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Abstract. We clarify the taxonomy and nomenclature of several species-group names and the family-group name for the anticheirine scarabs (Scarabaeidae: Rutelinae: Rutelini), a group that includes nearly 550 species and subspecies in 44 genera and subgenera. These clarifications are necessary due to taxonomic and nomenclatural inaccuracies in recent revisionary works. We provide a list of genera included in the anticheirine scarabs *sensu* Soula. Numerous nomenclatural changes are necessary due to invalid type designations or misspellings: the valid type species of *Aequatoria* Arrow is *Chlorota associata* Waterhouse; the valid type species of *Chlorota* Burmeister is *Rutela terminata* Le Peletier de Saint-Fargeau and Audinet-Serville; the valid type species of *Dorysthetus* Blanchard is *Macraspis chlorophana* Burmeister; the valid type species of *Anticheira* Eschscholtz is *Scarabaeus virens* Drury. Changes to the type species of *Anticheira* result in new combinations: *Anticheira virens virens* (Drury), **new combination**, *Anticheira virens bleuzeni* (Soula), **new combination** and *Anticheira virens jossi* (Soula), **new combination**. Some anticheirine species names were not associated with species descriptions or type designations, making these names ***nomina nuda*** and **unavailable:** "*Chlorota smithi*", "*Macraspis cincta guatemalensis*", "*Parachlorota equatoriana*", "*Parachlorota pardoi*", "*Pseudothyridium* (*Megathyridium*) *bousqueti*", "*Theuremaripa rivae brasiliensis*" and "*Thyridium cupriventre blanchardi*". *Dorysthaetus rufipennis* Dejean is a ***nomen nudum*** and an **unavailable name**. We correct numerous misspellings from Soula's five volumes on anticheirine scarabs and provide a list to avoid propagation of these errors by future researchers. Eighteen names are unavailable infrasubspecific names, and thirty-six of Soula's names were misspelled. These names confuse and obscure ruteline systematics. Lastly, we provide a comprehensive list of infrasubspecific names in the anticheirine scarabs and we establish these as **available** or **unavailable names**.

Resumen. Clarificamos la taxonomía y nomenclatura de varios nombres de grupos de especies y del nombre del grupo familiar de los escarabajos anticheirinos (Scarabaeidae: Rutelinae: Rutelini), un grupo que incluye cerca de 550 especies y subespecies en 44 géneros y subgéneros. Estas aclaraciones son necesarias principalmente debido a la falta de precisión taxonómica y a los errores de nomenclatura cometidos en trabajos recientes de revisión del grupo. Nosotros proveemos una lista de géneros incluidos en los escarabajos anticheirinos *sensu* Soula. Una serie de cambios son necesarios debido a designaciones inválidas de tipos o por faltas ortográficas: la especie tipo válida de *Aequatoria* Arrow es *Chlorota associata* Waterhouse; la especie tipo válida de *Chlorota* Burmeister es *Rutela terminata* Le Peletier de Saint-Fargeau y Audinet-Serville; la especie tipo válida de *Dorysthetus* Blanchard es *Macraspis chlorophana* Burmeister; la especie tipo válida de *Anticheira* Eschscholtz es *Scarabaeus virens* Drury. Los cambios de las especies tipo de *Anticheira* resultan en nuevas combinaciones: *Anticheira virens virens* (Drury), **nueva combinación**, *Anticheira virens bleuzeni* (Soula), **nueva combinación** y *Anticheira virens jossi* (Soula) **nueva combinación**. Algunos nombres de especies de anticheirinos no fueron asociados con descripciones de

especies o designaciones de tipo convirtiendo a estos nombres en ***nomina nuda*** y **no disponibles**: "*Chlorota smithi*", "*Macraspis cincta guatemalensis*", "*Parachlorota equatoriana*", "*Parachlorota pardoi*", "*Pseudothyridium* (*Megathyridium*) *bousqueti*", "*Theuremaripa rivae brasiliensis*" y "*Thyridium cupriventre blanchardi*". *Dorysthaetus rufipennis* Dejean es un ***nomen nudum*** y un **nombre no disponible**. Corregimos numerosas faltas ortográficas de los cinco volúmenes de escarabajos anticheirinos escritos por Soula y presentamos una lista para evitar la propagación de esos errores por futuros investigadores. Dieciocho nombres son nombres infrasubespecíficos no disponibles, y treinta y seis de los nombres de Soula tienen faltas ortográficas. Estos nombres confunden y oscurecen la sistemática de los rutelinos. Por último, proveemos una lista completa de los nombres infrasubespecíficos de los escarabajos anticheirinos, y establecemos estos nombres como **nombres disponibles** o **no disponibles.**

Introduction

Anticheirine scarabs are the most species-rich group of Neotropical Rutelini including nearly 550 species and subspecies in 44 genera and subgenera (Soula 1998, 2002a, 2002b, 2003, 2005). The group includes many brightly colored, metallic beetles that range in size from 5 to 40 mm. Despite the large size of many species, little is known about the natural history of anticheirine scarabs. Adults are fast fliers and are often observed high in the forest canopy (Ferreira et al. 2011), where they feed on floral parts (Cunningham 1995; Aguiar and Gaglianone 2008), rotting fruits (Ohaus 1905; Solis 1998), or act as pollinators (Maués et al. 2004). A few species are reported as pests due to their fruit-feeding habits (Murray 1994). Immature stages and pupae are known for only a handful of species (Monné 1969; Vanin and Costa 1980; Jameson and Morón 2001; Morón and Paucar-Cabrera 2003).

Despite the large size and beauty of anticheirine scarabs, they were largely neglected taxonomically until the works of Soula (1998, 2002a, 2002b, 2003, 2005). Rarity of specimens in collections, difficulty accessing type specimens, and intraspecific variation pose taxonomic difficulties for anticheirine workers. Works by Soula enacted sweeping taxonomic changes in the anticheirine scarabs, including the description of 21 new genera and subgenera, nearly 300 species and subspecies, and obfuscation of higher-level classification (e.g. disregard of the synonymization of the subtribe Anticheirina within the Rutelini *sensu* Jameson 1998). Volumes by Soula were published in a staggered manner, lacked synthesis and inclusion of other published literature (e.g. Krajcik 2007), were not peer-reviewed, and contained a number of misspellings and omissions. Overall, Soula's volumes did little to advance our knowledge of diversity within this scarab group due to overdescription of taxa and errors.

Past anticheirine systematists treated the Anticheirina as a subtribe of the Rutelini, but the subtribe is not monophyletic (Jameson 1998). Herein, we refer to the "anticheirine scarabs" *sensu* Soula in order to correct existing nomenclatural complications and stabilize the classification of the higher Rutelini. This publication follows our similar treatment for pelidnotine scarabs (Moore and Jameson 2013); several ruteline groups studied by Soula also require similar taxonomic treatments.

