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COLYDIINE GENERA (COLEOPTERA: ZOPHERIDAE: COLYDIINAE) OF THE NEW WORLD: A KEY AND NOMENCLATURE ACTS 30 YEARS IN THE MAKING

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ABSTRACT

A brief review of the classification history of the subfamily Colydiinae is provided, followed by a provisional diagnosis for the group. The 47 genera of New World Colydiinae (Colydiidae *auctorum*) are reviewed, with an illustrated key to genera, a representative habitus of each genus, a list of all 305 described species currently considered valid, each placed into the appropriate recognized genus, with full citations for each. Numerous nomenclatural changes are noted. *Opostirus* Kirsch is transferred to the Tenebrionidae: Eudysantina, **new placement**. The Adimerini Sharp 1894 are synonymized with Synchitini Erichson, 1845, **new synonymy**. In the Acropini, *Lemmis* Pascoe, 1860 = *Acropis* Burmeister, 1840, **new synonymy**, with *Acropis caelatus* (Pascoe, 1860), **new combination** and *Acropis tuberosus* (Grouvelle, 1896), **new combination**. *Acropis fryi* Pascoe, 1860 = *Acropis tuberculifera* Burmeister, 1840, **new synonymy** and *Acropis incensa* Pascoe, 1860 = *Acropis aspera* Pascoe, 1860, **new synonymy**. In the Synchitini, *Anisopaulax* Reitter, 1877 = *Lasconotus* Erichson, 1845, **new synonymy**, with *Lasconotus brucki* (Reitter, 1877), **new combination**. *Pristoderus brasiliensis* (Grouvelle, 1896), **new combination** follows synonymization of *Ulonotus* Erichson with *Pristoderus*. *Eucicones* Sharp, 1894 = *Catolaemus* Sharp, 1894 = *Cacotarphius* Sharp, 1894, **new synonymies**, with *Eucicones minutus* (Sharp, 1894), **new combination** and *Eucicones compressus* (Sharp, 1894), **new combination**. *Reylus* Ivie, Lord, Foley, and Ślipiński is a **new replacement name** for *Erylus* Dajoz, 1969 [not *Erylus* Gray, 1867 (Porifera)]. *Eulachus* Erichson, 1845 = *Anarmostes* Pascoe, 1860, **new synonymy**, with *Anarmostes costatus* (Erichson, 1845), **new combination**, *Bitoma quinquecarinata* (Chevrolat, 1864), **new combination**, and *Bitoma semifuliginosa* Chevrolat, 1864, **new combination**. *Hystricones* Sharp, 1894 = *Paryphus* Erichson, 1845, **new synonymy**, with *Paryphus armatus* (Sharp, 1894), **new combination** and the following species moved to *Colobicones* Grouvelle, 1918: *Colobicones vagans* (Arrow, 1927), **new combination**; *Colobicones hirtus* (Ślipiński, 1985), **new combination**; and *Colobicones papuanus* (Ślipiński, 1985), **new combination**. *Labrotrichus* Sharp, 1894 = *Neotrichus* Sharp, 1885, **new synonymy**, with *Neotrichus aberrans* (Sharp), **new combination** and *Neotrichus verrucatus* (Hinton, 1935), **new combination**. *Microsicus* Sharp, 1894 = *Synchita* Hellwig in Schneider, 1792, **new synonymy**, resulting in changes for the Japanese species *Synchita constricta* (Aoki, 2012), **new combination** and *Synchita parvula* Guérin-Ménéville, 1844, **return to a previous combination**. *Synchita grouvellei* Ivie, Lord, Foley, and Ślipiński, **new replacement name** is proposed for *Microsicus minimus* Grouvelle, 1898 [not Sharp, 1885]. The earlier synonymization of *Cicones* Curtis, 1827 with *Synchita* results in *Synchita africana* (Grouvelle, 1905), **new combination**, *Synchita amoena* (Fairmaire, 1850), **new combination**, *Synchita colorata* (Motschulsky, 1863), **new combination**, *Synchita compacta* (Grouvelle, 1918), **new combination**, *Synchita eichelbaumi* (Grouvelle, 1914), **new combination**, *Synchita lata* (Grouvelle, 1919), **new combination**, *Synchita madagascariensis* (Grouvelle, 1896), **new combination**, *Synchita minor* (Pope, 1954) **new combination**, *Synchita minuta* (Sharp, 1885) **new combination**, *Synchita oblonga* (Sharp, 1885), **new combination**, *Synchita picta* (Erichson, 1845), **new combination**, *Synchita scotti* (Grouvelle, 1918), **new combination**, and *Synchita squamosa* (Grouvelle, 1896), **new combination**. *Synchita lecontei* Ivie, Lord, Foley, and Ślipiński, **new replacement name** is proposed for *Synchita variegata* LeConte, 1858 [not Hellwig in Schneider, 1792]. The species formerly placed in *Catolaemus* belong in *Synchita*, resulting in *Synchita*

exilis (Grouvelle, 1898), **new combination** and *Synchita multimaculata* (Grouvelle, 1902), **new combination**. *Cicones bitomoides* Sharp, 1885, *Cicones hayashii* Sasaji, 1971, *Cicones niveus* Sharp, 1885, *Cicones oculatus* Sharp, 1885, *Cicones rufosignatus* Sasaji, 1984, and *Cicones variegatus* (Hellwig in Schneider, 1792) are returned to *Synchita* as **returned to previous combinations**. *Synchita hirsuta* Aoki, 2008 is also **returned to original combination** from *Microsicus*. *Pseudotaphrus* Stephan, 1989 [not Cossmann, 1888 (Mollusca: Rissoiidae)], including the preoccupied replacement name *Stephaniolus* Ivie, Ślipiński, and Węgrzynowicz, 2002 = *Coxelus* Dejean, 1821, **new synonymy**, with *Coxelus longus* (Stephan, 1989), **new combination**. *Zanctlea* Pascoe, 1863 [not Gegenbaur, 1856 (Cnidaria: Hydrozoa)] = *Aneumesa* Sharp, 1894 = *Holopleuridia* Reitter, 1876, with *Holopleuridia atomaria* (Sharp, 1894), **new combination**, *Holopleuridia costata* (Sharp, 1894), **new combination**, and *Holopleuridia testudinea* (Pascoe, 1863), **new combination**. Other individual changes in generic membership are *Asynchita panamensis* (Sharp, 1894), **new combination** (from *Synchita*); *Endeitoma rugulosa* (Guérin-Méneville, 1844), **new combination** (from *Asynchita* Sharp, 1894, originally *Synchita*); *Ethelema nigrogrisea* (Grouvelle, 1914), **new combination** (from *Lemmis*); *Paha mexicana* (Hinton, 1935), **new combination** (from *Namunaria*); *Paha mimetes* (Sharp, 1894), **new combination** (from *Synchita*); *Notocoxelus sylvaticus* (Philippi in Philippi and Philippi, 1864), **new combination** (from *Coxelus*); *Plagiopoe cubana* (Zayas, 1988), **new combination** (from *Ethelema* Pascoe, 1860); *Plagiopoe denticulata* (Grouvelle, 1898), **new combination** (from *Lemmis*); *Plagiopoe lherminieri* (Grouvelle, 1902), **new combination** (from *Lemmis*); *Pristoderus porteri* (Brèthes, 1925), **new combination** (from *Endophloeus* Erichson, 1845); *Pristoderus sharpi* (Reitter, 1877), **new combination** (from *Endophloeus*); and *Synchita pauxilla* (Pascoe, 1863), **new combination** (from *Bitoma* Herbst). Lastly, *Endestes sculpturatus* Sharp, 1894 = *Endestes incilis* Pascoe, 1863, **new synonymy**.

Key Words: cylindrical bark beetles, taxonomy, new synonymies, new combinations, new replacement names

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Normally, the first thing to do in a paper of this type is to define the taxon under study. In this case, this is not a simple matter. The Colydiinae, the rump of the group known previous to 1999 as Colydiidae (Ślipiński and Lawrence 1999), have had a tortured nomenclatural and definitional history, increasingly stabilized with the removal of extraneous elements over the last 40 years (Ivie and Ślipiński 1990; Ślipiński and Lawrence 1999). The remainder's status as the sister-group of the Zopherinae in the redefined Zopheridae was formally proposed by Ślipiński and Lawrence (1999). This relationship, as well as the monophyly of the colydiines themselves, remains weakly supported (Ślipiński and Lawrence 1999), a possible result of a very limited taxon sampling (eight genera of five tribes) of the ca. 140 recognized genera of colydiines placed in nine tribes, and especially by the limited selection of out-groups (Ivie 2002). This relationship of monophyly has not been recovered in some molecular analyses (*i.e.*, Hunt *et al.* 2007; McKenna *et al.* 2015; K. Kanda, *in litt.*) but has been recovered (with the addition of the Tricentotomidae) in one subsequent morphological analysis (Lawrence *et al.* 2011). All of these studies are also severely limited by weak taxon sampling.

The unique synapomorphies recovered among four analyses reported to support the monophyly of the broad Zopheridae in Ślipiński and Lawrence (1999: figs. 259–262) are: (1) antennal insertions concealed (two of four analyses, only

with restricted out-groups); (12) maxillary palpomere 2 less than 1.5X as long as 1 (all four analyses); (30) mesocoxal cavities closed laterally (all four analyses); and (39) aedeagus with tegmen dorsal (all four analyses). Less support was provided by: (21) prosternal process parallel-sided or slightly and gradually expanded apically; (36) no connate ventrites; (48) larval cardo undivided; and (52) larval hypopharyngeal sclerome consisting of a flat plate or elevated carina. There are a variety of problems with these characters as a basis for supporting monophyly for the Colydiinae + Zopherinae. Character 1 is only informative when the out-group is reduced to a group lacking the state (Ślipiński and Lawrence 1999: figs. 261, 262), and likely to be plesiomorphic and/or convergent. Concealed antennal insertions occur in 21 other families with tenebrionoid aedeagi (hereafter referred to as “tenebrionoid”) (Lawrence *et al.* 1999), 20 of which were not included in the broader out-groups.

Although Character 12 is coded the same for all zopherines and colydiines except *Rhagoderma* Mannerheim, it is in fact inconsistent within the Colydiinae, as maxillary palpomere 1 is more than 1.5X the length of 2 in *Acropis* Burmeister, *Monoedus* Horn, *Rhagoderma*, and others. Such ratio characters, while useful for taxonomic purposes, are notoriously hard to homologize. Character 30, the closed mesocoxal cavities, also occurs in at least nine other tenebrionoid families, eight of which were not included in the out-group

(Lawrence *et al.* 1999). Character 39 is scored (Ślipiński and Lawrence 1999: table 1) as having an inverted aedeagus with the tegmen ventral in *Nematidium* Erichson, *Aulonium* Erichson, *Pseudendestes* Lawrence, *Todima* Grouvelle, *Pristoderus* Hope, *Namunaria* Reitter, and *Rhagoderia*, leaving only *Bitoma* Herbst among the taxa sampled with a normal dorsal tegmen. However, this is mis-scored for at least *Nematidium* and *Namunaria*, which have a dorsal tegmen, and the character varies within the Synchronitini (ventral in *Mamakius* Pope and *Denophoelus* Stephan, dorsal in *Paxillobitoma* Lord and Ivie, *Endeitoma* Sharp, *Globotrachus* Lord and Ivie, etc., while both states occur in *Bitoma*). Characters 48 and 52 were not known for a major portion of the in-group and out-group taxa. The undivided cardo occurs in a dozen other tenebrionoid families and many more outside the superfamily, while 52 is variable both within the Colydiinae (Lawrence 1991) and Zopherinae (Ślipiński and Lawrence 1999: table 1).

Therefore, although at first glance Ślipiński and Lawrence's (1999) analyses look strong for supporting the inclusion of the Colydiidae in the Zopheridae, as they pointed out in their paper, the relationship remains tentative, and upon detailed study, the level of support was possibly dependent on limited selective choice of in-group and out-group taxa, as well as issues of scoring. Thus, the clustering of colydiines and zopherines could easily be the result of not including intervening tenebrionoid groups, such as possibly the Synchronitidae, Melandryidae, Tricentotomidae, and Tetratomidae. The analysis by McKenna *et al.* (2015) recovered most of the Zopheridae *sensu lato* together, but did not recover a colydiine-zopherine sister-group, again with a very limited in-group sample, and part of the zopherines were excluded from that clade altogether. A robust test of this relationship is underway by one of us (NPL) using both molecular and morphological data from a large sampling of genera and species.

Moving to the colydiines themselves, unique morphological synapomorphies for the Colydiinae are simply lacking. The main support for the clade in Ślipiński and Lawrence (1999) is the 4-4-4 tarsal formula, which occurs not only repeatedly in the purported sister-group, but also in some 30 other tenebrionoid lineages in nine families (Lawrence *et al.* 1999). Monophyly of the colydiines has not been subsequently recovered in larger analyses (*e.g.*, Lawrence *et al.* 2011; McKenna *et al.* 2015). As a result, a succinct diagnosis for the Colydiinae remains difficult to impossible. There is not even a diagnosis using only external characters that will consistently

work beyond "tarsal formula 4-4-4 and lacking the synapomorphies of any other family."

