



## Scarabaeoidea (Coleoptera) of Portugal: genus-group names and their type species

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### Abstract

The type species and nomenclature are discussed in detail of the genus-group names that have been used, correctly or incorrectly, in combination with species recorded from Portugal. This work strictly adheres to the rules of the International Code of Zoological Nomenclature, in order to promote nomenclatural stability. The contents are strictly nomenclatural as no view is taken on the taxonomic validity or rank of the genus-group names.

A total of 171 available names are examined. Evidence is provided in each case for the reasons why the stated nominal species is believed to be the validly designated type species. Many instances were found in the modern literature of type species statements not in compliance with the requirements of the Code. In most cases it is a senior synonym that is stated as type species, instead of the nominal species originally included when the genus was established. That, fortunately, does not cause nomenclatural instability but should be corrected.

In three cases where nomenclatural stability is threatened, *Anisoplia* Schönherr, 1817, *Phyllopertha* Stephens, 1830, and *Scarabaeus* Linnaeus, 1758, it is suggested that prevailing usage should be maintained until a case is made to the International Commission on Zoological Nomenclature and a ruling is published.

**Key words:** Scarabaeoidea, Portugal, nomenclature, genus-group names, type species

### Introduction

While preparing a monograph on Portuguese Scarabaeoidea, I was confronted with the need to ascertain the validly designated type species for the various genus-group names associated with this fauna. This proved to be an arduous task. The difficulty stems from the fact that most twentieth century European authors (a praiseworthy exception is Dellacasa [1983]) either do not indicate type species or, when they do, they fail to state the reasons why they believe that the indicated nominal species is the type species. Yet, type species are paramount for nomenclatural stability. As highlighted in the International Code of Zoological Nomenclature (Article 61.1.1): “No matter how the boundaries of a taxonomic taxon may vary in the opinion of zoologists the valid name of such taxon is determined (Art. 23.3) from the name-bearing type(s) considered to belong within those boundaries.”

Whenever the type species was not originally fixed, I cannot be absolutely sure, despite my best endeavours, that the type species indicated here is the validly designated one. It is possible that I have missed a valid subsequent designation previous to the one I am indicating. I would gratefully accept any corrections to my conclusions.

Two requirements of the Code, in particular, have been often overlooked in subsequent type species designations:

- That a nominal species is only eligible to be fixed as the type species if it is an originally included nominal species (Article 67.2).

– That the name of a type species remains unchanged even when it is a junior synonym or homonym, or a suppressed name (Articles 67.1.2 and 81.2.1). Here I give the name of the type species in its original combination, correct original spelling, author and date, followed in brackets by the Article(s) under which its designation is validated if it was cited differently, and the exact way in which it was cited.

It appears also that, in matters dealing with type species, taxonomic species have often been mistaken for nominal species. However, strict application of Article 67.2 is moderated by Article 67.7 (Status of incorrect citations).

The following rulings of the Commission, quoted below from the respective Directions, are relevant in a number of cases. Rulings with a more restricted scope will be referred to as the cases arise.

Direction 4 (1954), on subsequent type species designations by Latreille (1810):

“*OPINION 136 (embodying also OPINION 11): the title of the under-mentioned work is to be entered in the Official List of Works Approved as Available for Zoological Nomenclature, together with the accompanying note: Latreille (P.A.), 1810, Considérations générales sur l’Ordre naturel des Animaux composant les Classes des Crustacés, des Arachnides et des Insectes avec un Tableau méthodique de leurs Genres disposés en Familles the entries in the Tableau méthodique at the end of this work are to be accepted as constituting the selection, under Rule (g) in Article 30, of type species for the genera concerned in those cases where Latreille there cited for the genus concerned one nominal species only but in no other case, it being understood that a selection so made is to be accepted as valid selection only (a) if the nominal species so selected was one of those included in the genus by its original author and (b) if the type species for the genus concerned had not been determined under any of the earlier Rules in Article 30 or by a previous selection made under Rule (g)*”.

Opinion 11 was published in 1910, and the first clarification, Opinion 136, dates from 1939. It is worth noting that in the *Tableau Méthodique*, where Scarabaeoidea are concerned, except for *Aegialia* and *Cremas-tocheilus*, Latreille (1810) credits all nominal species to Fabricius. As a consequence, strict application of Article 67.2 would deny validity to a number of Latreille’s (1810) designations. However, they are valid under Article 67.7.

Direction 32 (1956), on subsequent type species designations by Westwood (1838):

“(f) *Westwood (J.O.), 1839–1840, An Introduction to the modern Classification of Insects, 2 volumes, the entry to be made to bear the endorsement that in the separately-paged Synopsis” (pp. 158) attached to volume 2 the species specified against the names of the genera enumerated are to be treated as having been there definitely selected to be the type species of those genera (Opinion 71) (Title No. 22)*”.

Opinion 71 was published in 1922. Furthermore, the dates to be accepted for the various parts of Westwood’s work were set out in Direction 63 (1957a). The publication date of pages 17–32 of the “Synopsis”, which include the Scarabaeoidea, is July 1838.

This note is purely nomenclatural as no view is taken on the taxonomic validity or rank of genus-groups names. Genus-group names are arranged in alphabetical order. All genus-group names rightly or wrongly used in combination with species known to occur in Portugal or that have been recorded from this country are listed. Portugal in this context means continental Portugal excluding, therefore, the Azores and Madeira islands. With the exception of *Paramonotropus*, only available names are listed. *Paramonotropus* is listed because it is recorded by Baraud (1992) as if it were an available name for a subgenus of *Monotropus* Erichson, 1847. Incorrect subsequent spellings are not available names (Articles 19.1 and 33.3), thus, they are not listed.

A word seems necessary on François Louis Nompard de Caumont de Laporte, Comte de Castelnau, and the reason why I would prefer to refer to him as “Castelnau”. Except, perhaps, for French authors, there is currently a definite trend to refer to him as “Laporte”. It is a fact that his early works are signed “F.L. de Laporte”. However, as soon as he was made count of Castelnau, he started signing with his new nobility title. That is the case of his most often quoted work, the 1840 *Histoire Naturelle des Insectes Coléoptères*, which is signed

“Comte de Castelnau”. Perhaps, it was the authoritative work of Evenhuis (1997) that determined the currently prevalent choice for “Laporte”. Evenhuis (1997) wrote: “*Bibliographic citations of this author use both his titled name “Comte de Castelnau” and his family name with equal frequency. Laporte used his family name in his early works and later opted for his titled name. Sherborn (in litt. to Musgrave) stated that there is also a paper dated 1841 with his name as “M. de los Llanos Montanos”. I have elected to cite him in this work under his family name*”. I consider Evenhuis’s choice unfortunate. As Evenhuis himself stated, his later and best-known works are signed “Comte de Castelnau”, and this is the reason why I prefer to refer to him as “Castelnau”. However, for editorial reasons, I am constrained to refer to him here as “Laporte.”

Throughout the text above and below, but not in the References, "Commission" means the International Commission on Zoological Nomenclature, and "Article" an article of the International Code of Zoological Nomenclature, Fourth Edition (1999). In the References the full name, International Commission on Zoological Nomenclature, is used.

### Genus-group names and their type species

***Acanthobodilus* Dellacasa, 1983: 105.** Type species *Aphodius immundus* Creutzer, 1799 (cited exactly like that), by original designation.

***Acanthurus* Kirby, 1827: 155.** Type species *Scarabaeus hemipterus* Linnaeus, 1758 (under Article 67.7: cited as “*Trichius hemipterus* F.”), by original designation. This name is a junior objective synonym of *Valgus* Scriba, 1790.

***Acrossus* Mulsant, 1842: 269.** Type species *Scarabaeus luridus* Fabricius, 1775 (under Article 67.7 – cited as “*Aph. luridus* Fbr.”), by subsequent designation of Reitter, 1892: 106. Mulsant (1842) created the genus *Acrossus* for five nominal species, including *Scarabaeus luridus* Fabricius, 1775.

***Actinophorus* Creutzer, 1799: 79.** Type species *Scarabaeus sacer* Linnaeus, 1758 (cited exactly like that), by subsequent designation of Ádám, 2003: 130. Creutzer (1799) proposed the genus *Actinophorus* for six nominal species of “Skarabäen”, including *sacer*. This name is purportedly an objective junior synonym of *Scarabaeus* Linnaeus, 1758, but see comments under *Scarabaeus*.

***Aegialia* Latreille, 1807: 96.** Type species *Scarabaeus globosus* Kugelann, 1794 (under Article 67.7 – cited as “*Aphodius globosus* Illig.”), junior synonym of *Scarabaeus arenarius* Fabricius, 1787, by monotypy.

***Agolius* Mulsant & Rey, 1870: 472.** Type species *Aphodius mixtus* Villa & Villa, 1833 (under Article 67.7 – cited as “*Aph. mixtus* Villa”), junior synonym of *Aphodius abdominalis* Bonelli, 1812, by subsequent designation of Reitter, 1892: 103. Mulsant & Rey (1870) created *Agolius* as a fraction of *Acrossus*, which was treated as a subgenus of *Aphodius*, and placed three nominal species in it, including *Aphodius mixtus* Villa & Villa, 1833.

***Agrilinus* Mulsant & Rey, 1870: 419.** Type species *Scarabaeus ater* DeGeer, 1774 (under Article 67.7 – cited as “*Aph. ater* Deg.”), by subsequent designation of Reitter, 1892: 57. Mulsant & Rey (1870) created *Agrilinus* as a subdivision of a “fraction” of *Aphodius*, and included in it three nominal species, including *Scarabaeus ater* DeGeer, 1774.

***Aleurostictus* Kirby, 1827: 157.** Type species *Scarabaeus nobilis* Linnaeus, 1758 (cited exactly like that), by subsequent designation of Tauzin, 2001: 233. Kirby (1827) listed two nominal species, “*Trichius nobilis*” and “*octopunctatus*”. Tauzin (2001) wrote: “*L’espèce type du genre est Scarabaeus nobilis Linnaeus 1758 selon la description originale*”. Tauzin’s statement is wrong but according to Article 69.1.1 it is deemed a valid subsequent type species designation. Westwood (1838) had designated “*Sc. variabilis* L”. as the type species, but that is not valid because *Scarabaeus variabilis* Linnaeus, 1758 is not one of the nominal species listed by Kirby (1827).

*Aleurostictus* Kirby, 1827 is an objective senior synonym of *Gnorimus* LePeletier de Saint-Fargeau & Audinet-Serville, 1828 which is, allegedly, a *nomen protectum*. It was used as the valid name by Ádám

(1994). Dechambre (2002) attempted a reversal of precedence by application of Article 23.9. However, he overlooked Ádám's (1994) usage of *Aleurostictus* Kirby, 1827 as the valid name. Therefore, the first condition of Article 23.9.1 is not really met, unless Smith (2004) is correct. Smith (2004) argued that Ádám's (1994) usage of *Aleurostictus* as the valid name is not to be considered in determining usage because it is listed in a checklist (Article 23.9.6). Smith's contention that Ádám's usage is excluded under Article 23.9.6 is debatable. Whatever the case might be, those who consider Dechambre's (2002) action to be in error and believe that there are good reasons to use *Aleurostictus* Kirby, 1827 as the valid name, must refer the case to the Commission, and prevailing usage must be maintained until the Commission has made a ruling (Article 23.10). A further reason to maintain prevailing usage is the recently submitted application for the conservation of the name *Gnorimus* (Krell *at al.* 2006). The Commission (2005b) acknowledged receipt of that application on 30 September 2005. Hence, from that date on, any usage of the name *Aleurostictus* contravenes not only Article 23.10 but Article 82 as well.

There have been doubts as to the availability of *Aleurostictus* from Kirby, 1827 because it was not presented in the nominative singular. For that reason, the name has been credit to Stephens (1839) who published Kirby's name in the singular. However, Stephens's usage of the name in the singular is predated by Westwood, 1838. Kirby (1827: 157) wrote: "Aleurosticti. *Subtus hirti: elytris nitidis, abdominis lateribus, elytris et podice emarginato farinoso-guttatis; prothorace canaliculato. Palpis articulo extimo subfoveato. Ex. Trichius nobilis, octopunctatus, &c.*", and further down in the same page: "Should any of these, upon further examination, appear more than subgenera, it will be easy to alter the name to the singular." According to Article 11.8, a genus-group name must be, or be treated as, a noun in the nominative singular. Article 11.8.1 further establishes that a genus-group name proposed in Latin text but written otherwise than in the nominative singular because of the requirements of Latin grammar is available, provided that it meets the other requirements of availability, but it is to be corrected to the nominative singular. Even though it was not because of the requirements of Latin grammar that Kirby published the name in the plural, to deny him authorship on that basis seems weak. In any case, as explained above, *Gnorimus* LePeletier de Saint-Fargeau & Audinet-Serville, 1828 must be used as the valid name unless the Commission, eventually, rules otherwise.

***Alocoderus* Schmidt, 1913: 127.** Type species *Aphodius semenowi* Reitter, 1887 (cited exactly like that), by subsequent designation of Paulian, 1942: 70. Schmidt (1913) created *Alocoderus* as a subgenus of *Aphodius*, and included 10 nominal species, of which *Aphodius semenowi* Reitter, 1887 is the first listed.

***Ambломala* Reitter, 1903: 58.** Type species *Melolontha aurata* Fabricius, 1801 (cited as "*Melolontha aurata* Fabricius (1801)"), by subsequent designation of Machatschke, 1957: 100. Reitter (1903) created *Ambломala* for three nominal species, including "*aurata* Fbr".

