

TAXONOMY AND SYSTEMATICS

Rediscovery of *Malthesis ater* Motschulsky, 1853 and a catalog of the genus *Malthesis* Motschulsky, 1853 (Coleoptera, Cantharidae)

Redescubrimiento de *Malthesis ater* Motschulsky, 1853 y un catálogo del género *Malthesis* Motschulsky, 1853 (Coleoptera, Cantharidae)

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ABSTRACT

Malthesis is a Cantharidae genus with a history of ambiguous systematic placement, being sometimes classified within Malthininae and currently placed in Chauliognathinae, sometimes as a probable synonym of *Chauliognathus*. Part of the problem is a complete lack of knowledge about the identity of their type species, *M. ater*, from Colombia. The current generic placement is based on the identity of the subsequently described *Malthesis* species which, in turn, have never been compared with *M. ater*. One specimen belonging to the type series of *M. ater*, here designated as the lectotype, has been located at the Zoological Museum of M. V. Lomonosov State University (Moscow, Russia) and the identities of the species and genus could finally be assessed. Here, *M. ater* is redescribed in detail based on the study of the aforementioned lectotype and additional specimens from Colombia. The morphological study of the species confirms that most of the subsequently described species are indeed congeneric with *M. ater*, and enables a reliable placement of the genus within Chauliognathinae: Chauliognathini. In addition, a fully updated catalog of all the 38 currently valid species and subspecies of *Malthesis* is given to ease their future taxonomic studies.

Keywords: Catalog, Chauliognathinae, Colombia, Neotropical, taxonomy.

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RESUMEN

Malthesis es un género de Cantharidae que posee una historia ambigua con relación a su posición sistemática, siendo algunas veces clasificado en Malthininae y, actualmente, posicionado en Chauliognathinae, e incluso también considerado como un posible sinónimo de *Chauliognathus*. Parte del problema es una completa ausencia de conocimiento con relación a la identidad de su especie tipo, *M. ater*, descrita de Colombia. La actual posición genérica está basada en la identidad de las especies posteriormente descritas en *Malthesis*, las cuales nunca han sido comparadas con *M. ater*. Un espécimen perteneciente a la serie tipo de *M. ater*, aquí designado como el lectotipo, ha sido localizado en el Zoological Museum of M. V. Lomonosov State University (Moscú, Rusia) y la identidad de la especie y del género puede ser finalmente evaluada. Aquí, *M. ater* es redescrita en detalle con base en el estudio del lectotipo antes mencionado y en especímenes adicionales de Colombia. El estudio de la morfología de la especie confirma que la mayoría de las especies descritas posteriormente en el género son, de hecho, congénicas con *M. ater*, y permite un posicionamiento confiable del género dentro de Chauliognathinae: Chauliognathini. Adicionalmente, y con el fin de facilitar futuros estudios taxonómicos, se proporciona un catálogo completo de las 38 especies y subespecies válidas actualmente posicionadas en *Malthesis*.

Palabras clave. Catálogo, Chauliognathinae, Colombia, Neotropical, taxonomía

INTRODUCTION

The systematic position of the genus *Malthesis* Motschulsky, 1853 within Cantharidae has always been questionable. Part of this uncertainty stems from the dubious original description of the genus and its type species, *M. ater* Motschulsky, 1853, and from the lack of knowledge about their type specimens. The purpose of this paper is to re-describe *M. ater* based on their lectotype and additional specimens to address the validity and systematic position of *Malthesis*.

In the first issue of his series entitled “Études Entomologiques”, Motschulsky (1853) introduced morphological and biological observations on the beetle group then called “Malthinides” (“Malacodermes”, “Telephorides”, currently Cantharidae). The first notes are on the new genus *Malthesis* which, according to Motschulsky, resembles cerambycids belonging to the group of “Stenopterides” (Cerambycinae: Stenopterini). *Malthesis* and the single species *Malthesis ater* were characterized by the head wider than pronotum, which is plane, almost quadrate, obliquely truncate on anterior angles; scutellum quadrate; elytra wider than pronotum, long, a little narrowed posteriorly; wings surpassing the elytra; first antennomere longer than the following two combined; antennomere II very short; antennomere III three times longer than II;

antennomere IV half longer than III; tarsal claws simple; pygidial segment bulging (Motschulsky 1853, p. 1).

Lacordaire (1857) considered this characterization insufficient to accurately position the genus amongst Cantharidae, though he suggested that the genus might be classified near *Malthinus* Latreille, 1806 (currently Cantharidae: Malthinini).

Kirsch (1865) proposed new species matching Motschulsky’s description and added new features for the genus diagnosis, which, according to him, would reasonably locate *Malthesis* closer to *Chauliognathus* Hentz, 1830 (currently Cantharidae: Chauliognathini) than to *Malthinus*.

Pic (1926a) presented short descriptions for new *Malthesis* species as couplets in a dichotomous key primarily based on body coloration. For him, three of the new species resembled the genus *Malthinus* for having elytra longer and subparallel, almost concealing the wings, anterior region less robust and narrower prothorax, whereas the others resembled *Chauliognathus* species, which have in common the large head, narrowed posteriorly with protruding eyes; elytra attenuated and a little dehiscent, surpassed by the wings; pronotum subquadrate, slightly longer than wide; legs long; a matt appearance; and apex of abdomen cupuliform in males.