Anticheirine Scarab Genera *sensu* Soula

Many of Soula's descriptions of new genera within the Rutelini lack information about higher-level classification (e.g. *Patatra* Soula, *Pachacama* Soula and *Homeochlorota* Soula). Each of his volumes included a mix of genera from formerly accepted subtribes and currently accepted subtribes that were not arranged in a systematic fashion (Moore and Jameson 2013). Soula (2011) provided a tribal and subtribal classification within the Rutelinae, but his list omitted the tribes Alvarengiini and Adoretini, and it included subtribes of Rutelini that are not currently recognized (e.g. Anticheirina and Pelidnotina) (Smith 2006; Bouchard et al. 2011). Although he recognized that the classification was not based on monophyly ("La plupart des taxon supreagénériques, n'étant pas monophylétiques..." [Soula 2011: 3]), he maintained his classification pending further research.

Soula's (2011) classification of anticheirine genera omitted two genera and included one homonym: *Chuchina* Soula, 2005 (omitted), *Exothyridium* Soula, 2002a (omitted) and *Theuremaripa* Soula, 2006 (listed as the homonym *Maripa* Soula, 2002a). In addition, Soula (2011) is not easily accessible (e.g. it was not available through interlibrary loan and it was not available for purchase from Hillside Books, the distributor, when we contacted them in the spring of 2013), and the tribal and subtribal classification hypotheses proposed in that work are unknown to most scarab systematists. Because Soula provided

no characters or justification for his higher classification, we follow the classification of Bouchard et al. (2011) that considers the anticheirine scarabs to be in the tribe Rutelini, subtribe Rutelina. The anticheirine scarabs *sensu* Soula (a non-monophyletic group) include 44 genera and subgenera:

Acraspedon Arrow, 1899
Aequatoria Arrow, 1899
Anticheira Eschscholtz, 1818
Anticheiroides Soula, 1998
Badiasis Machatschke, 1970
Calomacraspis Bates, 1888
Chalcentis Burmeister, 1844
Chlorota Burmeister, 1844
Chuchina Soula, 2005
Crathoplus Blanchard, 1851
Dorysthetus Blanchard, 1851
Exanticheira Soula, 1998
Exochlorota Soula, 2002a
Exoptenomela Soula, 2002a
Exothyridium Soula, 2002a
Heterochlorota Soula, 2002a
Hypaspidius Arrow, 1899
Lagochile Hoffmannsegg, 1817
Macraspis MacLeay, 1819
Minidorysthetus Soula, 1998
Mucama Soula, 2002a
Parachlorota Soula, 2002a
Paradorysthetus Soula, 1998
Paramacraspis Ohaus, 1915
Paraptenomela Soula, 2002a
Paratelaugis Ohaus, 1915
Parathyridium Ohaus, 1915
Pichica Soula, 2002a
Platyrutela Bates, 1888
Pseudoanticheiroides Soula, 1998
Pseudodorysthetus Soula, 1998
Pseudohypaspidius Soula, 1998
Pseudomacraspis Ohaus, 1903
Pseudoptenomela Soula, 2002a
Pseudothyridium (*Megathyridium*) Soula, 2002a
Pseudothyridium (*Pseudothyridium*) Soula, 2002a
Ptenomela Bates, 1888
Telaugis Burmeister, 1844
Theuremaripa Soula, 2006
Thyridium Burmeister, 1844
Thyriochlorota Ohaus, 1915
Tipicha Soula, 2002a
Vayana Ohaus, 1915
Xenochlorota Soula, 2002a

The Family-Group Anticheirides

Burmeister (1844) named the groups Chasmodiidae and Macraspididae as part of the Rutelidae. In the Chasmodiidae, Burmeister included the genera *Chasmodia* MacLeay, *Telaugis* Burmeister and

Phaenomeris Hope, whereas the Macraspididae included the genera *Macraspis* MacLeay, *Chlorota* Burmeister, *Diabasis* Burmeister and *Thyridium* Burmeister. Additionally, Burmeister placed the genus *Chalcentis* Burmeister in the group Parastasiidae (which also included *Parastasia* Westwood and *Caelidia* Burmeister [=*Parastasia*]). Lacordaire (1856: 342) united these two groups because they had no distinguishing characters. According to Lacordaire (1856: 339), the characters and groups confounded classification of the ruteline scarabs. The family-group names Chasmodiidae and Macraspididae were not accepted by the community and did not become part of prevailing usage (see Bouchard et al. 2011). Lacordaire (1856) was the first to use the family-group name Antichirides (=Anticheirides), in which he included the following genera: *Anticheira* Eschscholtz, *Lagochile* Hoffmannsegg, *Telaugis* Burmeister, *Thyridium* Burmeister, *Chlorota* Burmeister (e.g. Fig. 1), *Ometis* Latreille, and *Diabasis* Machatschke.

The family-group name Anticheirides was regularly misspelled as "Antichirides" by previous authors (e.g. Lacordaire 1856, Bates 1888, Bouchard et al. 2011). With the belief that the name *Anticheira* was incorrectly formed, Blanchard (1851) and Lacordaire (1856) changed the spelling to *Antichira*. Other authors followed this emendation. However, as stated by Agassiz (1847), Machatschke (1970) and Soula (1998), the proper spelling of the name is Eschscholtz's (1818) original spelling *Anticheira*. Many Greek stems such as "chiro-" or "cheir-" are incorrectly formed into family group names (Lawrence and Newton 1995). Family-group names must be formed from the correct spelling of the stem name. The correct spelling for the family-group name should follow that of the genus: *Anticheira* and Anticheirina.

Type Species of Anticheirine Genera

Several type species were proposed by Soula for genera with previously established type species. Some of these changes are invalid based on three International Code of Zoological Nomenclature (1999; hereafter referred to as ICZN) articles. ICZN Article 68.2 states, "if one nominal species is explicitly designated as the type species when a nominal genus-group taxon is established, that nominal species is the type species (type by original designation)." This rule takes precedent unless the type species was misidentified (ICZN Article 70.3). ICZN Article 69.1 states, "if an author established a nominal genus or subgenus but did not fix its type species, the first author who subsequently designates one of the originally included nominal species validly designates the type species of that nominal genus or subgenus (type by subsequent designation), and no later designation is valid." Soula violated Articles 68.2 and 69.1 by designating new type species for genera with originally or subsequently established types. ICZN Article 67.2 states, "A nominal species is only eligible to be fixed as the type species of a nominal genus or subgenus if it is an originally included nominal species". This article was also violated by some Rutelini workers (e.g. Machatschke 1972 and Soula 1998), and we rectify these issues.

Aequatoria Arrow, 1899: 364

Type species. *Chlorota associata* Waterhouse, 1881: 553, original designation by Arrow 1899: 364.