***Amidorus* Mulsant & Rey, 1870: 489.** Type species *Aphodius sericatus* Schmidt, 1840, purportedly a junior synonym of *Scarabaeus obscurus* Fabricius, 1792, by subsequent designation of Reitter, 1892: 76. Mulsant & Rey (1870) created *Amidorus* as a subgenus of *Aphodius*, and split it into four groups, *Amidorus*, *Sigorus*, *Pubinus*, and *Trichonotus*. In the group *Amidorus*, they placed two nominal species, *Aphodius sericatus* Schmidt, 1840 and *Aphodius thermicola* Sturm, 1800. Under *Aphodius sericatus* Schmidt, 1840, Mulsant & Rey (1870) listed dubitatively *Scarabaeus obscurus* Fabricius, 1792 as a synonym. Reitter (1892: 75) designated *Scarabaeus obscurus* Fabricius, 1792 (cited as "*Aph. obscurus* Fbr.") as the type species. *Scarabaeus obscurus* Fabricius, 1792 is not one of the nominal species assigned by Mulsant & Rey (1870) to *Amidorus* since it was only listed dubitatively as a possible synonym of *Aphodius sericatus*. However, of the two species listed by Mulsant & Rey (1870), Reitter (1892: 79) synonymized "*A. sericatus* Schmidt," and only *A. sericatus*, with *Scarabaeus obscurus* Fabricius, 1792. According to Article 69.2.2, Reitter's 1892 act constitutes fixation of *Aphodius sericatus* Schmidt, 1840 as type species of *Amidorus* Mulsant & Rey, 1870.

***Ammoecius* Mulsant, 1842: 302.** Type species *Scarabaeus elevatus* Olivier, 1789 (cited as "*Scarabaeus elevatus*, Oliv."), by monotypy.

***Amphimallon* Latreille, 1825: 371.** Type species *Scarabaeus solstitialis* Linnaeus, 1758 (under Article 67.7 – cited as “*melolontha solstitialis*”), by monotypy. For a discussion on authorship and date see Branco (2006).

***Amphimallum* Agassiz, 1846: 18.** Unjustified emendation and, as such, a junior objective synonym of *Amphimallon* Latreille, 1825 (Branco 2006).

***Amphimallus* Mulsant, 1842: 440.** Unjustified emendation and, as such, a junior objective synonym of *Amphimallon* Latreille, 1825 (Branco 2006).

***Amphionthophagus* Martn-Piera & Zunino, 1983: 60.** Type species *Onthophagus numidicus* d’Orbigny, 1908 (cited exactly like that), by original designation.

***Anisoplia* Schönherr, 1817: 186.** Type species *Scarabaeus horticola* Linnaeus, 1758 (cited as “*Scarabaeus Horticola Linn*”), by subsequent designation of Curtis, 1834: 526. Curtis (1834) credited the name *Anisoplia* to Megerle von Mühlfeld. According to Article 67.7, Curtis’s designation of *Scarabaeus horticola* Linnaeus, 1758 as type species of “*Anisoplia* Meg.” is deemed a valid designation of *Scarabaeus horticola* Linnaeus, 1758 as type species of *Anisoplia* Schönherr, 1817.

The name *Anisoplia* was first published by Megerle von Mühlfeld in one of his auction catalogues. As pointed out by Crotch (1870) the name is available from Schönherr (1817). Since Megerle’s auction catalogues were suppressed for nomenclatural purposes by the Commission (1993 – Opinion 1710), Schönherr (1817) must be credit with the authorship of *Anisoplia*.

Schönherr (1817) divided *Melolontha* in three main groups. He characterized his third division as follows (page 186): “*FAM. 3:a. Corpus aut sub-perfecte, aut breviter ovatum, plus minusve convexum; unguli omnium pedum bini, inaequalis; antennarum clava tri-phylla. u*”. In footnote u), he wrote: “*Species plures hujus Sectionis forma, glabritie, unguulorum variabili structura &c., Rutelis similes et affines sed sternum non productum; forte ex his genus peculiare condendum, cui Celeb. Dom. Megerle von Mühlfeld in Catalogo misso nomen proposuit: Anomala; aliae hujus sectionis apud eundem Anisoplia audiunta nempe horticola, Austriaca, &c*”. Under this division Schönherr (1817) listed 75 nominal species, including *Scarabaeus horticola* Linnaeus, 1758 (as a synonym of *Melolontha horticola* Fabricius, 1775), *Melolontha austriaca* Herbst, 1783, and *Scarabaeus agricola* Poda, 1761, credited there to Linnaeus, 1767 (as a synonym of *Melolontha crucifer* (sic!) Herbst, 1790).

Westwood (1838: 24) designated *Melolontha austriaca* Herbst, 1783 as type species of *Anisoplia*, but Westwood’s designation is predated by Curtis’s and is therefore invalid. Medvedev’s (1949: 239) designation of *Scarabaeus agricola* Poda, 1761 as type species of *Anisoplia* is invalid for the same reason.

As it stands, *Anisoplia* is an objective senior synonym of *Phyllopertha* Stephens, 1830 (see comments on *Anisoplia* sensu auctorum, under *Autanisoplia*). This seems to have been, until Ádám (1994), an instance of an overlooked type species fixation. Ádám (1994) listed *Phyllopertha* Stephens, 1830 as a synonym of *Anisoplia* Dejean, 1821, placed *Scarabaeus horticola* Linnaeus, 1758 in the genus *Anisoplia*, and *Scarabaeus agricola* Poda, 1761 in *Lasioplia* Medvedev, 1949. It is highly desirable to maintain the current concept of *Anisoplia*, i.e., type species *Scarabaeus agricola* Poda, 1761. That requires a ruling by the Commission. I understand that an application for that purpose is being prepared and I suggest that prevailing usage should be maintained in the meantime.

***Anomala* Samouelle, 1819: 191.** Type species *Melolontha frischii* Fabricius, 1775 (cited as “*Mel. Frischii. Fabr*”), junior synonym of *Scarabaeus dubius* Scopoli, 1763, by monotypy. The senior homonym *Anomala* von Block, 1799 (Hymenoptera), and all other uses of the name *Anomala* prior to *Anomala* Samouelle, 1819, therefore including *Anomala* Schönherr, 1817, were suppressed by the Commission (1989 – Opinion 1546). In the same ruling, the Commission placed *Anomala* Samouelle, 1819 on the Official List of Generic Names in Zoology.

***Anomius* Mulsant & Rey, 1870: 506.** Type species *Aphodius castaneus* Illiger, 1803 (cited as “*A. castaneus* Illig.”), by subsequent designation of Clément, 1962: 45. Mulsant & Rey (1870) described *Anomius* as a

subgenus of *Aphodius*, and split it in two sections, *Anomius* and *Erytus*. In the “section *Anomius*” they included three nominal species of which *Aphodius castaneus* Illiger, 1803 is the first listed.

**Anoplotrupes Jekel, 1866: 525.** Type species *Scarabaeus sylvaticus* Panzer, 1798 (under Article 67.7 – cited as “*Geotr. sylvaticus* Panz.”), junior synonym of *Scarabaeus stercorosus* Scriba, 1791, by original designation.

**Anoxia Laporte, 1832a: 407.** Type species *Melolontha villosa* Fabricius, 1781 (cited as “*Melolontha villosa* Fabricius (1781)”), by subsequent designation of Medvedev, 1951: 150. Laporte (1832a) erected the genus *Anoxia* for five nominal species, including *Melolontha villosa* Fabricius, 1781.

**Anthoplia Medvedev, 1949: 273.** Type species *Melolontha floricola* Fabricius, 1787 (cited exactly like that), by original designation.

**Aphodius Illiger, 1798: 15.** Type species *Scarabaeus fimetarius* Linnaeus, 1758 (under Article 67.7: cited as “*Aphodius fimetarius*, Fab.”), by subsequent designation of Latreille, 1810: 428. Illiger (1798) placed 32 nominal species in his new genus, including *Scarabaeus fimetarius* (there credited to Fabricius, 1792).

**Apotriodonta Baraud, 1962: 4.** Type species *Triodonta hispanica* Baraud, 1962 (under Article 67.7 – cited as “*A. hispanica* Baraud”), by original designation.

**Armideus Villa & Villa, 1833: 16.** Type species *Scarabaeus typhoeus* Linnaeus, 1758 (cited exactly like that), by subsequent designation of Löbl *et al.* 2006: 86. Villa & Villa (1833) credited the name *Armideus* to “Zieg.”, possibly the Viennese naturalist Franz Anton Ziegler. They listed “*Ceratophyus*. Fisch.” and “*Geotrupes*. Latr.” as its synonyms, and included in it “*monoceros* Dhl.” (with “*dispar* Rossi” and “*Fischeri* Zwich.” as its synonyms), “*Thyphaeus* F.”, “*subarmatus* Dej.”, and “*Momus* F.” Four of these names were then available, including “*Thyphaeus* F.”, provided that it is accepted that “*Thyphaeus*” was a *lapsus* for either “*Typhaeus*” or “*Typhoeus*” (Fabricius always use the spelling “*typhoeus*” whereas Linnaeus once used the spelling “*typhaeus*” in his 1764 work). I did not find any type species designation prior to Löbl *et al.* 2006.

Perhaps, it is worth noting that Boucomont (1912: 21) listed “*Armidens* Villa, Col. Eur. 1833, p. 16.” as a synonym of *Typhaeus* Leach, 1815. If Boucomont intended “*Armidens*” as an emendation, he failed to declare it. Therefore, “*Armidens*” in Boucomont (1912) must be regarded as an incorrect subsequent spelling, i.e., it is not an available name.

**Ataenius Harold, 1867a: 82.** Type species *Ataenius scutellaris* Harold, 1867 (cited as “*A. scutellaris*”), by subsequent designation of Cartwright, 1974: 1. Even though a description of the genus was published only in Harold, 1867b, the name *Ataenius* is available from Harold, 1867a. In the 1867a paper, Harold erected the genus *Ataenius* for five nominal species, the first of which is *Ataenius scutellaris*. In the 1867b paper, Harold, gave a description of the genus and described *Ataenius opacus*. Paulian (1942: 109) stated that the type species is *Ataenius opacus* Harold, 1867. That, however, is not a valid designation because *Ataenius opacus* is not one of the nominal species included by Harold when he first made the name *Ataenius* available.

**Ateuchetus Bedel, 1892: 283.** Type species *Scarabaeus laticollis* Linnaeus, 1767 (cited exactly like that), by subsequent designation of Martín-Piera, 2000: 297. Bedel (1892) proposed *Ateuchetus* as a replacement name for *Actinophorus* sensu Erichson (1847). He wrote: “*Il est à noter ici que les noms d’Actinophorus Creutz., Sturm, et d’Ateuchus Web. sont absolument synonymes de Scarabaeus s. str. et ne sauraient être appliqués, comme ils l’ont été par Erichson (Naturg. Ins. Deutschl., III, p. 751), à des sections différentes, encore moins à des groupes d’espèces inconnues du temps de Creutzer, de Sturm et de Weber. Pour régulariser la situation et pour remplacer le nom d’Octodon, proposé par Van Lansberge en 1874 (1) mais préoccupé, j’ai choisi les noms nouveaux d’Ateuchetus et de Neoctodon*”. Bedel (1892) treated *Ateuchetus* as a subgenus of *Scarabaeus* Linnaeus, 1758, and included “*S. laticollis* Linné, 1767”, “*S. variolosus* Fabr., 1787”, “*S. cicatricosus* Lucas, 1846-7”, “*S. puncticollis* Latr., 1819”, and “*S. semipunctatus* Fabr., 1792”. It is worth noting that in the key to species, Bedel (1892) wrote “(*Ateuchetus nom. nov.*)”. Erichson (1847: 751) considered *Actinophorus* Creutzer, 1799 a subgenus of *Ateuchus* Weber, 1801, and included in it five nominal species: “*puncticollis* Latr.”, “*parumpunctatus* Kl.”, “*semipunctatus* F.”, “*variolosus* F.”, and “*laticollis* F”. As a replacement

name for *Actinophorus* sensu Erichson, 1847, the type species of *Ateuchetus* Bedel, 1892 has to be one of the nominal species included by Erichson under *Actinophorus* (Article 67.8.1). For that reason, Kabakov's (1980) subsequent designation of "*S. cicatricosus* Luc." as type species is invalid.

***Ateuchus* Fabricius, 1801: 54.** Type species *Scarabaeus sacer* Linnaeus, 1758 (under Article 67.7: cited as "*Ateuchus sacer*, Fab."), by subsequent designation of Latreille, 1810: 428. Fabricius (1801) erected the genus *Ateuchus* for 58 nominal species of which *Ateuchus sacer* is the first listed. *Ateuchus* Fabricius 1801 is a junior homonym of *Ateuchus* Weber, 1801 (type species *Ateuchus histeroides* Weber, 1801, by monotypy). As pointed out by Zidek & Pokorný (2005), the priority of Weber (1801) over Fabricius (1801) was established by Chapin (1946). It has been upheld also by the Commission (2005a).

***Autanisoplia* Medvedev, 1949: 265.** Type species *Melolontha austriaca* Herbst, 1783 (cited exactly like that), by original designation.

Medvedev (1949) credited the name *Anisoplia* to "Serville, 1825, Encycl. Meth., X: 374" and cited *Scarabaeus agricola* Poda, 1761 as the type species. This refers to LePeletier de Saint Fargeau & Audinet-Serville (1828a), who were indeed the first to give a description of the genus, and included five nominal species, "*Anis. agricola*" being the first listed and "*Anis. horticola*" the second. As discussed above, the validly designated type species of *Anisoplia* Schönherr, 1817 is *Scarabaeus horticola* Linnaeus, 1758 by Curtis (1834).

As it stands, *Autanisoplia* is the valid name for the genus, or subgenus, that includes *Melolontha austriaca* Herbst, 1783, the designation by Westwood (1838) of *Melolontha austriaca* as type species of *Anisoplia* being predated by that by Curtis (1834) of *Scarabaeus horticola* Linnaeus, 1758, therefore invalid. However, as stated above (see under *Anisoplia*), an application to the Commission is in preparation for the conservation of *Anisoplia* in its current prevailing sense, i.e., type species *Scarabaeus agricola* Poda, 1761. The fate of the name *Autanisoplia* depends on the terms of that application and the ruling by the Commission.