Due to this ambiguity, *Malthesis* kept being considered a member of the tribe Malthinini in subsequent catalogs (Delkeskamp 1939, Blackwelder 1945). Wittmer (1963) formally listed *Malthesis* within Chauliognathini, as likely a synonym of *Chauliognathus*, probably after having access to specimens studied by Kirsch and Pic. However, this transfer was based on Kirsch's and Pic's concept of *Malthe-sis* that, in turn, was based only on Motschulsky's (1853) original descriptions, not on the study of his specimens. The type specimens of *Malthesis ater* were presumably unknown to any other author prior to the present study.

The taxonomy of *Malthesis* remained stable for almost 70 years, with no taxonomic work being published between Pic's (1947) last species description and Constan-tin's (2016) revision of French Guiana Chauliognathinae, in which new species, synonyms, and combinations were proposed in the genus. Later, Biffi (2019) transferred *Malthesis bicoloricornis* (Pic, 1947) from *Microdaiphron* Pic, 1926. The genus is currently considered valid, with 38 species and subspecies.

One type specimen of *M. ater* was located in the Zoological Museum of M. V. Lomonosov State University (Moscow, Russia) and sent to me for study. In order to assess the identity of the type species *M. ater* and to enable a better understanding of Motschulsky's concept of the genus, the species has been redescribed based on their type specimen and additional specimens from Colombia. Furthermore, the morphological study of the type species allows the proposal of a stable systematic positioning for the genus. Finally, I provide an updated catalog of all the current valid species in *Malthesis* to ease their future taxonomic studies.

MATERIAL AND METHODS

The morphological terminology and orientation of aedeagus used in the descriptions follow Biffi (2016). Photographs were taken with a Canon EOS Rebel T3i camera, equipped with a Canon MP-E 65mm macro lens, attached to a StackShot macro-rail. Multi-focal images were processed with the software ZereneStacker version 1.04, and edited in Adobe Photoshop CS6. Line drawings were produced in Adobe Illustrator CS6.

The acronyms of institutions cited in the text are given below:

BMNH: Natural History Museum, London, United Kingdom;

MNHN: Muséum national d'Histoire naturelle, Paris, France;

MTKD: Museum für Tierkunde Dresden, Dresden, Germany;

NMB: Naturhistorisches Museum Basel, Basel, Switzerland;

UNAB: Facultad de Agronomía, Universidad Nacional de Colombia, Bogotá, Colombia;

ZMUM: Zoological Museum of M. V. Lomonosov State University, Moscow, Russia.

The type specimens of all *Malthesis* species have been examined. The distribution of the species given in the catalog is based on data from their original descriptions, the type specimens' labels, and from subsequent published sources. It should be noted, however, that localities given in the original publications and labels are sometimes unclear or extensive territories (e.g., "Amazon", Peru). At other times, they are misleading, as in the many species described or labeled as from "Bogota", which might refer to the commercial origin of the specimens rather than the actual collecting locality (c.f. Paynter 1997, Forero 2006). Dubious locality records are written between quotation marks (e.g., "Bogota", "Sodoco").

RESULTS

Malthesis ater Motschulsky, 1853

(Figs. 1–20)

Type material: LECTOTYPE (new designation) male (ZMUM): [COLOMBIA] "*Malthesis ater* Mots., Columbia / Columb." (Figs 1–14).

Other examined material: COLOMBIA, **Cundi-namarca**, Quipile, Casco urbano, 4°44'37.8" N 74°32'01.82" W, 1262 m a.s.l., 8. ii.2011, J. Romero leg., en suelo, captura manual [on the ground, manual capture] (1 male UNAB) (Figs 15–20).