Remarks. Soula (1998: 99) subsequently designated *Macraspis pretiosa* Brême, 1844: 303–304 as the type species of the genus *Aequatoria*. This is invalid based on ICZN Article 68.2. Arrow (1899: 364) originally designated *Chlorota associata* as the type of *Aequatoria*. *Chlorota associata* was an originally included nominal species of *Aequatoria* and Arrow's (1899) designation satisfies ICZN Article 68.2. Soula's (1998) designation of *Macraspis pretiosa* also violated ICZN Article 67.2, which states that the type of a genus must be an originally included nominal species. *Macraspis pretiosa* was not an originally included nominal species of *Aequatoria*.

Anticheira Eschscholtz, 1818: 475–476

Type species. *Scarabaeus virens* Drury, 1773: 54, application of ICZN Article 69.2.2 herein.

Remarks. See discussion under *Dorysthetus.*

***Dorysthetus* Blanchard, 1845: 218**
Dorysthetus Blanchard, 1845: 218 (genus description, no species placed in genus).
Dorysthetus Blanchard, 1851: 207 (four species placed in genus, no type species designated).
Antichira Eschscholtz, 1818 [new synonym by Ohaus 1918: 51].
Dorysthetus Blanchard [new status by Soula 1998: 14, 70–71].

Type species. *Macraspis chlorophana* Burmeister, 1844: 358, valid subsequent designation by Soula 1998: 71.

Remarks. The genus *Dorysthetus* includes about 30 species that are distributed in the Neotropics. This taxon has had a complicated taxonomic history. The name "*Dorysthaetus*" was proposed by Dejean (1833: 154), and the first species placed in the genus was "*D. rufipennis* Dejean". This name ("*D. rufipennis* Dejean") was never described and is a ***nomen nudum*** and **unavailable**. Despite this, however, "*D. rufipennis*" was synonymized with *Macraspis bicolor* (Olivier) by Burmeister (1844: 358). Blanchard (1845: 218) described the genus *Dorysthetus*, but he did not place any species in the genus. Blanchard (1851: 207) placed four species in *Dorysthetus* (including *D. chlorophana* [Burmeister]), thus marking the first time that validly described species were placed in the genus. Based on this, the authorship of *Dorysthetus* should be attributed to Blanchard (1845). Neither in 1845 nor in 1851 did Blanchard designate a type species for *Dorysthetus*. Ohaus treated *Dorysthetus* as a valid genus for a period of time (1905–1918) and eventually synonymized *Dorysthetus* with *Anticheira* (Ohaus 1918: 51).

The type species of the genera *Anticheira* and *Dorysthetus* share a complex history. Eschscholtz (1818) did not designate a type species for the new genus *Anticheira. Scarabaeus virens* Drury, 1773 was subsequently designated as the type species of *Anticheira* by Ohaus (1934b), but Eschscholtz (1818) did not originally include *S. virens* in the genus *Anticheira*. However, *Cetonia smaragdula* Fabricius, 1775 was originally included in *Anticheira* and this species was later treated as a synonym of *S. virens* (Eschscholtz 1818; Ohaus 1898). ICZN Article 69.2.2 states, "If an author designates as type species a nominal species that was not originally included (or accepts another's such designation) and if, but only if, at the same time he or she places that nominal species in synonymy with one and only one of the originally included species (as defined in Article 67.2), that act constitutes fixation of the latter species as type species of the nominal genus or subgenus." Ohaus (1934b) simultaneously treated *C. smaragdula* (an originally included nominal species of *Anticheira*) as a synonym of *S. virens* (which was not originally included in *Anticheira* but was subsequently designated as the type species of that genus). By applying ICZN Article 69.2.2 to this case, *S. virens* should be considered the type species of *Anticheira.*

Soula (1998: 71, 73) transferred *Anticheira virens* (Drury) into *Dorysthetus* and subsequently designated *Cetonia capucina* Fabricius, 1787 as the type of *Anticheira*. Soula (1998) also gave new valid generic-level status to *Dorysthetus*, which was previously treated as a synonym of *Anticheira* (Ohaus 1918). For nomenclatural stability it is necessary to transfer *Anticheira virens* (Drury), **new combination**, back to *Anticheira*, because it is the senior synonym of the valid type species of that genus (Ohaus 1934b). Two subspecies of *Anticheira virens* (Drury) need to be transferred into *Anticheira* from *Dorysthetus*: *Anticheira virens bleuzeni* (Soula), **new combination** and *Anticheira virens jossi* (Soula), **new combination**. The genus *Anticheira* now contains six valid species and subspecies, most of which have complicated taxonomic histories:

***Anticheira capucina* (Fabricius, 1787)**
Cetonia capucina Fabricius, 1787: 28 [original combination].
Melolontha capucina (Fabricius) [new combination by Herbst 1790: 183].
Rutela capucina (Fabricius) [new combination by Fabricius 1792: 132].
Chasmodia capucina (Fabricius) [new combination by Burmeister 1844: 341].
Antichira capucina (Fabricius) [new combination by Ohaus 1898: 56].

Anticheira capucina (Fabricius) [Machatschke 1970: 157].
syn. *Melolontha bicolor* Herbst, 1790.
Melolontha bicolor Herbst, 1790: 147 [original combination].
Anticheira bicolor (Herbst) [new combination by Eschscholtz 1818: 476].
Antichira capucina (Fabricius) [new synonym by Ohaus 1898: 56].
syn. *Antichira campisilvatica* Ohaus, 1905.
Antichira campisilvatica Ohaus, 1905: 294 [original combination].
Anticheira campisilvatica Ohaus [Machatschke 1970: 157].
Anticheira capucina (Fabricius) [new synonym by Soula 1998: 61].
syn. *Cetonia convexa* Olivier, 1789.
Cetonia convexa Olivier, 1789: 72–73 [original combination].
Melolontha convexa (Olivier) [new combination by Herbst 1790: 183].
Rutela convexa (Olivier) [new combination by Schönherr 1817: 156].
Chlorota convexa (Olivier) [new combination by Burmeister 1844: 361–362].
Antichira capucina var. *convexa* (Olivier) [new combination and new status by Ohaus 1898: 56].
Anticheira capucina var. *convexa* (Olivier) [Machatschke 1970: 157].
Anticheira capucina forma *convexa* (Olivier) [Machatschke 1972: 66].
Anticheira capucina (Fabricius) [new synonym by Soula 1998: 61].
syn. *Cetonia francisca* Fabricius, 1798.
Cetonia francisca Fabricius, 1798: 129 [original combination].
Rutela francisca (Fabricius) [new combination by Schönherr 1817: 152].
Antichira capucina (Fabricius) [new synonym by Ohaus 1898: 56].
syn. *Scarabaeus francisci* Gmelin, 1790.
Scarabaeus francisci Gmelin, 1790: 1580 [original combination].
Rutela francisci (Gmelin) [new combination by Schönherr 1817: 157].
Antichira capucina (Fabricius) [new synonym by Ohaus 1898: 56].
syn. *Macraspis gigas* Laporte, 1840.
Macraspis gigas Laporte, 1840: 117 [original combination]
Antichira capucina (Fabricius) [new synonym by Ohaus 1898: 56].
syn. *Macraspis imperator* Laporte, 1840.
Macraspis imperator Laporte, 1840: 117 [original combination].
Antichira capucina (Fabricius) [new synonym by Ohaus 1898: 56].
syn. *Chlorota rubiginosa* Burmeister, 1844.
Chlorota rubiginosa Burmeister, 1844: 366 [original combination].
Antichira capucina (Fabricius) [new synonym by Ohaus 1898: 56].

