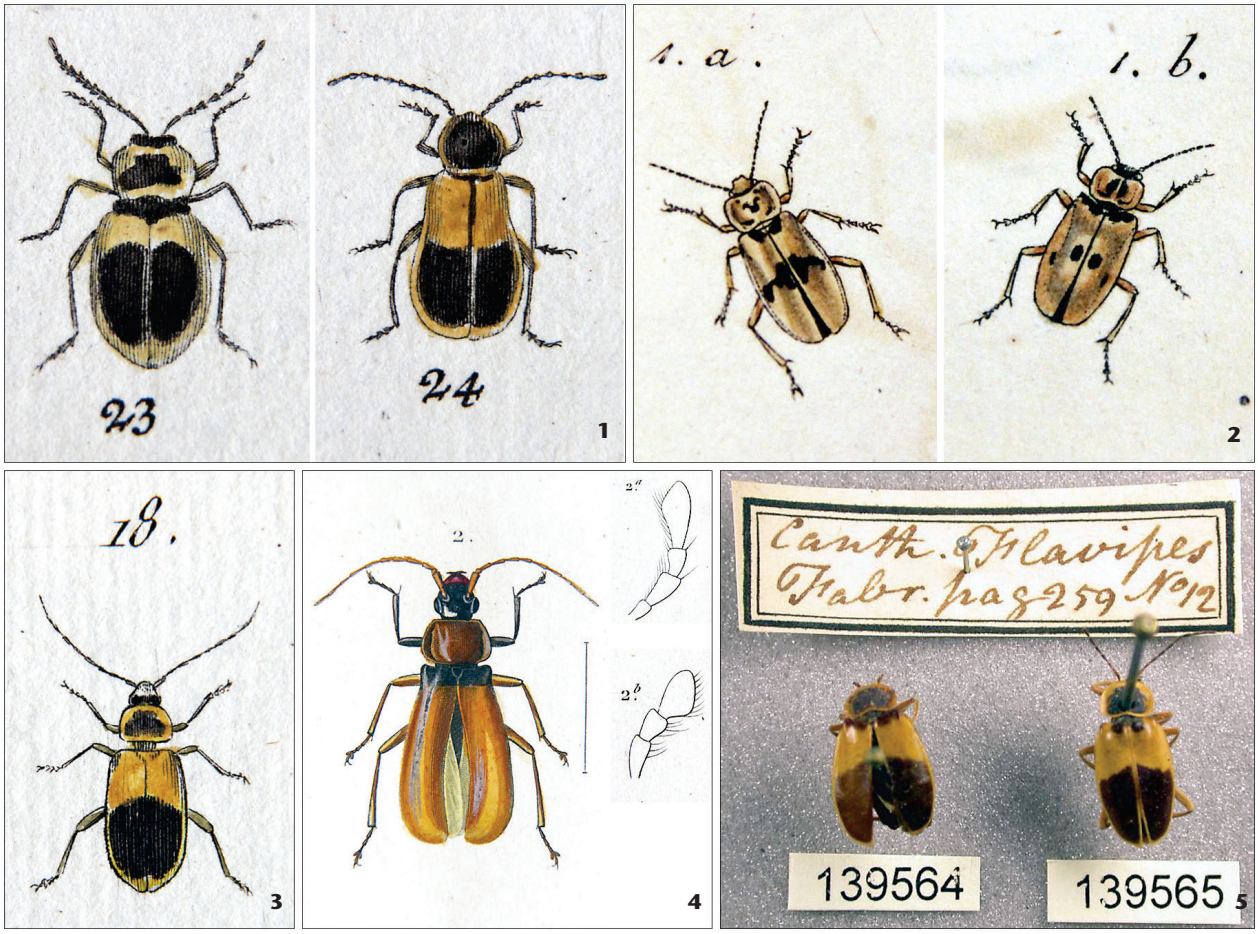
Distributional records were obtained from the labels of copious specimens deposited in MZUSP, NMB and MNHN.

TAXONOMY

Taxonomic history

Fabricius (1781) described *Cantharis flavipes* from China based on a specimen in Joseph Banks' collection. Fabricius (1787) redescribed it with catalographic data and later (Fabricius 1792, 1801) recognized it in illustrations by Pallas (1782, plate F, fig. 23; cf. Sherborn 1891 for dates of plates) (Fig. 1) and Olivier (1790) (Fig. 3). Olivier (1790) and Gmelin (1790) also cited this species from as coming from China and Schönherr (1808) presented a catalog containing all citations of *Cantharis flavipes* in previous works. Curtis (1839) then asserted that specimens he had examined from Santa Catarina (Brazil) were unquestionably varieties of *Callianthia flavipes* (= *Cantharis flavipes*), deemed to inhabit China.

Germar (1823) (not 1824, cf. Bousquet 2016: 211) described *Telephorus fallax* from Brazil and referenced figures 23



Figures 1-5. *Chauliognathus flavipes* (Fabricius, 1781) and its synonyms: (1) Undetermined species from Pallas (1782) [*Cantharis flavipes* according to Fabricius (1792) or *Telephorus fallax* according to Germar (1823)]; (2) *Telephorus axillaris* from Fischer von Waldheim (1823); (3) *Telephorus flavipes* from Olivier (1790); (4) *Chauliognathus basalis* from Lacordaire (1857); (5) *Cantharis flavipes* from HMUG. Figs. 1-4: public domain; Fig. 5: The Hunterian, University of Glasgow 2016©.

and 24 from Pallas (1782) (Fig. 1). Dejean (1833, 1836) listed it as *Callianthia fallax*, which he synonymized with *Callianthia quadripunctata* Dejean (nomen nudum). Curtis (1839) listed *Callianthia fallax* from São Paulo (Brazil) and considered it to be the most common and variable species in Brazil. Later, Castelnau (1840) redescribed the species as *Telephorus fallax* and Lacordaire (1857) transferred it to *Chauliognathus* Hentz, 1830. The species was then also recorded from Rio de Janeiro (Redtenbacher 1868), central and southern Brazil (Guérin 1953, Costa Lima 1953) and the Peruvian Amazon (Lucas 1857). Meanwhile, Maurice Pic described eight new varieties from Brazil (Pic 1925a, 1927, 1928, 1948, 1949a): *Chauliognathus fallax* var. *atrofasciata* Pic, 1925, *C. fallax* var. *basireducta* Pic, 1925, *C. fallax* var. *concolor* Pic, 1927, *C. fallax* var. *medioreducta* Pic, 1928, *C. fallax* var. *henrici* Pic, 1948, *C. fallax* var. *edmondi* Pic, 1948, *C. fallax* var. *petri* Pic, 1948 and *C. fallax* var. *reductemaculata* Pic, 1949 (new name for *C. fallax* var. *unimaculata* Pic, 1927). Wittmer (1953) suggested that *Chauliognathus fallax* would likely become a synonym of *C. flavipes* (Fabricius).

Fischer von Waldheim (1823) described and illustrated *Telephorus* (*Cantharis*) *axillaris* from Brazil (Fig. 2) and Guérin-Méneville (1844) transferred it to *Chauliognathus*. Waterhouse (1878) examined a type specimen of *Cantharis flavipes* Fabricius and found it to be identical to the common Brazilian *Chauliognathus*, described by Fischer von Waldheim (1823) as *T. axillaris*.

Dejean (1821, 1833, 1836) listed *Callianthia basalis* Dejean (nomen nudum) in his catalogs. Lacordaire (1857) [1854-1876, see discussion on publication dates below] published an illustration of "*Chauliognathus basalis* Dejean" (Fig. 4), thus becoming the author of the species: *Chauliognathus basalis* Lacordaire, 1857.

Wittmer (1953) studied Fabricius' collection in Copenhagen and suggested that specimens identified as *Chauliognathus*

fallax in other collections should rather be regarded as *C. flavipes*. However, specimens named "*C. flavipes*" or "*C. fallax*" in such collections around the world usually consist of a range of closely related species of *Chauliognathus*. Moreover, Wittmer's concept of *C. flavipes* was not based on the type specimen but on specimens in Fabricius's own collection, which may not be in accordance with its original description (cf., Sekerka & Barclay 2015). Wittmer (1961) then listed *Chauliognathus fallax* and *C. basalis* as synonyms of *C. flavipes*, without taking into account their type specimens.