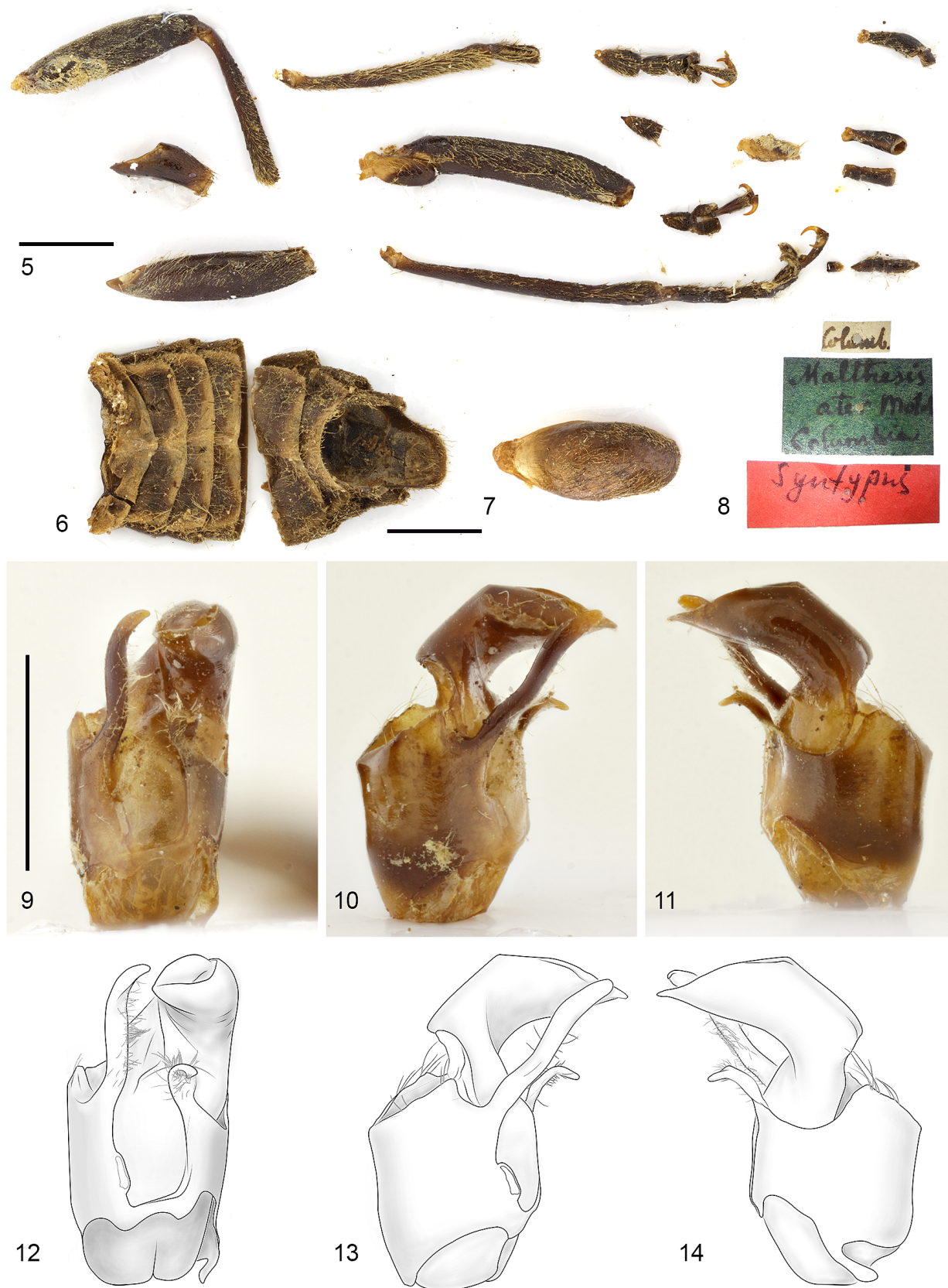


Figs. 1–4. *Malthesis ater* Motschulsky, 1853, lectotype. 1. Dorsal habitus; 2. Lateral habitus; 3–4. Head and pronotum, dorsal view. Scale bars: 1 and 2: 5.0 mm; 3 and 4: 1.0 mm.

Redescription (males): Length (from mandibles to apex of elytra): 7.5 mm. Body predominantly black, pale-yellow spots at genae in front of eyes and antennal sockets, basal two-thirds of mandibles, margins of hypomeron, base of trochanters, anterior portion of epipleura, internal margins of metanepisternum, and dark-orange to light-brown spots at posterior corners of pronotum; abdomen dark brown, pale yellow at membranous distal margins of ventrites.

Head (Figs. 15–18) smooth, densely covered in fine and short golden setae; occipital region flat, vertex convex, with barely visible muscular markings, frons convex, longitudinally elevated in the middle, lowered laterally; gular sutures confluent, well visible; genae short in front of eyes, parallel; clypeus V-shaped, fronto-clypeal suture broadly arched in the middle, obliquely straight laterally; anterior margin notched in the middle, forming two rounded lobes, and obliquely straight laterally, parallel to fronto-clypeal

suture; paraclypeal lobes elevated, as long as genae; clypeus covered with short setae on its dorsal surface, longer on anterior margin and a pair of long tufts of setae on anterior rounded lobes. Eyes small, not prominent, almost globose, 1.3 times longer than wide, broadly separated. Antennae (Figs. 15, 20) broadly separated; distance between antennae about 3 times width of antennal insertions; antennomere I elongate, narrowed at base, slightly swollen at apex; antennomere II short, nearly as long as wide, narrowed at base; antennomere III twice longer than antennomere II, slightly widened apically; antennomere IV longest, almost cylindrical; antennomere V nearly as long as I, slightly widened apically; antennomere VI slightly concave on its internal surface; antennomeres VII–X similar in shape, progressively smaller toward the apex; antennomere XI cylindrical, apex rounded; antennae densely covered with very short and fine setae and some sparse longer setae. Maxillae: stipes with a row of long basal se-



Figs. 5–14. *Maltheasis ater* Motschulsky, 1853, lectotype. 5. Broken pieces of the antennae, mouthparts and legs; 6. Abdomen, ventral view; 7. Ventrite VIII, ventral view; 8. Labels; 9–11. Aedeagus in ventral, left and right views; 12–14. Illustrations of lectotype's aedeagus in ventral, left and right views. Scale bars: 1.0 mm.