***Anticheira girardi* Soula, 1998**
Anticheira girardi Soula, 1998: 60–61 [original combination].

***Anticheira hirtipes* (Burmeister, 1844)**
Chlorota hirtipes Burmeister, 1844: 366 [original combination].
Antichira hirtipes (Burmeister) [new combination by Ohaus 1918: 52].
Anticheira hirtipes (Burmeister) [Machatschke 1970: 157].

***Anticheira virens bleuzeni* (Soula, 2005)**
Dorysthetus virens bleuzeni Soula, 2005: 368 [original combination].
Anticheira virens bleuzeni (Soula) [**new combination**].

***Anticheira virens jossi* (Soula, 2002a)**
Dorysthetus virens jossi Soula, 2002a: 278 [original combination].
Anticheira virens jossi (Soula) [**new combination**].

***Anticheira virens virens* (Drury, 1773)**
Scarabaeus virens Drury, 1773: 54 [original combination].

Melolontha virens (Drury) [new combination by Herbst 1790: 162].
Antichira virens (Drury) [new combination by Ohaus 1918: 51].
Anticheira virens (Drury) [Machatschke 1970: 157].
Dorysthetus virens (Drury) [new combination by Soula 1998: 71, 73].
Anticheira virens (Drury) [**new combination**].
syn. *Cetonia smaragdula* Fabricius, 1775.
Cetonia smaragdula Fabricius, 1775: 45 [original combination].
Anticheira smaragdula (Fabricius) [new combination by Eschscholtz 1818: 476].
Chlorota smaragdula (Fabricius) [new combination by Burmeister 1844: 362–363].
Antichira virens (Drury) [new synonym by Ohaus 1898: 55].
syn. *Scarabaeus smaragdinus* Gmelin, 1790.
Scarabaeus smaragdinus Gmelin, 1790: 1579 [original combination].
Antichira virens (Drury) [new synonym by Ohaus 1898: 55].

Remarks. From the work of Blanchard (1851) to the work of Machatschke (1972), no author established a type species for *Dorysthetus*. Machatschke (1972: 65) subsequently designated *Anticheira coerulescens* Blanchard, 1851 as the type species of *Dorysthetus*. Soula (1998: 71) did not address the type species designation by Machatschke (1972) and subsequently designated *Macraspis chlorophana* as the type species of *Dorysthetus*. Because *Anticheira coerulescens* was not an originally included nominal species in the genus *Dorysthetus*, it cannot be the type species (ICZN Articles 67.2). Thus, Machatschke's (1972: 65) subsequent type designation of *A. coerulescens* is invalid. Soula's (1998: 71) subsequent designation of *Macraspis chlorophana* as the type of *Dorysthetus* should be considered valid because it satisfies ICZN Article 69.1.

Chlorota Burmeister, 1844: 359

Type species. *Rutela terminata* Le Peletier de Saint-Fargeau and Audinet-Serville, 1825: 317, valid subsequent designation by Ohaus 1934b: 125.

Remarks. Soula (2002a: 132) subsequently designated *Chlorota aulica* Burmeister, 1844: 364–365 as the type species of the genus *Chlorota*, citing the change as more "logical" based on Dejean's (1833: 154) concept of *Chlorota*. This is an invalid change based on ICZN Article 69.1. Ohaus (1934b: 125) subsequently designated *Rutela terminata* as the type of *Chlorota*. *Rutela terminata* was an originally included nominal species of *Chlorota*, and Ohaus' (1934b) designation therefore satisfies ICZN Articles 67.2 and 69.1 (Fig. 1).

Minidorysthetus Soula, 1998: 15, 90

Type species. *Anticheira iodiella* Bates, 1888: 267, original designation by Soula 1998: 90.

Remarks. Soula (1998: 267) misspelled the specific name "*iodiella*" Bates as "*jodiellus*". In the same volume, however, Soula (1998: 90) designated the type species of *Minidorysthetus* under its correctly spelled name (ICZN Article 69.2.1).

Unavailable Names

The lack of synthesis and attention to detail in Soula's anticheirine monographs resulted in some names that were not validly described. These names appeared in diagnoses, comparisons, keys, discussions, or indices. The name "*Parachlorota equatoriana* n. sp." appears in the key to species of *Parachlorota* and a checklist of anticheirine scarab species (Soula 2002a: 187, 2005: 400), but it was not described in the main text nor was it indicated that a type was fixed to the name. The names "*Parachlorota pardoi*

Soula", "*Pseudothyridium* (*Megathyridium*) *bousqueti* Soula", "*Theuremaripa rivae brasiliensis* Soula" and "*Thyridium cupriventre blanchardi* Soula" appear only in the checklist of anticheirine genera and species (Soula 2005: 400), but they were not described. Similarly, the names "*Chlorota smithi*" and "*Macraspis cincta guatemalensis*" appear only in an index (Soula 2005: 390, 391, 396). The names "*Chlorota smithi*", "*Macraspis cincta guatemalensis*", "*Parachlorota equatoriana*", "*Parachlorota pardoi*", "*Pseudothyridium* (*Megathyridium*) *bousqueti*", "*Theuremaripa rivae brasiliensis*" and "*Thyridium cupriventre blanchardi*" have never been associated with species descriptions or type designations, thus making them ***nomina nuda*** and **unavailable** (ICZN Article 13.1.1).

Infrasubspecific Names

Historically, infrasubspecific names were widely used by authors (especially Friedrich Ohaus and Eugène Benderitter) working on anticheirine scarab alpha taxonomy. Infrasubpecific names (e.g. varieties and forms) were often used to denote unique color variants of anticheirine species. Most of Ohaus's infrasubspecific names for anticheirines were proposed from 1898 through 1918. Through taxonomic history, these names generally were unchanged and they retained infrasubspecific status as varieties (var.) in catalogs (Ohaus 1918, 1934b). Many of Ohaus's and Benderitter's varieties were treated as forms (forma), or infrasubspecific entities, in later catalogs (Machatschke 1972, 1974). Soula's works on the anticheirine scarabs maintained the infrasubspecific status of Ohaus' and Benderitter's varieties and proposed new statuses that classified available names as varieties (Soula 1998, 2002a, 2002b, 2003, 2005).