To maintain *Anisoplia* in its current prevailing sense it is necessary that both above mentioned type species designations, Curtis's (1834) and Westwood's (1838), are suppressed. If only Curtis's designation is suppressed, *Autanisoplia* will become a junior objective synonym of *Anisoplia*. However, if neither of them is suppressed *Autanisoplia* will remain a valid name. In that case it will be necessary to find the valid name for *Anisoplia* sensu auctorum.

Medvedev (1949) divided *Anisoplia* in six subgenera, and designated a type species for each of them:

- *Anisoplia* s. str.
- *Chaetopteroptia* with type species *Melolontha segetum* Herbst, 1783.
- *Autanisoplia* with type species *Melolontha austriaca* Herbst, 1783.
- *Anthoplia* with type species *Melolontha floricola* Fabricius, 1787.
- *Lasioplia* with type species *Scarabaeus villosus* Goeze, 1777.
- *Ammanisoplia* with type species *Anisoplia deserticola* Fischer von Waldheim, 1824.

Baraud (1986) credited *Anisoplia* to Fischer von Waldheim (1824), retained *Scarabaeus agricola* Poda, 1761 as its type species, and modified Medvedev's 1949 scheme as follows:

- elevated *Chaetopteroptia* and *Anthoplia* to the rank of genus,
- created two new genera, *Brancoptia* (type species *Anisoplia leucaspis* Laporte, 1840 by original designation) and *Hemichaetoptia* (type species *Trichius pallidipennis* Gyllenhal, 1817 by original designation),
- reunited Medvedev's subgenera *Lasioplia*, *Ammanisoplia*, *Anisoplia* s. str., and *Autanisoplia* under the genus *Anisoplia*, in which he recognised two subgenera, *Anisoplia* s. str. and *Autanisoplia* Medvedev, 1949.

Therefore, *Autanisoplia* Medvedev, 1949 is the valid name for the group of species assigned by Baraud (1991) to *Anisoplia*. Two names are available for the subgenus *Anisoplia* s. str. sensu Baraud, 1986, *Lasioplia* Medvedev, 1949, and *Ammanisoplia* Medvedev, 1949. I here arbitrarily choose, under Article 24.2.1, that priority is given to *Lasioplia* whenever *Lasioplia* Medvedev, 1949 and *Ammanisoplia* Medvedev, 1949 are considered synonyms. Later Baraud (1991) described a new subgenus, *Pilleriana*.

Summing up, the valid names for *Anisoplia* sensu auctorum and its subgenera are:

- Genus *Autanisoplia* Medvedev, 1949 with type species *Melolontha austriaca* Herbst, 1783, by original designation.
- Subgenus *Autanisoplia* s. str.
- Subgenus *Lasioplia* Medvedev, 1949 with type species *Scarabaeus villosus* Goeze, 1777, by original designation. Senior (as chosen above) subjective synonym of *Ammanisoplia* Medvedev, 1949, type species *Anisoplia deserticola* Fischer von Waldheim, 1824, by original designation.
- Subgenus *Pilleriana* Baraud, 1991 with type species *Anisoplia campicola* Ménétrières, 1832, by original designation.

The species present in Portugal, as well as *Scarabaeus agricola* Poda, 1761, are currently considered congeneric with *Scarabaeus villosus* Goeze, 1777, hence they belong to the subgenus *Lasioplia*.

***Biralus* Mulsant & Rey, 1870: 467.** Type species *Scarabaeus satellitius* Herbst, 1789 (under Article 67.7 – cited as “*Aphodius satellitius*, Herbst”), by monotypy.

***Bodilopsis* Ádám, 1994: 5.** Type species *Scarabaeus sordidus* Fabricius, 1775 (cited exactly like that), by original designation.

***Bodiloides* Dellacasa & Dellacasa, 2005: 61.** Type species *Scarabaeus ictericus* Laicharting, 1781 (cited exactly like that), by original designation.

***Bodilus* Mulsant & Rey, 1870: 518.** Type species *Aphodius lugens* Creutzer, 1799 (cited as “*Aph. lugens* Creutz.”), by subsequent designation of Reitter, 1892: 54. Mulsant & Rey (1870) created *Bodilus* as a subgenus of *Aphodius*, and included seven nominal species, including *Aphodius lugens* Creutzer, 1799.

***Bolbelasmus* Boucomont, 1911: 335.** Type species *Bolboceras gallicum* Mulsant, 1842 (under Article 67.7 – cited as “*Scarabaeus gallicus* Mulsant”), by subsequent designation of Cartwright, 1953: 97. Boucomont (1911) erected the genus *Bolbelasmus* for three nominal species, including “*Bolboceras gallicum* Muls”.

***Bolboceras* Kirby, 1819: 459.** Type species *Scarabaeus quadridens* Fabricius, 1781, by designation of the Commission (2006a – Opinion 2138) under the plenary power. In the same ruling, the Commission placed *Bolboceras* Kirby, 1819 on the Official List of Generic Names in Zoology.

***Brancoataenius* Paulian, 1979: 66.** Type species *Ataenius (Brancoataenius) lusitanicus* Paulian, 1979 (cited as “*Ataenius (Brancoataenius) lusitanicus* n. subg., n. sp.”), junior synonym of *Parataenius simulator* (Harold, 1868), by monotypy.

***Brindalus* Landin, 1960: 55.** Type species *Phycochus (Brindalus) azoricus* Landin, 1960 (cited as “*Phycochus azoricus* m.”), junior synonym of *Aphodius porcicollis* Illiger, 1803, by original designation.

***Bubas* Dejean, 1833: 143.** Type species *Scarabaeus bison* Linnaeus, 1767 (cited as “*Scarabaeus bison* L.”), by subsequent designation of Janssens, 1937: 135. The name “*Bubas*” was first published by Megerle von Mühlfeld in one of his auction catalogues. Since these works were suppressed for nomenclatural purposes by the Commission (1993 – Opinion 1710), the name was first made available by Dejean (1833), who listed two nominal species, “*Bison. Fabr.*” and “*Bubalus. Latreille.*”. Janssens (1937) designated *Scarabaeus bison* Linnaeus, 1767 as the type species of *Bubas* Mulsant, 1842. Under Article 67.7, that is deemed a valid designation of *Scarabaeus bison* Linnaeus, 1767 as type species of *Bubas* Dejean, 1833.

***Caccobius* Thomson, 1859: 80.** Type species *Scarabaeus schreberi* Linnaeus, 1767 (under Article 67.7 – cited as “*C. Schreberi* (Lin.)”), by original designation.

***Calamosternus* Motschulsky, 1860: 156.** Type species *Scarabaeus granarius* Linnaeus, 1767 (cited as “*Scarabaeus granarius* L.”), by monotypy.

***Calaphodius* Reitter, 1892: 90.** Type species *Aphodius bonvouloirii* Harold, 1860 (cited as “*Aph. bonvouloiri* Harold”), by original designation.

***Calicnemis* Laporte, 1832b: cl. 9, t. 7.** Type species *Calicnemis latreillei* Laporte, 1832 (under Article 67.6 – cited as “*C. Latreillii*”), by monotypy. Laporte’s original spelling is “*latreillii*.” Later Laporte (1840)



changed the spelling to “latreillei”, both in the text (page 129) and in the legend of plate 14. The emended spelling is in prevailing usage, hence it is deemed the correct original spelling.

**Catalasis Dejean, 1833: 159.** Type species *Melolontha villosa* Fabricius, 1781 (cited exactly like that), by subsequent designation of Bezděk, 2006: 191. Dalla Torre (1912b: 250) listed “*Catalasis* Dej. Cat. Col. ed. 3, 1836, p. 176” as a synonym of *Anoxia* Laporte, 1832. In fact, the name *Catalasis* is available from Dejean (1833) who listed five nominal species, “*anketeri* Herbst”, “*orientalis* Ziegler”, “*australis* Schönherr”, “*matutinalis* Dahl.”, and “*pilosa* Fabr.” Additionally, Dejean listed “Var. *Villosa*. Fabr.” under “*pilosa* Fabr.” Since *Melolontha villosa* Fabricius, 1781 is listed by Dejean, albeit as a variety of *Melolontha pilosa* Fabricius, 1792, Bezděk designation is valid. This name is an objective junior synonym of *Anoxia* Laporte, 1832.

**Ceramida Baraud, 1987: 126.** Type species *Melolontha longitarsis* Illiger, 1803 (under Article 67.7 – cited as “*Elaphocera longitarsis* (Illiger)”), by original designation.

**Ceratophyus Fischer von Waldheim, 1824: 143.** Type species *Scarabaeus dispar* Fabricius, 1781 (under Article 67.7 – cited as “*Geotr. Ammon* Pallas = *Dispar* Fabr.”), junior synonym of *Scarabaeus polyceros* Pallas, 1771, by subsequent designation of Jekel, 1866: 522, confirmed by the Commission (1955 – Opinion 346). In the same ruling the Commission placed the name *Ceratophyus* Fischer von Waldheim, 1824 on the Official List of Generic Names in Zoology. Fischer von Waldheim (1824) erected the genus *Ceratophyus* for three nominal species, including *Scarabaeus dispar* Fabricius, and listed *Scarabaeus ammon* Pallas as a synonym of *Scarabaeus dispar*.

**Cetonia Fabricius, 1775: 42.** Type species *Scarabaeus auratus* Linnaeus, 1758 (under Article 67.7 – cited as “*Cetonia aurata*, Fab.”), by subsequent designation of Latreille, 1810: 429. Fabricius (1775) created the genus *Cetonia* for 41 nominal species, including *Cetonia aurata*. Although often wrongly dated from 1761 (Fauna Suecica), the name *Scarabaeus auratus* is available from the tenth edition of *Systema Naturae* (page 352).

**Chasmatopterus Dejean, 1821: 60.** Type species *Melolontha hirtula* Illiger, 1803 (under Article 67.7 – cited as “*Chasmatopterus hirtulus* Illiger”), by subsequent designation of Baraud, 1965: 264. For a discussion on authorship and type species see Branco (2001).

**Cheironitis Lansberge, 1875: 14.** Type species *Scarabaeus furcifer* Rossi, 1792 (cited as “*Scarabaeus furcifer* Rossi”), by subsequent designation of Arrow, 1931: 401. Lansberge (1875) created the genus *Cheironitis* for 14 nominal species, including *Scarabaeus furcifer* Rossi, 1792. This name is a junior objective synonym of *Uposlotus* Costa, 1853, which is a *nomen oblitum*. On the validity and spelling see Branco & Ziani (2005).

**Chelotrupes Jekel, 1866: 549.** Type species *Scarabaeus momus* Fabricius, 1792 (cited as “*Scarab. Momus* Fabr.”), junior synonym of *Scarabaeus momus* Olivier, 1789, by original designation. It is worth noting that both Olivier (1789) and Fabricius (1792) independently described *Scarabaeus momus* based on specimens from Lee’s collection, and that they both compared it, in its form and size, to *Typhaeus typhoeus* (Linnaeus, 1758). Olivier described it from “l’Afrique équinoxiale, à Sierra-Léon” and Fabricius from “India orientali.” The species is only known from the Iberian Peninsula, which suggests that labeling of the specimens from Lee’s collection can be unreliable.

**Chilothorax Motschulsky, 1860: 156.** Type species *Scarabaeus conspurcatus* Linnaeus, 1758 (cited exactly like that), by subsequent designation of Dellacasa, 1983: 215. Motschulsky (1860) created the genus *Chilothorax* for two nominal species, “*conspurcatus* L.” and “*inquinatus*” i.e., *Scarabaeus conspurcatus* Linnaeus, 1758 and *Scarabaeus inquinatus* Herbst, 1783.

**Chironitis Janssens, 1937: 152.** Unjustified emendation and, as such, a junior objective synonym of *Cheironitis* Lansberge, 1875 (Branco & Ziani 2005).

**Colobopterus Mulsant, 1842: 165.** Type species *Scarabaeus erraticus* Linnaeus, 1758 (cited as “*Scarabaeus erraticus*, Linn.”), by monotypy. This name is a senior homonym of *Colobopterus* Rambur, 1842 (Neuroptera). The replacement name *Ameropterus* Esben-Petersen, 1922 has been proposed for *Colobopterus* Rambur.

**Colorhinus Erichson, 1841: 171.** Type species *Colorhinus obesus* Erichson, 1841 (cited exactly like that), senior synonym of *Calicnemis atlantica* Mosconi, 1996, by monotypy. On the synonymy between *Colorhinus obesus* Erichson, 1841 and *Calicnemis atlantica* Mosconi, 1996 see Krell (2002).

**Coprimorphus Mulsant, 1842: 168.** Type species *Scarabaeus scrutator* Herbst, 1789 (cited as “*Scarabaeus scrutator*, Herbst”), by monotypy.

**Copris Geoffroy, 1762: 87.** Type species *Scarabaeus lunaris* Linnaeus, 1758 (under Article 67.7 – cited as “*Copris lunaris*, Fab.”), by subsequent designation of Latreille, 1810: 428. Geoffroy (1762) created the genus *Copris* for ten species, the first of which is the “*Copris capitis clypeo lunulato, margine elevato, corniculo denticulato*” or “Le bousier capucin”, referred by Geoffroy to “*Linn. Syst. nat. edit. 10, n. 8. Scarabaeus thorace tricorni, intermedio obtuso bifido, capitis cornu erect*”, i.e., *Scarabaeus lunaris* Linnaeus, 1758. Geoffroy (1762) did not apply the principles of binominal nomenclature to his work so no nominal species as such is listed. By a ruling of the Commission (1994 – Opinion 1754) “*Copris Geoffroy, 1762 (Gender: masculine), type species by subsequent designation by Latreille (1810) Scarabaeus lunaris Linnaeus, 1758*” is conserved and placed on the Official List of Generic Names in Zoology.