tae; maxillary palpi (Fig. 19) short; palpomere I conical, very short; palpomere II conical, twice longer than I; palpomere III slightly shorter than II, narrowed at base with a distal crease on internal margin, forming a small lamellar projection; palpomere IV elongate, globose, apex broadly arched, with a longitudinal furrow on dorsal surface; palpomeres covered with short setae and sparse longer apical setae. Labium (Fig. 16): prementum caliciform, strongly narrowed at base, broadly widened at apex, rounded laterally. Labial palpi very short, palpomere II elongate, apex broadly arched. Pronotum (Figs. 4, 17–18) subquadrate, 1.1 times as wide as long, narrower than head, including eyes; lateral margins slightly sinuate, narrower near posterior angles, diverging anteriorly and broadly arched anteriorly; posterior margin slightly arched; dorsal surface with low rounded protuberances and a medial concavity at posterior half; lateral borders well marked, not directed upwards, beaded on posterior half; hypomeron (Fig. 18) short, vertical posteriorly, oblique anteriorly. Scutellum (Fig. 16) subtrapezoidal, lateral margins concave, posterior margin convex. Elytra (Figs. 1–2, 15) elongate, almost concealing hind wings and abdomen, each elytron 4.9 times longer than wide; humeral width 1.35 times as wide as pronotum, lateral margins almost parallel, slightly narrowed posteriorly; sutures slightly divergent, bordered anteriorly and fading posteriorly; integument coriaceous, finely and sparsely punctuated, densely covered with short and fine decumbent pubescence and sparse longer erected setae throughout. Legs similar in shape, without strong modifications, increasing in length from anterior to posterior ones; femora slightly swollen, wider in the middle; tibiae slender, slightly arcuate, wider at apex; tarsal claws simple. Abdomen (Figs. 6–7) weakly sclerotized; broad membranous areas between ventrites; ventrite VII U-shaped, deeply notched on posterior margin, middle almost concealed by distal margin of ventrite VI; ventrite VIII (Fig. 7) strongly convex, oblong, 2.3 times longer than wide. Abdomen densely covered with short and fine pubescence and sparse longer setae, more concentrated on ventrites and exposed areas of tergites. Aedeagus (Figs. 9–14): median lobe elongate, slender; apex twisted and curved ventrally and to the left, with a wide flap-like, rounded apical projection; median lobe wide basally, convex ventrally, torsion marks barely visible, parameres widely spaced at the base. Left paramere as long as median lobe, narrow, sinuous, curved internally at apex; a dense fringe of long setae along the internal margin. Right, paramere short, flat, weakly sclerotized, curved ventrally, membranous at base;

inner margin with fine setae. Tegmen smooth, lustrous; distal margin with very fine long setae laterally.

Females: Unknown.

Distribution: Colombia (Cundinamarca).

Remarks: One male syntype of *M. ater* found in ZMUM (Figs. 1–11) is herein designated as a lectotype. It is not clear whether the original type series comprised further specimens. The specimen is incomplete, missing most parts of both antennae, some legs, and palpi, and in poor condition of preservation, covered in mold and with an oxidized pin. Due to its fragility, the specimen and its broken remaining pieces were mounted on card boards.