Operationally, the group can be diagnosed in the New World by the following: tenebrionoid aedeagus; internally open procoxal cavities; concealed antennal insertions; clubbed antenna (ranging from weak to strong, usually involving 1-3 segments, rarely gradual from 4th or 5th); closed mesocoxal cavities; tetramerous, pseudo-trimerous, or trimerous tarsi; and abdomen with 0-3 connate sterna. This combination will distinguish colydiines from other beetles in the New World, with the exception of *Pycnomerus* Erichson/*Pycnomeroides* Broun (Zopherinae) and *Berginus* Erichson (Mycetophagidae). In all but one species (*Phreatus immsi* Pascoe) with fully developed metathoracic wings that have been studied (a vast minority), colydiines have a medial (= subcubital) fleck, while *Pycnomerus*/*Pycnomeroides* do not. The functional usefulness of this as a diagnostic character is limited by the fact that a major portion of the genera and species of Colydiinae and species of *Pycnomerus*/*Pycnomeroides* lack functional metathoracic wings. Male *Pycnomerus*/*Pycnomeroides* have a setose pit on the mentum, which is always lacking in Colydiines, with the exception of the western Palearctic genus *Langelandia* Aubé, an odd group of eyeless, 3-3-3 tarsal formula species, whose placement requires further study (R. Schuh, *in litt.*). Wingless female *Pycnomerus*/*Pycnomeroides* have the distinctive habitus of the group. Ivie's (2002) keying of *Pycnomerus* with other Zopherinae on the basis of four connate sterna is an error since only three are connate in *Pycnomerus*, a state that also occurs in the Colydiinae. The other problem, *Berginus*, can be excluded by the impressed fronto-clypeal suture and paired basal impressions on the pronotum.

In the Old World, this diagnosis would exclude a few colydiines (Orthocerini, Rhopalocerini, and *Aprostoma* Guérin-Méneville-Gemplyodini from Africa), which lack obviously clubbed antennae, and would again include *Pycnomerus*/*Pycnomeroides*, as well as two genera of Latometini (Zopherinae from Australia) and *Rhizonium* Sharp (Tenebrionoidea *incertae sedis*, from New Zealand).

Excluding the Pycnomerini (now Zopherinae), the remaining Colydiinae have been divided into nine tribes since Ślipiński and Burakowski (1988), although every discussion of the tribes has repeated the doubtful validity of most of them (Ślipiński and Burakowski 1988; Ślipiński and Lawrence 1997, 1999, 2010; Węgrzynowicz 1999; Ivie 2002). We have herein reduced the number of tribes by the synonymy of the Adimerini Sharp with the Synchronitini Erichson. The only unique character in the Adimerini is the

unarmed lacinia, which remains unstudied in a majority of synchitine genera, and hardly seems valid for supporting a small tribe in the absence of any synapomorphy for the synchitines. The purporting that the larvae of *Monoedus* feed on living plant tissue as a characteristic unique to the tribe (Ślipiński and Burakowski 1988) is a misunderstanding, as the larvae feed on dead plant material and are probably fungivorous. The adults may graze on surface fungi on dead or dying plants, where they can be taken in numbers. Other tribes, especially Nematidiini and Gempylodini, are only slightly better supported, but we will avoid further consolidation until phylogenetic information being developed by one of us (NPL) is available. Thus, the New World genera are herein placed in six of the eight currently recognized tribes.

Within the group as it is currently defined, the taxonomy is difficult, to say the least. No generic key has ever been published for the world fauna, nor for the Neotropics, where no regional treatment has been done since Sharp (1894a, b), which was limited to Central America (including Mexico). Other regions fare better, with the Palearctic (Dajoz 1977), Japan (Aoki 2012a), Madagascar (Dajoz 1980a), Australo-Pacific (Ślipiński and Lawrence 1997), Africa (Pope 1961) and North America north of Mexico (Ivie 2002; Lord *et al.* 2011) having workable generic keys. With the completion of this key, only the Oriental region remains without a working generic system.

Rather than provide a key restricted to the Neotropical genera, we have chosen to treat the entire New World fauna as a whole (including Hawaii), to better allow definition of the groups. All described New World taxa considered members of the Colydiinae are placed in the checklist that follows the key. Only synonymies proposed since Hetschko (1930) or not included in a selection of major works (Hetschko 1930; Stephan 1989; Ivie and Ślipiński 1990; Ślipiński and Lawrence 1997; Węgrzynowicz 1999; Ivie 2002; Lord and Leschen 2014) are included, and those papers should be consulted for full information on available synonyms. Numerous new synonymies and generic transfers were needed to make the genera at least typologically coherent. These changes are detailed in the discussions below and summarized in the checklist.

New genera required to allow placement of all New World species known to us are described in an accompanying paper (Lord and Ivie 2016), which has precedence over this one for nomenclatural acts. No pretense of a fully monophyletic classification is made, but we feel this arrangement provides a good starting point for future phylogenetic exploration. No phylogenetic study

of the subfamily has ever been undertaken, and we fully expect several of the genera to fall to problems of monophyly in the future. Within the Synchitini, the genus *Bitoma* in particular is almost certainly rendered paraphyletic by other genera, as is *Synchita* Hellwig *in* Schneider. However, we will retain most of the current typological generic concepts for the sake of stability until well-constructed phylogenetic analyses on a world scale can be used to reclassify the entire group on monophyletic principles.

One genus, *Phreatus* Pascoe, is included in the key but is not placed in a tribe. Rather, it is left as *incertae sedis* in the Colydiinae. Its membership in this group is seemingly solid, but it does not fit in any other obvious place (Ivie and Lord, unpublished data).

Of the 47 genera recognized herein, four of them are limited to the Nearctic and 21 to the Neotropics (Table 1). Twenty-nine of these genera are New World endemics, six are more-or-less cosmopolitan, and two are Old World endemics that have been introduced to the New World via trade. Of the remainder, four are shared only with the Palearctic, four with the Australasian Region, and one is Hawaiian/Australasian. Two (or three) are southern temperate groups shared between Chile and New Zealand/Australia. The intergeneric relationships are beyond the scope of this paper and will not be discussed further.

The group is fertile ground for discoveries. The 305 species recognized here are but a drop in the bucket. Based upon groups under revision, Acropini (by Foley), *Aulonium* (by Ślipiński), *Monoedus* (by Foley, Ślipiński, and Ivie), and *Phloeonemus* Erichson (by Ivie and Ślipiński), there may be 2–5 times as many undescribed species as described species of New World colydiines. Several groups suitable for student projects are among the New World genera.

NOMENCLATURE ACTS

This project is a compilation of work started by SAS in the late 1970s and joined by MAI in the mid-1980s. After the birth and maturation of the other two coauthors (IAF and NPL), they joined the struggle in the early 21st century after discovering the long dormant manuscript and kicked life back into the project. During the ensuing decades, large numbers of required nomenclatural acts have piled up in all of our notes. Some have been published along the way (Ivie and Ślipiński 1990; Ślipiński and Lawrence 1997; Ivie 2002; Lord and Leschen 2014), but many remain unrecorded. The need for these changes was a continuing hindrance to completion of the key. We use this opportunity to report all of the remaining issues

Table 1. World distribution of Colydiinae genera occurring in the New World. Black = natural occurrence; Gray = introductions. NA = Nearctic; NT = Neotropical; HI = Hawaiian; PA = Palearctic; AF = Afrotropical; OR = Oriental; AU = Australasian.

	NA	NT	HI	PA	AF	OR	AU
Acropini							
<i>Ethelema</i>							
<i>Acropis</i>							
<i>Plagiope</i>							
Nematidiini							
<i>Nematidium</i>							
Gempylodini							
<i>Endestes</i>							
Colydiini							
<i>Colydium</i>							
<i>Anarmostes</i>							
<i>Aulonium</i>							
<i>Pseudaulonium</i>							
Rhagoderini							
<i>Rhagodera</i>							
Synchitini							
<i>Acolobicus</i>							
<i>Antilissus</i>							
<i>Asynchita</i>							
<i>Bitoma</i>							
<i>Colobicus</i>							
<i>Colydodes</i>							
<i>Coxelus</i>							
<i>Denophoelus</i>							
<i>Endeitoma</i>							
<i>Reylus</i>							
<i>Eucicones</i>							
<i>Eudesma</i>							
<i>Globotrichus</i>							
<i>Helonoton</i>							
<i>Lasconotus</i>							
<i>Lobogestoria</i>							
<i>Lyreus</i>							
<i>Megataphrus</i>							
<i>Microprius</i>							
<i>Monoedus</i>							
<i>Namunaria</i>							
<i>Neotrichus</i>							
<i>Notocoxelus</i>							
<i>Paha</i>							
<i>Paryphus</i>							
<i>Paxillobitoma</i>							
<i>Pharax</i>							
<i>Phloeodalis</i>							
<i>Phloeonemus</i>							
<i>Pristoderus</i>							
<i>Pseudocorticus</i>							
<i>Rapthius</i>							
<i>Slipinskius</i>							
<i>Stenomonoedus</i>							
<i>Synchita</i>							
<i>Holopleuridia</i>							
Incertae sedis							
<i>Phreatus</i>							

so as to provide the best synopsis of our collective knowledge of this group as is possible at this time. A companion paper to this one (Lord and Ivie 2016) validates several new generic and specific names and takes priority over this paper under the Principle of First Reviser (Art. 24.2.2., ICZN 1999).

Family Transfer

Opostirus Kirsch, 1865 was placed in the Synchitini, *incertae sedis*, by Ivie and Ślipiński (1990), who reported the type to be “lost?” from the Staatliches Museum für Tierkunde in Dresden. The curator, Dr. Klaus-Dieter Klass, confirms it has not been found since. No colydiine known to us fits the rather inadequate description, but the details provided do fit specimens of *Ozolais* Pascoe, 1866 or a related genus in the Tenebrionidae. The details of the antennal club, the prothorax, the eye canthus and horn, and the double row of bumps on the tibia are exactly and uniquely applicable to that group. Therefore, *Opostirus* Kirsch (type species *O. exsectus* Kirsch by monotypy) is transferred to the Tenebrionidae: Tenebrioninae: Toxicini: Eudysantina, **new placement**.

Tribal Synonymy

The tribe Adimerini Sharp, 1894 is synonymized with Synchitini Erichson, 1845, **new synonymy**. This group is small, consisting of two highly modified genera — *Monoedus* Horn, 1882 and *Stenomonoedus* Heinze, 1954 — but no characters are known (in adults or larvae) that are not derivable from within the Synchitini. See the introduction for more information.

New Generic and Specific Synonymies, Resolution of Homonymies, Replacement Names, New Combinations, Generic Transfers, and Correction of Missed Combinations

Acropini

The genus *Lemmis* Pascoe, 1860 = *Acropis* Burmeister, 1840, **new synonymy**, resulting in *Acropis caelatus* (Pascoe, 1860), **new combination**, and *Acropis tuberosus* (Grouvelle, 1896), **new combination**. The species *Acropis fryi* Pascoe, 1860 = *Acropis tuberculifera* Burmeister, 1840, **new synonymy**, and *Acropis incensa* Pascoe, 1860 = *Acropis aspera* Pascoe, 1860, **new synonymy**.

Synchitini

Anisopaulax Reitter, 1877 = *Lasconotus* Reitter, 1845, **new synonymy**, resulting in *Lasconotus brucki* (Reitter, 1877), **new combination**.

Pristoderus brasiliensis (Grouvelle, 1896), **new combination** results from Ślipiński and Lawrence's (1997) synonymization of *Ulonotus* Erichson with *Pristoderus*.

Eucicones Sharp, 1894 = *Catolaemus* Sharp, 1894 = *Cacotarphius* Sharp, 1894, **new synonymies**. Determining which of these names is the senior synonym is somewhat complicated as all were published in the same part of Volume 16 of the *Biologia Centrali-Americana* [Coleoptera II (1)], however, they are not equal in priority in the sense of the ICZN. The *Biologia Centrali-Americana*, as in virtually all books, was printed in 16-page signatures, and in this case they were mailed (*i.e.*, published) in parts. Each of the above names was printed in a different signature—*Eucicones* was published in part CXVIII, signature 3M, mailed in October 1894; *Catolaemus* was in the same part (CXVIII), but in signature 3N, also mailed in October 1894; and *Cacotarphius* in part CXIX, signature 3P, mailed November 1894 (Lyal 2011). Thus, *Cacotarphius* is clearly a junior synonym to the other two names, but the remaining problem is ambiguous. We expect that part CXVIII was all mailed together, but although there is no evidence for this, it is possible signature 3M was mailed before 3N. So, we choose *Eucicones* as senior to *Catolaemus* by Principle of First Reviser (ICZN Art. 24.2.2), recognizing that future research may establish its priority by date of publication. These generic synonymies result in *Eucicones minutus* (Sharp, 1894b), **new combination** (from *Catolaemus*) and *Eucicones compressus* (Sharp, 1894b), **new combination** (from *Cacotarphius*).

Erylus Dajoz, 1969 is a junior homonym of *Erylus* Gray, 1867 (Porifera). Dajoz chose the name as an anagram of *Lyreus* Aubé, but unfortunately, of all possible anagrams of that name, he chose the only one that was preoccupied. Following the ICZN Code of Ethics, paragraph 3, we contacted Roger Dajoz *via* Dr. Thierry Deuve (*in litt.* to MAI, 21 December 2012) and received permission to replace this name. We do so with another anagram, *Reylus*, Ivie, Lord, Foley, and Ślipiński, **new replacement name** for *Erylus* Dajoz, 1969 (not *Erylus* Gray, 1867).

The status of *Eulachus* Erichson and *Eulachus costatus* Erichson is a problem. Erichson (1845) validly described both in his 1845 work (Ivie and Ślipiński 1990), but published a plate and its explication later. Hetschko (1930), Blackwelder (1945), and Ślipiński (1985) mistakenly considered the plate to be the validation of the species and misattributed the species on the plate to Thomson *in* Lacordaire (1854) (Ivie and Ślipiński 1990) because, on the plate, the species was attributed to Thomson. In any case, the species

illustrated is clearly a species of *Anarmostes* Pascoe, 1860, but these plates were published separate from the 1845 description and seem to have been seldom consulted. Further misdirection was because Erichson (1845) stated his species was from the West Indian islands, and *Anarmostes* is not known from the West Indies in the modern biogeographic sense. On the plate explication (Lacordaire 1854), this locality was changed to "Antilles." Thomson (1857) further discussed this species, added some descriptive remarks that strengthen its placement as an *Anarmostes*, and made it clear the Erichson and Thomson attributions referred to the same animal. Thomson (1857) corrected the locality to Cayenne, with Antilles listed with a "?". Cayenne is the capital of French Guiana and was an island at the time. As such, Cayenne was at that time considered a West Indian island in a political sense.