**Cytoderhinus Seabra, 1909: 12.** Type species *Scarabaeus fimetarius* Linnaeus, 1758 (cited exactly like that), by subsequent designation of Dellacasa *et al.* 2001: 13. Seabra (1909) created *Cytoderhinus* as a secção of *Aphodius*, for *Colobopterus* Mulsant, *Teuchestes* Mulsant, *Aphodius* d’Orbigny (sic!), *Calamosternus* Motschulsky, *Valinus* (sic!) Mulsant, *Melinopterus* Mulsant, *Bodilus* Mulsant & Rey, *Amidorus* Mulsant & Rey, and *Biralus* Mulsant & Rey, all treated as subgenera of *Aphodius* Illiger. In the subgenus *Aphodius* s. str., Seabra (1909) included two nominal species, *Scarabaeus scybalarius* Fabricius, 1781 and *Scarabaeus fimetarius* Linnaeus, 1758. This name is an objective junior synonym of *Aphodius* Illiger, 1798.

**Decamera Mulsant, 1842: 503.** Type species *Melolontha pulverulenta* Fabricius, 1775 (under Article 67.7 – cited as “*D. pulverulenta*, Fabr.”), purportedly a synonym of *Scarabaeus philanthus* Fuesslin, 1775, by subsequent designation of Blanchard, 1845: 236.

Mulsant (1842) included three nominal species, *Hoplia brunnipes* Bonelli, 1807, *Melolontha pulverulenta* Fabricius, 1775, and *Hoplia praticola* Duftschmid, 1805. Blanchard (1845) designated as the type species *Melolontha pulverulenta* Fabricius, 1775 of which he regarded *Melolontha argentea* Olivier, 1789 a synonym. He wrote: “*Le type du genre est la (D. pulverulenta, Fabr.; argentea, Oliv.), qui est assez commune dans plusieurs parties de la France.*”

Even though the true identity of *Melolontha pulverulenta* Fabricius, 1775 might be doubtful, I believe that it can be safely stated that *Melolontha pulverulenta* sensu Mulsant, 1842 is the species that, under the authority of Bedel (1911), has been known for a long time as *Hoplia farinosa* (Linnaeus, 1761), until Jessop (1986) stated that: “*Continental authors have misidentified Hoplia philanthus, and have applied the name Hoplia farinosa to the British species of Hoplia. The type material of H. farinosa has been examined in the course of preparing this work, and it is clear that the type does not represent the British species.*” Jessop (1986) used the name *Hoplia philanthus* (Fuesslin) for the British species, and this was corroborated by Krell (1991) who proposed the synonymy *Hoplia philanthus* (Fuesslin, 1775) = *Hoplia farinosa* auct. nec (Linnaeus, 1761). That *Melolontha pulverulenta* sensu Mulsant, 1842 is the above mentioned species is further supported by Mulsant (1842) listing as its synonyms *Scarabaeus philanthus* Fuesslin, 1775, there credited to Sulzer, 1776, and *Melolontha argentea* Olivier, 1789, and stating that: “*Cette espèce habite presque toutes les parties de la France.*”

According to the Commission (1958 – Opinion 516), for nomenclatural purposes Fabricius’s 1775 *Systema Entomologiae* is to be given precedence over Fuesslin (J.C.), 1775, *Verzeichniss der ihm bekannten schweizerischen Insekten*. Consequently, if *Melolontha pulverulenta* Fabricius, 1775 is confirmed to be synonym of *Scarabaeus philanthus* Fuesslin, 1775, priority has to be given to *pulverulenta*.

**Digonorhinus Seabra, 1909: 12.** Type species *Scarabaeus elevatus* Olivier, 1789 (cited exactly like that), by subsequent designation of Dellacasa *et al.* 2001: 13. Seabra (1909) created *Digonorhinus* as a secção of

*Aphodius*, for *Ammoecius* alone, and included in *Ammoecius*, treated as a subgenus of *Aphodius*, four nominal species, including *Scarabaeus elevatus* Olivier, 1789. This name is an objective junior synonym of *Ammoecius* Mulsant, 1842.

**Dorcus MacLeay, 1819: 111.** Type species *Scarabaeus parallelipipedus* Linnaeus, 1758 (under Article 67.7: cited as “*L. parallelipipedus* L.”), by subsequent designation of Westwood, 1838: 22. MacLeay (1819) included two nominal species in his genus, *Scarabaeus parallelipipedus* Linnaeus, 1758 (there credited to Fabricius, 1801) and *Dorcus tuberculatus* MacLeay, 1819.

**Elaphocera Gené, 1836: 28.** Type species *Elaphocera obscura* Gené, 1836 (cited as “*Elaphocera obscura*, Nob.”), junior synonym of *Melolontha emarginata* Gyllenhal, 1817, by monotypy.

**Elaphocerida Reitter, 1902: 98.** Type species *Melolontha emarginata* Gyllenhal, 1817 (cited as “*Melolontha emarginata* Gyllenhal”), by subsequent designation of Medvedev, 1952: 19. Reitter (1902) placed 23 nominal species in *Elaphocerida*, including “*emarginata* Gyll.”

**Emadus Mulsant & Rey, 1870: 449.** Type species *Scarabaeus quadrimaculatus* Linnaeus, 1761 (cited exactly like that), by subsequent designation of Dellacasa & Dellacasa, 2006: 134. Mulsant & Rey (1870) created *Emadus* as a division of *Aphodius* Illiger, and placed in it five nominal species, including *Scarabaeus quadrimaculatus* Linnaeus, 1761. *Emadus* Mulsant & Rey, 1870 was first synonymized with *Phalacronotus* Motschulsky, 1860 by Bedel (1907). Bedel’s synonymy was upheld by Pierotti (1982) and Dellacasa (1983) but neither designated a type species. I did not find any type species fixation prior to Dellacasa & Dellacasa, 2006. This name is an objective junior synonym of *Phalacronotus* Motschulsky, 1860.

**Epicometis Burmeister, 1842: 434.** Type species *Scarabaeus hirtellus* Linnaeus, 1767 (cited as *Scarabaeus hirtellus*, L.), junior synonym of *Scarabaeus hirtus* Poda, 1761, by subsequent designation of Arrow, 1910: 173. Burmeister (1842) included five nominal species in his genus: *Cetonia femorata* Illiger, 1803, *Scarabaeus hirtus* Scopoli, 1763, *Cetonia crinita* Charpentier, 1825, *Cetonia pilosa* Brull, 1832, and *Epicometis tonsa* Burmeister, 1842. Additionally, Burmeister (1842) listed *Cetonia hispanica* Gory & Percheron, 1833 as synonym of *Cetonia femorata* Illiger, 1803, and *Scarabaeus hirtellus* Linnaeus, 1767 as synonym of *Scarabaeus hirtus* Scopoli, 1763. Arrow (1910: 173) stated, without explanation, that the type of *Epicometis* Burmeister, 1842 is “*Scarabaeus hirtellus* L”. Since *Scarabaeus hirtellus* Linnaeus, 1767 is listed by Burmeister (1842: 436), albeit as a synonym of *Scarabaeus hirtus* Scopoli, 1763, Arrow’s designation is valid. Whenever *Epicometis* Burmeister, 1842 is considered synonym of *Tropinota* Mulsant, 1842, priority belongs to Mulsant’s taxon, as acknowledged by Burmeister himself, who wrote (1842: 809): “-434. Zu *Epicometis*. Herr Mülsant nennt diese Gattung *Tropinota*.”

**Erytus Mulsant & Rey, 1870: 513.** Type species *Aphodius brunneus* Klug, 1845 (cited as “*Aph. brunneus* Klug”), junior primary homonym of *Aphodius brunneus* Thunberg, 1818, and senior synonym of *Aphodius cognatus* Fairmaire, 1860 (valid name), by subsequent designation of Reitter, 1892: 52. Mulsant & Rey (1870) created “*Erytus*” as a section of their subgenus *Anomius*, and included two nominal species, *Aphodius brunneus* Klug, 1845, and *Aphodius ferrugineus* Mulsant, 1842. In the index to their work, Mulsant & Rey used (by lapsus?) the spelling “*Eryptus*”.

**Esymus Mulsant & Rey, 1870: 519.** Type species *Scarabaeus merdarius* Fabricius, 1775 (under Article 67.7 – cited as “*A. merdarius* F.”), by subsequent designation of Reitter, 1892: 69. Mulsant & Rey (1870) created *Esymus* as a division of their subgenus *Bodilus*, for two nominal species, *Scarabaeus merdarius* Fabricius, 1775 and *Aphodius tersus* Erichson, 1848.

**Euchlora MacLeay, 1819: 147.** Type species *Melolontha viridis* Fabricius, 1775 (cited as “*Melolontha viridis*, F.”), by subsequent designation of Arrow, 1917: 126. MacLeay (1819) created *Euchlora* for two nominal species, *Melolontha viridis* Fabricius, 1775, and *Euchlora jurinii* MacLeay, 1819.

**Eudolus Mulsant & Rey, 1870: 467.** Type species *Scarabaeus quadriguttatus* Herbst, 1783 (under Article 67.7 – cited as “*Aphodius quadriguttatus*, Herbst”), by monotypy.

**Euoniticellus Janssens, 1953: 41.** Type species *Scarabaeus fulvus* Goeze, 1777 (under Article 67.7 – cited as “*Oniticellus fulvus* (Goeze)”), by original designation.

***Euonthophagus* Balthasar, 1959: 467.** Type species *Scarabaeus amyntas* Olivier, 1789 (under Article 67.7 – cited as “*Onthophagus (Euonthophagus) amyntas* (Oliv.)”), by original designation.

***Euorodalus* Dellacasa, 1983: 260.** Type species *Scarabaeus coenosus* Panzer, 1798 (cited exactly like that), by original designation.

***Euserica* Reitter, 1896: 182.** Type species *Melolontha mutata* Gyllenhal, 1817 (under Article 67.7 – cited as “*Serica mutata* Gyll.”), by original designation.

***Furconthophagus* Zunino, 1979: 10.** Type species *Scarabaeus furcatus* Fabricius, 1781 (under Article 67.7 – cited as “*O. furcatus* (F.)”), by original designation.

***Geotrupes* Latreille, 1797: 6.** Type species *Scarabaeus stercorarius* Linnaeus, 1758, by designation of the Commission (1955 – Opinion 346) under the plenary power. In the same ruling the name *Geotrupes* Latreille, 1797 was placed on the Official List of Generic Names in Zoology, but it was wrongly stated there that the gender of *Geotrupes* is feminine. That was corrected by the Commission (1956) in Direction 46. See Opinion 346 for a history of the case.

***Geotrypes* Agassiz, 1846: 161.** Unjustified emendation and, as such, a junior objective synonym of *Geotrupes* Latreille, 1797. Agassiz (1846) wrote: “*Geotrupes* Fabr. Col. 1798 (*Scr. Geotrypes*)”. This, according to Articles 33.2.1 and 33.2.3, qualifies as an unjustified emendation.

***Gnorimus* LePeletier de Saint-Fargeau & Audinet-Serville, 1828b: 702.** Type species *Scarabaeus nobilis* Linnaeus, 1758 (under Article 67.7 – cited as “*G. nobilis*”), by subsequent designation of Blanchard, 1845: 233. LePeletier de Saint-Fargeau & Audinet-Serville (1828b) included two nominal species, “*Trichie* noble, *T. nobilis*” and “*Trichie* variable, *T. variabilis*”. This name is an objective junior synonym of *Aleurostictus* Kirby, 1827, purportedly a *nomen oblitum* (Dechambre 2002, Smith 2004), but see comments under *Aleurostictus*.

***Gymnopleurus* Illiger, 1803: 199.** Type species *Scarabaeus geoffroyi* Fuesslin, 1775 (under Articles 69.2.4 and 70.4.2: cited as “*G. pilularius*”), by subsequent designation of Reiche, 1841: 212.

Reiche’s designation is valid because “*pilularius*” is one of the nominal species listed by Illiger. However, Illiger included “*pilularius*” as Fabricius’s (1801) misidentification of a species that Illiger identifies as “*A. Geoffroae* Panz.” (= *Scarabaeus geoffroyi* Fuesslin, 1775) and for which he proposes the new name “*cantharus*.” Referring to Fabricius’s 1801 “*Systema Eleutheratorum*” Illiger (1803: 200) wrote: “*In diese neue, vom Grafen von Hoffmanssegg vorgeschlagne Gattung gehören folgende Arten von Ateuchus: Sinuatus, Pilularius, Flagellatus, Koenigii, Miliaris, Granulatus, Cyaneus und Olivier’s Coerulescens.*” Further down (pages 201–202) Illiger wrote: “*2. G. cantharus nob. Ateuchus pillularius Fab. 60. 27 und A. Geoffroae Panz. Actinophorus pilularius und Geoffroyi Sturm. Hand. I. p. 78, 79. § Da Linné’s Scar. pilularius diese Käfer nicht ist, sondern der Ateuchus volvens Fabr., so muss man ihm eine andere Benennung geben; Panzers Namen Geoffroae ist theils, wie Creutzer bemerk, unrichtig gebildet, theils soll er eine besondere in Ungarn und Deutschland vorkommende Art bezeichnen, die ich aber für nichts anders, als den im mittäglichen Europa gemeinen Act. pilularius Sturm halten kann.*” Illiger was correct on the invalidity of the name *Scarabaeus pilularius* Fabricius, 1775, which is preoccupied by *Scarabaeus pilularius* Linnaeus, 1758 (currently *Canthon pilularius*), but his reasons to replace *geoffroae* Panzer (actually, *geoffroae* Fuesslin) are spurious. Therefore, the valid name of the species is *Scarabaeus geoffroyi* Fuesslin, 1775, originally spelled “*geoffroae*”, but the spelling “*geoffroyi*”, being in prevailing usage, is deemed the correct original spelling.

Reiche (1841) designated “*G. pilularius*” as the type species. However, as explained above, Illiger (referring to Fabricius 1801), listed “*Pilularius*” as a misidentification of a species for which he proposes the new name *Gymnopleurus cantharus*, but whose valid name is *Scarabaeus geoffroyi* Fuesslin, 1775. According to Articles 70.4.2 and 69.2.4, “*the species so designated is the nominal species denoted by the name of the taxonomic species actually involved (and not the nominal species cited),*” i.e., in the present case *Scarabaeus geoffroyi* Fuesslin, 1775.