A CATALOG OF MALTHESIS

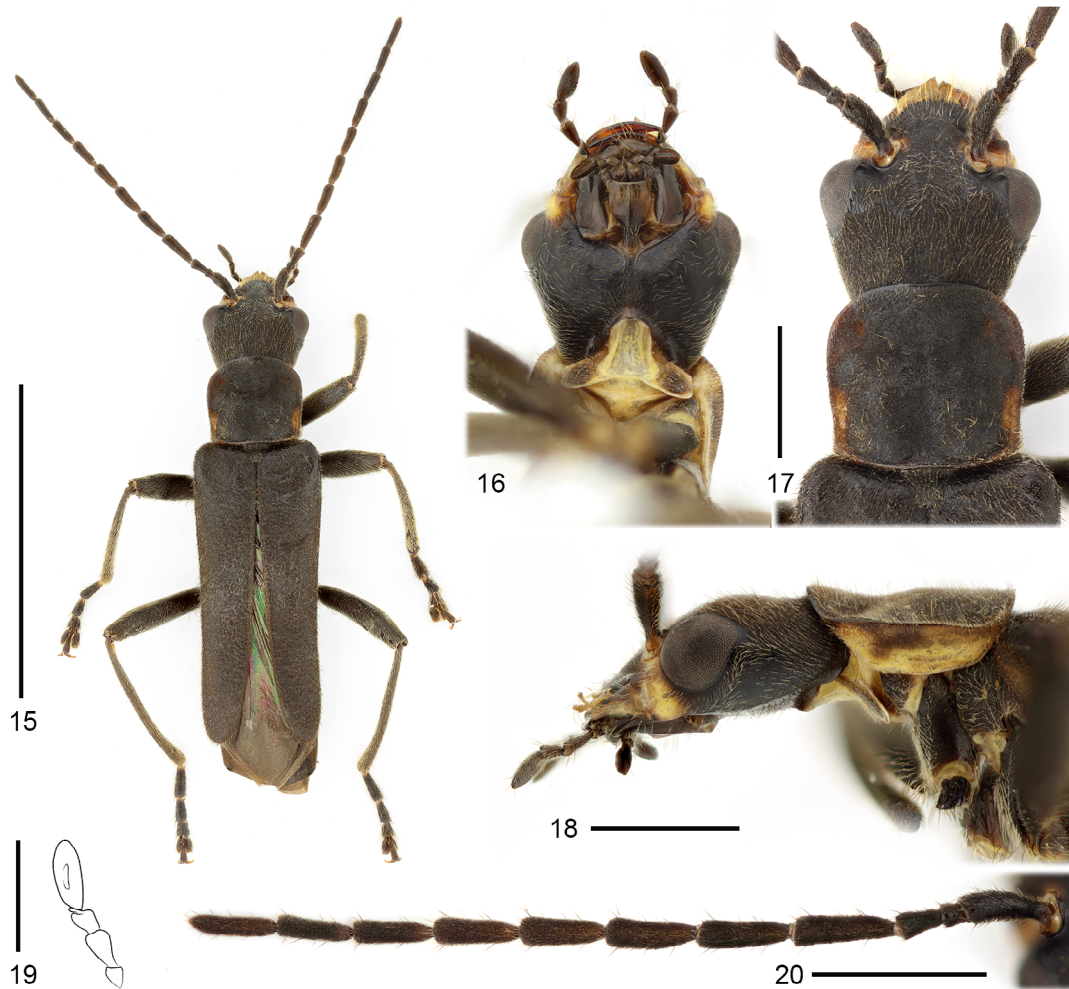
A full revision of *Malthesis*, including some species currently allocated to *Chauliognathus*, is necessary to clearly define the morphological boundaries of the genus and the identity of the 38 currently valid species and subspecies. Despite being described in scattered publications, most of the type specimens are grouped in their authors' collections. The types of Kirsch's species are deposited in MTKD, whilst those of Pic and Constantin are housed in MNHN. The only exceptions are 1 syntype of *Malthesis hickeri* Pic, 1926 (currently *Chauliognathus hickeri*) and 1 syntype of *M. subcyanipennis* Pic, 1935 at NMB and 1 syntype of *M. reductipennis* Pic, 1937 (currently *Chauliognathus reductipennis*) at BMNH.

***Malthesis* Motschulsky, 1853**

Type species: *Malthesis ater* Motschulsky, 1853, fixed by monotypy.

Malthesis Motschulsky, 1853: 1; Boheman 1854: 102; Lacordaire 1857: 345, 367 (*incertae sedis*); Kirsch 1865: 86; Gemminger and Harold 1869: 1683 (catalog); Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Wittmer 1963: 131 (*Chauliognathini*); Magis and Wittmer 1974: 93; Delkeskamp 1977: 460 (catalog); Brancucci 1980: 298; Brancucci 1981: 330; Constantin 2010: 40, 41; Constantin 2016: 5; Botero and Biffi c2021 (checklist); Biffi c2022 (checklist); Motyka et al. 2023: 569. (checklist).

Distribution: Colombia, Venezuela, Guyana, Suriname, French Guiana, Brazil, Peru, and Bolivia.



Figs 15–20. *Malthesis ater* Motschulsky, 1853, specimen from Quipile (Cundinamarca). 15. Dorsal habitus; 16. Head, ventral view; 17. Head and pronotum, dorsal view; 18. Head and prothorax, lateral view; 19. Maxillary palp, dorsal view; 20. Left antenna, dorsal view. Scale bars: 15: 5.0 mm; 16–18 and 20: 1.0 mm; 19: 0.5 mm.

***Malthesis acuminatus* Kirsch, 1870**

Malthesis acuminatus Kirsch, 1870: 384 [368, incorrect pagination]; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Botero and Biffi c2021 (checklist).

Distribution: Colombia (“Bogotá”).

***Malthesis ater* Motschulsky, 1853**

Malthesis ater Motschulsky, 1852 (1853): 2; Boheman 1854: 102; Lacordaire 1857: 367; Kirsch 1865: 87; Gemminger and Harold 1869: 1683 [*atra*, sic] (catalog); Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 [*atra*, sic] (checklist); Delkeskamp 1977: 460 (catalog); Botero and Biffi c2021 (checklist).

Distribution: Colombia (Cundinamarca).

***Malthesis atrocinctus* Pic, 1926**

Malthesis atrocinctus Pic, 1926a: 14; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Botero and Biffi c2021 (checklist).

Distribution: Colombia.

***Malthesis bahiensis* Pic, 1926**

Malthesis bahiensis Pic, 1926a: 15; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Biffi c2022 (checklist).

Distribution: Brazil (Bahia: “Sodoco”).

***Malthesis bicoloricornis* (Pic, 1947)**

Microdaiphron bicoloricorne Pic, 1947: 10; Delkeskamp 1977: 463 (catalog); Constantin and Chaboo 2016: 200 (checklist).