Blanchard (1844) described *Chauliognathus plagiatus* from Rio de Janeiro and compared it to *Telephorus fallax*, from which it differed by its smaller size and color markings.

Furthermore, several new species and varieties were proposed by Pic on the basis of trivial morphological or color pattern differences. The study of their type specimens enabled the proposition of 25 new synonyms of *C. flavipes*.

Chauliognathus flavipes (Fabricius, 1781)

Cantharis flavipes Fabricius, 1781: 259; 1787: 118; 1792: 217; 1801: 300; Gmelin 1790: 1894; Pallas 1782: pl. F, fig. 23, cf. Fabricius 1792.

Telephorus flavipes: Olivier 1790: 10, pl. 3, fig. 18; Lacordaire 1857: 355; Gemminger & Harold 1869: 1665.

Callianthia flavipes: Schönherr 1808: 69; Curtis 1839: 201.

Chauliognathus flavipes: Waterhouse 1878: 329; Delkeskamp 1939: 297; Blackwelder 1945: 371; Wittmer 1953; Delkeskamp 1977: 441; Costa et al. 1988: 166, pl. 72, fig. 1-11; Machado & Araújo 1995: 127; 1998: 235; 1999: 441; 2001: 29; Machado et al. 2001a: 712; Machado et al. 2001b: 121; Zwetsch & Machado 2000: 196, figs. 1, 4; Machado et al. 2004: 55; Machado & Valiati 2006: 1052; Gorri et al. 2015: 1; Fernandes et al. 2016: 46.

Telephorus (*Cantharis*) *axillaris* Fischer von Waldheim, 1823: 254, pl. 22, fig. 1a, b.

Chauliognathus axillaris: Guérin-Méneville 1844: 48; Gemminger & Harold 1869: 1658; Waterhouse 1878: 329 (syn.); Delkeskamp 1939: 297; Blackwelder 1945: 371; Delkeskamp 1977: 441.

Telephorus fallax Germar, 1823: 72; Pallas 1782, pl. F, figs. 23, 24; Castelnau 1840: 272.

Callianthia fallax: Dejean 1833: 104; 1836: 117; Curtis 1839: 201.

Chauliognathus fallax: Lucas 1857: 91; Lacordaire 1857: 351; Redtenbacher 1868: 103; Gemminger & Harold 1869: 1658; Bruch 1914: 245; Borgmeier 1937: 207; Delkeskamp 1939: 296; Blackwelder 1945: 371; Costa Lima 1953: 155; Guérin 1953: 152; Wittmer 1953: 325; 1961: 363 (syn.); Delkeskamp 1977: 441; Vernalha et al. 1980: 117; Diehl-Fleig & Araújo 1991: 515; Del-Claro & Vasconcellos-Neto 1992: 295, fig. 13.13; Klitzke & Trigo 2000: 315; Zwetsch & Machado 2000: 195, fig. 1, 3; Machado & Araújo 2001: 29; 2003: 410; Machado et al. 2001a: 712; Machado et al. 2001b: 121; Machado et al. 2004: 55; Nascimento et al. 2010: 190.

Chauliognathus basalis Lacordaire, 1857: pl. 5, fig. 2; Gemminger & Harold 1869: 1657; Delkeskamp 1939: 293; Blackwelder 1945: 370; Wittmer 1961: 363 (syn.); Delkeskamp 1977: 441.

Chauliognathus flavipes (Fabricius, 1781)

Figs. 6-19, 21-37, 42-54

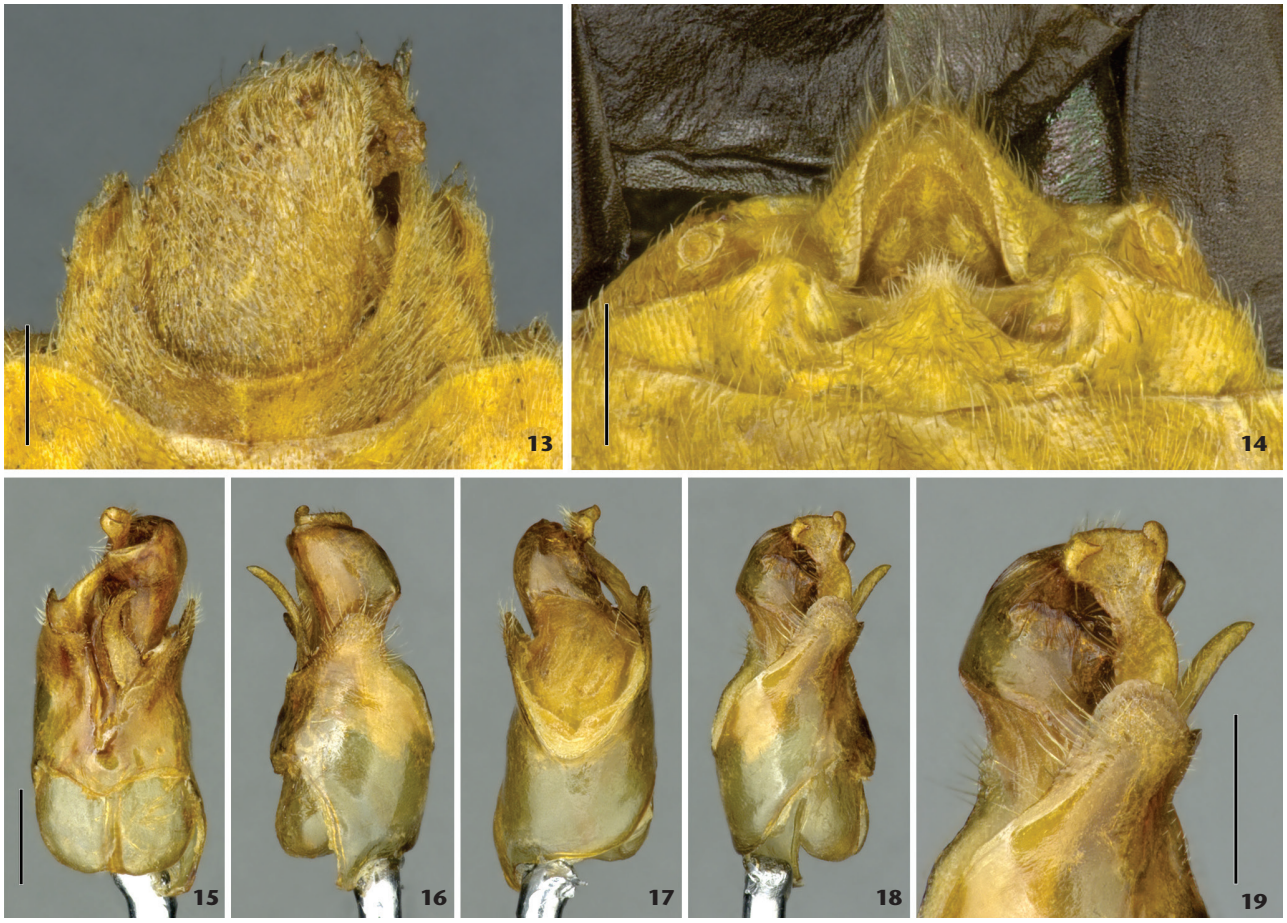
Diagnosis. *Chauliognathus flavipes* differs from similar species by the color pattern of the head, antennae and legs, the rounded lateral and posterior margins and straight internal margin of the elytra and unique form of the aedeagus and last ventrite in females. It is not possible, at this time, to discuss further comparisons and differential diagnosis against other members of the species-complex, since the entire group is in need of revision.