LeConte (1863) and those following him used Erichson's name for a group of North American species of narrow, cylindrical *Bitoma*. Chevrolat (1864) named two species in LeConte's sense, but indicated uncertainty about their proper placement in *Eulachus*.

Hetschko (1930) treated *Eulachus* as a valid genus, placed in his Colydiini, with the type species, *E. costatus*, misattributed to Thomson. He properly removed LeConte's concept of the genus to *Bitoma*, but left three other species (besides *E. costatus*) in *Eulachus*. Unfortunately, these three species also belong to LeConte's concept, not Erichson's.

Blackwelder (1945) followed Hetschko and used the genus in the sense of Erichson, placing it in the Colydiini and formally treating LeConte's concept as *Bitoma*, but continued to misattribute *E. costatus* to Thomson. He also continued to treat two Chevrolat species as members of this genus.

Eulachus was synonymized repeatedly with *Bitoma*, then removed from synonymy over the decades (Dajoz 1984a [into synonymy]; Ślipiński 1985 [into synonymy]; Stephan 1989 [into synonymy]; Ivie and Ślipiński 1990 [out of synonymy]; Ślipiński and Lawrence 1997 [into synonymy]; Ivie 2002 [into synonymy], and so on), but always using LeConte's concept of the genus, not Erichson's. At the time of the publication of our work, the genus was in the Sychitini as a junior synonym of *Bitoma*.

We here remove *Eulachus* Erichson and its type species *Eulachus costatus* to *Anarmostes*, **new synonymy**, resulting in *Anarmostes costatus* (Erichson), **new combination**. Finally, the two Chevrolat species that remained in *Eulachus* are moved, becoming *Bitoma quinquecarinata* (Chevrolat, 1864), **new combination** and *Bitoma semifulgiosa* (Chevrolat, 1864), **new combination**.

Hystricones Sharp, 1894 = *Paryphus* Erichson, 1845, **new synonymy**, resulting in *Paryphus armatus* (Sharp, 1894), **new combination**. Ślipiński and Lawrence (1997) indicated that Old World species of *Hystricones* are not congeneric with the type species (*H. armatus* Sharp, 1894) and should belong to *Colobicones* Grouvelle, 1918. A list of affected species was not given, and this was not noticed by Zoological Record. With our synonymization of *Hystricones* under *Paryphus*, these names are orphaned, so we provide the following new combinations: *Colobicones vagans* (Arrow, 1927), **new combination**; *Colobicones hirtus* (Ślipiński, 1985), **new combination**; and *Colobicones papuanus* (Ślipiński, 1985), **new combination** (all from *Hystricones*).

Labrotrichus Sharp, 1894 = *Neotrichus* Sharp, 1885, **new synonymy**, resulting in *Neotrichus aberrans* (Sharp, 1894), **new combination** and *Neotrichus verrucatus* (Hinton, 1935), **new combination**.

Microscopicus Sharp, 1894 = *Synchita* Hellwig in Schneider, 1792, **new synonymy**, resulting in *Synchita parvula* Guérin-Méneville, 1844, **return to a previous combination**. This move also renders *Microscopicus minimus* Grouvelle, 1898 a junior secondary homonym of *Cicones minimus* Sharp, 1885. *Synchita grouvellei* Ivie, Lord, Foley, and Ślipiński, **new replacement name** is proposed for *Microscopicus minimus* Grouvelle, 1898 [not Sharp, 1885].

Ślipiński and Lawrence 1997 synonymized *Cicones* Curtis, 1827 with *Synchita*. This synonymy was noted by Ślipiński and Schuh (2008), and the following Old World species have changes resulting from that move: *Synchita africana* (Grouvelle, 1905), **new combination**; *Synchita amoena* (Fairmaire, 1850), **new combination**; *Synchita angustissima* (Nakane, 1967), **new combination**; *Synchita bitomoides* (Sharp, 1885), **new combination**; *Synchita bonina* (Nakane, 1991), **new combination**; *Synchita colorata* (Motschulsky, 1863), **new combination**; *Synchita compacta* (Grouvelle, 1918), **new combination**; *Synchita eichelbaumi* (Grouvelle, 1914), **new combination**; *Synchita hayashii* (Sasaji, 1971), **new combination**; *Synchita iranica* (Dajoz, 1977), **new combination**; *Synchita lata* (Grouvelle, 1919), **new combination**; *Synchita madagascariensis* (Grouvelle, 1896), **new combination**; *Synchita minima* (Sharp, 1885), **new combination**; *Synchita minor* (Pope, 1954), **new combination**; *Synchita minuta* (Sharp, 1885), **new combination**; *Synchita nivea* (Sharp, 1885), **new combination**; *Synchita oblonga* (Sharp, 1885), **new combination**; *Synchita oculata* (Sharp, 1885), **new combination**; *Synchita picta* (Erichson, 1845), **new combination**; *Synchita scotti* (Grouvelle, 1918), **new combination**;

Synchita squamosa (Grouvelle, 1896), **new combination**; *Synchita tokarensis* (Nakane, 1967), **new combination**; *Synchita undata* (Guérin-Méneville, 1844), **new combination**; and *Synchita variegata* (Hellwig in Schneider, 1792), **new combination**.

Synchita variegata LeConte, 1858 is a secondary junior homonym of *Cicones variegatus* (Hellwig in Schneider, 1792). *Synchita lecontei* Ivie, Lord, Foley, and Ślipiński, **new replacement name** is proposed for *Synchita variegata* LeConte, 1858 [not Hellwig in Schneider, 1792].

Aoki (2011, 2012a) placed several Japanese species originally described in *Cicones* in *Microscopicus*, a genus that had not previously been used for Old World species. Most of these had already been placed in *Synchita* by Ślipiński and Schuh (2008) [cited by Aoki (2012a) as Löbl and Smetana]: *Cicones bitomoides* Sharp, 1885; *Cicones hayashii* Sasaji, 1971; *Cicones niveus* Sharp, 1885; *Cicones oculatus* Sharp, 1885; *Cicones rufosignatus* Sasaji, 1984; *Cicones variegatus* (Hellwig in Schneider, 1792) (mis-attributed by Aoki 2012a to LeConte). Because of the generic synonymy, these are now correctly placed back in *Synchita*, and all are **returned to previous combinations**. *Synchita hirsuta* Aoki, 2008 was placed in *Microscopicus* by Aoki (2012a) and is also **returned to previous combination**. This species was missed by Zoological Record and Ślipiński and Schuh (2008). We note that *Pseudosynchita hirsuta* Pic, 1922, which is itself now a junior synonym of *Synchita crenicollis* Wollaston, 1867 (Ślipiński and Schuh 2008), would be a senior secondary homonym if recognized as valid, but we do not address this further here. Lastly, *Microscopicus constrictus* Aoki, 2012 was described (Aoki 2012b) after Aoki (2012a), and is herein placed as *Synchita constricta* (Aoki, 2012), **new combination**. Although *Catolaemus* is synonymized with *Eucicones*, the following species formerly placed in *Catolaemus* belong in *Synchita*: *Synchita exilis* (Grouvelle, 1898), **new combination**; and *Synchita multimaculata* (Grouvelle, 1902), **new combination**.

Pseudotaphrus Stephan, 1989 [not *Pseudotaphrus* Cossmann, 1888 (Mollusca: Rissoiidae)], including the replacement name *Stephaniolus* Ivie, Ślipiński, and Węgrzynowicz, 2002 = *Coxelus* Dejean, 1821, **new synonymy**, resulting in *Coxelus longus* (Stephan, 1989), **new combination**.

Zanclaea Pascoe, 1863 is a junior homonym of *Zanclaea* Gegenbaur, 1856 (Cnidaria: Hydrozoa). We herein synonymize *Aneumesa* Sharp, 1894 and *Holopleuridia* Reitter, 1876 with the concept of *Zanclaea* Pascoe. Under these circumstances, the genus is now known under the oldest synonym, *Holopleuridia*. This change requires the

following changes: *Holopleuridia atomaria* (Sharp, 1894), **new combination**; *Holopleuridia costata* (Sharp, 1894), **new combination**; and *Holopleuridia testudinea* (Pascoe, 1863), **new combination**.

The following individual species are moved to different genera, which results in these changes: *Asynchita panamensis* (Sharp, 1894), **new combination** (from *Synchita*); *Endeitoma rugulosa* (Guérin-Méneville, 1844), **new combination** (from *Asynchita* Sharp 1894, originally *Synchita*); *Ethelema nigrogrisea* (Grouvelle, 1914), **new combination** (from *Lemmis*); *Paha mexicana* (Hinton, 1935), **new combination** (from *Namunaria*); *Paha mimetes* (Sharp, 1894), **new combination** (from *Synchita*); *Notocoxelus sylvaticus* (Philippi in Philippi and Philippi, 1864), **new combination** (from *Coxelus*); *Plagiopoe cubana* (Zayas, 1988), **new combination** (from *Ethelema* Pascoe, 1860); *Plagiopoe denticulata* (Grouvelle, 1898), **new combination** (from *Lemmis*); *Plagiopoe lherminieri* (Grouvelle, 1902), **new combination** (from *Lemmis*); *Pristoderus porteri* (Brèthes, 1925), **new combination** (from *Endophloeus* Erichson, 1845); *Pristoderus sharpi* (Reitter, 1877), **new combination** (from *Endophloeus*); and *Synchita pauxilla* (Pascoe, 1863), **new combination** (from *Bitoma*).

And lastly, this species synonym was discovered in the course of this project: *Endestes sculpturatus* Sharp, 1894 = *Endestes incilis* Pascoe, 1863, **new synonymy**.

CHARACTER DEFINITIONS

Nomenclature of morphological structures follows Doyen (1966), Doyen and Lawrence (1979), Lawrence and Britton (1991), Ślipiński and Lawrence (1999), Lawrence *et al.* (2010), and Lawrence *et al.* (2011). The following are to further explain characters used in the key.

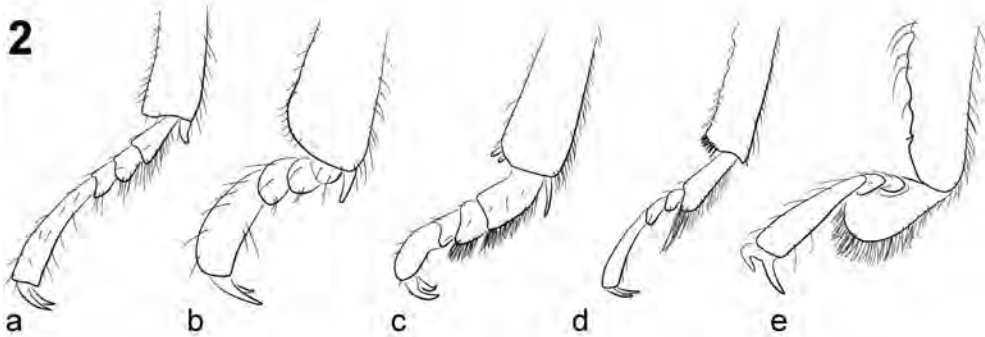
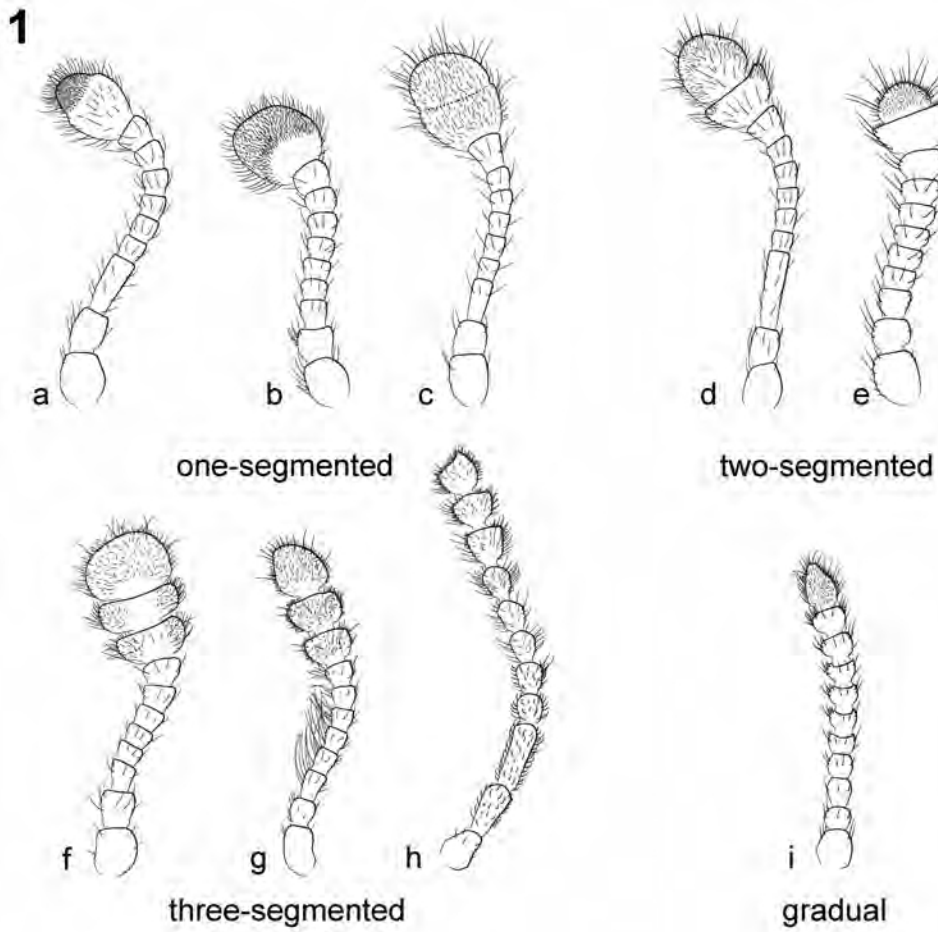
Surface Sculpture. A tubercle is defined as a rounded protuberance of the cuticle that bears a single inserted seta. This differs from a nodule, which refers to a large, rounded or teardrop-shaped elevation of an entire cuticular area, which may bear multiple setae and/or tubercles on the surface (see Foley and Ivie 2008).