Infrasubspecific names are excluded from the species-group names and are not regulated by the ICZN (Article 45.5; 1.3.4). The inconsistent treatment of infrasubspecific names by subsequent authors and the idiosyncrasies of their original publication have created complicated situations in which infrasubspecific names 1) are available from their original publication, 2) were made available by the action of a subsequent author, 3) were available but were recently classified as varieties by Soula or synonymized by Krajcik (2007), or 4) are unavailable (see Lingafelter and Nearns 2013). Establishing the availability of these infrasubspecific names is important because some available names may have priority over new names proposed in the anticheirine scarabs by Soula (1998, 2002a, 2002b, 2003, 2005). Infrasubspecific names in anticheirine scarabs, whether available or unavailable, were listed as synonyms in the taxonomic checklist of Rutelinae (Krajcik 2007).

We present, in catalog format, all the names originally proposed as, or subsequently classified as, infrasubspecific in the anticheirine scarabs. We present the relevant ICZN articles and apply them to names in two categories: those that are available and those that are unavailable. It is unclear whether past authors (notably Soula and Krajcik) were aware that many infrasubspecific names in the anticheirine scarabs are available. The following list is not intended to comment on the status (i.e. the validity) of infrasubspecific names in the anticheirine scarabs; it is only intended to clarify the availability of infrasubspecific names so their validity can be assessed in the future.

Available Names According to ICZN Article 45.6.4. The following species-group names are **available** according to ICZN Article 45.6.4: "A name is subspecific if first published before 1961 and its author expressly used one of the terms "variety" or "form" (including use of the terms "var.", "forma", "v." and "f."), unless its author also expressly gave it infrasubspecific rank, or the content of the work unambiguously reveals that the name was proposed for an infrasubspecific entity, in which case it is infrasubspecific" (see also Lingafelter and Nearns 2013).

These names were proposed as varieties in their original publications. However, these publications did not propose or discuss subspecific names. Therefore, these varieties should be interpreted as subspecies in their original publications. Below, the first catalog entry is the available name; the last catalog entry reflects the current status (but not necessarily validity) of the name.

***Anticheira adamsii limbata* Benderitter, 1925**
Antichira adamsii var. *limbata* Benderitter, 1925: 247 [original combination, available name].

Anticheira adamsii var. *limbata* Benderitter [Machatschke 1970: 157].
Anticheira adamsii limbata (Benderitter) [new status by Machatschke 1972: 67].
Anticheiroides adamsii adamsii var. *limbata* (Benderitter) [new combination and revised status by Soula 1998: 66].
Anticheiroides adamsii adamsii (Waterhouse, 1886: 498) [new synonym by Krajcik 2007: 55].

***Lagochile badia chlorotica* Ohaus, 1898**
Lagochile badia var. *chlorotica* Ohaus, 1898: 51 [original combination, available name].
Chasmodia badia var. *chlorotica* (Ohaus) [new combination by Ohaus 1918: 59].
Chasmodia badia chlorotica (Ohaus) [new status by Machatschke 1972: 77].
Lagochile bipunctata var. *chlorotica* (Ohaus) [new combination and revised status by Soula 2005: 308].
Chasmodia badia chlorotica (Ohaus) [Krajcik 2007: 63].

***Lagochile emarginata cuprifulgens* Ohaus, 1898**
Lagochile emarginata var. *cuprifulgens* Ohaus, 1898: 51 [original combination, available name].
Chasmodia emarginata var. *cuprifulgens* (Ohaus) [new combination by Ohaus 1918: 60].
Chasmodia emarginata forma *cuprifulgens* (Ohaus) [Machatschke 1972: 55].
Lagochile emarginata emarginata var. *cuprifulgens* Ohaus [revised combination by Soula 2005: 304].
Chasmodia emarginata emarginata (Gyllenhal, 1817: 67–68) [new synonym by Krajcik 2007: 64].

***Lagochile trigona atrovirens* Nonfried, 1894**
Lagochile trigona var. *atrovirens* Nonfried, 1894: 124–125 [original combination, available name].
Lagochile trigona forma *atrovirens* (Nonfried) [Machatschke 1972: 81].
Lagochile trigona trochanterica (Burmeister, 1855: 517) [new synonym by Soula 2005: 359].
Lagochile trigona trigona (Herbst, 1790: 159) [new synonym by Krajcik 2007: 75].

***Macraspis lateralis cincticollis* Ohaus, 1898**
Macraspis lateralis var. *cincticollis* Ohaus, 1898: 52 [original combination, available name].
Macraspis lateralis forma *cincticollis* (Ohaus) [Machatschke 1972: 71].
Macraspis lateralis var. *cincticollis* Ohaus [Soula 1998: 42].
Macraspis lateralis (Olivier, 1789: 80–81) [new synonym by Krajcik 2007: 80].

***Macraspis lateralis immaculata* Ohaus, 1898**
Macraspis lateralis var. *immaculata* Ohaus, 1898: 52 [original combination, available name].
Macraspis lateralis forma *immaculata* (Ohaus) [Machatschke 1972: 71].
Macraspis lateralis var. *immaculata* Ohaus [Soula 1998: 42].
Macraspis lateralis (Olivier, 1789: 80–81) [new synonym by Krajcik 2007: 80].

***Macraspis xanthosticta nigripennis* Benderitter, 1923**
Macraspis xanthosticta var. *nigripennis* Benderitter, 1923: 216–217 [original combination, available name].
Macraspis xanthosticta forma *nigripennis* (Benderitter) [Machatschke 1972: 72].
Macraspis xanthosticta var. *nigripennis* Benderitter [Soula 1998: 43].
Macraspis xanthosticta Burmeister, 1844: 359 [new synonym by Krajcik 2007: 81].

***Thyridium blanchardi violacea* Ohaus, 1898**
Thyridium blanchardi var. *violacea* Ohaus, 1898: 59 [original combination, available name].
Ptenomela blanchardi var. *violacea* (Ohaus) [new combination by Arrow 1899: 363].
Ptenomela blanchardi forma *violacea* (Ohaus) [Machatschke 1972: 62].
Ptenomela blanchardi var. *violacea* (Ohaus) [Soula 2002a: 261].
Ptenomela blanchardi (Kirsch, 1870: 350–351) [new synonym by Krajcik 2007: 116].

Available Names According to ICZN Article 45.6.4.1. The following names are **available** according to ICZN Article 45.6.4.1: "A name that is infrasubspecific under Article 45.6.4 is nevertheless deemed to be subspecific from its original publication if, before 1985, it was either adopted as the valid name of a species or subspecies or was treated as a senior homonym."