Reiche's designation appears to be an overlooked type species fixation. Fortunately, it does not cause any instability or confusion.

**Haplonthophagus Ádám, 1994: 9.** Type species *Scarabaeus lemur* Fabricius, 1781 (cited exactly like that), by original designation.

**Heliocantharus MacLeay, 1821: 497.** Type species *Scarabaeus sacer* Linnaeus, 1758 (cited as “*Scarabaeus sacer*, Linn.”), by subsequent designation of Shipp, 1895: 220. MacLeay (1821) described *Heliocantharus*, as a subgenus of *Scarabaeus* Linnaeus, 1758, for 19 nominal species, including “*Scarabaeus sacer*”. According to his Circular System (also known as “Quinarianism” a name derived from the special significance thought to be played by the number five), MacLeay split the genus *Scarabaeus* into five groups or types. He gave a name to each of those groups, except “Typus IV. *Nondum detectus*” (not yet discovered). “Typus I”, which he called “*Heliocantharus. Antiquorum*”, seems to have been intended by him as what we would now call *Scarabaeus* s. str. The names of the other groups are “Typus II, *Mnematum mihi*”, “Typus III, *Pachysoma. Kirby MSS*”, and “Typus V, *Gymnopleurus Illiger*”. This name is an objective junior synonym of *Scarabaeus* Linnaeus, 1758, but see comments under *Scarabaeus*.

**Hemicyclorhinus Seabra, 1909: 14.** Type species *Scarabaeus luridus* Fabricius, 1775 (cited exactly like that), by subsequent designation of Dellacasa *et al.* 2001: 13. Seabra (1909) created *Hemicyclorhinus* as a secção of *Aphodius* (for *Acrossus* alone) and placed in *Acrossus*, treated as a subgenus of *Aphodius*, four nominal species, including *Scarabaeus luridus* Fabricius, 1775. This name is an objective junior synonym of *Acrossus* Mulsant, 1842.

**Heptaulaculus Dellacasa & Baraud, 1978: 62.** Type species *Scarabaeus testudinarius* Fabricius, 1775 (under Article 67.7 – cited as “*Heptaulaculus testudinarius* (Fabr.), 1775”), by original designation. This name is an objective junior synonym of *Heptaulacus* Mulsant, 1842.

**Heptaulacus Mulsant, 1842: 296.** Type species *Scarabaeus testudinarius* Fabricius, 1775 (cited as “*Heptaulacus testudinarius* (Fabricius) 1775 (*Scarabaeus*)”), by subsequent designation of Tesař, 1957: 179. Mulsant (1842) created the genus *Heptaulacus* for three nominal species, including *Scarabaeus testudinarius* Fabricius, 1775.

**Histeridium Motschulsky, 1860: 150.** Type species *Scarabaeus schreberi* Linnaeus, 1767 (cited as “*Scarabaeus Schreberi* L.”), by monotypy. This name is an objective junior synonym of *Caccobius* Thomson, 1859. With regards to the priority of *Caccobius* Thomson, 1859 over *Histeridium* Motschulsky, 1860 see Krell (1990) who questions Griffin's (1936) assertion that *Histeridium* was really published in 1860.

**Hoplia Illiger, 1803: 226.** Type species *Scarabaeus farinosus* Linnaeus, 1761 (under Article 67.7 – cited as “*Melolontha farinosa*, Fab.”), junior synonym of *Scarabaeus argenteus* Poda, 1761, by subsequent designation of Latreille, 1810: 428. Illiger (1803) assigned to his new genus eight nominal species, including “*M. farinosa* Fab.”, plus three dubitatively. Both *Scarabaeus argenteus* Poda and *Scarabaeus farinosus* Linnaeus are deemed to have been published on 31 December 1761 but Krell (1991) proposed that priority should be accorded to *Scarabaeus argenteus* Poda, 1761, because its use is unequivocal whereas the name *Scarabaeus farinosus* Linnaeus, 1761 had been used for two different species. Krell's (1991) action falls under Article 24.2 as an act by the First Reviser. Later Krell (1996) designated a lectotype for *Scarabaeus farinosus* Linnaeus, 1761 and confirmed the synonymy *Hoplia argentea* (Poda, 1761) = *Hoplia farinosa* (Linnaeus, 1761).

**Hoplosternus Guérin-Méneville, 1838a: 63.** Type species *Melolontha (Hoplosternus) chinensis* Guérin-Méneville, 1838 (cited as *Melolontha (Oplosternus) chinensis* Nob.), by monotypy. Fuente (1926: 170) considered *Melolontha* Fabricius (which he spelled “*Melontha*”, certainly by *lapsus*) a preoccupied name (see, under *Melolontha*, comment on the suppression of *Melolontha* Geoffroy, 1762) and so ranged *Melolontha papposa* Illiger, 1803 in *Hoplosternus*. Although *Hoplosternus* was originally an unjustified emendation, proposed by Agassiz (1846) for *Oplosternus*, as it is in prevailing usage, it is deemed the correct original spelling.

**Hybosorus MacLeay, 1819: 120.** Type species *Scarabaeus arator* Fabricius, 1792 sensu MacLeay, 1819 = *Geotrupes arator* Fabricius, 1801 sensu Illiger, 1803, valid name *Hybosorus illigeri* Reiche, 1853, by

monotypy. MacLeay (1819) identified the only species that he placed in his new genus, as “*Scar. Arator. Fab. Ent. Syst. vol. i. p.33. n. 106*”. and “*Geotrupes Arator. Fab. Syst. Eleuth. vol. 1. p. 91. N. 75*”. (where “p. 91” is a *lapsus* for “p. 21”). Although he did not mention Illiger’s 1803 work, it is clear that MacLeay’s interpretation of the species is the same as Illiger’s 1803, who transferred it back to *Scarabaeus*, where it had been originally described by Fabricius (1775). Much has already been written on the identities of *Scarabaeus arator* Fabricius, 1775 and *Scarabaeus arator* sensu Illiger, 1803. Suffice it here to refer to Landin’s (1964) detailed analysis and Kuijten’s (1983) additional comments. The name *Hybosorus illigeri* Reiche, 1853 is in prevailing usage, but it is threatened by the senior synonyms *H. pinguis* Westwood, 1845, *H. roei* Westwood, 1845, and *H. carolinus* LeConte, 1847. *Hybosorus laportei* Westwood, 1845 and *H. thoracicus* Westwood, 1845 were once believed to be also synonyms, but are now considered to be a different species (Kuijten, 1983). Allsopp (1982) applied to the Commission for the conservation of *Hybosorus illigeri* Reiche, 1853 but no ruling has yet been published. According to Article 82.1, prevailing usage must be maintained until a ruling is published by the Commission.

***Hymenochelus* Reitter, 1890: 263.** Type species *Hymenoplia distincta* Uhagón, 1876 (cited as “*Hymenoplia distincta* Uhagon”), by monotypy.

***Hymenoplia* Eschscholtz, 1830: 65.** Type species *Melolontha strigosa* Illiger, 1803 (cited exactly like that), by subsequent designation of Baraud, 1992: 614. Eschscholtz (1830) included two nominal species, “*Melolontha strigosa* Illig.” and “*Hym. bifrons* m.” He gave a short description of *bifrons*, making the name available. Baraud (1992) states that *Melolontha strigosa* Illiger, 1803 is the type species by monotypy. Baraud’s statement is wrong but, under Article 69.1.1, it is deemed a valid subsequent type species designation.

Perhaps it is worthwhile pointing out here that Dejean (1833: 165) listed a genus “*Hymenontia. Eschscholtz,*” and included in it the single species “*Strigosa. Illiger.*” To all available evidence “*Hymenontia*” is a *lapsus* for *Hymenoplia*. Dalla Torre (1912a: 65) listed, without any explanation, “*Hymenomontia* Eschsch. Bull. Soc. Nat. Moscou II, 1830, p. 65” as a synonym of *Hymenoplia* Eschscholtz, 1830. However, nowhere in Eschscholtz’s 1830 work is the name “*Hymenomontia*” to be found. Therefore, both “*Hymenontia*” and “*Hymenomontia*” must be regarded as incorrect subsequent spellings. As such they are not available names (Article 33.3).

***Jekelius* Lopéz-Colón, 1989: 72.** Type species *Scarabaeus intermedius* Costa, 1839 (under Article 67.7 – cited as “*Geotrupes intermedius* Costa, 1827”), by original designation. Perhaps because Costa’s memoir was read in a meeting on 23 November 1827, *Scarabaeus intermedius* is widely cited from that year. The actual publication date for this work was in 1839. This name is an objective junior synonym of *Thorectes* Mulsant, 1842.

***Kisonthophagus* Ádám, 1994: 8.** Type species *Scarabaeus ovatus* Linnaeus, 1767 (cited exactly like that), by original designation.

***Labarrus* Mulsant & Rey, 1870: 516.** Type species *Scarabaeus lividus* Olivier, 1789 (under Article 67.7 – cited as “*Aphodius lividus*, Olivier”), by monotypy.

***Lasioplia* Medvedev, 1949: 275.** Type species *Scarabaeus villosus* Goeze, 1777 (cited exactly like that), by original designation. See comments under *Autanisoplia* Medvedev, 1949.

***Leucocelis* Burmeister, 1842: 421.** Type species *Cetonia haemorrhoidalis* Fabricius, 1775 (cited as “*Cetonia haemorrhoidalis*, F”), by subsequent designation of Arrow, 1910: 175. Burmeister (1842) created the genus *Leucocelis* for 13 nominal species, including *Cetonia haemorrhoidalis* Fabricius, 1775. The priority of *Oxythyrea* Mulsant, 1842 over *Leucocelis* Burmeister, 1842, whenever they are considered synonyms, was ascertained by Burmeister himself, who wrote (1842: 809): “– 421. zu *Leucocelis*. Herr Mülsant nennt diese, von ihm ebenfalls angenommene Gattung in seinem oben erwähnten Werke *Oxythyrea* pag. 572”.

***Liothorax* Motschulsky, 1860: 156.** Type species *Scarabaeus plagiatus* Linnaeus, 1767 (cited exactly like that), by subsequent designation of Dellacasa, 1983: 277. Motschulsky (1860) created the genus *Liothorax* for three nominal species, including *Scarabaeus plagiatus* L.

**Lucanus Scopoli, 1763: 1.** Type species *Scarabaeus cervus* Linnaeus, 1758 (under Article 67.7: cited as “*Lucanus cervus*, Fab.”), by subsequent designation of Latreille, 1810: 429. Scopoli (1763) created *Lucanus* for two nominal species: *Scarabaeus cervus* Linnaeus, 1758 and *Scarabaeus caraboides* Linnaeus, 1758.

**Ludibrius Gozis, 1886: 33.** Type species *Scarabaeus melolontha* Linnaeus, 1758 (cited as “*melolontha* L = *vulgaris* F”), by original designation. Gozis (1886) proposed the name *Ludibrius* as a replacement for *Melolontha* Fabricius, 1775, preoccupied by *Melolontha* Geoffroy, 1762. This made *Ludibrius* Gozis, 1886 an objective junior synonym of *Melolontha* Fabricius, 1775. *Melolontha* Geoffroy, 1762 was suppressed by the Commission (1994 – Opinion 1754).

**Mecynodes Mulsant & Rey, 1870: 465.** Type species *Aphodius parallelus* Mulsant, 1843 (cited as “*Aphodius parallelus*, Mulsant et Rey”), junior synonym of *Aphodius striatulus* Waltl, 1835, by monotypy.

**Melanosa Mulsant & Rey, 1871: 431.** Type species *Cetonia morio* Fabricius, 1781 (cited exactly like that), by subsequent designation of Smetana & Smith, 2006: 48. Mulsant & Rey (1871) created *Melanosa*, as a subgenus of *Cetonia* Fabricius, 1775, for two nominal species, *Cetonia morio* Fabricius, 1781 and *Cetonia oblonga* Gory & Percheron, 1833. This name is an objective junior synonym of *Netocia* Costa, 1852.

**Melinopterus Mulsant, 1842: 282.** Type species *Scarabaeus prodromus* Brahm, 1790 (under Article 67.7 – cited as “*Aph. prodromus* Brahm”), by subsequent designation of Reitter, 1892: 94. Mulsant (1842) created the genus *Melinopterus* for three nominal species, including *Scarabaeus prodromus* Brahm, 1790.

**Melolontha Fabricius, 1775: 31.** Type species *Scarabaeus melolontha* Linnaeus, 1758, by absolute tautonymy, as ruled by the Commission (1994 – Opinion 1754). In the same ruling, the Commission suppressed the senior homonym *Melolontha* Geoffroy, 1762 and all other uses of the name *Melolontha* prior to *Melolontha* Fabricius, 1775, and placed the latter on the Official List of Generic Names in Zoology. Fabricius (1775: 32) listed *Scarabaeus melolontha* Linnaeus, 1758 as a synonym of his own *Melolontha vulgaris*.

**Mendidaphodius Reitter, 1901: 73.** Type species *Aphodius (Mendidaphodius) spinifrons* Reitter, 1901 (cited as “*Aphodius (Mendidaphodius) spinifrons* n. sp.”), junior synonym of *Mendidius brancsiki* Reitter, 1899, by monotypy.

**Mesanoxia Medvedev, 1951: 161.** Type species *Melolontha australis* Schönherr, 1817 (under Article 67.7 – cited as “*Melolontha australis* Gyllenhal, 1817), by original designation. Schönherr (1817: 169), not Gyllenhal, proposed the name *Melolontha australis* as a replacement name for *Melolontha occidentalis* Fabricius, 1775 (a junior secondary homonym of *Melolontha occidentalis* (Linnaeus, 1767), described as *Scarabaeus occidentalis*, currently *Polyphylla occidentalis*).