Antennal Club. The antennal club (Fig. 1a–i) is here defined as the terminal antennomere plus those proximal that are expanded and bear specialized, setose sensory areas, usually at or near the apical angles. Historically, the number of antennomeres in the club and the form of the club have been important defining characters for colydiine genera. Unfortunately, this is not as simple as it seems. The base number of antennomeres in this group, as in beetles in general, is 11. In the major-

ity of colydiines, the last two of these are expanded into a distinct club (Fig. 1d–e). Occasionally, the ninth is also expanded, forming a 3-segmented club (Fig. 1f–h). This condition is characteristic of the common cosmopolitan genus *Lasconotus* and the South Temperate *Pristoderus*. However, in *Lasconotus* there are very rarely seen Neotropical species with only the last two antennal segments expanded, and members of the Australian genus *Synagathis* Carter and Zeck, 1937 have lost the 11th antennomere, resulting in a 2-segmented club comprised of antennomeres 9 and 10 (Ślipiński and Lawrence 1997). In virtually all of the genera characterized by 1-segmented clubs, there appear to be only 10 antennomeres, often with at least some indication of a fusion line between 10 and 11 (Fig. 1a–c). The degree of distinctness between a 1- vs. 2-segmented club is thus sometimes difficult, even arbitrary. In those cases, reference in the key is given to a specific figure.

To determine the number of club segments in ambiguous cases, first establish the total number of antennomeres. If clearly 11, no club segments are fused, thus simply count the expanded segments possessing sensory areas. Sometimes a smooth antennomere 9 is slightly widened, usually triangular, and leads into the club. This is not a club segment if it does not have the setose sensory areas. If there are fewer than 11 antennomeres, examine the club from the view of the broadest surface and look along the lateral margins for notches that indicate a division between antennomeres 10 and 11. If there is a true articulation at these notches, then the club is considered 2-segmented. If a curved line is present, but without the ability to move the individual sections relative to one other, the club is considered 1-segmented. Another way to think about this: could one break off the 11th antennomere separately from the 10th? Yes = 2-segmented, No = 1-segmented.

Antennal Groove — Short vs Long. The antennal groove (Fig. 5a–c) is the delimited and depressed area ventrad the eye along the mesal margin, where the antenna rests when tucked under and alongside the head. This groove passes from below the antennal insertion, over the gena between the eye and mandibular base, and along the underside of the eye. The presence of the groove is defined by a distinct margin on the subgenal brace. In a short antennal groove, this defined area is limited to the area near the subgenal brace and does not extend behind the midpoint of the eye (Fig. 5b). In the case of a long antennal groove, it extends along and over the lateral edge of the postgena to reach past the mid-point of the eye (Fig. 5c). A shallow and unmarginated depression is not an antennal groove (Fig. 5a).



Figs. 1–2. Colydiinae anatomy. **1)** Antennal types. Club 1-segmented: a) *Endeitoma* sp., b) *Synchita* sp., c) *Acolobicus* sp. Club 2-segmented: d) *Colobicus* sp., e) *Lobogestoria* sp. Club 3-segmented: f) *Lasconotus* sp., g) *Colydium* sp., h) *Rhagodera* sp. Club gradual: i) *Endestes* sp.; **2)** Tarsi, prothoracic leg. a) *Nematidium* sp., b) *Lobogestoria* sp., c) *Pseudaulonium* sp., d) *Acropis* sp., e) *Monoedus* sp.

Eye Longitudinal vs Vertical vs Round.

Regarding the eye shape, the terms vertical, longitudinal, and round are in reference to the shape of the eye viewed from the side. "Longitudinal" is defined as the eye being significantly longer front-to-back than top-to-bottom (*i.e.*, elongate anterior to posterior). "Vertical" is defined as the eye being significantly taller top-to-bottom (*i.e.*, dorsal to ventral). "Round" is defined as the eye being neither vertical nor longitudinal (globular, suboval).

Labial Palpi. The presence of paired, segmented labial palpi is the basal condition for insects with chewing mouthparts. This is likewise the basal condition in colydiines. Interestingly, labial palpi are entirely lacking in a large, probably monophyletic, complex of South Temperate sychitines. This lineage is represented in the New World only by *Pristoderus* (see Ślipiński and Lawrence 1997, their record of *Ablabus* from Chile is here placed in *Pristoderus*). This character state can be difficult to interpret if the mouthparts are dirty. One additional caution in interpreting this character is that, in those species that lack labial palpi, the galea are enlarged and may be mistaken for the missing palpi. The expanded galea can be distinguished from a labial palp by the dense golden beard of setae on the apico-medial surface, which never occurs on the terminal palpomere.

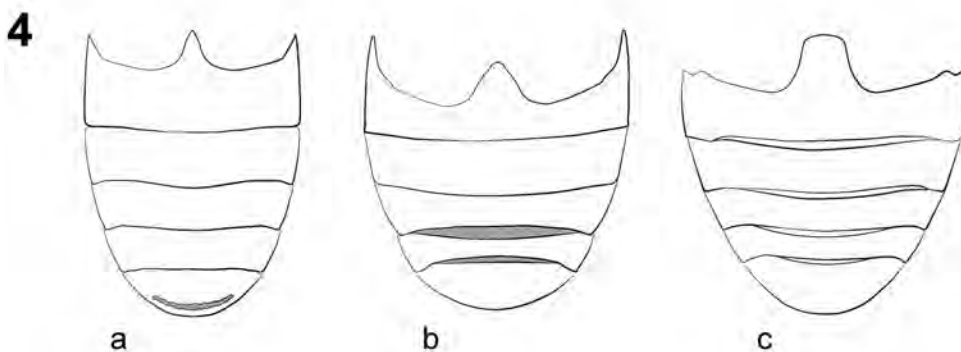
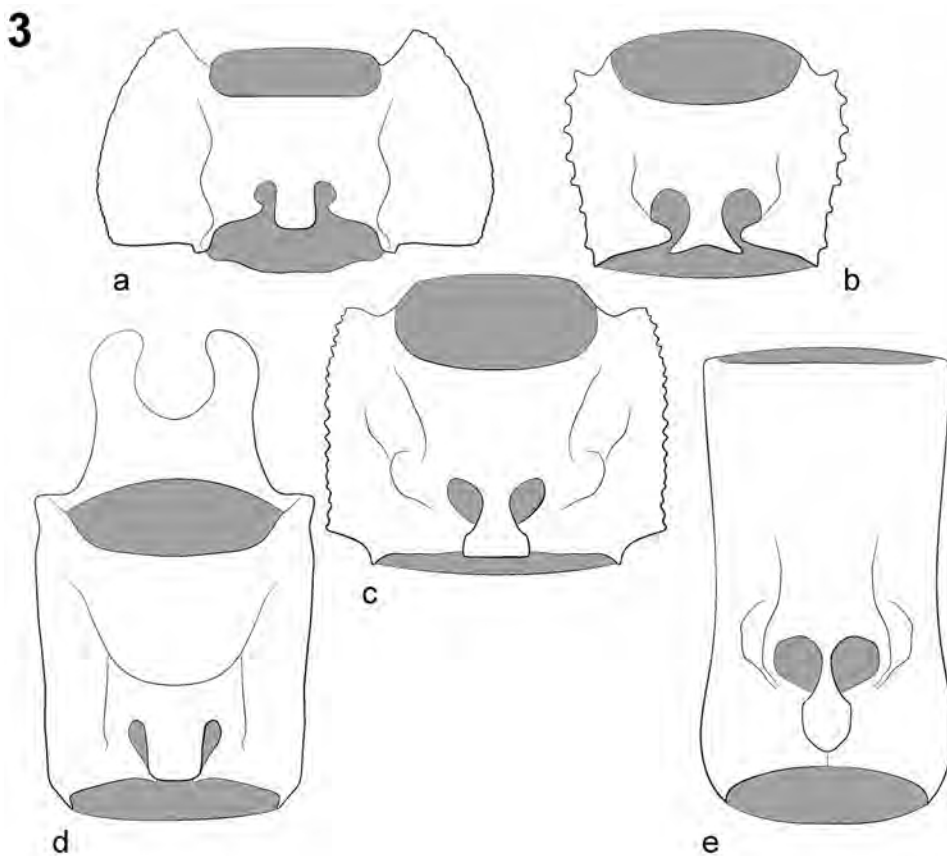
Elytral Structures. The basic condition of the colydiines, as in most Coleoptera, is the presence of a scutellary striole and 11 punctate striae (Fig. 6), which along with the suture and lateral margin delimit intervals. The striae are usually depressed and the intervals raised. Striae may be absent or visible on only part of their length, and punctate or not. They are straight and complete in the basal condition, but may curve, merge apically with adjacent or distant striae, and/or become incomplete. The presence or absence of the scutellary striole is an important character in colydiines and consists of a short, curved set of punctures, or their remnant, in the scutellar angle of the elytra, adjacent to the scutellum, but not exceeding one-third of the total elytral length. The striae are then numbered from mesad to laterad. The scutellary striole is never included in the numbered series of striae. The interval mesad the scutellary striole is not included in the numbering of the remaining intervals, which are numbered from the suture to the lateral margin. The first interval (also called the sutural interval) is between the suture and the first stria (also called the sutural stria), interval 2 is between striae 1 and 2, and so on. Intervals are usually the site of ornamentation, including setae, carinae, and ridges. When an interval is more-or-less

straight, complete, and uniformly and acutely raised, it is termed a carina (carinate). Round-topped intervals are ridges. When the ridge is studded with raised sections that are not continuous (interrupted) and usually not sharply acute, they are termed tuberculate ridges. Apically, intervals curve, merge, and end in coordination with the striae. This may become so confused as to be impossible to decipher which raised piece belongs to what interval.

Abdominal Ventricle Characters. The shape of the ventrite I intercoxal process is used repeatedly to identify genera. In general, there are three main types: 1) a narrow process that has an acute apex (Fig. 4a); 2) a wider process that is rounded at the tip (Fig. 4b); and 3) a broad, truncate process (Fig. 4c). In fact, this character is dependent on the width of the space between the metacoxae and correlated with the width of the stalk of the metendosternite. Another correlation is with the degree of development of the metathoracic wings, as groups with very widely separated metacoxae tend (exceptions occur) to be brachypterous or apterous. An acute angle is formed when the mesal edges of the metacoxa touch or nearly touch along the posterior margin of the meta-ventrite, pinching ventrite I into an acute angle in the process. The rounded state is when the metacoxae are clearly but narrowly separated, and the broad condition is when the metacoxae are fairly distant from each other. Given the fact that this character is a stand-in for a whole suite of morphological changes, it is a more important character than might be seen at first glance, but it is also subject to extensive convergence.

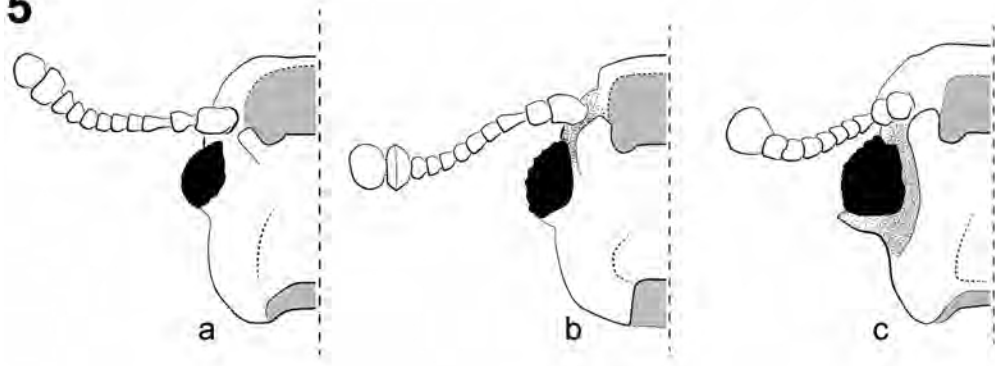
Ventricle Sutures Connate. Ventriles I–V are abdominal sternites 3–7 in the Colydiinae. They may all bend freely (Fig. 4a, c), or two or three of them may be fused together in a more-or-less immovable platform (Fig. 4b). This fused group is referred to as connate. The easiest way to determine if ventrites are connate is to compare the division of the VI–V joint with the earlier ones. The last ventrite must hinge in order for the apex of the abdomen to open for defecation and mating. Thus, its division is the point of reference for those between the anterior ventrites. If there is a significantly different division between earlier ventrites than between VI–V, they are probably connate. The upturned lateral portions of the ventrites normally held against the inside of the elytral epipleuron are also an excellent place to determine connation. The gold standard method, however, is to remove the abdomen, relax and clear it, and see if the ventrites are mobile relative to each other.