Malthesis bicoloricornis; Biffi 2019: 31; Biffi c2022 (checklist).

Distribution: Peru (Marcapata).

***Malthesis binotatus* Pic, 1926**

Malthesis binotatus Pic, 1926a: 15; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Constantin and Chaboo 2016: 200 (checklist).

Distribution: Peru (Callanga).

***Malthesis brevenotatus* Pic, 1926**

Malthesis brevenotatus Pic, 1926a: 15; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Constantin and Chaboo 2016: 200 (checklist).

Distribution: Peru (Madre de Dios).

***Malthesis brevesulcatus* Pic, 1926**

Malthesis brevesulcatus Pic, 1926a: 15; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Biffi c2022 (checklist).

Distribution: Brazil (Goiás: Jataí).

***Malthesis brunneonotaticeps* (Pic, 1917)**

Chauliognathus brunneonotaticeps Pic, 1917: 6; Delkeskamp 1939: 294 (catalog); Blackwelder 1945: 371 (checklist); Delkeskamp 1977: 438 (catalog).

Malthesis brunneonotaticeps; Constantin 2016: 20.

Chauliognathus surinamensis Pic, 1927b: 47; Delkeskamp 1939: 308 (catalog); Blackwelder 1945: 373 (checklist); Delkeskamp 1977: 453 (catalog); Constantin 2016: 20 (syn.).

Distribution: Suriname, French Guiana (Mitaraka; St. Laurent du Maroni).

***Malthesis cinctithorax* Pic, 1926**

Malthesis cinctithorax Pic, 1926a: 15; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog).

Distribution: Bolivia (Coroico).

***Malthesis diamantinensis* Pic, 1926**

Malthesis diamantinensis Pic, 1926a: 15; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Biffi c2022 (checklist).

Distribution: Brazil (Bahia: Chapada Diamantina).

***Malthesis discoideus* Kirsch, 1870**

Malthesis discoideus Kirsch, 1870: 384 [368, incorrect pagination]; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Botero and Biffi c2021 (checklist).

Distribution: Colombia ("Bogotá").

***Malthesis diversus* Pic, 1947**

Malthesis diversus Pic, 1947: 13; Delkeskamp 1977: 460 (catalog).

Distribution: Bolivia.

***Malthesis ephippiatus* Pic, 1926**

Malthesis ephippiatus Pic, 1926a: 14; Pic 1927a: 252; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog).

Distribution: Bolivia.

***Malthesis ephippiatus inapicalis* Pic, 1937**

Malthesis ephippiatus var. *inapicalis* Pic, 1927a: 252; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog).

Distribution: Bolivia (Yungas: Chaco).

***Malthesis impressithorax* Pic, 1926**

Malthesis impressithorax Pic, 1926a: 15; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog).

Distribution: Bolivia.

Malthesis impressus Pic, 1934

Malthesis impressus Pic, 1934: 129; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog).

Distribution: “Amazon”.

Malthesis innotatithorax Pic, 1926

Malthesis innotatithorax Pic, 1926a: 15; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog).

Distribution: Bolivia (Chaco).

Malthesis kouranus (Pic, 1947)

Chauliognathus kouranus Pic, 1947: 13; Delkeskamp 1977: 444 (catalog).

Malthesis kouranus; Constantin 2016: 20.

Distribution: French Guiana (Koura; Roura; Matoury; Sinnamary; Régina; Mitaraka; Saint-Elie; Macouria).

Malthesis latevittatus Pic, 1926

Malthesis latevittatus Pic, 1926a: 15; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Constantin and Chaboo 2016: 200 (checklist).

Distribution: Peru (Callanga).

Malthesis lepturoides Kirsch, 1865

Malthesis lepturoides Kirsch, 1865: 87; Gemminger and Harold 1869: 1683 (catalog); Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977 (catalog): 460; Botero and Biffi c2021 (checklist).

Distribution: Colombia (“Bogotá”).

Malthesis lividus Kirsch, 1865

Malthesis lividus Kirsch, 1865: 86; Gemminger and Harold 1869: 1683 (catalog); Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Botero and Biffi c2021 (checklist).

Distribution: Colombia (“Bogotá”).

Malthesis luridus Kirsch, 1870

Malthesis luridus Kirsch, 1870: 383 [367, incorrect pagination]; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Botero and Biffi c2021 (checklist).

Distribution: Colombia (“Bogotá”).

Malthesis marginatus Kirsch, 1870

Malthesis marginatus Kirsch, 1870: 383 [367, incorrect pagination]; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Botero and Biffi c2021 (checklist).

Distribution: Colombia (“Bogotá”).

Malthesis marginicollis Kirsch, 1870

Malthesis marginicollis Kirsch, 1870: 382 [366, incorrect pagination]; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Botero and Biffi c2021 (checklist).

Distribution: Colombia (“Bogotá”; Popayan).

Malthesis medionotatus Pic, 1926

Malthesis medionotatus Pic, 1926a: 14; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Botero and Biffi c2021 (checklist).

Distribution: Colombia (“Bogotá”).