**Mimela Kirby, 1825a: 101.** Type species *Mimela chinensis* Kirby, 1825 (cited as “*Mimela Chinensis*”), by monotypy.

**Minotaurus Mulsant & Godart, 1855: 4.** Type species *Scarabaeus typhoeus* Linnaeus, 1758 (cited as “*Scarab. Typhaeus* Linn.”), by subsequent designation of Jekel, 1866: 546. Mulsant & Godart (1855) erected *Minotaurus*, as a subgenus of *Ceratophyus* Fischer von Waldheim, 1824, for five nominal species, including *Scarabaeus typhoeus* Linnaeus, 1758.

**Monotropus Erichson, 1847: 658.** Type species *Rhizotrogus (Monotropus) nordmanni* Blanchard, 1851 (cited exactly like that), by subsequent monotypy (Article 69.3). Erichson (1847) described *Monotropus* without any included species. *R. (M.) nordmanni* is the only species placed by Blanchard (1851: 142) in *Monotropus* Erichson, 1847, treated there as subgenus of *Rhizotrogus* Latreille, 1825.

**Neagolius Koshantschikov, 1912: 517.** Type species *Aphodius falcispinis* Koshantschikov, 1912 (cited exactly like that), by subsequent designation of Dellacasa, 1983: 318. Koshantschikov (1912: 517) wrote: “*Hierzu gehören montivagus, praecox, liguricus und eine neue Art aus Centralasien, falcispinis m.*” The names *montivagus*, *praecox*, and *liguricus* are the valid names of well-known species. Koshantschikov’s sentence can not be construed as the designation of any of the four nominal species he cites as the type species. Dellacasa (1983: 318) wrote: “*Specie typus: Aphodius falcispinis W. Koshantschikov, 1912 (designazione originaria indirecta)*”. However, the Code does not recognize original indirect designation as a valid nomen-

clatural action. According to Article 69.1.1, Dellacasa (1983: 318) is deemed to have designated *Aphodius fal-cispinis* Koshantschikov, 1912 as the type species of *Neagolius* Koshantschikov, 1912.

**Neobodilus Hollande & Thérond, 1998: 149.** Type species *Aphodius lugens* Creutzer, 1799 (cited as “*A. (Neobodilus) lugens* Creutzer, 1799”), by original designation. This name is an objective junior synonym of *Bodilus* Mulsant & Rey, 1870.

**Netocia Costa, 1852: 14.** Type species *Cetonia morio* Fabricius, 1781 (cited exactly like that), by subsequent designation of Baraud, 1992: 798. Costa (1852) created *Netocia* as a division of *Cetonia* Fabricius, 1775 for two nominal species, the first of which is *Cetonia morio* Fabricius, 1781.

**Nialus Mulsant & Rey, 1870: 456.** Type species *Aphodius varians* Duftschmid, 1805 (cited as “*Aph. varians* Duftsch.”), by subsequent designation of Reitter, 1892: 64. Mulsant & Rey (1870) created *Nialus* as a division of *Aphodius* Illiger, for three nominal species, including *Aphodius varians* Duftschmid, 1805.

**Nimbus Mulsant & Rey, 1870: 569.** Type species *Aphodius obliterated* Panzer, 1823 (cited as “*Aph. obliterated* Panz.”), by subsequent designation of Reitter, 1892: 93. Mulsant & Rey (1870) created *Nimbus* as a division of *Melinopterus* Mulsant, for two nominal species, *Aphodius obliterated* Panzer, 1823 and *Aphodius affinis* Panzer, 1823.

**Ochodaeus Dejean, 1821: 56.** Type species *Melolontha chrysomelina* Fabricius, 1793 (under Article 67.7 – cited as “*Ochodaeus Chrysomelinus*”), junior synonym of *Scarabaeus chrysomeloides* Schrank, 1781, by monotypy.

**Oniticellus Dejean, 1821: 53.** Type species *Scarabaeus cinctus* Fabricius, 1775 (cited as “*Scarabaeus cinctus* F.”), by subsequent designation of Arrow, 1931: 375. Dejean (1821) listed two nominal species under *Oniticellus*: “*flavipes*” and “*cinctus*”.

**Onitis Fabricius, 1798: 2.** Type species *Scarabaeus sphinx* Olivier, 1789 (under Article 67.7 – cited as “*Onitis sphinx*, Fab.”), junior primary homonym of *Scarabaeus sphinx* Fabricius, 1775, senior synonym of *Onitis belial* Fabricius, 1798 (valid name), by subsequent designation of Latreille, 1810: 428. Due to one of Fabricius’s blunders, care needs to be taken here when applying Article 67.7. Fabricius (1798: 25) placed eight nominal species in his new genus, including *Scarabaeus sphinx*. Clearly, by 1798, Fabricius had forgotten his own 1775 *Scarabaeus sphinx* (described from “Sierra Leon Africae”, currently *Onitis sphinx*), as he referred (page 26) *Onitis sphinx* only to “Ent Syst. I. 53. 173.”, i.e., to his 1792 volume 1 of “Entomologia Systematica”, and recorded it from “America, Gallia meridionali.” In 1792 (page 53), Fabricius had credited *Scarabaeus sphinx* to Olivier, 1789 and, like in 1798, recorded it from “America, Gallia meridionali”.

**Onthophagus Latreille, 1802: 141.** Type species *Scarabaeus taurus* Schreber, 1759 (under Article 67.7 – cited as “*Copris taurus*. Oliv.”), by monotypy.

**Orodalus Mulsant & Rey, 1870: 439.** Type species *Scarabaeus pusillus* Herbst, 1789 (under Article 67.7 – cited as “*A. (Orodalus) pusillus* Herbst”), by subsequent designation of Balthasar, 1964: 186. Mulsant & Rey (1870) created *Orodalus* as a division of *Aphodius* Illiger, 1798, and included two nominal species, *Scarabaeus pusillus* Herbst, 1785 (page 439) and *Aphodius tyrolensis* Rosenhauer, 1847 (page 442).

**Oryctes Illiger, 1798: 11.** Type species *Scarabaeus nasicornis* Linnaeus, 1758 (cited as “*Scarabaeus nasicornis*”), by monotypy.

**Oryx Guérin-Méneville, 1838b: 80.** When Guérin-Méneville described the new genus *Oryctomorpha* for the Chilean species *Oryctomorpha bimaculatus* Guérin-Méneville, 1831, he simultaneously proposed the new genus *Oryx* for a group of species that he identified as “*O. silenus*, *Orion*, etc.”, i.e., *Scarabaeus silenus* Fabricius, 1775 and *Scarabaeus orion* Olivier, 1789. Guérin-Méneville (1838: 79) wrote: “*L’insecte qui sert de type à ce nouveau genre offre beaucoup d’analogie avec les Oryctes, surtout avec ceux de l’ancien continent, tels que les O. Silenus, Orion, etc., insectes qui ne peuvent rester dans le même genre que les Oryctes nasicornis, boas, rhinoceros, etc.: en effet, dans ces dernières espèces, les antennes sont très-courtes, avec les articles intermédiaires entre la massue et le premier presque égaux, plus courtes que larges; leur chaperon couvre presque les mandibules, qui sont épaisses et peu saillantes, tandis que dans O. Silenus, Orion, etc., les*



*mandibules sont aplaties, dilatées en dehors et très-saillantes; ces insectes ont bien à peu près la même antenne que les espèces dont nous avons parlé précédemment, mais leurs tarses antérieurs présentent une particularité remarquable que nous avons observé, quoique modifiée, dans notre genre Oryctomorpha; les crochets de ces tarses sont inégaux, extrêmement courbés, l'externe étant plat, large, et en forme de lanière crochue, tandis que dans les Oryctes nasicornes et autres, ces crochets sont égaux et de forme ordinaire..."* Further down in the same page, Guérin-Ménéville added: "*Nous allons comparer ces caractères dans les trois genres que nous sommes obligés de former avec les Oryctes.*"

Krell (2006) argued that Guérin-Ménéville (1838) described the genus *Oryx* without including any nominal species, and designated *Scarabaeus excavatus* Forster, 1771 as the type species. In fact, in the key to the three genera, *Oryctes*, *Oryctomorpha*, and *Oryx*, Guérin-Ménéville did not mention any species. However, Krell must have overlooked Guérin-Ménéville's text quoted above. Krell's (2006) type species designation is not valid because *Scarabaeus excavatus* Forster, 1771 is not one of the two nominal species for which Guérin-Ménéville created the genus *Oryx*. As far as I could ascertain, no nominal species has ever been validly designated as type species. That is in any case unnecessary because this name is a junior homonym of *Oryx* Blainville, 1816 (Mammalia), therefore permanently invalid. No replacement name is necessary either because the name *Phyllognathus* Eschscholtz, 1830 is available for this group of species.

**Otophorus Mulsant, 1842: 172.** Type species *Scarabaeus haemorrhoidalis* Linnaeus, 1758 (cited as "*Scarabaeus haemorrhoidalis*, Linn."), by monotypy.

**Oxyomus Dejean, 1833: 147.** Type species *Scarabaeus porcatus* Fabricius, 1775 (under Article 67.7 – cited as "*Aph. porcatus*, Fab"), junior synonym of *Scarabaeus sylvestris* Scopoli, 1763, by subsequent designation of Westwood, 1838: 23. Dejean (1833) credited Eschscholtz for the authorship of the name *Oxyomus*, and listed 25 nominal species, including "*porcatus*" Fabr. Westwood (1838) credited Eschscholtz with the authorship of the name *Oxyomus*, but Eschscholtz does not appear to have ever made that name available. Under Article 67.7 Westwood's designation of "*Aph. porcatus*, Fab." as type species of "*Oxyomus* Esch." is deemed a valid designation of *Scarabaeus porcatus* Fabricius, 1775 as type species of *Oxyomus* Dejean, 1833.

**Oxythyrea Mulsant, 1842: 572.** Type species *Scarabaeus sticticus* Linnaeus, 1767 (under Article 67.7 – cited as "*O. Stictica*: Linn."), junior synonym of *Scarabaeus funestus* Poda, 1761, by monotypy. With regards to the priority of *Oxythyrea* Mulsant, 1842 over *Leucocelis* Burmeister, 1842, see comment under *Leucocelis*.

**Palaeonthophagus Zunino, 1979: 8.** Type species *Scarabaeus vacca* Linnaeus, 1767 (under Article 67.7 – cited as "*O. vacca* (L.)"), by original designation.

**Paleira Reiche, 1871: 83.** Type species *Cetonia femorata* Illiger, 1803 (cited as "*Cetonia femorata* Illiger"), by original designation. Reiche (1871) wrote: "*2. Cetonia femorata* Illiger, *Magas.*, t.II, p. 231. – *Cet insecte est pour M. Burmeister, le type de son genre Epicometis (Handb., III, 434),...*" Reiche's statement does not make sense. If he was right, then the name *Paleira* would be unnecessary, as it would just be an objective junior synonym of *Epicometis* Burmeister, 1842. Reiche, however, was wrong. Burmeister (1842) created the genus *Epicometis* for five nominal species, of which *Cetonia femorata* Illiger, 1803 is the first listed, and that does not constitute type species fixation. It is worth noting, perhaps, that Reiche's statement could be understood as falling under Article 69.1.1 and, therefore, to constitute a valid subsequent type species fixation. That, however, is not so because Article 69.1.1 requires that it must be clear that the author accepts the nominal species so designated as the type species, which Reiche obviously did not.

**Palora Mulsant & Rey, 1871: 360.** Type species *Melolontha junii* Duftschmid, 1805 (under Article 67.7 – cited as "*Anomala junii*, Duftschmid"), by monotypy. This name was created as a subgenus of *Anomala* Samouelle, 1819.

**Paramonotropus** (unavailable). Medvedev (1951: 499) proposed the new genus *Paramonotropus* for the two only Iberian species of *Monotropus* Erichson, 1847 then known: *staudingeri* (Schaufuss, 1861) and *laticollis* (Pérez Arcas, 1874). No type species was designated by Medvedev (1951), therefore, as already pointed out by Smetana & Smith (2006), the name *Paramonotropus* is not available (Article 13.3). As already

explained in the introduction, *Paramonotropus* is mentioned here, albeit an unavailable name, because Baraud (1992) listed it as if it were an available name.

**Parataenius Balthasar, 1961: 121.** Type species *Parataenius mirabilis* Balthasar, 1961 (cited as “*Parataenius mirabilis* n. sp.”), junior synonym of *Aphodius derbesis* Solier, 1851, by original designation.

**Paratriodonta Baraud, 1962: 3.** Type species *Melolontha morio* Fabricius, 1792 (under Article 67.7 – cited as “*P. morio* Fabricius”), by original designation.

**Parentius Zunino, 1979: 5.** Type species *Copris punctatus* Illiger, 1803 (under Article 67.7 – cited as “*O. punctatus* (Ill.)”), by original designation. On the question of priority of *Parentius* Zunino, 1979 over *Relictonthophagus* Kabakov, 1979 see Ziani (2002b).

**Pentodon Hope, 1837: 92.** Type species *Scarabaeus punctatus* Villers, 1789 (under Article 67.7 – cited as “*Geotrupes punctatus*, Fab.”), currently *Pentodon bidens punctatus*, by original designation. *Scarabaeus punctatus* Villers, 1789 is a primary junior homonym of *Scarabaeus punctatus* Linnaeus, 1758 (currently *Pelidnota punctata*), but the Commission (2003 – Opinion 2054) ruled for the conservation of the former. In the same ruling, the Commission placed *Pentodon* Hope, 1837 on the Official List of Generic Names in Zoology.

**Phalacrothous Motschulsky, 1860: 157.** Type species *Scarabaeus quadrimaculatus* Linnaeus, 1761 (cited as “*Scarabaeus quadrimaculatus* L.”), by monotypy.