Ventricle Sutures. When looking at the abdomen from below, if the sutures between ventrites

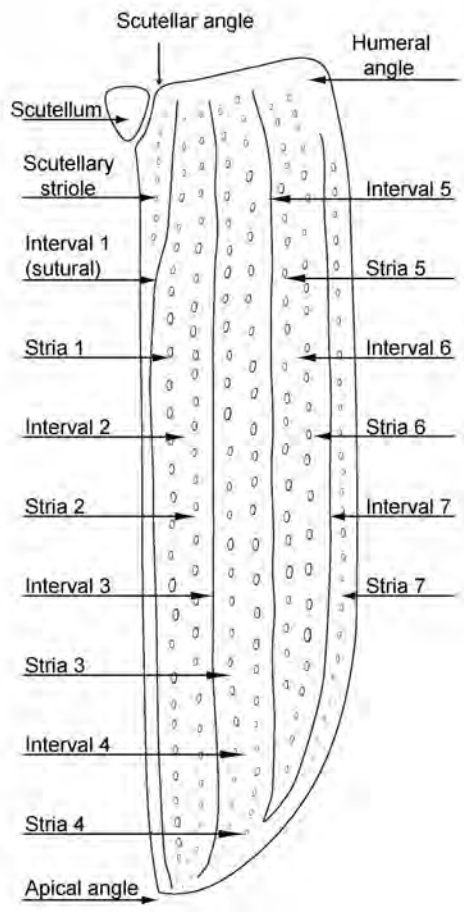


Figs. 3–4. Colydiinae anatomy. **3)** Prothoraces, ventral view, illustrating prococal cavity closure (external). a) Broadly open (*Holopleuridia* sp.), b) Narrowly open (*Monoedus* sp.), c) Moderately closed (*Lasconotus* sp.), d) Narrowly closed (*Lobogestoria* sp.), e) Broadly closed (*Nematidium* sp.); **4)** Abdomina, ventral view. a) Intercoxal process acute, ventrites free, sutures flat, ventrite V with subapical groove, b) Intercoxal process broadly rounded, ventrites I–III connate, c) Intercoxal process truncate, ventrites free, sutures deeply impressed.

5



6



Figs. 5–6. Colydiinae anatomy. 5) Heads, ventral view, illustrating the antennal groove. a) Antennal groove absent, b) Antennal groove short, not reaching midpoint of eye, c) Antennal groove long, reaching past midpoint of eye; 6) Generalized elytron, illustrating the alternating intervals and interstriae.

are virtually smooth and not grooved, they are termed flat (Fig. 4a). If there is a deep groove between them, they are termed deeply impressed (Fig. 4c). The flat condition is independent of connation and may be fully flexible. One way of thinking about this is that if a tiny hair or bristle were laid on the suture and the abdomen flexed back and forth, it would not be pinched by the flat condition, but would be caught between ventrites in the deeply impressed condition.

Grooved Ventrite V. In many zopherines, and a few colydiines, there is a groove on the last ventrite that more-or-less parallels the hind margin (Fig. 4a). This groove is fully ventral and visible only from below. It is not coincident with the hind or anterior margin, but is completely separate. When present, it is obvious. When absent, excessive examination can lead to misinterpretation.

KEYS

KEY TO THE TRIBES AND NON-SYNCHITINE GENERA OF NEW WORLD COLYDIINAE

(Key limited to New World members for groups with Old World representatives; for world key to tribes, see Ślipiński and Burakowski 1988.)

1. Unique habitus (Fig. 53); pronotum with incomplete, parallel, narrowly impressed grooves, deep pit laterally, just above complete, finely carinate lateral margin; lateral areas of pronotum otherwise unmodified; male metatibia with expanded, emarginate, hooked, or otherwise modified inner edge; 7th and 8th tergites fused into sclerotized pygidium; (remaining characters best seen in cleared specimens) ventrite I with postcoxal lines; abdomen with 2 connate ventrites; female with sclerotized spermatheca and very long spiculum ventrale; wing lacking medial fleck; less than 4 mm in length *Phreatus (incertae sedis)*
- 1'. Not matching the above suite of characters 2
- 2(1'). Head heart-shaped, head capsule excavate behind posterior margin of eyes, eyes thereby projecting postero-laterally to form unique "bug-eyed" look (Figs. 7–9); head narrowed, subtriangular from tips of eyes to front, epistoma bulging, mouth cavity appearing narrow in comparison and displaced posteriorly; antenna short; Neotropical (**Acropini**) 3
- 2'. Head not as above; antenna variable; widespread 5
- 3(2). Supraorbital crest short, present only around eye; dorsal surface of elytra smooth, lacking elevated nodules or ridge (Fig. 8); ventral surface of tarsomeres with dark, thick, spine-like setae; Central and South America *Ethelema*
- 3'. Supraorbital crest long, extending to margin of epistoma; dorsal surface of elytra usually with distinct elevated nodules, rarely smooth; ventral surface of tarsomeres with hair-like golden setae 4
- 4(3'). Dorsal pronotal setae obviously inserted in large, coarse tubercles; eye variable, very strongly to moderately expanded, extremely elongate to circular (Fig. 7); elytra lacking scutellary striole; Central and South America *Acropis*
- 4'. Dorsal pronotal setae inserted in very small (not clearly visible at 40X) tubercles, punctures, and/or on smooth cuticle; eye weakly expanded (Fig. 9), always circular to subcircular in lateral view; elytra with scutellary striole; West Indies *Plagiopse*
- 5(2'). Body long, thin, cylindrical, prothorax long, impressed laterally for reception of legs (as in Fig. 3e); outer angle of tibial apex in the form of a projecting tooth 6
- 5'. Body variable, seldom truly cylindrical, if so, lacking lateral impressions for reception of legs; outer angle of tibial apex not toothed 7
- 6(5). Margin of frons arcuate, exposing lateral corner of mandibular base in frontal view; lateral margin of pronotum incomplete posteriorly (Fig. 15); 1st tarsomere long and thin, as long as 2nd+3rd (Fig. 2a); antennal club distinctly 2-segmented (as in Fig. 1d–e) (**Nematidiini**) *Nematidium*
- 6'. Margin of frons broadly rounded, covering mandibular base; lateral margin of pronotum complete (Fig. 14); 1st tarsomere stout, not as long as 2nd+3rd; antenna gradually clavate from antennomere 4 or 5 (Fig. 1i), with sensory patches starting on antennomere 4 or 5 (**Gempylodini**) *Endestes*
- 7(5'). Pronotum bare, obvious setae absent at 40X; 1st tarsomere usually as long as 2nd+3rd (longer than 2nd, but shorter than 2nd+3rd in some *Pseudaulonium*) (**Colydiini**) 8
- 7'. Pronotum variously setose, with sparse to dense, obvious setae of a variety of types, from hair-like to club-shaped to scale-like; 1st tarsomere never as long as 2nd+3rd 11
- 8(7). Elytra with alternate intervals strongly carinate, at least on declivity 9
- 8'. Elytra simple, with at most the 6th stria grooved basally 10

- 9(8). Pronotum lacking distinct, strong carinae except occasionally laterad elytral interval 3 (Fig. 12); last visible sternite with pair of long setae on hind margin
..... ***Colydium***
- 9'. Pronotum with 2 pairs of strong, acute, longitudinal carinae on disc, inner pair at or between elytral interval 3 (Fig. 10); last visible sternite without paired setae.....
..... ***Anarmostes***
- 10(8'). Pronotum with strong sublateral carinae (Fig. 11), disc variously ornamented by tubercles, striae, or carinae; elytron with or without 6th stria grooved basally.....
..... ***Aulonium***
- 10'. Pronotum with weak sublateral carinae, disc plain (Fig. 13); elytron plain.....
..... ***Pseudaulonium***
- 11(7'). Tegmen ventral; antenna with 3-segmented club, appearing indistinct because of basket-like ring of curved, wide setae on antennomeres 4–8 making flagellomeres appear as broad as club segments (Fig. 1h); mouth distinctly prognathous; gular horns strong, bi- or tri-spinose anteriorly (covered with strong setae which may obscure character); body broad, elongate, distinctly flattened; elytra with suture raised, intervals 3, 5, and 7 acutely costate and straight on basal ¾ (Fig. 16); head distinctly wider in front of eyes; moderately large species (4–10 mm), restricted to North American deserts of Mexico and USA (***Rhagoderini***).....
..... ***Rhagoderia***
- 11'. Tegmen dorsal; antenna distinctly 1-, 2-, or 3-segmented; mouth often directed somewhat downward; gular horns, if strong, not spinose anteriorly; size, body form, elytra, and head shape widely variable, but characters not in above combination; widespread (***Synchitini***).....
.....(go to Synchitini key)
- 2'. Eyes present, sometimes reduced; tarsi actually 4-4-4; > 2 mm in length; widespread....
..... 3
- 3(2'). First tarsomere lobed, long below, hiding true 2nd tarsomere (as in Fig. 2e); antennal club 1-segmented (similar to Fig. 1a); eyes small to very small.....4
- 3'. First tarsomere very short, hidden in tibial excavation (as in Fig. 2b); antennal club usually 2-segmented (1-segmented in Hawaii species); eyes normal 6
- 4(3). Pronotum subquadrate, lateral margins nearly straight, sometimes widened slightly anteriorly; 1st tarsomere very large, ventral lobe reaching last tarsomere with an obvious fleshy setose pad (as in Fig. 2e)..... 5
- 4'. Pronotum rounded laterally, widest near middle (Fig. 48); 1st tarsomere not large, ventral lobe not reaching last tarsomere, without fleshy setose lobe..... ***Rapthius***
- 5(4). First tarsomere broad and heart- or paddle-shaped, much wider than other segments (Fig. 2e); protibia variously widened in mid-section (Fig. 36)..... ***Monoedus***
- 5'. First tarsomere narrow, little wider than others, pointed or narrowly rounded apically; protibia narrow throughout (Fig. 51).....
..... ***Stenomonodius***
- 6(3'). Body short and broad (Fig. 28); pronotum lacking obvious mid-lateral secretory pores.....
..... ***Globotrichus***
- 6'. Body elongate, cylindrical or elongate-flattened; pronotum with obvious mid-lateral secretory pores (specimen must be clean).....7
- 7(6'). Pronotum with deep, wide, smooth-bottomed lateral longitudinal canals associated with mid-lateral secretory pore; pronotum with or without horns or swellings anteriorly.....8
- 7'. Medio-lateral secretory pore without associated linear canal, laterally with enlarged microtubercles; pronotum without swellings or horns anteriorly (Fig. 38).....***Neotrichus***
- 8(7). Antenna with 1-segmented club (as in Fig. 1a–c); anterior margin of pronotum lacking swellings or horns (Fig. 18); Hawaii.....
..... ***Antilissus***
- 8'. Antenna with 2-segmented club (as in Fig. 1d–e); anterior margin of pronotum with large swellings or projecting horns9
- 9(8'). Anterior margin of pronotum with nodular swellings, separated posteriorly from disc by deep transverse canal (Fig. 22); elytra bearing scale-like setae; apical margin simple.....
..... ***Colydodes***
- 9'. Pronotum with pair of anterior pronotal horns extending above head (Fig. 3d); elytra

**KEY TO THE GENERA OF
NEW WORLD SYNCHITINI**

1. Tarsi 3-3-3 or apparently 3-3-3; if actually 4-4-4, 1st true (of 4) tarsomere either strongly lobed, concealing 2nd tarsomere (as in Fig. 2e) or very short, not extending beyond tibial insertion cavity (occasionally setation of hidden 1st tarsomere visible in lateral or ventral aspect, but body of segment is greatly reduced; Fig. 2b).....2
- 1'. Tarsi clearly 4-4-4, 1st tarsomere clearly visible..... 10
- 2(1). Eyeless (Fig. 49); tarsi truly 3-3-3; < 1.5 mm in length; soil dwelling; Chile.....***Reylus***