These names were proposed as varieties and were infrasubspecific and unavailable in their original publications (i.e. they were clearly proposed for a rank below that of subspecies). Prior to 1985 these names were elevated to subspecific status, making them available species-group names from their original publication. Below, the first catalog entry is the available name; the last catalog entry reflects the current status (but not necessarily validity) of the name.

***Macraspis bicincta dimidiata* Ohaus, 1913**
Macraspis bicincta var. *dimidiata* Ohaus, 1913: 511 [original combination, unavailable name].
Macraspis bicincta dimidiata (Ohaus) [new status by Machatschke 1972: 70, name became available from original publication].
Macraspis bicincta var. *dimidiata* Ohaus [new status by Soula 1998: 40].
Macraspis bicincta Burmeister, 1844: 351–352 [new synonym by Krajcik 2007: 79].

***Dorysthetus castanipennis unicolor* Ohaus, 1912**
Dorysthetus castanipennis var. *unicolor* Ohaus, 1912: 275 [original combination, unavailable name].
Thyriochlorota castanipennis unicolor (Ohaus) [new combination and new status by Ohaus 1918: 45, name became available from original publication].
Thyriochlorota castanipennis var. *unicolor* (Ohaus) [new status by Soula 2002a: 168].
Thyriochlorota castanipennis (Ohaus, 1905: 299–300) [new synonym by Krajcik 2007: 123].

***Pseudomacraspis imitatrix basipennis* Ohaus, 1934a**
Pseudomacraspis imitatrix var. *basipennis* Ohaus, 1934a: 14 [original combination, unavailable name].
Pseudomacraspis imitatrix basipennis [new status by Machatschke 1972: 64, name became available from original publication].
Maripa imitatrix var. *basipennis* (Ohaus) [new combination and new status by Soula 2002a: 242].
Theuremaripa imitatrix var. *basipennis* (Ohaus) [new combination by Soula 2006: 170].
Maripa imitatrix (Ohaus, 1903: 229) [new synonym by Krajcik 2007: 83].

Available Names Incorrectly Synonymized by Krajcik (2007). The following names were proposed for validly described species and subspecies. Later, these names were treated as infrasubpecific entities (i.e. varieties and forms) and were then synonymized by Krajcik (2007). Below, the first catalog entry is the available name; the last catalog entry reflects the current status (but not necessarily validity) of the name.

***Anticheira sobrina* Waterhouse, 1881**
Antichira sobrina Waterhouse, 1881: 535–536 [original combination, available name].
Macraspis andicola var. *sobrina* (Waterhouse) [new combination and new status by Ohaus 1905: 293].
Macraspis andicola forma *sobrina* (Waterhouse) [Machatschke 1972: 74].
Macraspis andicola var. *sobrina* (Waterhouse) [Soula 1998: 31].
Macraspis andicola Burmeister, 1844: 352 [new synonym by Krajcik 2007: 79].

***Anticheira subaenea fluminensis* Ohaus, 1905**
Antichira subaenea fluminensis Ohaus, 1905: 294 [original combination, available name].
Anticheira subaenea fluminensis Ohaus [Machatschke 1970: 157].
Anticheiroides subaeneus var. *fluminensis* (Ohaus) [new status by Soula 1998: 65].
Anticheiroides subaeneus (Burmeister, 1844: 347) [new synonym by Krajcik 2007: 55].

***Diabasis auricollis* Ohaus, 1898**
Diabasis auricollis Ohaus, 1898: 54 [original combination, available name].

Chlorota dohrni var. *auricollis* (Ohaus) [new combination and new status by Ohaus 1903: 232].
Chlorota dohrni forma *auricollis* (Ohaus) [Machatschke 1972: 55].
Badiasis dohrni var. *auricollis* (Ohaus) [new combination by Soula 2002a: 129].
Badiasis dohrni (Ohaus, 1898: 54) [new synonym by Krajcik 2007: 56].

***Lagochile flavomarginata* Benderitter, 1923**
Lagochile flavomarginata Benderitter, 1923: 91 [original combination, available name].
Lagochile trigona var. *flavomarginata* (Benderitter) [new combination and new status by Ohaus 1934a: 15].
Lagochile trigona forma *flavomarginata* (Benderitter) [Machatschke 1972: 81].
Lagochile trigona var. *flavomarginata* (Benderitter) [Soula 2005: 356].
Lagochile trigona trigona (Herbst, 1790: 159) [new synonym by Krajcik 2007: 75].

***Macraspis bivittata* MacLeay, 1819**
Macraspis bivittata MacLeay, 1819: 157 [original combination, available name].
Macraspis cincta var. *bivittata* (MacLeay) [new status by Burmeister 1844: 353–354].
Macraspis cincta forma *bivittata* (MacLeay) [Machatschke 1972: 74].
Macraspis cincta var. *bivittata* (MacLeay) [Soula 1998: 29].
Macraspis cincta cincta (Drury, 1782: 61) [new synonym by Krajcik 2007: 80].

***Macraspis unicincta* Ohaus, 1898**
Macraspis unicincta Ohaus, 1898: 52 [original combination, available name].
Macraspis xanthosticta var. *unicincta* (Ohaus) [new status by Ohaus 1918: 55].
Macraspis xanthosticta forma *unicincta* (Ohaus) [Machatschke 1972: 72].
Macraspis xanthosticta var. *unicincta* (Ohaus) [Soula 1998: 43].
Macraspis xanthosticta Burmeister, 1844: 359 [new synonym by Krajcik 2007: 81].

Unavailable Infrasubspecific Names. Most of the infrasubspecific names proposed in the anticheirine scarabs are unavailable. Machatschke (1972) listed previous infrasubspecific variety names as "forma". Soula (1998, 2002a, 2002b, 2003, 2005) maintained these names as varieties. Krajcik (2007) synonymized varieties in the anticheirine scarabs; however, these names are unavailable and should not be considered synonyms.

The following names are **unavailable** based on the ICZN Articles 1.3.4 and 45.6.4. None of these names were elevated to specific or subspecific rank before 1985, and they remained unavailable (ICZN Article 45.6.4.1). In each case, these infrasubspecific names were proposed by Ohaus in publications that also described or discussed subspecies (thus making these names clearly infrasubspecific). For example, Ohaus (1913) described "*Rutela vetula* n. sp.", "*Chlorota terminata* subsp. nov. *jivarana*" and "*Macraspis cincta* var. nov. *pallida*". Thus, the name *M. cincta* var. *pallida* is infrasubspecific, the name has never been treated as subspecific or specific, and it is unavailable (ICZN Article 45.6.4.1). These catalog entries provide a list of unavailable names.