Redescription. Length: 11-16 mm. Color (variations). From totally pale yellow or orange-yellow to predominantly black with small yellow patches on pronotum and elytra. Head usually yellow at base of mandibles, frons, genae, and around the eyes, which have a V-shaped mark between them. Clypeus, vertex and occipital region dark brown to black. Frons with two black spots or V-shaped black patch, sometimes reaching black area of occipital region. Labial and maxillary palpi dark brown. Antennae predominantly dark brown, sometimes lighter on first antennomere and on the base of all others. Pronotum ranging from entirely yellow (sometimes with small irregular black spots) to almost completely black. Elytra either entirely yellow or orange or variably marked either extensively or with small black spots or a large transverse black band along its base or two to four black spots on the apical half that sometimes merge to form an oblique band. Thoracic ventrites pale yellow or with varied brown to black markings, sometimes forming a large black triangle on the metaventrite. Legs light brown to black, sometimes with black spots or stripes on coxa, femur and tibia; tarsi dark brown. Abdominal ventrites usually yellow but sometimes predominantly black or with paired black spots. Last ventrite pale yellow to light brown.

Male (Fig. 6): **Head** (Figs. 9-12) slightly longer than wide, dorsoventrally flattened, broadly rounded behind eyes, frons and vertex convex, occipital region flat to slightly concave, genae slightly convergent, almost parallel. Clypeus (Figs. 9, 11) trapezoidal, broad; anterior margin straight with median incision forming shallow longitudinal sulcus; posterior margin broadly arched; bases with lateral lobes; frontoclypeal suture sometimes barely visible. Labrum (Figs. 9, 11) membranous, divided into two lobes. Mandibles (Fig. 11) slender, slightly arched; incisor flat and rounded; accessory teeth dorsal, not discrete and broadly fused to incisor. Maxillae (Figs. 10, 12): galea extendible, long, floppy and densely pilose, usually retracted; maxillary palpi short; first three palpomeres subequal in length, apical palpomere elongate, globose. Labium (Figs. 10, 12): labial palpi short with three palpomeres, last palpomere globose. Antennae (Fig. 6) filiform, slender, long, surpassing half of elytra length; first antennomere elongate, distally slightly swollen; second an-

Figures 6-13. *Chauliognathus flavipes*: (6) habitus, male; (7) habitus, female; (8) male and female in copula; (9) head, dorsal; (10) head, ventral; (11) details of head, dorsal; (12) details of head, ventral; (13) pronotum.

tennomere very short; antennomeres 3-11 cylindrical, subequal in length; distance between antennae half the width of head in front of eyes. *Eyes* almost round, about 1.2 times longer than wide, not prominent. Distance between eyes 0.9 times the width of head in front of eyes. **Pronotum** (Fig. 13) wide, 1.4 times wider than long; anterior margin straight to slightly rounded, anterior angles broadly rounded; lateral margins well-marked, explanate, slightly sinuous, medially wider. Posterior margin sinuous, posterior angles well-defined and dorsal transversal carina poorly defined near posterior margin. Scutellum trapezoidal, posterior



Figures 13-19. *Chauliognathus flavipes*: (13) last abdominal ventrites, male; (14) last abdominal ventrites, female; (15-18) aedeagus, ventral, right lateral, dorsal and left lateral views; (19) detail of left paramere, lateral view. Scale bars = 0.5 mm.

margin straight to slightly rounded. **Elytra** with small punctures, long, completely covering abdomen or only exposing apex of last tergite. Elytral bases parallel, lateral and posterior margins rounded, internal margins straight, sometimes meeting medially; internal borders well-defined. **Legs** long, slender, increasing in size posteriorly, tibiae and tarsi densely covered in long yellow to golden setae. **Abdomen** (Fig. 13) with ventrites I-VI wide, entire, not indented. Distal margin of ventrite VII strongly curved; ventrite VIII oblong and strongly convex. **Aedeagus** (Figs. 15-19) strongly asymmetrical. Right paramere flat, slightly bent outwards, tapering apicad. Left paramere (Fig. 19) elongate, curved, apex with two small, sharpened projections. Median lobe slightly twisted on its longitudinal axis, with a small apical projection of the cuticle.

Female (Fig. 7). Similar to male, sometimes larger; antennae, tibiae and tarsomeres slightly shorter than in males; last abdominal ventrite (Fig. 14) typically indented with concave distal margin and acute median projection.

Distribution. Brazil (Mato Grosso, Goiás, Minas Gerais, Mato Grosso do Sul, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, Rio Grande do Sul), Bolivia (no precise locality), Paraguay (Alto Paraguay, Presidente Hayes, Distrito Capital, Alto Paraná, Guairá, Caazapá, Itapúa), Argentina (Salta, Misiones, Corrientes) (Fig. 20). Records of *C. fallax* and *C. plagiatus* from Peru, "mission de Sarayacu" (Lucas 1857), are considered erroneous and were probably collected in southeastern or central Brazil, where Castelnau's expedition was settled and spent several months before heading to Peru (Castelnau 1850).

The type series of *Cantharis flavipes*, *Telephorus fallax* and *Cantharis* (*Telephorus*) *axillaris*

Lectotype designation for *Cantharis flavipes*. Fabricius (1781) briefly described *C. flavipes* as coming from China and belonging to Joseph Banks' collection. His collection was originally left to the Linnaean Society. It was then given to the British Museum and transferred to the Natural History Museum,

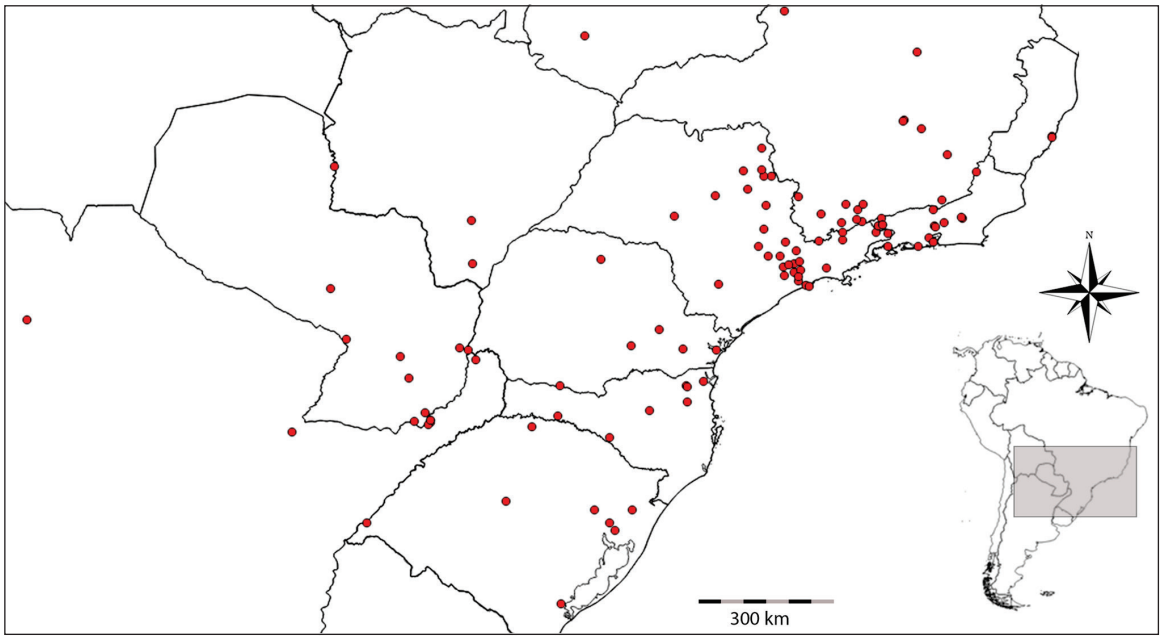
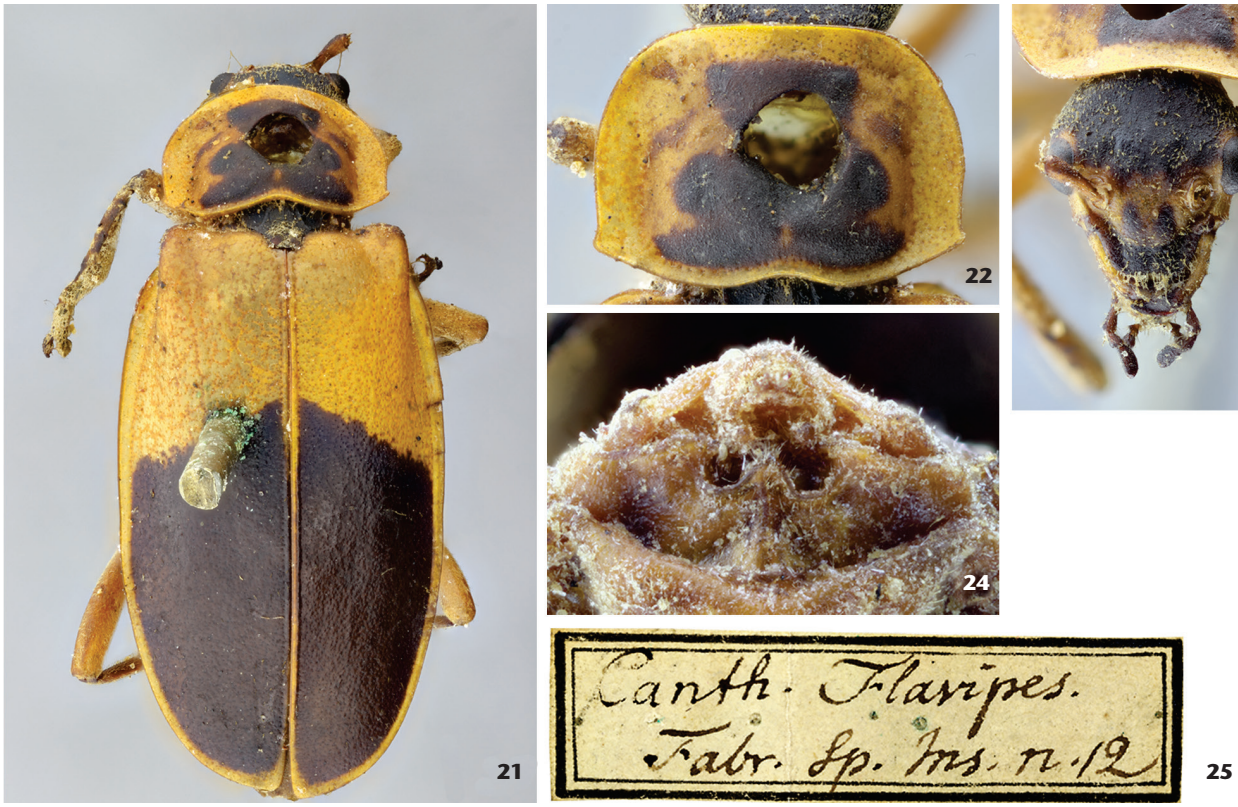