	glabrous, with upturned apical margin (Fig. 32) Lobogestoria	15'. Hypomeron with at most shallow depressions on anterior portion 17
10(1').	Labial palpi absent (caution: expanded galea may appear like labial palps); habitus as in Fig. 46; southern South America Pristoderus	16(15). Notosternal sutures depressed to receive tarsi; sutures between ventrites I–III deeply impressed (similar to Fig. 4c); habitus as in Fig. 34 Megataphrus
10'.	Labial palpi present; widespread 11	16'. Notosternal sutures flat; sutures between ventrites I–III flat, not impressed (similar to Fig. 4a); habitus as in Fig. 50 Slipinskius
11(10').	Procoxal cavities closed externally (as in Fig. 3c–e); antennal club 2-segmented (as in Fig. 1d–e) or 3-segmented (as in Fig. 1f–h); if procoxal cavities narrowly open, antennal club 3-segmented (check carefully — procoxal closure difficult to see in some Chilean specimens, where the closure is below the level of the prosternal process and very narrow)..... 12	17(15'). Body 4X as long as wide (Fig. 27)..... Eudesma
11'.	Procoxal cavities open externally, sometimes narrowly so (as in Fig. 3a–b); antennal club 1-segmented (as in Fig. 1a–c) or 2-segmented (as in Fig. 1d–e)..... 14	17'. Body less than 4X as long as wide, at most 3X as long as wide 18
12(11).	Procoxal cavities narrowly open (rare) or closed by mesad extension of hypomeron (common; Fig. 3c), prosternal process not expanded apically beyond midpoint of procoxa; antennal club 3-segmented (Figs. 1f, 31), very rarely 2-segmented; supraocular carina variable; if antennal club 2-segmented, supraocular carina strong..... Lasconotus	18(17'). Intercostal process of ventrite I truncate or rounded (as in Fig. 4b–c)..... 19
12'.	Procoxal cavities closed by laterad extension of prosternal process; antennal club 2-segmented (as in Fig. 1d–e); supraocular carina weak to absent..... 13	18'. Intercostal process of ventrite I acute (as in Fig. 4a)..... 22
13(12').	Procoxal closures on the same plane with ventral surface of intercoxal process; fully winged; last ventrite lacking marginal groove; posterior margin of eye lacking canthus (Fig. 37); Northern Hemisphere Namunaria	19(18). Eyeless (Fig. 33); Alabama, USA... Lyreus
13'.	Procoxal closures located dorsad of ventral plane of intercoxal process (<i>i.e.</i> , recessed and difficult to see); lacking metathoracic wings; last ventrite with marginal groove (as in Fig. 4a); posterior margin of eye with small triangular canthus (Fig. 39); Southern Hemisphere Notocoxelus	19'. Eyes present, often small; widespread (if Chilean, see couplets 11 and 12).... 20
14(11').	Antennal club with 2 expanded sensory segments (10–11), segment 9 triangular or transverse, 10 and 11 articulated and not forming a continuous mass (as in Fig. 1d–e) 15	20(19'). Pronotum subparallel or widest behind middle (as in Fig. 3a); metaventrite regular to elongate, more than half as long as metafemur (measured between midline of meso- and metacoxa); winged; eyes large, round or longitudinal (Fig. 30) Holopleuridia
14'.	Antennal club with expanded sensory segments appearing 1-segmented, fused, or not articulated and forming a continuous mass (as in Fig. 1a–c)..... 29	20'. Pronotum widest in front of middle, narrowed at anterior angles; metaventrite short, less than half as long as metafemur (measured between midline of meso- and metacoxa); wingless; eyes small, round or vertical..... 21
15(14).	Hypomeron with deep, margined pocket that engulfs antennal club 16	21(20'). Antennal groove short (as in Fig. 5b); scales narrow or hair-like; pronotum evenly rounded laterally (Fig. 23) Coxelus
		21'. Antennal groove long (as in Fig. 5c); scales wide; pronotum strongly lyriform (Fig. 43)..... Pharax
		22(18'). Pronotum with tuberculate ridges; elytra with complex carinae or tubercles 23
		22'. Pronotum and elytra with weak to strong, simple carinae 24
		23(22). Antenna slender, shiny, sparsely clothed in suberect, fine setae; eye with weak supra-antennal ridge extending to anterior margin of eye; smaller <5 mm (Fig. 29); Central America Helonoton
		23'. Antenna stout, thick, rugose, dull, moderately clothed with recumbent stout setae; eye with strong supra-antennal ridge extending past anterior margin of eye; length >6 mm (Fig. 24); North America Denophoelus
		24(22'). Lateral margins of frons continuous with supraocular carinae 25

- 24'. Lateral margins of frons ending at mid-eye level as a canthus or notch, not continuous with supraocular carina....28
- 25(24). Antennal groove long, reaching to or beyond posterior edge of eye (as in Fig. 5c).....26
- 25'. Antennal groove short, not reaching beyond midpoint of eye (as in Fig. 5b); habitus as in Fig. 20**Bitoma**
- 26(25). Antennal segment 3 very long, equal to or longer than 4–6 combined (as in Fig. 1d); pronotal disc without carinae (Fig. 21)..... **Colobicus**
- 26'. Antennal segment 3 short, equal to or shorter than 4–5 combined (as in Fig. 1e); pronotal disc with carinae 27
- 27(26'). Elytron oblique laterally, lateral margin clearly visible in dorsal view (Fig. 17), interval 9 weakly to obscurely carinate**Acolobicus**
- 27'. Elytron vertical laterally, lateral margin obscured in dorsal view, interval 9 strongly carinate (Fig. 35)....**Microprius**
- 28(24'). Median pair of pronotal carinae diverging medially, encircling mid-discal area, and forked behind this encirclement (Fig. 45); antennal groove moderately long, hypomeron without depressions for antennae; parameres asetose..... **Phloeonemus**
- 28'. Median pair of pronotal carinae more or less parallel (Fig. 44); antennal groove long, curved behind the eye, and continuous with antennal depressions in antero-lateral corners of pronotum; parameres setose..... **Phloeodalis** (in part)
- 29(14'). Elytra with scutellary striole (Fig. 6) 30
- 29'. Elytra lacking scutellary striole (Fig. 6)31
- 30(29). Lateral margin of frons extending into eye as a short canthus (Fig. 44); tempora absent; last antennomere rounded (see couplet 28)..... **Phloeodalis** (in part)
- 30'. Lateral margin of frons not entering eye (Fig. 42); tempora forming acute tooth behind eye (Fig. 5c); antennal club abruptly truncate apically **Paxillobitoma**
- 31(29'). Dorsum lacking obvious setae (Fig. 40); when present and viewed under high magnification (40X), setae hair-like and shorter than width of punctures or tubercles from which they arise.....**Paha**
- 31'. Dorsum with obvious setae; setae either distinctly scale-like or clearly longer than width of punctures or tubercles from which they arise32
- 32(31'). Setae hair-like; pronotum subparallel or widest at middle33
- 32'. Setae usually scale-like or bristle-like, rarely hair-like; pronotum variable; if setae hair-like, pronotum distinctly widest anteriorly34
- 33(32). Pronotum transverse to subquadrate (Fig. 25); antennomere 3 3X as long as wide, as long as 1–2 or 4–6 combined (Fig. 1a).....**Endeitoma**
- 33'. Pronotum elongate (Fig. 19); antennomere 3 only as long as 4–5, less than 2X as long as wide, subequal to 1 **Asynchita**
- 34(32'). Pronotum distinctly wider across anterior angles than across posterior angles....35
- 34'. Pronotum as wide or wider at posterior angles than at anterior angles36
- 35(34). Antennae with sparse, hair-like setae; eyes sparsely scaled; antennae short (Fig. 41), antennomere 2 longer and wider than 3 **Paryphus**
- 35'. Antennae with scale-like setae; eyes densely scaled; antennae longer, reaching approximately to midpoint of pronotum (Fig. 47), antennomere 3 longer than and as wide as 2 **Pseudocorticus**
- 36(34'). Antennal groove long, curved, and reaching to at least middle of eye (as in Fig. 5c); habitus as in Fig. 26..... **Eucicones**
- 36'. Antennal groove short and straight to obsolete, with groove restricted to smooth portion at point of antennal insertion (rugose thereafter, at most weakly depressed; similar to Fig. 5a–b); habitus as in Fig. 52**Synchita**

CHECKLISTS OF THE GENERA AND SPECIES OF NEW WORLD COLYDIINAE

Full nomenclatural citations are given, and included in References Cited below, for all species considered valid today. Full citations are also given for new taxonomic acts presented herein or those not covered in the following papers: Hetschko (1930); Blackwelder (1945); Stephan (1989); Ivie and Ślipiński (1990); Ślipiński and Lawrence (1997); Węgrzynowicz (1999); Ivie (2002); Lord and Leschen (2014). Year and pagination for each name that is unchanged since the works above are included as a convenience and the citations included in the References Cited below. An asterisk (*) denotes the type species of the genus. If no species bears an asterisk, then the type species is Old World. A name in square brackets after the species epithet indicates the

original generic name. Sums of species numbers include only New World species.

TRIBE ACROPINI Sharp, 1894

(3 genera, 21 species)

Acropis Burmeister, 1840

(Fig. 7)

Acropis Burmeister 1840: 73. (12 species)
Lemmis Pascoe 1860: 106. **New synonymy.**

Currently recognized species of *Acropis*:

- aspera* Pascoe 1860: 106.
- incensa* Pascoe 1860: 106. **New synonymy.**
- caelata* Pascoe 1860: 107. **New combination** [from *Lemmis*].
- championi* Sharp 1894b: 476.
- denticulata* Hinton 1936: 77.
- discoidea* Reitter 1877a: 333.
- maracapatana* Heinze 1954: 167.
- recta* Sharp 1894b: 476.
- serrata* Sharp 1894b: 476.
- steinheili* Reitter 1877a: 332.
- tristis* Reitter 1877a: 333.
- *tuberculifera* Burmeister 1840: 74.
- fryi* Pascoe 1860: 105. **New synonymy.**
- tuberosa* (Grouvelle 1896b: 187). **New combination** [from *Lemmis* (*sic*)].

Ethelema Pascoe, 1860

(Fig. 8)

Ethelema Pascoe 1860: 107. (5 species)

Currently recognized species of *Ethelema*:

- costaricensis* Nevermann 1930: 110.
- decorata* Sharp 1894b: 477.
- *luctuosa* Pascoe 1860: 107.
- nigrogrisea* (Grouvelle 1914: 49). **New combination** [from *Lemmis*].
- sobrina* Sharp 1894b: 477.

Plagiope Erichson, 1845

(Fig. 9)

Plagiope Erichson 1845: 258. (4 species)

Currently recognized species of *Plagiope*:

- cubana* (Zayas 1988: 78). **New combination** [from *Ethelema*].
- denticulata* (Grouvelle 1898a: 39). **New combination** [from *Lemmis* (*sic*)].
- lherminieri* (Grouvelle 1902: 760). **New combination** [from *Lemmis* (*sic*)].
- *tuberculata* Erichson 1845: 258.

TRIBE COLYDIINI Erichson, 1842

(4 genera, 80 species)

Anarmostes Pascoe, 1860

(Fig. 10)

Anarmostes Pascoe 1860: 110. (11 species)
Eulachus Erichson 1845: 275. **New synonymy.**

Currently recognized species of *Anarmostes*:

- argutus* Sharp 1894b: 471.
- ater* Dajoz 1984b: 163.
- bicolor* Pascoe 1863b: 89.
- carinatus* (Kirsch 1865: 46) [*Colyidium*].
- costatus* (Erichson 1845: 275). **New combination** [from *Eulachus*].
- costicollis* Reitter 1877a: 342.
- elongatus* Dajoz 1984b: 163.
- granulosus* Dajoz 1984b: 163.
- laticollis* Pascoe 1863b: 89.
- *sculptilis* Pascoe 1860: 110.
- vicinus* Dajoz 1984b: 162.

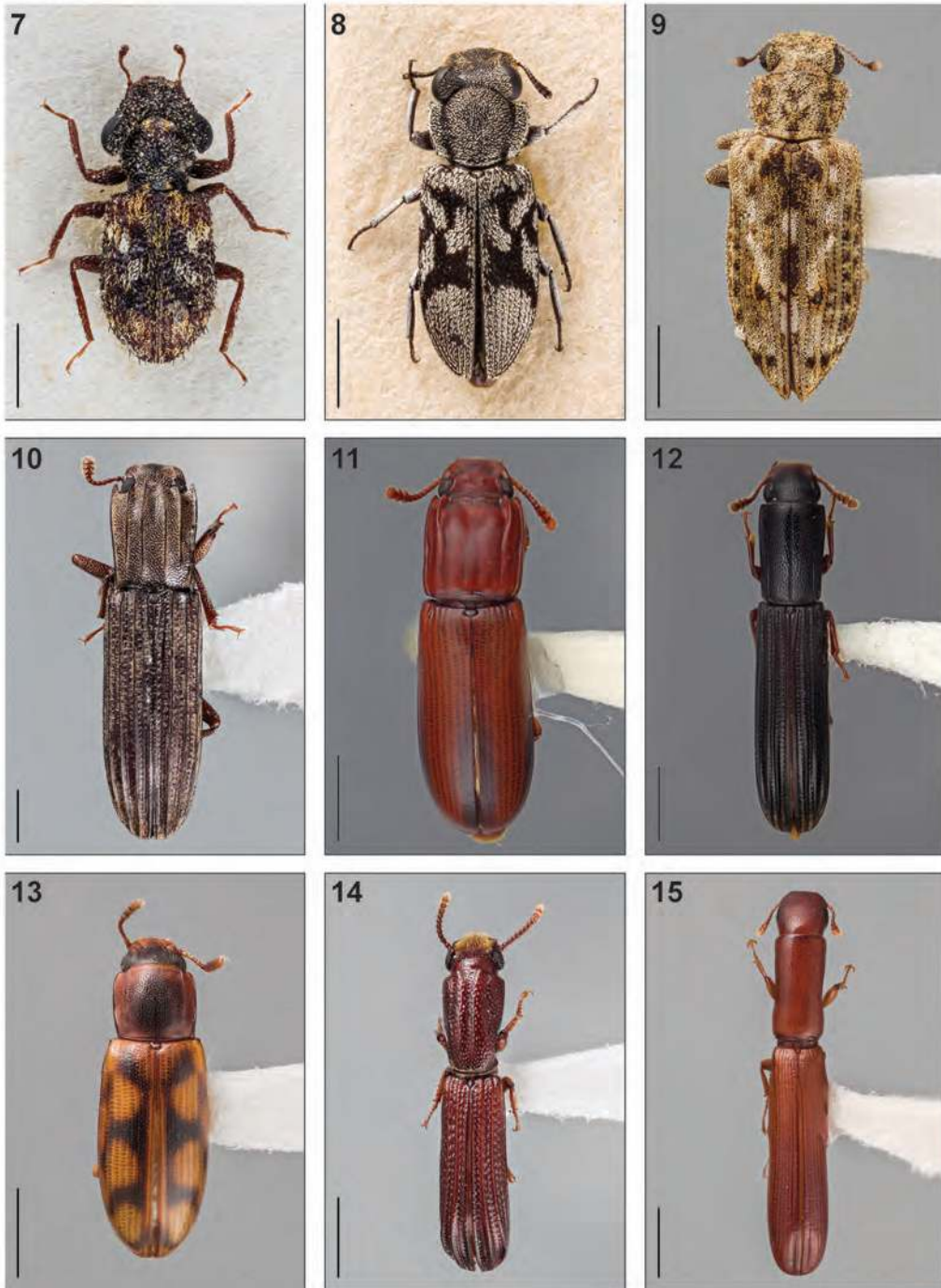
Aulonium Erichson, 1845

(Fig. 11)

Aulonium Erichson, 1845: 275. (25 species)

Currently recognized New World species of *Aulonium*:

- aequicolle* LeConte 1859a: 81.
- angustatum* Pascoe 1863b: 86.
- belti* Sharp 1894b: 469.
- *bidentatum* (Fabricius 1801: 556) [*Colyidium*].
- cylindricum* Hinton 1936: 55.
- egens* Pascoe 1863b: 88.
- ferrugineum* Zimmermann 1869: 254.
- frontale* Sharp 1894b: 469.
- grandis* Dajoz 1980b: 339.
- guyanense* Dajoz 1980b: 333.
- hebes* Pascoe 1863b: 88.
- ignotum* Pascoe 1863b: 87.
- insigne* Reitter 1877a: 336.
- longicolle* Dajoz 1980b: 338.
- longum* LeConte 1866: 378.
- minutum* Dajoz 1980b: 330.
- oblitum* Pascoe 1863b: 87.
- parallelopedum* (Say 1826: 263) [*Colyidium*].
chilense Dajoz 1980b: 335. [Synonymy by Ivie *et al.* (2001)].
- praepositum* Pascoe 1863b: 88.
- sublaeve* Pascoe 1863b: 87.
- thoracicum* Dajoz 1980b: 336.
- tuberculatum* LeConte 1863: 67.
- tubulum* Sharp 1894b: 469.
- ulomoides* (Pascoe 1860: 100) [*Gloeania*].
- vicinum* Dajoz 1980b: 332.