Malthesis meridanus Pic, 1926

Malthesis meridanus Pic, 1926a: 14; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog).

Distribution: Venezuela (Mérida).

Malthesis mitarakaensis Constantin 2016*Malthesis mitarakaensis* Constantin 2016: 21.

Distribution: French Guiana (Mitakara; Roura; Régina).

Malthesis notatithorax Pic, 1926*Malthesis notatithorax* Pic, 1926a: 15; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog).

Distribution: Venezuela (Mérida).

Malthesis quadrimaculatus Pic, 1926*Malthesis 4-maculatus* Pic, 1926a: 15.*Malthesis quadrimaculatus*; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Botero and Biffi c2021 (checklist).

Distribution: Colombia (“Bogotá”).

Malthesis reductus Pic, 1947*Malthesis reductus* Pic, 1947: 13; Delkeskamp 1977: 460 (catalog).

Distribution: Venezuela (Mérida).

Malthesis reductus bilineata Pic, 1947*Malthesis reductus* var. *bilineata* Pic, 1947: 13; Delkeskamp 1977: 460 (catalog).

Distribution: Venezuela (Mérida).

Malthesis reductus innotata Pic, 1947*Malthesis reductus* var. *innotata* Pic, 1947: 13;

Delkeskamp 1977: 460 (catalog).

Distribution: Venezuela (Mérida).

Malthesis rubricollis Pic, 1926*Malthesis rubricollis* Pic, 1926a: 14; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog).

Distribution: Bolivia.

Malthesis rufohumeralis Pic, 1926*Malthesis rufohumeralis* Pic, 1926a: 15; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog).

Distribution: Venezuela (Mérida).

Malthesis stenopteroides Kirsch, 1865*Malthesis stenopteroides* Kirsch, 1865: 87; Gemminger and Harold 1869: 1683 (catalog); Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Botero and Biffi c2021 (checklist).

Distribution: Colombia (“Bogotá”).

Malthesis subcyanipennis Pic, 1935*Malthesis subcyanipennis* Pic, 1935: 254; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Botero and Biffi c2021 (checklist).

Distribution: Colombia (Cauca River).

Malthesis suturalis Kirsch, 1865*Malthesis suturalis* Kirsch, 1865: 86; Gemminger and Harold 1869: 1683 (catalog); Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Botero and Biffi c2021 (checklist).

Distribution: Colombia (“Bogotá”).

Species formerly classified in *Malthesis****Chauliognathus hickeri*** (Pic, 1926)*Malthesis hickeri* Pic, 1926b: 143; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Constantin and Chaboo 2016: 200 (checklist); Constantin 2016: 12.*Malthesis forestierei* Pic, 1934: 130; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Constantin 2010: 43 (fig. 67); 2016: 12 (synonym).

Distribution: French Guiana, Peru.

Chauliognathus reductipennis (Pic, 1937)

Malthesis reductipennis Pic, 1927c: 45; Delkeskamp 1939: 245 (catalog); Blackwelder 1945: 370 (checklist); Delkeskamp 1977: 460 (catalog); Constantin 2016: 16.

Distribution: French Guiana, “Amazones”.

DISCUSSION

The generic concept of *Malthesis*, as interpreted by Kirsch and Pic in their species descriptions was solely based on Motschulsky’s original description of the genus. The examination of the lectotype of *M. ater* and comparison against the other species in the genus confirms that those authors were correct in their interpretation. Furthermore, *Malthesis* can be reliably classified within Chauliognathinae: Chauliognathini based on a series of features, such as the distinct fronto-clypeal suture, absence of tibial spurs, oblong and convex ventrite VIII, asymmetrical aedeagus with longitudinally twisted median lobe, rather long elytra, almost concealing the abdomen and wings, among others (cf. Brancucci 1980).

In the current classification (Magis and Wittmer 1974, Brancucci 1980, Motyka et al. 2023), two lineages of genera are recognized in Chauliognathini. In the first, the elytra are extremely reduced, covering up to two abdominal tergites and exposing most of the hind wings, e.g., *Maronius* Gorham, 1881, *Paramaronius* Wittmer, 1963, *Lobetus* Kiesenwetter, 1852, *Macromalthinus* Pic, 1919, etc. (c.f. Brancucci 1981, Biffi 2015, 2020, Biffi and Constantin 2018). In the second group, composed of *Chauliognathus* Hentz, 1830, *Malthesis* Motschulsky 1853, *Malthopterus* Motschulsky 1853, *Psilorrhynchus* Gemminger and Harold 1869, *Daiphron* Gorham, 1881, and *Microdaiphron* Pic, 1919, the elytra are longer, covering more than three abdominal tergites to completely concealing the abdomen and hind wings. Brancucci (1981) produced an identification key to genera of Chauliognathini, but grouped all the long-elytra genera in the same couplet due to their weak definition. Although some of these problems have been tackled with the recent taxonomic revisions of *Psilorrhynchus* (Biffi 2017, Biffi et al. 2022) and *Microdaiphron* (Biffi 2019), the classification of the remaining genera remains confusing, with numerous species incorrectly assigned to

each one of them. Constantin (2016) presented a key to Chauliognathinae genera occurring in French Guiana, part of which is recorded for Colombia.