Figure 20. Distribution records of *Chauliognathus flavipes*.



Figures 21-25. Lectotype of *Cantharis flavipes* Fabricius, 1781: (21) habitus, dorsal view; (22) pronotum, dorsal view; (23) head, dorsal view; (24) apex of abdomen, ventral view; (25) label.

London (BMNH) in the 1880s, where it still remains (Sekerka & Barclay 2015).

Fabricius (1792) confirmed the identification of *C. flavipes* in a redescription and illustration given by Olivier (1790) (Fig. 3). According to Tuxen (1967), Guillaume-Antoine Olivier (1756-1814) was an entomologist with whom Fabricius worked very closely in Paris, such that "they could cite each other *in futuris*" (Tuxen 1967: 11). It is therefore most likely that Fabricius saw Olivier's plates a long time before they were actually published and could have cited them even 18 years before they were printed.

Fabricius (1792) also recognized his species in an undetermined specimen illustrated in Pallas' (1782, fig. 23) (Fig. 1) iconographical atlas of beetles of eastern Russia as *C. flavipes*. According to the preamble in Pallas (1781) species of "both Indies" (i.e., south and southeastern Asia, and the Antilles) were included in some of the plates and he blamed the copyists for the poor quality of his drawings. Peter S. Pallas also lived in London and was in contact with Fabricius, Banks and other eminent naturalists and collectors at the time. As seen by the example of association between Fabricius and Olivier, the contemporaneity of their works suggests Fabricius was aware about the inclusion of these specimens in Pallas' upcoming publication. Also, according to Dryander (1796), Banks' personal archivist and librarian, Pallas' illustrations were indeed based on Banks' specimens. Since there were two figures of similar specimens in Pallas' plate, it is presumed that there were at least two available specimens. However, only one specimen remains in Bank's collection at the BMNH. The Hunterian Museum and Art Gallery (HMUG, Scotland) holds two specimens of *C. flavipes* with the same appearance and pinning style as the single specimen in the BMNH (Fig. 5). Both may possibly be syntypes of *C. flavipes*, along with that in Banks' collection, but this cannot be proven. The circumstances of their arrival in William Hunter's collection are not clear, since it includes insects from Dr. John Fothergill and Dru Drury, which likely includes specimens from Brazil (Jeanne Robinson, HMUG, pers. comm.) and part of Banks' collection, donated to Hunter in 1792 (Chambers 2007). Fabricius was also renowned for redistributing specimens through collections, including his own (now in both Kiel, Germany, and Copenhagen, Denmark) and Hunter's cabinet, where he acted as curator, organizing, identifying and describing new species (Staig 1931, Zimsen 1964, Chambers 2007, Hancock 2015). Another possibility is that Banks' original collection held even more specimens than are presently known, including those figured by Pallas, and that these were later split between other museums and collectors, including Pallas himself. Unfortunately, attempts to locate Pallas' personal entomological collection in Russia were fruitless. Therefore, it is not possible to assert that there were additional specimens of *C. flavipes* at the time of Fabricius' original description so the single female specimen remaining from Banks' collection in the BMNH is here designated as LECTOTYPE with the purpose of clarifying the application of the name. The lectotype specimen and specimen labels are shown in Figs. 21-25.

The status of *Telephorus axillaris* Fischer von Waldheim, 1823. Waterhouse (1878) analyzed the type specimen of *Cantharis flavipes* found in Banks' collection, transferred it to *Chauliognathus* and synonymized it with the common Brazilian species *Telephorus axillaris* Fischer von Waldheim, 1823, thus indirectly suggesting that it is not from China. Delkeskamp's (1939) catalog then formally asserted that it was from Brazil, not China. *Telephorus* (*Cantharis*) *axillaris* was described based on at least two specimens from Fischer von Waldheim's own collection (Museum Fischeri). It was transferred to *Chauliognathus* by Guérin-Méneville (1844). Fischer von Waldheim's (1823) description and figures (plate 22, figs. 1a and 1b) (Fig. 2) reliably represent the same species as Fabricius, although with different color markings, and are probably the only sources of comparison used by Waterhouse (1878) to propose the new combination and synonymy with the henceforth *Chauliognathus flavipes* (Fabricius). Parts of Fischer's collection were supposedly deposited at ZMMU and ZMHB (Horn et al. 1990, Bousquet 2016) but his specimens could not be found. Due to the resemblance between the figures of *T. axillaris* and the lectotype of *C. flavipes*, the synonymy proposed by Waterhouse is maintained without examining the type specimens of the former.

Telephorus fallax. Germar (1823) described "*Telephorus fallax* Illigeri" making reference to figures from Pallas (1782) (Fig. 1). Besides Illiger, the names of other new species in the same work were followed by the names of other collectors and naturalists from the 19th century. Some of them, contemporary to Germar, are acknowledged for providing specimens for description. Their names, therefore, indicate the collection of origin of the specimens, and not the authorship. Until his death Illiger was the director of the current Museum für Naturkunde der Humboldt-Universität (ZMHB, Berlin) and responsible for the entomological collection, where the specimens of *T. fallax* may be. They were probably sent to Germar by Illiger who may have suggested the name "*fallax*" for this species. Consequently, the name "*Illigeri*" after the binomen of the species is neither part of the name, nor the author of the species, as often used by some authors (e.g., Dejean 1833, Curtis 1839, Castelnau 1840). Only some of Germar's types are deposited in the ZMHB. They concern mainly the type specimens of species he described from the ZMHM collection, specimens sent by him as donations, or those received in the collection of Germar's nephew H. Schaum (Bernd Jaeger, ZMHB, pers. comm.). In the original description of *T. fallax*, Germar examines a series of specimens, as noticed by the description of color varieties. His description is therefore inadequate for both the identification of the series he examined and to distinguish them from closely related species. Several specimens with the potential to have been Germar's types were found in the ZMHB "Historical Collection", which contains the material and type specimens of various historical authors. How-

ever, according to Bernd Jaeger (pers. comm.) the recognition of types in the Historical Collection is a serious problem because old curators and collection assistants placed all specimens, including types, from various authors or collections together into single historical series if they were considered as belonging to the same species or synonyms. In such cases, the collection label in front of a historical series bears the handwritten names of two or more species and authors. Unfortunately, the original labels of various authors no longer exist or they were removed during the first arrangement of the Historical Collection. Thus, today it is often difficult or even impossible to determine which author a specimen within a historical series corresponds to.