**Phyllognathus Eschscholtz, 1830: 65.** Type species *Scarabaeus silenus* Fabricius, 1775 (under Article 67.7 – cited as “*Geotrupes silenus*, F.”), junior synonym of *Scarabaeus excavatus* Forster, 1771, by subsequent designation of Arrow, 1910: 306. Eschscholtz (1830) erected the genus *Phyllognathus* for three nominal species, including *Scarabaeus silenus* Fabricius, 1775.

**Phyllopertha Stephens, 1830: 223.** Type species *Scarabaeus horticola* Linnaeus, 1758 (cited as “*Scar. horticola* Linn.”), by subsequent designation of Westwood, 1838: 23. Stephens (1830) included two nominal species in his new genus, “*horticola* Linnè” and “*errans* Fabricius”. This name is an objective junior synonym of *Anisoplia* Schönherr, 1817. It is desirable to conserve *Phyllopertha* Stephens, 1830 as a valid name. That requires a ruling by the Commission. As stated above (see comments under *Anisoplia*) I understand that an application for that purpose is being prepared and I suggest that prevailing usage be maintained in the meantime.

**Planolinoides Dellacasa & Dellacasa, 2005: 77.** Type species *Aphodius borealis* Gyllenhal, 1827 (cited exactly like that), by original designation.

**Planolinus Mulsant & Rey, 1870: 426.** Type species *Scarabaeus foetidus* Fabricius, 1792, junior synonym of *Scarabaeus fasciatus* Olivier, 1789, by subsequent designation of Dellacasa, 1983: 384. Mulsant & Rey (1870) created *Planolinus* as a division of *Aphodius* Illiger, and included nine nominal species, including *Scarabaeus foetidus* Fabricius, 1792. Dellacasa (1983) designated *Scarabaeus fasciatus* Olivier, 1789 as the type species (cited exactly like that), which was not included by Mulsant & Rey (1870). Of all the nominal species included by Mulsant & Rey (1870) in *Planolinus*, Dellacasa (1983: 389) listed *Scarabaeus foetidus* Fabricius, 1792, and only *Scarabaeus foetidus* as a synonym of *Scarabaeus fasciatus* Olivier, 1789. According to Article 69.2.2, Dellacasa’s (1983) act constituted fixation of *Scarabaeus foetidus* Fabricius, 1792 as the type species of *Planolinus* Mulsant & Rey, 1870. *Scarabaeus fasciatus* Olivier, 1789 is a primary junior homonym of *Scarabaeus fasciatus* Linnaeus, 1758 (currently *Trichius fasciatus*), but the Commission (2006b – Opinion 2150) has ruled for its conservation.

**Platycephalus Cuvier, 1797: 517.** Type species *Scarabaeus fimetarius* Linnaeus, 1758 (cited as “*Scarabaeus fimetarius* Linnè, 1758”), by subsequent designation of Dellacasa *et al.* 2001: 10 (footnote 3). Cuvier (1797), who credited *Platycephalus* to “Brongn.”, probably the French naturalist Alexandre Brongniart (1770–1847), included two specific names, “*Sc. fimetarius*” and “*Sc. conspurcatus*”, i.e., *Scarabaeus fimetarius* Linnaeus, 1758 and *Scarabaeus conspurcatus* Linnaeus, 1758. Cuvier’s work is often dated, in current literature, from 1798. Evenhuis (1997: 173) gives evidence that it was published no later than 24 December

1797. This name is an objective senior synonym of *Aphodius* Illiger, 1798, but it is permanently invalid because it is a junior homonym of *Platycephalus* Block, 1795 (Pisces).

**Platycerus Geoffroy, 1762: 59.** Type species *Scarabaeus caraboides* Linnaeus, 1758 (under Article 67.7: cited as “*Lucanus caraboides*, Fab.”), by subsequent designation of Latreille, 1810: 429. Geoffroy (1762) created the genus *Platycerus* for five species, the fourth of which is the “*Platycerus violaceo-caeruleus*, elytris laevibus” or “*La chevrette bleue*”, referred by Geoffroy to “*Linn. Syst. nat. edit. 10, n. 63. Scarabaeus Scarabaeus maxillosus, maxillis lunulatis, thorace marginato*”, i.e., *Scarabaeus caraboides* Linnaeus, 1758. Geoffroy (1762) did not apply the principles of binominal nomenclature to his work so no nominal species as such is listed. By a ruling of the Commission (1994 – Opinion 1754) “*Platycerus Geoffroy, 1762 (gender: masculine), type species by subsequent designation by Latreille (1810) Scarabaeus caraboides Linnaeus, 1758*” is conserved and placed on the Official List of Generic Names in Zoology.

**Platytomus Mulsant, 1842: 310.** Type species *Platytomus sabulosus* Mulsant, 1842 (cited as “*P. Sabulosus*: Dej. Inéd.”), junior synonym of *Scarabaeus tibialis* Fabricius, 1798, by monotypy.

**Pleurophorus Mulsant, 1842: 312.** Type species *Scarabaeus caesus* Panzer, 1796 (under Article 67.6 – cited as “*Scarabaeus coesus*, Panz.”), by monotypy. Probably because in Panzer’s 1796 plate 2, of fascicle 35, the legend reads “*Scarabaeus caesus Creutzer*”, authorship of the name *Scarabaeus caesus* is currently accorded to Creutzer, sometimes as Creutzer in Panzer. There is, however, no evidence that besides the name, Creutzer was also responsible for satisfying the criteria of availability other than actual publication, as required by Article 50.1.1. In fact, neither the text nor the figure are signed or have any other indication as to their authorship. Therefore, Panzer has to be presumed as the author.

**Potosia Mulsant & Rey, 1871: 413.** Type species *Cetonia speciosissima* Scopoli, 1786 (cited as “*Cetonia speciosissima*, Scop.”), purportedly a junior synonym of *Scarabaeus aeruginosus* Drury, 1773 (see comment on the date of this reference below), by subsequent designation of Arrow, 1910: 136. Mulsant & Rey (1871) described *Potosia*, as a subgenus of *Cetonia* Fabricius, 1775, for six nominal species, including *Cetonia speciosissima* Scopoli, 1786. Smetana & Smith’s (2006: 49) subsequent designation of *Cetonia floricola* Herbst, 1790 as type species is invalid, being preceded by Arrow’s (1910). *Potosia* Mulsant & Rey, 1871 is a senior subjective synonym of *Cetonischema* Reitter, 1899 (type species *Scarabaeus aeruginosus* Drury, 1773, by subsequent designation of Medvedev, 1964). Arrow’s designation appears to be an overlooked type species designation. It may cause some nomenclatural instability, but I doubt that all the genera and/or subgenera, into which these and related species are split, are justified. The species currently assigned to *Cetonischema* are not present in Portugal. I suggest that, until the phylogenetic relationships between the pertinent groups of species are better understood, those present in Portugal should preferably be placed in the genus *Protaetia* Burmeister, 1842. However, that is a taxonomic decision and, as such, beyond the scope of this paper.

*Scarabaeus aeruginosus* Drury is often dated from 1770. However, according to the Commission (1957b – Opinion 474), the date to be accepted for determining the priority of names published in volume 1 of Drury’s work is 1773, which is the date of publication of the Index containing the binominal names.

**Protaetia Burmeister, 1842: 472.** Type species *Cetonia spectabilis* Schaum, 1841 (cited as “*Cetonia spectabilis*, Schaum”), by subsequent designation of Arrow, 1910: 136. Burmeister (1842) erected the genus *Protaetia* for 30 nominal species, including *Cetonia spectabilis* Schaum, 1841.

**Psammobius Heer, 1841: 531.** Type species *Aphodius sulcicollis* Illiger, 1802 (cited as “*Psammobius sulcicollis* (Illiger) 1802 (*Aphodius*)”), junior synonym of *Scarabaeus asper* Fabricius, 1775, by subsequent designation of Tesař, 1957: 168. Heer (1841) described *Psammobius* for two nominal species, *Aphodius sulcicollis* Illiger, 1802 and *Aphodius vulneratus* Sturm, 1805. This name is an objective junior synonym of *Psammobius* Fallén, 1807.

**Psammobius Fallén, 1807: 37.** Type species *Aphodius sulcicollis* Illiger, 1802 (cited as “*Aphodius sulcicollis Ill.*”), junior synonym of *Scarabaeus asper* Fabricius, 1775, by subsequent designation of Curtis, 1829: 258. Fallén (1807) credited the authorship of the genus to Gyllenhal, but Gyllenhal’s work was not published

until 1808. Fallén (1807) and Gyllenhal (1808) listed the same six nominal species in the genus *Psammодиус*, including *Aphodius sulcicollis* Illiger, 1802.

***Pseudacrossus* Reitter, 1892: 80.** Type species *Aphodius grombczewskiyi* D.Koshantschikov, 1891 (cited as “*Aph. Grombczewskiyi* Koshantsch”), by original designation.

***Pseudagolius* Schmidt, 1913: 150.** Type species *Aphodius coloradensis* Horn, 1870 (cited exactly like that), by subsequent designation of Dellacasa (1983: 403). Schmidt (1913) described *Pseudagolius*, as subgenus of *Aphodius* Illiger, 1798, for nine nominal species: *coloradensis* Horn, 1870, *dentiger* LeConte, 1859, *nasutus* Reitter, 1887, *terminalis* Say, 1823, *przewalskyi* Reitter, 1887, *cruentatus* LeConte, 1878, *circassicus* Reitter, 1892, *castaneus* Illiger, 1803, and *jakovlevi* Koshantschikov, 1902; plus four dubitatively, *solieri* Mulsant & Rey, 1870, *baeticus* Mulsant & Rey, 1870, *aemulus* Horn, 1887, and *anthracinus* LeConte, 1878.

***Pseudolucanus* [Westwood], 1845: 30.** Type species *Scarabaeus capreolus* Linnaeus, 1764 (cited as “*Scarabaeus capreolus* Linné”), by subsequent designation of Didier & Séguy, 1953: 77. Westwood’s work was published anonymously. *Pseudolucanus* was described as a subgenus of *Lucanus* Scopoli, 1863, for three nominal species, including *Scarabaeus capreolus* Linnaeus, 1764. Although often incorrectly dated 1763, *Scarabaeus capreolus* was described for the first time in Linnaeus (1764).

***Relictonthophagus* Kabakov, 1979: 74.** Type species *Copris punctatus* Illiger, 1803 (under Article 67.7 – cited as “*O. (R.) punctatus* Illiger, 1803”), by original designation. This name is an objective junior synonym of *Parentius* Zunino, 1979. On the question of priority between Kabakov’s and Zunino’s names see Ziani (2002b).

***Rhyssemus* Mulsant, 1842: 314.** Type species *Scarabaeus asper* Fabricius, 1775 sensu Mulsant, 1842 (under Article 67.7 – cited as “*R. asper* (Fab.)”), junior synonym of *Ptinus germanus* Linnaeus, 1767, by subsequent designation of Thomson, 1859: 81. Mulsant (1842) created the genus *Rhyssemus* for two nominal species, *Scarabaeus asper* Fabricius, 1775 and *Rhyssemus verrucosus* Mulsant, 1842. Additionally, Mulsant (1842) dubitatively listed *Ptinus germanus* Linnaeus, 1767 as a synonym of *Scarabaeus asper* Fabricius, 1775. Mulsant & Rey (1870: 627) regarded *Ptinus germanus* Linnaeus, 1767 as the valid name, and listed *Scarabaeus asper* Fabricius, 1775 as its junior synonym. Thomson (1859) designated “*R. asper* (Fab.)” as type species of *Rhyssemus* Mulsant, and “*P. sulcicollis* (Illig.)” as type species of *Psammодиус* Gyllenhal; he wrote (page 81) “*Rhyssemus* Muls. *Psammодиус* Gyll. Typus *R. asper* (Fab.): Gyll. I. 9. 5.”, and (page 82) “*Psammодиус* Gyll. Typus *P. sulcicollis* (Illig.): Gyll. I. 9. 6”. Landin (1956) examined this matter in detail and concluded that *Scarabaeus asper* sensu auctorum, not Fabricius, 1775 is a junior synonym of *Ptinus germanus* Linnaeus, 1767, and *Aphodius sulcicollis* Illiger, 1802 a junior synonym of *Scarabaeus asper* Fabricius, 1775.

***Rhizotrogus* Latreille, 1825: 371.** Type species *Melolontha aestiva* Olivier, 1789 (cited as “*melontha aestiva*”, where “*melontha*” is clearly a *lapsus* for “*melolontha*”), by monotypy. For a discussion on the authorship and date see Branco (2006).

***Scarabaeus* Linnaeus, 1758: 345.** The vast majority of authors regard, explicitly or implicitly, *Scarabaeus sacer* Linnaeus, 1758 as the type species. Yet, the validly designated type species, under Direction 4 and Article 67.7 is *Scarabaeus hercules* Linnaeus, 1758 (cited as “*Geotrupes hercules*, Fab.”), by subsequent designation of Latreille, 1810: 428.

As illustrated in the table below, in early nineteenth century there were three conflicting generic assignments, by Fabricius (1801), Latreille (1802) and MacLeay (1819), involving three species described by Linnaeus (1758), *Scarabaeus hercules*, *Scarabaeus sacer*, and *Scarabaeus stercorarius*.

Generic assignment	Fabricius, 1801	Latreille, 1802	MacLeay, 1819
<i>Scarabaeus hercules</i>	Geotrupes	Scarabaeus	Dynastes
<i>Scarabaeus sacer</i>	Ateuchus	Ateuchus	Scarabaeus
<i>Scarabaeus stercorarius</i>	Scarabaeus	Geotrupes	Geotrupes

*Dynastes* is sometimes credited to Kirby (1825b) who described the genus and designated “*Scarabaeus Hercules* L.” as the type species. MacLeay (1819) proposed *Dynastes* as a replacement name for *Scarabaeus* sensu Latreille, hence with type species *Scarabaeus hercules* Linnaeus, 1758 by monotypy, since that is the only species included by Latreille in his works of 1802 and 1810.