Figs. 7–15. Dorsal habitus of New World colydiine genera, tribes Acropini, Colydiini, Gempylodini, and Nematidiini. 7) *Acropis maracapatana*; 8) *Eithelema costaricensis*; 9) *Plagiopie tuberculata*; 10) *Anarmostes ater*; 11) *Aulonium longum*; 12) *Colydium lineola*; 13) *Pseudaulonium* sp., Venezuela; 14) *Endestes incilis*; 15) *Nematidium filiforme*.

***Colydium* Fabricius, 1792**

(Fig. 12)

Colydium Fabricius 1792: 495. (30 species)

Currently recognized New World species of

Colydium:

acuticolle Reitter 1878b: 119.
bicarinipenne Hinton 1936: 51.
brevicorne Reitter 187b: 119.
burakowskii Węgrzynowicz 1999: 278.
championi Sharp 1894b: 467.
chiriquense Sharp 1894b: 466.
clavigerum Sharp 1894b: 468.
clypeale Hinton 1936: 52.
corpulentum Reitter 1878b: 117.
ferrugineum Reitter 1878b: 120.
glabriculum Stephan 1989: 55.
godmani Sharp 1894b: 465.
guatemalenum Sharp 1894b: 466.
holynskiorum Węgrzynowicz 1999: 295.
latum Hinton 1936: 49.
lineola Say 1826: 264.
longicolle Reitter 1878b: 118.
manfredi Węgrzynowicz 1999: 303.
marleyi Węgrzynowicz 1999: 306.
mexicanum Reitter 1878b: 118.
nigripenne LeConte 1863: 67.
pascoei Reitter 1877b: 23.
plaumanni Węgrzynowicz 1999: 310.
puncticolle Sharp 1894b: 467.
pusillum Sharp 1894b: 468.
robustum Stephan 1989: 55.
ruficorne Fabricius 1801: 557.
slipinskii Węgrzynowicz 1999: 324.
thomasi Stephan 1989: 57.
unistriatum Reitter 1878b: 116.

***Pseudaulonium* Reitter, 1877**

(Fig. 13)

Pseudaulonium Reitter 1877a: 334. (14 species)

Currently recognized species of *Pseudaulonium*:

boliviense Dajoz 1984b: 158.
carinatum Dajoz 1984b: 154.
convexum Dajoz 1984b: 157.
crassum Dajoz 1984b: 155.
denticulatum Dajoz 1984b: 154.
depressum Dajoz 1984b: 156.
discolor Champion 1913: 74.
ferrugineum Reitter 1877a: 336.
gounellei Dajoz 1984b: 155.
latum Dajoz 1984b: 156.
mexicanum Dajoz 1984b: 154.
nitidum Champion 1913: 75.
**regale* Reitter 1877a: 335.
titschacki Heinze 1954: 159.

TRIBE GEMPYLODINI Sharp, 1893

(1 genus, 2 species)

***Endestes* Pascoe, 1863**

(Fig. 14)

Endestes Pascoe 1863b: 91. (2 species)

Currently recognized New World species of *Endestes*:

**incilis* Pascoe 1863b: 92.
sculpturatus Sharp 1894b: 472. **New synonymy.**
sulcicollis Reitter 1877a: 337.

TRIBE NEMATIDIINI Sharp, 1894

(1 genus, 11 species)

***Nematidium* Erichson, 1845**

(Fig. 15)

Nematidium Erichson 1845: 275. (11 species)

Currently recognized New World species of *Nematidium*:

argentinum Dajoz 1984a: 150.
confusum Dajoz 1984a: 149.
constrictum Dajoz 1984a: 149.
**cylindricum* (Fabricius 1801: 557).
filarium Sharp 1894b: 479.
filiforme LeConte 1863: 68.
fryanum Sharp 1894b: 478.
pascoei Arrow 1909: 193.
peruvianum Heinze 1954: 165.
strictum Dajoz 1984a: 148.
viverra Sharp 1894b: 479.

TRIBE RHAGODERINI

LeConte and Horn, 1883

(1 genus, 6 species)

***Rhagodera* Mannerheim, 1843**

(Fig. 16)

Rhagodera Mannerheim 1843: 269. (6 species)

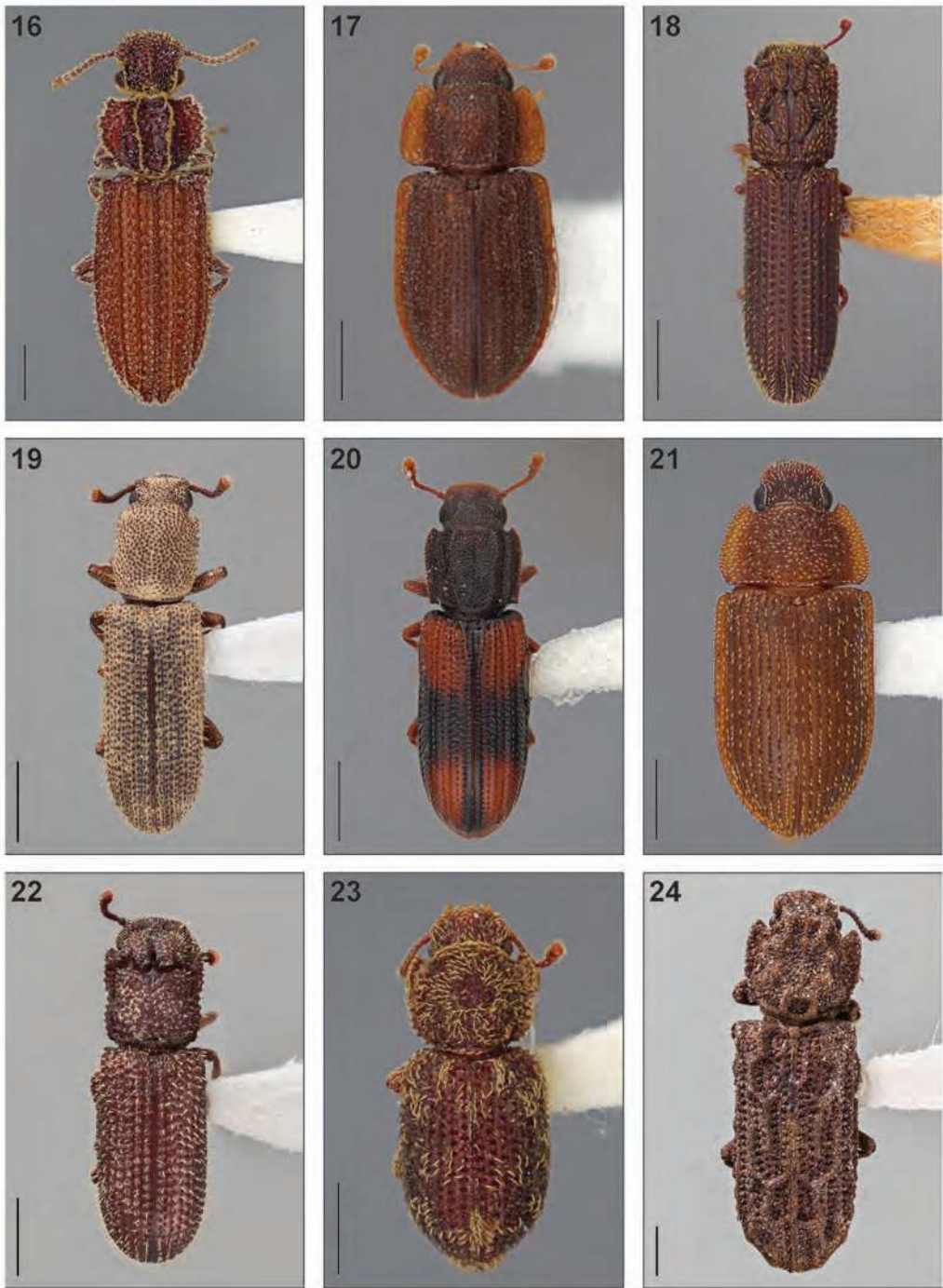
Currently recognized species of *Rhagodera*:

costaefragmenta Krinsky 2015: 293.
costata Horn 1867: 295.
interrupta Stephan 1989: 22.
laticeps Blaisdell 1925: 326.
texana Stephan 1989: 23.
**tuberculata* (Mannerheim 1843: 300).

TRIBE SYNCHITINI Erichson, 1845

(36 genera, 183 species)

Adimerini Sharp 1894b: 441. **New synonymy.**



Figs. 16–24. Dorsal habitus of New World colydiine genera, tribes Rhagoderini and Synchronitini. **16)** *Rhagodera texana*; **17)** *Acolobicus erichsoni*; **18)** *Antilissus aper*; **19)** *Asynchita granosa*; **20)** *Bitoma crenata*; **21)** *Colobicus parilis*; **22)** *Colydodes gibbiceps*; **23)** *Coxelus serratus*; **24)** *Denophoelus nosodermoides*.

***Acolobicus* Sharp, 1894**

(Fig. 17)

Acolobicus Sharp 1894b: 452. (2 species)

Currently recognized species of *Acolobicus*:

championi (Sharp 1894b: 454) [*Ditaphrus*].

erichsoni (Reitter 1877c: 133) [*Phloeodalis*].

Type species is the junior synonym.

**Acolobicus obscurus* Sharp 1894b: 452.

***Antilissus* Sharp, 1879**

(Fig. 18)

Antilissus Sharp 1879: 86. (1 species)

Currently recognized New World species of

Antilissus:

**aper* Sharp 1879: 86.

***Asynchita* Sharp, 1894**

(Fig. 19)

Asynchita Sharp 1894b: 448. (2 species)

Currently recognized species of *Asynchita*:

**granosa* Sharp 1894b: 449.

panamensis (Sharp 1894b: 450). **New combination** [from *Endeitoma*, transferred to *Synchita* by Hetschko (1930)].

***Bitoma* Herbst, 1793**

(Fig. 20)

Bitoma Herbst 1793: 25. (28 species)

Currently recognized New World species of *Bitoma*:

brevipes (Sharp 1894b: 462) [*Xuthia*].

carinata (LeConte 1863: 68) [*Eulachus*].

centralis Sharp 1894b: 459.

**crenata* (Fabricius 1775: 69) [*Tritoma*].

discolor Schaeffer 1907: 138.

exarata (Pascoe 1863b: 91) [*Coniophaea*].

gounellei (Grouvelle 1896b: 185) [*Ditoma*].

gracilis Sharp 1894b: 460.

granulata (Blatchley 1910: 552) [*Ditoma*].

intermedia Hinton 1935b: 202.

jejuna Pascoe 1860: 102.

longior (Grouvelle and Raffray 1908: 49) [*Ditoma*].

neglecta Stephan 1989: 42.

obscura (Fabricius 1801: 562) [*Lyctus*, see Ivie (2010)].

ornata LeConte 1858: 63.

palmarum Bondar 1940a: 114, 1940b: 852.

parvula Hinton 1936: 63.

pinicola Schaeffer 1907: 138.

quadricollis Horn 1885: 140.

quadriguttata Say 1826: 266.

quinquecarinata (Chevrolat 1864: 609). **New combination** [from *Eulachus*].

semifuliginosa (Chevrolat 1864: 608). **New combination** [from *Eulachus*].

siviana Heinze 1954: 161.

socialis Pascoe 1863b: 81.

subfasciata Sharp 1894b: 459.

sublata Hinton 1936: 64.

sulcata LeConte 1858: 63.

unicolor Guérin-Méneville 1829: 194. [Usually treated as *undata*, a *lapsus calami* of Hetschko (1930: 20), followed by Blackwelder (1945: 471) and subsequent authors].

vittata Schaeffer 1907: 137.

***Colobicus* Latreille, 1807**

(Fig. 21)

Colobicus Latreille 1807: 9. (1 species)

Currently recognized New World species of *Colobicus*:

parilis Pascoe 1860: 102.