Efforts to find additional specimens in Germar's original type series in other collections, for example ZIH, were unsuccessful.

Given that it is impossible to distinguish Germar's original type series from other specimens in the ZMHB, the reference to the figures given by Pallas seems to be the only means to resolve the problem regarding to the identity of *Telephorus fallax*. Germar (1823) referred to both figures 23 and 24 from Pallas in his original description (Fig. 1), thus including the illustrated specimens in the type series (ICZN Art. 72.4.1). As mentioned above it is presently impossible to assert which specimens were illustrated by Pallas and where they are housed. If the specimen illustrated in figure 23 was part of Fabricius' type series – the same recognized by Fabricius (1792) as *C. flavipes* – the association of this figure by Germar is evidence that these names are in fact synonymous. The synonymy proposed by Wittmer (1961) is therefore maintained, even though a lectotype for *T. fallax* cannot be defined.

It is not clear what Wittmer's concept of *C. fallax* was at the time of its synonymization. Years before, Wittmer (1953) suggested that specimens identified as *C. fallax* should be considered *C. flavipes*. This was proposed after the comparison of specimens in the ZMUC (Copenhagen), identified by Dr. Tuxen, to Fabricius' types. Any specimen identified as such by Tuxen was therefore found in the general collection of ZMUC.

Remarks on Pic's varieties for *C. fallax* (= *C. flavipes*)

The varieties of *C. fallax* described by Pic are based only on the position, shape, size and pattern of the black markings on the pronotum and elytra, which varied from being totally absent (*C. fallax* var. *concolor*) to occurring as small elytral spots (e.g. *C. fallax* var. *unimaculata*), transversal elytral bands (*C. fallax* var. *atrofasciata*), or markings that widely cover the pronotum and elytra (*C. fallax* var. *edmondi*). Vernalha et al. (1980) studied color polymorphism in a population of *C. fallax*, comprising some of Pic's varieties, and concluded that the fixation of the color markings was the result of an inconstant metabolic process. They observed that the shapes and sizes of black markings were never repeated within a single population and thus rejected the prospect that varieties of the species could be distinguished based on the detailed morphological comparison between specimens. The study of the type specimens of all Pic's varieties showed that they are nothing but chromatic polymorphisms of a single species. However, according to the International Code of Zoological Nomenclature (ICZN 1999) they shall be regarded as valid taxa with subspecific rank, and not infrasubspecific rank (ICZN Art. 45.6.4). Their names shall be composed as a trinomen (ICZN Art. 5.2).

The following varieties of *C. fallax*, described by Pic (currently subspecies of *C. flavipes*), are considered synonyms of *C. flavipes* with lectotypes designated accordingly:

Chauliognathus fallax atrofasciata Pic, 1925 **syn. nov.**

Chauliognathus fallax var. *atrofasciatus* Pic, 1925a: 16; Delkeskamp 1939: 296; Blackwelder 1945: 371.
Chauliognathus flavipes var. *atrofasciata*: Delkeskamp 1977: 442.

A male from Brazil, *São Paulo*: Vale do Rio Pardo. E. Gounelle, 12.98 (MNHN) is here designated as LECTOTYPE (Fig. 26).

Chauliognathus fallax basireducta Pic, 1925 **syn. nov.**

Chauliognathus fallax var. *basireductus* Pic, 1925a: 16; Delkeskamp 1939: 296; Blackwelder 1945: 371.
Chauliognathus flavipes var. *basireducta*: Delkeskamp 1977: 442.

A female from [Brazil], Rio Grande do Sul (MNHN) is here designated as LECTOTYPE (Fig. 27).

Chauliognathus fallax concolor Pic, 1927 **syn. nov.**

Chauliognathus fallax var. *concolor* Pic, 1927: 51; Delkeskamp 1939: 296; Blackwelder 1945: 371.
Chauliognathus flavipes var. *concolor*: Delkeskamp 1977: 442.

A female from Brazil, *São Paulo*: Vale do Rio Pardo. E. Gounelle, 12.98 (MNHN) is here designated as LECTOTYPE (Fig. 28).

Chauliognathus fallax medioreducta Pic, 1928 **syn. nov.**

Chauliognathus fallax var. *medioreductus* Pic, 1928: 62; Delkeskamp 1939: 296; Blackwelder 1945: 371.
Chauliognathus flavipes var. *medioreducta*: Delkeskamp 1977: 442 (cat.).

A female from [Brazil], *Rio Grande do Sul* (MNHN) is here designated as LECTOTYPE (Fig. 29).

Chauliognathus fallax edmondi Pic, 1948 **syn. nov.**

Chauliognathus fallax var. *edmondi* Pic, 1948: 16.
Chauliognathus flavipes var. *edmondi*: Delkeskamp 1977: 442.

A female from Brazil, *Rio Grande do Sul*, "coll. Rich. Hicker" (MNHN) is here designated as LECTOTYPE (Fig. 30).

Figures 26-33. Lectotypes and labels of varieties of *Chauliognathus fallax* (Germar, 1823), new synonyms for *C. flavipes*: (26) *C. fallax* var. *atrofasciata* Pic, 1925; (27) *C. fallax* var. *basireducta* Pic, 1925; (28) *C. fallax* var. *concolor* Pic, 1927; (29) *C. fallax* var. *medioreducta* Pic, 1928; (30) *C. fallax* var. *edmondi* Pic, 1948; (31) *C. fallax* var. *petri* Pic, 1948; (32) *C. fallax* var. *henrici* Pic, 1948; (33) *C. fallax* var. *reductemaculata* Pic, 1949 (= *C. fallax* var. *unimaculatus* Pic, 1927).

Chauliognathus fallax petri Pic, 1948 **syn. nov.**

Chauliognathus fallax var. ***petri*** Pic, 1948: 16.
Chauliognathus flavipes var. ***petri***: Delkeskamp 1977: 442.

A male from Brazil, *Rio Grande do Sul*, "coll. Rich. Hicker" (MNHN) is here designated as LECTOTYPE (Fig. 31).

Chauliognathus fallax henrici Pic, 1948 **syn. nov.**

Chauliognathus fallax var. ***henrici*** Pic, 1948: 16.
Chauliognathus flavipes var. ***henrici***: Delkeskamp 1977: 442.

A female from Brazil, *Rio Grande do Sul*, "coll. Rich. Hicker" (MNHN) is here designated as LECTOTYPE (Fig. 32).

Chauliognathus fallax reductemaculata Pic, 1949 **syn. nov.**

Chauliognathus fallax var. *unimaculatus* Pic, 1927: 51; Delkeskamp 1939: 297; Blackwelder 1945: 371; Pic 1949a: 11.
Chauliognathus fallax var. *reductemaculatus* Pic, 1949a: 11 (*nomen novum*).
Chauliognathus flavipes var. *reductemaculata*: Delkeskamp 1977: 442.

A female from [Brazil], *São Paulo* (MNHN) is here designated as LECTOTYPE (Fig. 33).