MacLeay’s classification came to be the one adopted by the vast majority of modern authors. Yet, for 40 years (since its publication in 1954 until *Ádám* (1994)), the consequences of Direction 4 on the nomenclature of the Scarabaeoidea went apparently unnoticed. *Ádám* (1994), disregarding the preamble of the Code, incorporated into his classification of the Hungarian Scarabaeoidea the full implications of Direction 4.

As already pointed out by *Ziani* (2002a), and as it is plainly patent from *Ádám*’s 1994 paper, now adopting Latreille’s type species designation causes a major disruption in the current nomenclature of the entire group. *Zidek & Pokorný* (2005) unsuccessfully tried to demonstrate that Latreille’s 1810 designation of *Ateuchus sacer* as type species of *Ateuchus* Fabricius, 1801 equated to the designation of *Scarabaeus sacer* as the type species of *Scarabaeus* Linnaeus, 1758. I regret to have to say, but in my view they fail to prove their point. Their argumentation would be valid for the same nominal genus, but not from one nominal genus to another. For the three genera in question, *Ateuchus*, *Geotrupes*, and *Scarabaeus*, the examples given by Latreille in his 1802 work are the same as in his 1810 “Tableau méthodique.” Adopting as type species the examples in Latreille’s 1810 “Tableau méthodique” means going back to Latreille’s 1802 classification. A ruling by the Commission on this matter seems highly desirable and, though this is not supported by the Code, I suggest that in the meantime prevailing usage should be maintained. After so many years of virtually universal usage of MacLeay’s classification it is simply inconceivable reverting now to Latreille’s.

Although this paper is not dealing with family-group names, I should point out that to credit the name Scarabaeidae to Latreille (1802), as currently done, is not without problems. In “Famille Seizième. Scarabéides; *scarabaeïdes*.” Latreille (1802) placed 11 genera, including *Scarabaeus* of which he gave as only example “*Scarabaeus hercules*. Lin.” In “Famille Quatorzième. Coprophages; *coprophagi*.” Latreille (1802) included five genera, the first being *Ateuchus* of which he gave as only example “*Ateuchus sacer*. F.” In fact, it was MacLeay (1819) who first used the name Scarabaeidae in its current sense, i.e., type genus *Scarabaeus* Linnaeus, 1758 with type species *Scarabaeus sacer* Linnaeus, 1758. For Scarabaeidae sensu Latreille, 1802, MacLeay (1819) proposed the name Dynastidae, based on *Dynastes* MacLeay, 1819 proposed as a replacement name for *Scarabaeus* sensu Latreille, with type species *Scarabaeus hercules* Linnaeus, 1758. This is a case of altered concept and, as illustrated by *Ádám*’s 1994 paper, stability and universality can be threatened. According to Article 65.2.2, to preserve stability and universality, the case should be referred to the Commission for a ruling.

***Serica* MacLeay, 1819: 146.** Type species *Scarabaeus brunneus* Linnaeus, 1758 (cited as “*Scarabaeus brunneus*. *Linn.*”), by monotypy. The original spelling of the type species is “brunnus”. Later Linnaeus (1761) used the spelling “brunneus” and later still returned to “brunnus” (Linnaeus, 1767). The spelling “brunneus” is in prevailing usage, hence it is deemed the correct original spelling.

***Sericotrupes* Zunino, 1984: 66.** Type species *Scarabaeus niger* Marsham, 1802 (under Article 67.7 – cited as “*Geotrupes niger* Marsham”), by original designation.

***Sigorus* Mulsant & Rey, 1870: 489.** Type species *Scarabaeus porcus* Fabricius, 1792 (under Article 67.7 – cited as “*Aphodius porcus*, Fabricius”), by monotypy.

***Silphotrupes* Jekel, 1866: 553.** Type species *Geotrupes punctatissimus* Chevrolat, 1840 (cited as “*Geotrupes punctatissimus* Chev.”), by original designation (page 571).

***Sisyphus* Latreille, 1807: 79.** Type species *Scarabaeus schaefferi* Linnaeus, 1758 (under Article 67.7 – cited as “*Sisyphus Schaefferi*”), by monotypy. In the original description, Latreille (1807) used the spelling “*Sisyphus*”. Later Latreille (1810) changed the spelling to *Sisyphus*, which is in prevailing usage and therefore deemed the correct original spelling.

**Sternotrupes Jekel, 1866: 526.** Type species *Scarabaeus vernalis* Linnaeus, 1758 (under Article 67.7 – cited as “*Geotrupes vernalis* L.”), by original designation. This name is an objective junior synonym of *Trypocopris* Motschulsky, 1858.

**Subrinus Mulsant & Rey, 1870: 511.** Type species *Aphodius illigeri* Mulsant & Rey, 1870 (under Article 67.7 – cited as “*Aphodius Illigeri*, Harold”), junior synonym of *Aphodius sturmi* Harold, 1870, by monotypy. Mulsant & Rey (1870) credited Harold as the author of the name *Aphodius illigeri*. Harold (1873:121), however, noted that: “p. 271, *Aphod. Illigeri Harold, Col. (Scarab.) p. 1029 – ich habe nie einen Aphodius mit diesem Namen belegt und das allegirte Citat ist apocryph, es soll A. Sturmi Harold, Col. Hefte. VI. p. 106 heissen.*” Harold’s replacement name for *Aphodius rufus* Sturm, 1805, junior secondary homonym of *Aphodius rufus* (Moll, 1785), dates from 1870. Mulsant & Rey (1870) provided a description of the species, making *Aphodius illigeri* available from their work. There could be, therefore, a question of priority between *Aphodius sturmi* Harold, 1870 and *Aphodius illigeri* Mulsant & Rey, 1870. However, the name *Aphodius sturmi* Harold, 1870 has been in constant use as the valid name for this species ever since Harold’s 1873 note and should be considered the senior synonym unless evidence is found to the contrary.

**Systemocerus Weise, 1883: 151.** Type species *Scarabaeus caraboides* Linnaeus, 1758 (cited as “*Scarabaeus caraboides* L.”), by subsequent designation of Didier & Séguy, 1953: 169. Weise (1883) considered *Platycerus* Geoffroy identical to *Lucanus*, which he credited to Linnaeus, and proposed the new name *Systemocerus* for *Platycerus* sensu auctorum. He wrote: “*Schliesslich möchte ich noch auf Folgendes aufmerksam machen: ... 2. dass die Verwendung von Platycerus Geoffr., der mit Lucanus L. identisch ist, sich nicht rechtfertigen lässt. Ich gebrauche dafür Systemocerus.*” In the same year, Heyden *et al.* (1883) listed under *Systemocerus* Weise three nominal species, including “*caraboides* L.” The name *Systemocerus* is commonly credited to Weise in Heyden *et al.* 1883. I was unable to ascertain whether that is because the 1883 catalogue of Heyden *et al.* was published earlier or because Weise’s 1883 note has been overlooked. This name is a junior objective synonym of *Platycerus* Geoffroy, 1762.

**Tecinoa Costa, 1852: 12.** Type species *Scarabaeus auratus* Linnaeus, 1758 (cited as “*Scarabaeus auratus*, Lin.”), by monotypy. This name is a junior objective synonym of *Cetonia* Fabricius, 1775.

**Teuchestes Mulsant, 1842: 176.** Type species *Scarabaeus fossor* Linnaeus, 1758 (cited as “*Scarabaeus fossor*, Linn.”), by monotypy.

**Thorectes Mulsant, 1842: 367.** Type species *Scarabaeus laevigatus* Fabricius, 1798, sensu Mulsant, 1842 (cited as “*Scarabaeus laevigatus*, Fab.”), junior synonym of *Scarabaeus intermedius* Costa, 1839, by monotypy. As already discussed elsewhere (Branco & Ziani 2006), Mulsant (1842) created *Thorectes* for a single species that he identified as “*Scarabaeus laevigatus* Fabricius”, noting that (page 369): “*Cette espèce habite nos provinces du midi où elle n’est pas rare.*” Bedel (1903) pointed out that Fabricius’s *Scarabaeus laevigatus* was described from Tanager, that the species reported by Mulsant (1842) does not occur in Morocco, and that it should take the name “*intermedius* Costa, 1827” (see comment above, under *Jekelius*, on the actual date of publication of *Scarabaeus intermedius* Costa). The option offered by Article 70.3 that if an author discovers that a type species was misidentified, the author may select, and thereby fix as type species, the species that will, in his or her judgment, best serve stability and universality, is precluded by Boucomont’s (1905) choice. Boucomont (1905: 216) wrote: “*type: G intermedius Costa = laevigatus auct.*”

**Trichius Fabricius, 1775: 40.** Type species *Scarabaeus fasciatus* Linnaeus, 1758 (under Article 67.7: cited as “*Trichius fasciatus*, Fab.”), by subsequent designation of Latreille, 1810: 428. Fabricius (1775) erected the genus *Trichius* for seven nominal species, including *Scarabaeus fasciatus*. The name *Trichius* Fabricius, 1775 was placed by the Commission (2004 – Opinion 2079) in the Official List of Generic Names in Zoology.

**Trichonotulus Bedel, 1911: 378.** Type species *Scarabaeus scrofa* Fabricius, 1787, by monotypy. This name is a replacement name for *Trichonotus* Mulsant, 1842.

**Trichonotus Mulsant, 1842: 294.** Type species “*Scarabaeus scrofa* Fabricius, 1787” (under Article 67.6 – cited as “*Scarabaeus scropha* Fabricius, 1787), by monotypy. This name is a junior homonym of *Trichonotus* Bloch & Schneider, 1801 (Pisces), and is therefore permanently invalid.

**Trichonthophagus Zunino, 1979: 6.** Type species *Copris hirtus* Illiger, 1803 (under Article 67.7 – cited as “*O. hirtus* (Ill.)”), by original designation.

**Triodonta Mulsant, 1842: 468.** Type species *Serica aquila* Laporte, 1840 (cited as “*Serica aquila*, De Casteln.”), by monotypy. This name is a junior homonym of *Triodonta* Bory de Saint-Vincent, 1827 (see Branco & Ruiz 2003), and is therefore permanently invalid.

**Triodontella Reitter, 1919: 221.** Type species *Serica aquila* Laporte, 1840, by monotypy. This name is a replacement name for *Triodonta* Mulsant, 1842.

**Troglonthophagus Ádám, 1994: 8.** Type species *Scarabaeus semicornis* Panzer, 1798 (cited exactly like that), by original designation.

**Tropinota Mulsant, 1842: 575.** Type species *Tropinota reyi* Mulsant, 1842, junior synonym of *Scarabaeus squallidus* Scopoli, 1763, by subsequent designation of Medvedev, 1964: 86. Medvedev (1964) stated, without explanation, that the type is “*Scarabaeus squalidus* Scopoli, 1783” (sic!) (the error in the date, 1783 instead of 1763, as well as the incorrect subsequent spelling “squalidus” were then widespread). Mulsant (1842) did not include *Scarabaeus squallidus* Scopoli, 1763 amongst the nominal species of his new genus. Medvedev (1964: 86), however, of the two nominal species included by Mulsant, placed *Tropinota reyi* Mulsant, 1842, and only *Tropinota reyi*, in synonymy with *Tropinota squallida* (Scopoli, 1763). According to Article 69.2.2, Medvedev’s 1964 act constitutes fixation of *Tropinota reyi* Mulsant, 1842 as type species of *Tropinota*. Whenever *Tropinota* Mulsant, 1842 is considered synonym of *Epicometis* Burmeister, 1842, it retains priority over Burmeister’s taxon, as acknowledged by Burmeister himself, who wrote (1842: 809): “-434. Zu *Epicometis*. Herr Mlsant nennt diese Gattung *Tropinota*.”

According to Agassiz (1846: 380) *Tropinota* Mulsant, 1842 is a junior homonym of “*Tropinotus* Ser., 1831 (Orth.)”. However, Article 56.2 stipulates that even if the difference between two genus-group names is only one letter, they are not homonyms. Agassiz’s opinion was probably the reason for Arrow’s (1910: 173) statement that *Tropinota* Mulsant is a “preoccupied name”.

**Trox Fabricius, 1775: 31.** Type species *Scarabaeus sabulosus* Linnaeus, 1758 (under Article 67.7: cited as “*Trox sabulosus*, Fab.”), by subsequent designation of Latreille, 1810: 428. Fabricius (1775) erected the genus *Trox* for three nominal species, including “*Trox sabulosus*”.

**Trypocopris Motschulsky, 1860: 160.** Type species *Scarabaeus vernalis* Linnaeus, 1758 (cited as “*Scarabaeus vernalis* L.”), by original designation.

**Typhaeus Leach, 1815: 97.** Type species *Typhaeus vulgaris* Leach, 1815, junior synonym of *Scarabaeus typhoeus* Linnaeus, 1758, by monotypy. For reasons that he did not explain, Leach (1815) named this species “*Vulgaris*” and listed as its synonyms “*Scarabaeus typhoeus*. Fabricius, Gyllenhal, Marsham”, and “*Scarabaeus pumilus* of Marsham”. Of the latter Leach (1815) wrote that it “is a merely stunted or accidental variety of this species”, but he did not elaborate on the former.

**Valgus Scriba, 1790: 66.** Type species *Scarabaeus hemipterus* Linnaeus, 1758 (under Article 67.7 – cited as “*Trichius hemipterus*, Fabr.”), by monotypy.

**Volinus Mulsant & Rey, 1870: 537.** Type species *Scarabaeus sticticus* Panzer, 1798 (under Article 67.7 – cited as “*Aph. sticticus* Panz.”), by subsequent designation of Reitter, 1892: 81. Mulsant & Rey (1870) created *Volinus*, as a subgenus of *Aphodius* Illiger, 1798, for seven nominal species, including *Scarabaeus sticticus* Panzer, 1798.

**Zantheumia Stephens, 1829: 115.** Type species *Scarabaeus solstitialis* Linnaeus, 1758 (cited as “*Sc. solstitialis*. Linn.”), by monotypy. This name is an objective junior synonym of *Amphimallon* Latreille, 1825.

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