Psilorrhynchus can be distinguished by the head forming an elongate rostrum in front of the eyes, the typical trapezoidal pronotum, the last abdominal ventrite of females with lyriform notches, and the aedeagus, particularly the shape of left paramere and the digitiform and flap-like projections in the apex of the median lobe (Biffi 2017, Biffi et al. 2022). The genus *Daiphron* groups species with Lycidae-like features, such as serrate antennae, elytra widening posteriorly, sometimes with costae, and especially the yellow-and-black aposematic coloration (Biffi 2019, Biffi and Rosa 2019). The study of the circumscribed species suggests *Daiphron* as a heterogeneous and artificial group in need of revision. *Malthopterus* comprises only one species, but numerous species await description (Biffi in prep.). *Malthopterus* species can be briefly diagnosed by the eyes bulging, the head (including eyes) wider than the pronotum, the pronotum with margins parallel, and the aedeagus with a cuticular projection on the median lobe. *Chauliognathus* is the most problematic genus, including about 550 species from heterogeneous lineages grouped by the absence of obvious diagnostic features. Many species currently assigned to *Chauliognathus* need to be distributed through *Malthopterus*, *Malthesis*, *Daiphron*, and new genera. Species of *Microdaiphron* have a typical square to trapezoidal pronotum with the presence of two longitudinal sharp carinae (Biffi 2019). They resemble those of *Daiphron* for the aposematic color pattern but have more morphological features in common with *Malthesis*.

Unlike in most Chauliognathinae genera, the aedeagi in *Malthesis*, *Microdaiphron*, and some species currently classified in *Chauliognathus* are rather uniform, only slightly differing in size, shape, and texture, making them hard to interpret as species-level characters (see Biffi 2019). The same occurs in the last ventrite of females, whose distal border is entire with a shallow median fold, not variously notched as most of the Chauliognathinae species.

Other similarities between *Malthesis* and *Microdaiphron* include the sexually dimorphic head shape, which is wider and flat posteriorly in males and narrower in females, and the abdomen weakly sclerotized, with a broad membranous area between the ventrites. The main differences between both genera lie in the antennae, shape of pronotum



Fig. 21. Collecting localities of *Malthesis ater* in Colombia. The red circle indicates the dubious locality record of the lectotype (Bogotá).

and elytra, and width of head in comparison with pronotum. The antennomeres of *Malthesis* are always cylindrical or slightly widened distally, whereas in *Microdaiphron* the antennae are always serrate or subserrate and dorso-ventrally flattened. In *Malthesis* the head is very wide, sometimes wider than the pronotum, which is subquadrate, usually as long as wide or slightly longer than wide, with its lateral margins slightly sinuous, narrowed posteriorly. In *Microdaiphron* the pronotum is broader, wider than the head, with lateral and anterior margins broadly arched and a pair of longitudinal sharp keels forming a dorsal flat elevation. The elytra in *Malthesis* are shorter and narrowed posteriorly, usually exposing the apex of wings and last abdominal tergites, while in *Microdaiphron* they are longer – usually concealing wings and abdomen –, and broad, parallel-sided or slightly broader posteriorly.

Some *Malthesis* species show strong sexual dimorphism that hampers the direct association of males and females for each species. Such differences are found especially in the diagnostic features of the genus, like the shape of the

head (narrower in females), pronotum (broader, with lateral margins arched, not sinuated), and elytra (not narrowed, concealing wings and abdomen). Furthermore, unpublished photographic records of *Malthesis* in copula show also strong chromatic dimorphism. Thus, there might be cases where males and females have been described as distinct species, or even in distinct genera, so a number of synonymies are expected in a future revision of the genus if such strong dimorphism is addressed.

Malthesis ater is an example of a species known only to males. It is possible, however, that their females have been described under a different species name. Even with our limited knowledge about the morphological boundaries between *Malthesis* species, males of *M. ater* can be tentatively distinguished from their congeners by the almost entirely black body, except for the testaceous yellow markings at mandibles, in the area between the eyes and the base of mandibles, extending to the antennal sockets anteriorly, margins of hypomeron, anterior portion of epipleura, internal margins of metanepisternum, and dark-orange to light-brown spots on the posterior corners of pronotum. The other *Malthesis* males show various combinations of bicolored pronotum and elytra, longitudinal or bands, spots, well-defined pronotal and elytral margins, among others, usually in shades of yellow, orange, black, and, sometimes, gray. So far, *Malthesis* species are best distinguished by their color patterns in combination with the shapes and proportions of length and width of antennomeres, head, pronotum, and elytra. Other characteristics, such as aedeagus structures, hind wings, and female genitalia are potentially useful for diagnosis but require a thorough comparative study, for which a series of each species will be needed.

Prior to this work, *M. ater* was known simply as from “Colombia”, according to the original description. One additional specimen was located at UNAB, providing a more precise locality record. It was collected in Quipile, in the vicinity of Bogotá (Cundinamarca department), at the Cordillera Oriental montane forests.

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