Remarks on Pic's varieties for *C. plagiatus* (= *C. flavipes*)

As with *C. fallax*, the varieties of *C. plagiatus* described by Pic are considered valid taxa of subspecific rank. Pic's concept of *C. plagiatus* was based on its type specimens, whereas his concept of *C. fallax* was based on figure 23 in Pallas (1782), according to the information on some of the identification labels attached to these specimens (Figs. 38-41). Examination of these identification labels clearly showed the difficulty he had in distinguishing between these species. In some cases single specimens were identified as both species simultaneously, whilst in others several specimens identified as a single species were actually mixed among other species. Nevertheless, in general, Pic considered specimens with broader black spots on the elytra to be *C. plagiatus* or its varieties, in contrast to *C. flavipes*, which was lighter in color. The abundance of specimens in his collection enabled the observation of a wide range of different color markings, encompassing all varieties of *C. plagiatus* and *C. fallax*, and enabled the recognition of all as variations of a single species. However, a single variety (***Chauliognathus plagiatus* var. *latebasalis***) is here considered a valid species, not a synonym of *C. plagiatus* (= *C. flavipes*).

Chauliognathus plagiatus Blanchard, 1844 and its varieties are considered synonyms of *C. flavipes*, with lectotypes designated as follows:

Chauliognathus plagiatus Blanchard, 1844 **syn. nov.**

Chauliognathus plagiatus Blanchard, 1844: 101; Gemminger & Harold 1869: 1658; Lacordaire 1857: 351; Lucas 1857: 90; Delkeskamp 1939: 304; Blackwelder 1945: 372; Delkeskamp 1977: 449; Wittmer 1977: 328 (types).

Three female syntypes (MHNH) were designated as lectotype (Fig. 34) and paralectotypes by Wittmer (1977), who placed the species in the "*fallax-group*" and suggested it was "probably a synonym of [*C.*] *flavipes* F."

Chauliognathus plagiatus latejuncta Pic, 1925 **syn. nov.**

Chauliognathus plagiatus var. *latejunctus* Pic, 1925b: 20; Delkeskamp 1939: 304; Blackwelder 1945: 372; Delkeskamp 1977: 449.

A male from [Brazil], *São Paulo* (MNHN) is here designated as LECTOTYPE (Fig. 35).

Chauliognathus plagiatus orbygnyi Pic, 1948 **syn. nov.**

Chauliognathus plagiatus var. *orbygnyi* Pic, 1948: 16; Delkeskamp 1977: 449.

A female from Brazil, Espírito Santo, "ex coll. Fruhstorfer" (MNHN) is here designated as LECTOTYPE (Fig. 36).

Chauliognathus plagiatus alcidei Pic, 1948 **syn. nov.**

Chauliognathus plagiatus var. *alcidei* Pic, 1948: 16; Delkeskamp 1977: 449.

A male from Paraguay, "coll. Rich. Hicker" (MNHN) is here designated as LECTOTYPE (Fig. 37).

Based on the morphological study of the type specimens, 13 other species and varieties described by Pic were found to be nothing but chromatic polymorphisms of *C. flavipes*, and are here considered synonyms, with lectotypes designated as follows:

Chauliognathus inbasalis Pic, 1925 **syn. nov.**

Chauliognathus inbasalis Pic, 1925a: 16; Delkeskamp 1939: 298; Blackwelder 1945: 372 (*imbasalis*, sic); Delkeskamp 1977: 444.

A male from Brazil, *São Paulo*: Vale do Rio Pardo, E. Gounelle, 12-98 (MNHN) is here designated as LECTOTYPE (Fig. 42).

Chauliognathus bimaculatus Pic, 1925 **syn. nov.**

Chauliognathus bimaculatus Pic, 1925b: 20; Delkeskamp 1939: 293; Blackwelder 1945: 370; Delkeskamp 1977: 436.

A female from Brazil (MNHN) is here designated as LECTOTYPE (Fig. 43).

Chauliognathus mendesensis Pic, 1933 **syn. nov.**

Chauliognathus mendesensis Pic, 1933: 118; Delkeskamp 1939: 301; Blackwelder 1945: 372; Delkeskamp 1977: 436.

A male from BRAZIL. [Rio de Janeiro] Mendes (MNHN) is here designated as LECTOTYPE (Fig. 44).

Figures 34-41. Lectotypes and labels of *Chauliognathus plagiatus* and its varieties, new synonyms for *C. flavipes*: (34) *C. plagiatus* Blanchard, 1844; (35) *C. plagiatus* var. *latejuncta* Pic, 1925; (36) *C. plagiatus* var. *orbygnyi* Pic, 1948; (37) *C. plagiatus* var. *alcidei* Pic, 1948. (38-41) labels of specimens in Pic's collection: (38) "*fallax* Germ. (ex descript) [based on description]"; (39) "fig. 23 de Pallas = *fallax* Germar"; (40) "*plagiatus* (ex type) [based on type]"; (41) "*plagiatus* Bl. (ex descript) [based on description]".

Chauliognathus opacicollis Pic, 1946 **syn. nov.**

Chauliognathus opacicollis Pic, 1946: 1; Delkeskamp 1977: 448.

A male from Brazil, *São Paulo*; December; "coll. G." (MNHN) is here designated as LECTOTYPE (Fig. 45).

Chauliognathus opacicollis freiburgana Pic, 1946 **syn. nov.**

Chauliognathus opacicollis var. *freiburganus* Pic, 1946: 1; Delkeskamp 1977: 448.

A male from [Brazil, *Rio de Janeiro*: Nova Friburgo] Neu-Freiburg, Süd-Brasilien, F. Wiengreen leg. 9.11.1897 (MNHN) is here designated as LECTOTYPE (Fig. 46).

Chauliognathus bireductipennis Pic, 1947 **syn. nov.**

Chauliognathus bireductipennis Pic, 1947a: 3; 1948: 16; Delkeskamp 1977: 438.

A male from Brazil, "coll. Rich. Hicker" (MNHN) is here designated as LECTOTYPE (Fig. 47).

Chauliognathus quadripunctatus lebisi Pic, 1947 **syn. nov.**

Chauliognathus 4-punctatus var. *lebisi* Pic, 1947b: 14.

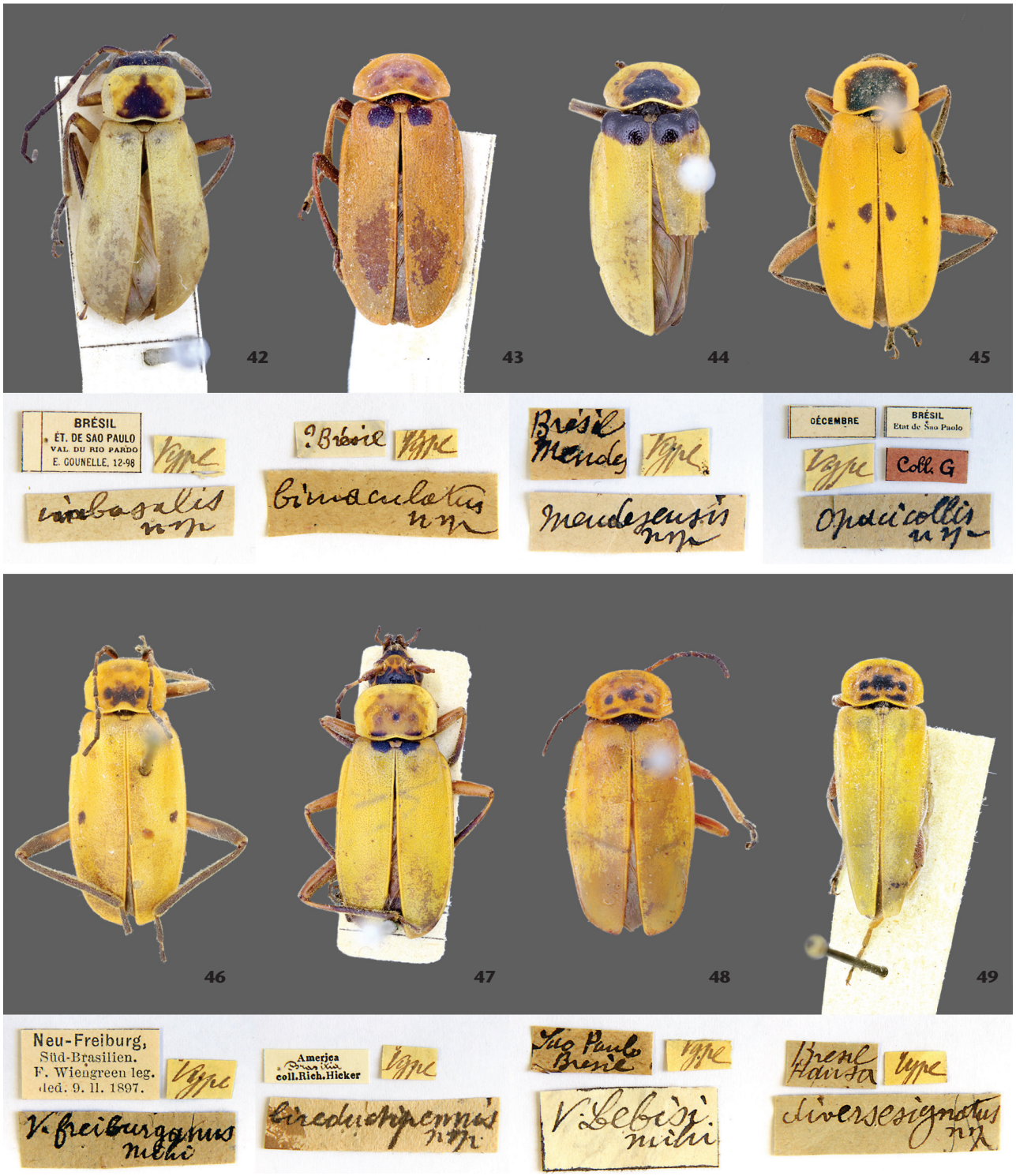
Chauliognathus quadripunctatus var *lebisi*: Delkeskamp 1977: 450.