***Anticheira hemichlora* var. *nigripennis* Ohaus, 1905**
Antichira hemichlora var. *nigripennis* Ohaus, 1905: 293 [original combination, **unavailable name**].
Paramacraspis hemichlora var. *nigripennis* (Ohaus) [Ohaus 1918: 49].
Paramacraspis hemichlora forma *nigripennis* (Ohaus) [Machatschke 1972: 63].

***Anticheira jodiella* var. *nigra* Ohaus, 1903**
Antichira jodiella var. *nigra* Ohaus, 1903: 231 [original combination, **unavailable name**].
Anticheira jodiella forma *nigra* Ohaus [Machatschke 1972: 69].
Minidorysthetus iodiellus var. *nigra* (Ohaus) [new combination by Soula 1998: 91].

***Chasmodia anophrys* var. *flavicollis* Ohaus, 1930**
Chasmodia anophrys var. *flavicollis* Ohaus, 1930: 141 [original combination, **unavailable name**].

Chasmodia anophrys forma *flavicollis* Ohaus [Machatschke 1972: 77].
Lagochile anophrys var. *flavicollis* (Ohaus) [Soula 2005: 338].

***Chasmodia emarginata* var. *viridinigra* Ohaus, 1914a**
Chasmodia emarginata var. *viridinigra* Ohaus, 1914a: 147 [original combination, **unavailable name**].
Chasmodia emarginata forma *viridinigra* Ohaus [Machatschke 1972: 79].
Lagochile emarginata var. *viridinigra* (Ohaus) [Soula 2005: 304].

***Chlorota dohrni* var. *violacea* Ohaus, 1903**
Chlorota dohrni var. *violacea* Ohaus, 1903: 232 [original combination, **unavailable name**].
Chlorota dohrni forma *violacea* Ohaus [Machatschke 1972: 55].

***Macraspis bicincta* var. *flavipennis* Ohaus, 1905**
Macraspis bicincta var. *flavipennis* Ohaus, 1905: 293 [original combination, **unavailable name**].
Macraspis bicincta forma *flavipennis* Ohaus [Machatschke 1972: 70].

***Macraspis chalcea* var. *violacea* Ohaus, 1918**
Macraspis chalcea var. *violacea* Ohaus, 1918: 55 [original combination, **unavailable name**].
Macraspis chalcea forma *violacea* Ohaus [Machatschke 1972: 72].
Macraspis chalcea var. *violacea* Ohaus [Soula 1998: 52].

Remarks. *Macraspis chalcea* var. *violacea* Ohaus (1918) is the name applied to a dark violet "variety" of *M. chalcea* Burmeister that was collected in Espirito Santo, Brazil (Ohaus 1898). Ohaus (1898: 51) discussed the specimen on which the name is based, but he did not apply a name to it until 1918.

***Macraspis cincta* var. *adjusta* Ohaus, 1913**
Macraspis cincta var. *adjusta* Ohaus, 1913: 511 [original combination, **unavailable name**].
Macraspis cincta forma *adjusta* Ohaus [Machatschke 1972: 74].

***Macraspis cincta* var. *pallida* Ohaus, 1913**
Macraspis cincta var. *pallida* Ohaus, 1913: 511 [original combination, **unavailable name**].
Macraspis cincta forma *pallida* Ohaus [Machatschke 1972: 75].

***Macraspis cupripes* var. *scotina* Ohaus, 1914a**
Macraspis cupripes var. *scotina* Ohaus, 1914a: 139–140 [original combination, **unavailable name**].
Macraspis cupripes forma *scotina* Ohaus [Machatschke 1972: 75].

***Macraspis mixta* var. *coerulea* Ohaus, 1913**
Macraspis mixta var. *coerulea* Ohaus, 1913: 511 [original combination, **unavailable name**].
Macraspis mixta forma *coerulea* Ohaus [Machatschke 1972: 73].

***Macraspis trifida* var. *taetrica* Ohaus, 1914a**
Macraspis trifida var. *taetrica* Ohaus, 1914a: 139 [original combination, **unavailable name**].
Macraspis trifida forma *taetrica* Ohaus [Machatschke 1972: 71–72].

***Macraspis variabilis* var. *bugrina* Ohaus, 1914a**
Macraspis variabilis var. *bugrina* Ohaus, 1914a: 140 [original combination, **unavailable name**].
Macraspis variabilis forma *bugrina* Ohaus [Machatschke 1972: 76].

***Macraspis variabilis* var. *testaceoflavipes* Ohaus, 1914a**
Macraspis variabilis var. *testaceoflavipes* Ohaus, 1914a: 140 [original combination, **unavailable name**].
Macraspis variabilis forma *testaceoflavipes* Ohaus [Machatschke 1972: 76].

***Parathyridium sulcatum* var. *erubescens* Ohaus, 1913**
Parathyridium sulcatum var. *erubescens* Ohaus, 1913: 511 [original combination, **unavailable name**].
Parathyridium sulcatum forma *erubescens* Ohaus [Machatschke 1972: 60].

***Platyrutela cribrata* var. *rufescens* Ohaus, 1913**
Platyrutela cribrata var. *rufescens* Ohaus, 1913: 511 [original combination, **unavailable name**].
Platyrutela cribrata forma *rufescens* Ohaus [Machatschke 1972: 61].

***Pseudomacraspis cayennensis* var. *carbonaria* Ohaus, 1912**
Pseudomacraspis cayennensis var. *carbonaria* Ohaus, 1912: 274 [original combination, **unavailable name**].
Pseudomacraspis cayennensis forma *carbonaria* Ohaus [Machatschke 1972: 64].
Maripa Pseudomacraspis cayennensis var. *carbonaria* (Ohaus) [new combination by Soula 2002a: 241].
Theuremaripa cayennensis var. *carbonaria* (Ohaus) [new combination by Soula 2006: 170].

***Pseudomacraspis imitatrix* var. *variicollis* Ohaus, 1912**
Pseudomacraspis imitatrix var. *variicollis* Ohaus, 1912: 274 [original combination, **unavailable name**].
Pseudomacraspis imitatrix forma *variicollis* Ohaus [Machatschke 1972: 64].

Lapses and Incorrect Subsequent Spellings

The scientific value of Soula's volumes is compromised by poor editing and by many misspellings (e.g. scientific names, localities, descriptive characters, figure legends, indices, and identification keys). Misspelled scientific names in Soula's keys, indices and species descriptions pose problems because such errors can be propagated by future researchers. In some cases, the misspelling of a specific name is so different from the correct spelling that the error confuses or obscures the intended species identity. We consider it important to comprehensively list all spelling errors and other lapses to limit confusion for future researchers.

Acraspedon bernieri (*sic*) (in Soula 2002a: 230) = *Acraspedon bernierei* Soula, 2002a: 229, 230.