A female from Brazil, *São Paulo* (MNHN) is here designated as LECTOTYPE (Fig. 48).

Chauliognathus diversesignatus Pic, 1949 **syn. nov.**

Chauliognathus diversesignatus Pic, 1949b: 4; Delkeskamp 1977: 440.

A female from Brazil, [*Santa Catarina*, Corupá], Hansa (MNHN) is here designated as LECTOTYPE (Fig. 49).



Figures 42-49. Lectotypes and labels of new synonyms for *Chauliognathus flavipes*: (42) *C. inbasalis* Pic, 1925; (43) *C. bimaculatus* Pic, 1925; (44) *C. mendesensis* Pic, 1933; (45) *C. opacicollis* Pic, 1946; (46) *C. opacicollis* var. *freiburgana* Pic, 1946; (47) *C. bireductipennis* Pic, 1947; (48) *C. quadripunctatus* var. *lebisi* Pic, 1947; (49) *C. diversesignatus* Pic, 1949.

Chauliognathus neopici Wittmer, 1951 **syn. nov.**

Chauliognathus flavipennis Pic, 1924: 20; Delkeskamp 1939: 279; Blackwelder 1945: 371; Wittmer 1951: 277.
Chauliognathus neopici Wittmer, 1951: 277 (nomen novum); Delkeskamp 1977: 447.

A male from [Brazil], *São Paulo* (MNHN) is here designated as LECTOTYPE (Fig. 50).

Chauliognathus rufipes Pic, 1924 **syn. nov.**

Chauliognathus rufipes Pic, 1924: 20; Delkeskamp 1939: 305; Blackwelder 1945: 373; Delkeskamp 1977: 450.

A female from Paraguay (MNHN) is here designated as LECTOTYPE (Fig. 51).

Chauliognathus rufipes quadrinotata Pic, 1928 **syn. nov.**

Chauliognathus rufipes var. *4-notatus* Pic, 1928: 62.
Chauliognathus rufipes var. *quadrinotatus*: Delkeskamp 1939: 305; Blackwelder 1945: 373; Delkeskamp 1977: 450.

A female from Paraguay, Dr. J. Bohis leg. comm. 22. VI. 1895 (MNHN) is here designated as LECTOTYPE (Fig. 52).

Chauliognathus rufipes haasi Pic, 1928 **syn. nov.**

Chauliognathus rufipes var. *haasi* Pic, 1928: 62; Delkeskamp 1939: 305; Blackwelder 1945: 373; Delkeskamp 1977: 450.

A female from Paraguay, [Itapúa] Hohenau (MNHN) is here designated as LECTOTYPE (Fig. 53).

Chauliognathus ensellatus innotatithorax Pic, 1944 **syn. nov.**

Chauliognathus ensellatus var. *innotatithorax* Pic, 1944: 16; Delkeskamp 1977: 440.

A female without locality information (probably from Brazil) (MNHN) is here designated as LECTOTYPE (Fig. 54).

The status of *Chauliognathus basalis* Lacordaire, 1857 (= *C. flavipes*)

Delkeskamp (1939, 1977) and Blackwelder (1945) cite an illustration in the Atlas of Lacordaire's "Genera des Coléoptères" as the original description of *Chauliognathus basalis* Lacordaire, 1857. The date attributed for the publication of the illustration was arbitrarily based on the date of publication of the fourth tome that included *Chauliognathus* and other "malacodermes". However, there is no evidence that the plates were published together with their corresponding tomes. In the epilogue of the final tome Chapuis (1876) (author of the last three tomes after the death of Lacordaire) mentioned that the manuscripts of the two last tomes were delivered for editing at the beginning of 1875 and that the time elapsed thereafter was employed for preparation of the plates. This is possibly the reason for the publication date of the Atlas tome sometimes being given as 1876. However, according to Bousquet (2016), the plates were issued by livraisons and their publication dates are still unknown. The publication date given by Delkeskamp (1939, 1977) and Blackwelder (1945) for the figure of *C. basalis* is therefore maintained despite its inaccuracy.

Chauliognathus basalis Lacordaire is a primary homonym of *C. basalis* LeConte, 1859, and the junior homonym must receive a new name according to article 53 of the Code (ICZN 1999). However, in the absence of certainty about the publication date of the former name, it is not possible to assure which has priority. Thus, this case should remain provisionally unsolved.

Remarks on the identity of *Chauliognathus basalis* Lacordaire (= *C. flavipes*). The name "*Cantharis basalis* Dejean" appeared in Dejean's (1821) catalog along with "*Cantharis 4-Punctata* Dejean". Later, Dejean (1833, 1836) listed these names in the new genus *Callianthia* Dejean, 1833: "*C. basalis* Dej." and "*C. quadripunctata* Dej." with the latter as a synonym of "*C. fallax* Illiger". Both are considered *nomina nuda*, since they were never followed by a description and are thus unavailable. Lacordaire (1857) synonymized *Callianthia* with *Chauliognathus* and in the Atlas (Lacordaire 1854-1876, pl. 45, fig. 2) published the first illustration of "*Chauliognathus basalis* Dejean" (Fig. 4), so becoming the author of the species. It should be noted that Lacordaire made no mention of *C. quadripunctatus* or *C. basalis* among the other known species of *Chauliognathus* (Lacordaire 1857: 350). In the preface of the first tome Lacordaire (1854: ix) warned that some of the plates (including *C. basalis*) accompanying his work were originally intended for publication by an author who was no longer devoted to entomology and had not been published before, so declined to bear responsibility for them. Also, the origin of specimens described by Lacordaire is poorly known, as he had a limited reference collection, unlike most of his contemporaries. Some of the species described by him may have been acquired or communicated to him by other collectors or based on a specimen identified as such from any other collection. According to Cambeford (2006), his collection was sold and split between different private collectors, and some of his specimens may have been deposited at the RBINS. However, no specimens of *C. basalis* were found in that collection. Pic may have had some of Lacordaire's types through the acquisition of Deyrolle's "Malacodermidae" collection, previously belonging to Ogier de Baulny, who acquired part of Lacordaire's specimens (Cambeford 2006).

There are several specimens in historical collections (e.g., MNHN, ZMHB, NMB) identified as "*C. 4 Punctata* Dej" (or spelled *Callianthia quadripunctata* Dejean) or "*C. basalis* Dej", both nomina nuda. In general, these specimens comprise *C. flavipes* and another similar and closely related species. Additionally, the confusion over the identity of these species is compounded by the fact that Pic had a specimen identified as "*C. quadripunctata*

Figures 50-57. Lectotypes and labels of new synonyms for *Chauliognathus flavipes*, *C. plicatus*, and *C. latebasalis* **stat. nov**: (50) *C. flavipennis* Pic, 1924 (= *C. neopici* Wittmer, 1951); (51) *C. rufipes* Pic, 1924; (52) *C. rufipes* var. *quadrinotata* Pic, 1928; (53) *C. rufipes* var. *haasi* Pic, 1928; (54) *C. ensellatus* var. *innotatithorax* Pic, 1944; (55) possible type of *C. basalis* Lacordaire, 1857; (56) *C. flavipennis* var. *schneideri* Pic, 1934 (= *C. neopici* var. *schneideri* = *C. plicatus* **syn. nov.**); (57) *C. latebasalis* Pic, 1925 **stat. nov.**

Dejean" in his collection. This specimen was not *Chauliognathus flavipes* but rather that frequently identified as "*C. quadripunctata* Dejean" or "*C. basalis* Dejean". Pic probably knew that Dejean's *C. quadripunctatus* was a nomen nudum. Thus he described the new species *Chauliognathus quadripunctatus* Pic, 1927 (originally spelled *Chauliognathus 4-punctatus*), as separate from *C. flavipes*, probably following the identification of the specimen in his collection. Furthermore, he stated that this species was closely related to *C. basalis* Lacordaire or that it was perhaps only a variety of it ("À placer près de *basalis* Lac. dont il n'est peut-être qu'une variété"; Pic 1927: 51). Therefore, *Chauliognathus quadripunctatus* Pic, 1927 is possibly based on the same concept as *Chauliognathus quadripunctatus* Dejean (nomen nudum). Hence, if "*Chauliognathus quadripunctatus* Dejean" was a valid species – and if there were types – it would possibly be a junior synonym of *C. flavipes* (Fabricius, 1781) or a senior synonym and senior primary homonym of *C. quadripunctatus* Pic, 1927.

Wittmer (1961) synonymized *Chauliognathus basalis* Lacordaire with *C. flavipes*, probably based on specimens of *C. quadripunctatus* Dejean and *C. basalis* Dejean sensu auctorum in old collections and aware of the synonymy proposed by Dejean (1833, 1836). It is probable that Wittmer never even saw the figure of *C. basalis* in Lacordaire (1857) (Fig. 4) before proposing their synonymy, as this illustration is somewhat different from *C. flavipes*. It differs by having an entirely black head, yellow antennae, obtuse anterior angles of the pronotum, and rounded elytral apex. This resembles certain species from Colombia, Ecuador and Peru formerly described in the genus *Xenismus* Waterhouse, 1878.

There is a single specimen in Pic's collection from Colombia labeled by him as "type" and identified as "*Chauliognathus basalis* Dej. sec [according to] Lac. Gen. Pl. 45, fig. 2 ♀*Xenismus*? Wat. n. sp?" but with different handwriting (Fig. 55). Although this specimen is very similar to the figure by Lacordaire it is not possible to assure whether it is in fact the type of *C. basalis*. Therefore, it is not presently possible to determine whether *Chauliognathus basalis* Lacordaire is a synonym of *C. flavipes*, a synonym of *C. quadripunctatus* Pic, or even a distinct species. Since the holotype of *C. basalis* was not found and carefully examined, the synonym proposed by Wittmer (1961) is maintained.

Varieties not synonyms of *Chauliognathus flavipes* (Fabricius)

Unlike the several other nomina, *C. neopici* var. *schneideri* Pic, 1934 (= *C. flavipennis* var. *schneideri* Pic, 1934) and *C. plagiatus* var. *laterobasalis* Pic, 1925 are not synonyms of *C. flavipes* (Fabricius). Instead, they were discovered to be valid taxa with species rank or synonyms of other species similar to *C. flavipes*.

Chauliognathus plicatus Pic, 1915

Chauliognathus plicatus Pic, 1915: 134; Delkeskamp 1939: 304; Blackwelder 1945: 373; Delkeskamp 1977: 449.

Chauliognathus flavipennis var. *schneideri* Pic, 1934: 131; Delkeskamp 1939: 297; Blackwelder 1945: 371. **Syn. nov.**

Chauliognathus neopici var. *schneideri*: Delkeskamp 1977: 447.

Remarks. A female from the type series of *C. flavipennis* var. *schneideri* from BRAZIL. [Rio Grande do Sul] São Leopoldo, F. Schneider (MNHN) is here designated as LECTOTYPE (Fig. 56). The specimen is in very poor condition of preservation but can be identified as a synonym of *C. plicatus* by the characteristic swollen scutellum and the black marks on the head.

Chauliognathus latebasalis Pic, 1925, **stat. nov.**

Chauliognathus plagiatus var. *latebasalis* Pic, 1925b: 20; Delkeskamp 1939: 449; Blackwelder 1945: 372; Delkeskamp 1977: 449.

Remarks. Two females bear type labels for this species. One, from BRAZIL, São Paulo: Vale do Rio Pardo, E. Gounelle, 12.98 (MNHN) is here designated as LECTOTYPE (Fig. 57) and another (MNHN), also from BRAZIL [Santa Catarina, Corupá], Hansa as PARALECTOTYPE. Unlike *C. plagiatus* and the other varieties of this species, which are synonyms of *C. flavipes*, *C. plagiatus* var. *latebasalis* is considered a valid species.

Summary of proposed taxonomic changes

Chauliognathus flavipes (Fabricius, 1781)
= *Chauliognathus axillaris* (Fischer von Waldheim, 1823)
= *Chauliognathus basalis* Lacordaire, 1857
= *Chauliognathus fallax* (Germar, 1823)
= *Chauliognathus fallax* var. *atrofasciata* Pic, 1925 **syn. nov.**
= *Chauliognathus fallax* var. *basireducta* Pic, 1925 **syn. nov.**
= *Chauliognathus fallax* var. *concolor* Pic, 1927 **syn. nov.**
= *Chauliognathus fallax* var. *medioreducta* Pic, 1928 **syn. nov.**
= *Chauliognathus fallax* var. *edmondi* Pic, 1948 **syn. nov.**
= *Chauliognathus fallax* var. *petri* Pic, 1948 **syn. nov.**
= *Chauliognathus fallax* var. *henrici* Pic, 1948 **syn. nov.**
= *Chauliognathus fallax* var. *reductemaculata* Pic, 1949 **syn. nov.**
= *Chauliognathus plagiatus* Blanchard, 1844 **syn. nov.**
= *Chauliognathus plagiatus* var. *latejuncta* Pic, 1925 **syn. nov.**
= *Chauliognathus plagiatus* var. *orbygnyi* Pic, 1948 **syn. nov.**
= *Chauliognathus plagiatus* var. *alcidei* Pic, 1948 **syn. nov.**
= *Chauliognathus inbasalis* Pic, 1925 **syn. nov.**
= *Chauliognathus bimaculatus* Pic, 1925 **syn. nov.**
= *Chauliognathus mendesensis* Pic, 1933 **syn. nov.**
= *Chauliognathus opacicollis* Pic, 1946 **syn. nov.**
= *Chauliognathus opacicollis* var. *freiburgana* Pic, 1946 **syn. nov.**
= *Chauliognathus bireductipennis* Pic, 1947 **syn. nov.**
= *Chauliognathus quadripunctatus* var. *lebisi* Pic, 1947 **syn. nov.**
= *Chauliognathus diversesignatus* Pic, 1949 **syn. nov.**
= *Chauliognathus neopici* Wittmer, 1951 **syn. nov.**
= *Chauliognathus rufipes* Pic, 1924 **syn. nov.**
= *Chauliognathus rufipes* var. *quadrinotata* Pic, 1928 **syn. nov.**
= *Chauliognathus rufipes* var. *haasi* Pic, 1928 **syn. nov.**
= *Chauliognathus ensellatus* var. *innotatithorax* Pic, 1944 **syn. nov.**
Chauliognathus plicatus Pic, 1915
= *Chauliognathus neopici* var. *schneideri* Pic, 1934 **syn. nov.**
Chauliognathus latebasalis Pic, 1925 **stat. nov.**

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