Anticheiroides goianus (*sic*) (in Soula 2005: 406) = *Anticheiroides goyanus* (Ohaus, 1905: 295).

Anticheiroides hegoi Soula, 2002a: 276–277. Soula (2002a: 276) incorrectly labeled this species as a subspecies "*A. bullei hegoi*" on a figure showing parameres.

Anticheiroides inauratus minasgeraensis (*sic*) (in Soula 2005: 407) = *Anticheiroides inauratus minasgeraisensis* Soula, 2002a: 277.

Calomacraspis concina (*sic*) (in Soula 2002a: 271) = *Calomacraspis concinna* (Blanchard, 1851: 204).

Calomacraspis hazroldi (*sic*) (in Soula 2002a: 272) = *Calomacraspis haroldi* (Candèze, 1869: 43–44).

Calomacraspis splendida (*sic*) (in Soula 2005: 404) = *Calomacraspis splendens* (Burmeister, 1844: 345–346).

Chlorota tabdominalis (*sic*) (in Soula 2002a: 146) = *Chlorota abdominalis* Ohaus, 1926: 226–227.

Chlorota calligariorum (*sic*) (in Soula 2005: 398) = *Chlorota callegariorum* Soula, 2005: 363.

Chlorota haemorrhoidalis durantoni (*sic*) (in Soula 2002a: 144; Soula 2005: 398) = *Chlorota haemorrhoidalis durantonorum* Soula, 2002a: 144.

Chlorota odettae (*sic*) (in Soula 2002a: 143) = *Chlorota odetteae* Soula, 2002a: 133, 143.

Chlorota panamensis costariccensis (*sic*) (in Soula 2002a: 152) = *Chlorota panamensis costaricensis* Soula, 2002a: 152.

Chlorota tnasuta (*sic*) (in Soula 2002a: 155) = *Chlorota nasuta* Ohaus, 1905: 309.

Chlorota santereaui (*sic*) (in 2002a: 135, 158) = *Chlorota sautereaui* Soula, 2002a: 158. *Chlorota sautereaui* is named in honor of F. Sautereau (Soula 2002). The name appears as *Chlorota sautereaui* in the species description (Soula 2002a: 158), but as "*Chlorota santereaui*" in the key to species of *Chlorota* and in a figure legend (Soula 2002a: 135, 158). We consider the correct spelling to be *C. sautereaui*.

Dorysthetus peruvianus (*sic*) (in Soula 2002a: 277, 2005: 396, 406) = *Dorysthetus peruanus* (Ohaus, 1905: 297).

Dorysthetus virens subandinus Ohaus 1912: 275. Soula (1998: 71) incorrectly labeled this subspecies as "*virens subandinus* n. ssp." in the key to *Dorysthetus* species and subspecies.

Exochlorota devecisis (*sic*) (in Soula 2002a: 227) = *Exochlorota devecisi* Soula, 2002a: 227–228.

Lagochile brunnea castanicolor (*sic*) (in Soula 2005: 409) = *Lagochile brunnea castanea* (Benderitter, 1923: 91).

Lagochile castanicolor (Ohaus, 1914a: 143). In the same publication (Soula 2005), *Lagochile castanicolor* is mistakenly listed as a subspecies of *L. luticolor* (Ohaus 1914a: 143) (Soula 2005: 408) and as a subspecies of *L. unicolor* (Ohaus 1914a: 144) (Soula 2005: 393), having previously been treated as a species (Soula 2005: 301, 330).

Lagochile cetonoides (*sic*) (in Soula 2005: 299, 306, 390, 393, 407) = *Lagochile cetonioides* (Le Peletier de Saint-Fargeau and Audinet-Serville, 1825: 316).

Lagochile cetonoides (*sic*) *farwesta* (in Soula 2005: 371, 390, 394, 407) = *Lagochile cetonioides farwesta* Soula, 2005: 371.

Lagochile cetonoides (*sic*) *rosanti* (in Soula 2005: 306, 391, 396, 407) = *Lagochile cetonioides rosanti* Soula, 2005: 306–307.

Lagochile divergeri (*sic*) (in Soula 2005: 350) = *Lagochile duvergeri* Soula, 2005: 302, 349–350.

Lagochile macraspidoides (*sic*) (in Soula 2005: 391, 395) = *Lagochile macraspidioides* (Ohaus, 1905: 289).

Lagochile macraspidoides (*sic*) *amplicollis* (in Soula 2005: 305, 392, 395) = *Lagochile macraspidioides amplicollis* Soula, 2005: 305.

Lagochile sparsa guyanaensis (*sic*) (in Soula 2005: 391, 394) = *Lagochile sparsa guyanensis* Soula, 2005: 348.

Lagochile wiengrenni (*sic*) (in Soula 2005: 408) = *Lagochile wiengreeni* Ohaus, 1905: 288.

Macraspis cincta var. *adusta* (*sic*) (in Soula 1998: 115; Soula 2005: 392) = *Macraspis cincta* var. *adjusta* Ohaus, 1913: 511 (**unavailable name**, see section "Unavailable infrasubspecific names").

Macraspis guyanensis esperitosantensis (*sic*) (in Soula 2005: 404) = *Macraspis guyanensis espiritosantensis* Soula, 1998: 18, 24.

Minidorysthetus hoenei (*sic*) (in Soula 2005: 402) = *Minidorysthetus hoehnei* (Ohaus, 1914b: 304).

Parathyridium collarte (*sic*) (in Soula 2002a: 176) = *Parathyridium collare* Ohaus, 1938: 258–259.

Parathyridium montreulli (*sic*) (in Soula 2005: 400) = *Parathyridium montreuilli* Soula, 2005: 378–379.

Pseudomacraspis lydiae (*sic*) (in Soula 2002a: 238) = *Pseudomacraspis lydieae* Soula, 2002a: 236, 238.

Pseudothyridium (*Pseudothyridium*) *folschveillerei* (*sic*) (in Soula 2002a: 215) = *Pseudothyridium* (*Pseudothyridium*) *folschveilleri* Soula, 2002a: 206, 215–216.

Ptenomela gratiosa costaricensiss (*sic*) (in Soula 2005: 403) = *Ptenomela gratiosa costaricensis* Soula, 2002a: 255, 259.

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Figure 1. Syntype of *Chlorota terminata surinamensis* Ohaus. **A)** Dorsal habitus. **B)** Parameres, dorsal view. **C)** Lateral habitus. **D)** Syntype specimen labels. The genus *Chlorota* was included among the genera in Lacordaire's Antichirides (=Anticheirides). The nominate species, *Chlorota terminata terminata* (Le Peletier de Saint-Fargeau and Audinet-Serville), is the type species of the genus *Chlorota*. The syntype specimen is housed in the United States National Collection (currently at University of Nebraska State Museum).