***Colydodes* Motschulsky, 1855**

(Fig. 22)

Colydodes Motschulsky 1855: 13. (8 species)

Currently recognized New World species of *Colydodes*:

batesii Pascoe 1863b: 83.

flavisetis Ferreira and Ide-dos Santos 2015: 438.

**gibbiceps* Motschulsky 1855: 13.

mammillaris (Pascoe 1860: 104) [*Distaphyla*].

peruviensis Ivie and Ślipiński 1989: 246.

simplex Ivie and Ślipiński 1989: 247.

sparsus Hinton 1935a: 231.

***Coxelus* Dejean, 1821**

(Fig. 23)

Coxelus Dejean 1821: 67. (2 species)

Stephaniolus Ivie *et al.* 2001: 64. **New synonymy.**

Currently recognized New World species of *Coxelus*:

longus (Stephan 1989: 26). **New combination** [*Pseudotaphrus*, moved to *Stephaniolus* by Ivie *et al.* (2001)].

serratus Horn 1885: 142.

***Denophoelus* Stephan, 1989**

(Fig. 24)

Denophoelus Stephan 1989: 44. (1 species)

Currently recognized species of *Denophoelus*:

**nosodermoides* (Horn 1878: 567) [*Endophloeus*].

***Endeitoma* Sharp, 1894b**

(Fig. 25)

Endeitoma Sharp 1894b: 450. (4 species)

Currently recognized New World species of *Endeitoma*:

dentata (Horn 1885: 139) [*Synchita*].

granulata (Say 1826: 266) [*Synchita*, transferred to *Asynchita* by Hinton (1936), transferred to *Endeitoma* by Stephan (1989)].

**mexicana* Sharp 1894b: 450.

rugulosa (Guérin-Méneville 1844: 189). **New combination** [*Synchita*, transferred to *Asynchita* by Hinton (1936)].

***Eucicones* Sharp, 1894**

(Fig. 26)

Eucicones Sharp 1894b: 452. (6 species)

Catolaemus Sharp 1894b: 457. **New synonymy.**

Cacotarphius Sharp 1894b: 473. **New synonymy.**

Currently recognized species of *Eucicones*:

compressus (Sharp 1894b: 473). **New combination** [from *Cacotarphius*].

gounellei Grouvelle 1896b: 186.

marginalis (Melsheimer 1846: 112) [*Cicones*].

minutus (Sharp 1894b: 457). **New combination** [from *Catolaemus*].

**perfectus* Sharp 1894b: 453.

uniformis Hinton 1936: 66.

***Eudesma* LeConte, 1863**

(Fig. 27)

Eudesma LeConte 1863: 66. (1 species)

Currently recognized species of *Eudesma*:

**undulata* (Melsheimer 1846: 110) [*Bitoma*].

***Globotrichus* Lord and Ivie, 2016**

(Fig. 28)

Globotrichus Lord and Ivie 2016: 717. (1 species)

Currently recognized species of *Globotrichus*:

**harti* Lord and Ivie 2016: 719.

***Helonoton* Lord and Ivie, 2016**

(Fig. 29)

Helonoton Lord and Ivie 2016: 720. (12 species)

Currently recognized species of *Helonoton*:

amistad Lord and Ivie 2016: 728.

ashei Lord and Ivie 2016: 729.

bituberculatum Lord and Ivie 2016: 730.

chiriqui Lord and Ivie 2016: 731.

**costaricense* Lord and Ivie 2016: 733.

foleyi Lord and Ivie 2016: 735.

mexicanum Lord and Ivie 2016: 736.

pascoei (Sharp 1894b: 461) [*Bitoma*].

pustulosum Lord and Ivie 2016: 739.

tatumbra Lord and Ivie 2016: 740.

tico Lord and Ivie 2016: 741.

tripartum Lord and Ivie 2016: 742.

***Holopleuridia* Reitter, 1876**

(Fig. 30)

Holopleuridia Reitter 1876: 56. (4 species)

Zanclea Pascoe 1863b: 80 [not *Zanclea* Gegenbaur, 1856]. **New synonymy.**

Aneumesa Sharp 1894b: 455. **New synonymy.**

Currently recognized New World species of *Holopleuridia*:

atomaria (Sharp 1894b: 455). **New combination** [from *Aneumesa*].

costata (Sharp 1894b: 456). **New combination** [from *Aneumesa*].

**maculosa* Reitter 1876: 57.

testudinea (Pascoe 1863b: 81) **New combination** [from *Zanclea*].

***Lasconotus* Erichson, 1845**

(Fig. 31)

Lasconotus Erichson 1845: 258. (37 species)

Lado Wankowicz 1867: 249 [Synonymy by Hinton (1935b: 204)].

Anisopaulax Reitter 1877a: 324. **New synonymy.**

Currently recognized New World species of *Lasconotus*:

apicalis Casey 1890: 315.

arrowi Hinton 1935b: 205.

atomus Grouvelle and Raffray 1908: 49.

bitomoides Kraus 1912: 40.

boliviensis Hinton 1935b: 204.

apicalis Grouvelle 1898b: 377 (not Casey 1890).

borealis Horn 1878: 570.

brucki (Reitter 1877a: 324). **New combination** [from *Anisopaulax*].

chilensis (Grouvelle 1898b: 378) [*Lado*].

ciliatus (Sharp 1894b: 463) [*Lado*].

**complex* LeConte 1859b: 282.

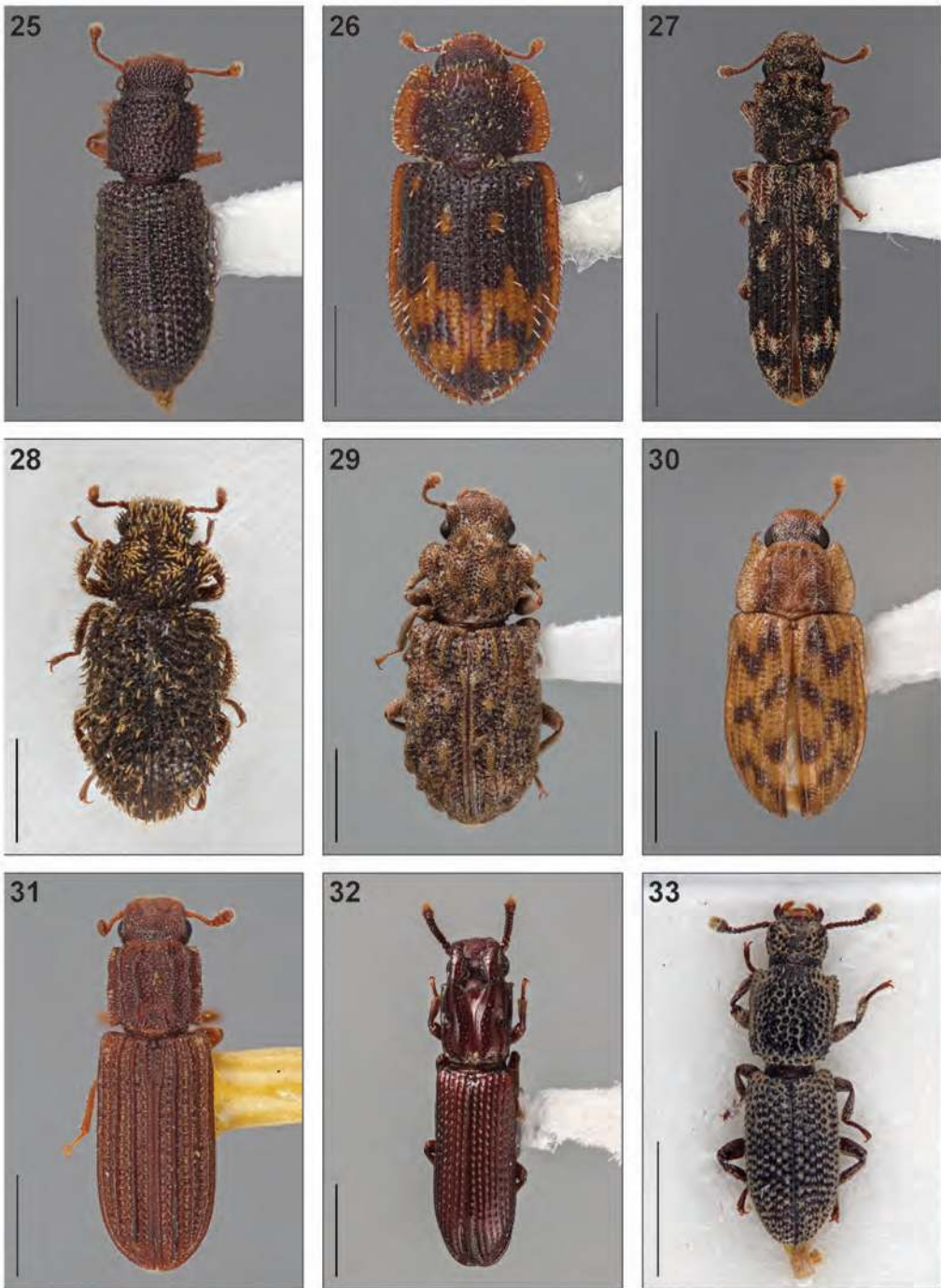
concavus Casey 1890: 315.

coronatus (Hinton 1935b): 208 [*Chrysopogonius*].

elegans (Sharp 1894b: 463) [*Lado*].

fiskei Kraus 1912: 39.

fitzgibbonae Kingsolver, Stephan, and Moser 2006: 54 [= *Chrysopogonius* n. sp. of Stephan (1989) and Ivie (2002)].



Figs. 25–33. Dorsal habitus of New World colydiine genera, tribe Sychitini. **25)** *Endeitoma dentata*; **26)** *Eucicones marginalis*; **27)** *Eudesma undulata*; **28)** *Globotrichus harti*; **29)** *Helonoton ashei*; **30)** *Holopleuridia* sp., Panama; **31)** *Lasconotus* complex; **32)** *Lobogestoria gibbicollis*; **33)** *Lyreus alleni*.

flexuosus Kraus 1912: 35.
funestus (Sharp 1894b: 464) [*Lado*].
germaini (Grouvelle 1898b: 376) [*Lado*].
intricatus Kraus 1912: 36.
knulli Stephan 1989: 48.
laqueatus LeConte 1866: 378.
linearis Crotch 1874: 75.
mexicanus Kraus 1912: 35.
nucleatus Casey 1890: 314.
perplexus (Grouvelle and Raffray 1913: 293) [*Ithris*].
pertenuis Casey 1890: 313.
planipennis Kraus 1912: 39.
pusillus LeConte 1863: 67.
referendarius Zimmermann 1869: 254.
servus Horn 1885: 141.
simplex LeConte 1866: 378.
subcostulatus Kraus 1912: 40.
sulcatus (Grouvelle 1898b: 377) [*Lado*].
sulcifer Sharp 1894b: 464.
terrenus (Pascoe 1863a: 33) [*Illestus*].
tuberculatus Kraus 1912: 35.
vegrandis Horn 1885: 140.

***Lobogestoria* Reitter, 1878**

(Fig. 32)

Lobogestoria Reitter 1878a: 31. (1 species)

Currently recognized New World species of *Lobogestoria*:

**gibbicollis* Reitter 1878a: 32.

***Lyreus* Aubé, 1861**

(Fig. 33)

Lyreus Aubé 1861: 196. (1 species)

Currently recognized New World species of *Lyreus*:
alleni Ivie and Ślipiński 2001: 502.

***Megataphrus* Casey, 1890**

(Fig. 34)

Megataphrus Casey 1890: 309. (3 species)

Currently recognized species of *Megataphrus*:

arizonicus Stephan 1989: 27.

chandleri Stephan 1989: 28.

**tenuicornis* Casey 1890: 310.

***Microprius* Fairmaire, 1868**

(Fig. 35)

Microprius Fairmaire 1868: 779. (1 species)

Currently recognized New World species of *Microprius*:

rufulus (Motschulsky 1863: 502) [*Bitoma*].

***Monoedus* Horn, 1882**

(Fig. 36)

Monoedus Horn 1882: 116. (13 spp.) **New tribal placement.**

Currently recognized species of *Monoedus*:

boliviensis Dajoz 1975: 108.

crispatus (Sharp 1894a: 442) [*Adimerus*].

crowsoni Dajoz 1975: 105.

cubanensis Dajoz 1975: 107.

grouvellei Dajoz 1975: 108.

**guttatus* Horn 1882: 116.

hirtus Dajoz 1975: 107.

horni Grouvelle and Raffray 1908: 42.

lecontei Fleutiaux and Sallé 1889: 391.

obscurus Grouvelle and Raffray 1908: 45.

pubescens Dajoz 1984a: 151.

setosus (Sharp 1894a: 442) [*Adimerus*].

zonatus Grouvelle and Raffray 1908: 43.

***Namunaria* Reitter, 1882**

(Fig. 37)

Namunaria Reitter 1882: 114. (2 species)

Currently recognized New World species of *Namunaria*:

**guttulata* (LeConte 1863: 65) [*Coxelus*].

pacifica (Horn 1878: 569) [*Coxelus*].

***Neotrichus* Sharp, 1885**

(Fig. 38)

Neotrichus Sharp 1885: 60. (8 species)

Labrotrichus Sharp 1894b: 446. **New synonymy.**

Currently recognized New World species of *Neotrichus*:

aberrans (Sharp 1894b: 447). **New combination** [from *Labrotrichus*].

bicolor Grouvelle 1896b: 195.

guadalupensis Grouvelle 1902: 758.

insularis Grouvelle 1898a: 38.

latiusculus (Fairmaire 1881: 255) [*Bitoma*].

nevermanni Hinton 1936: 60.

tuberculatus (Chevrolat 1864: 607) [*Plagiope*, transferred to *Neotrichus* by Grouvelle (1898a: 39)].

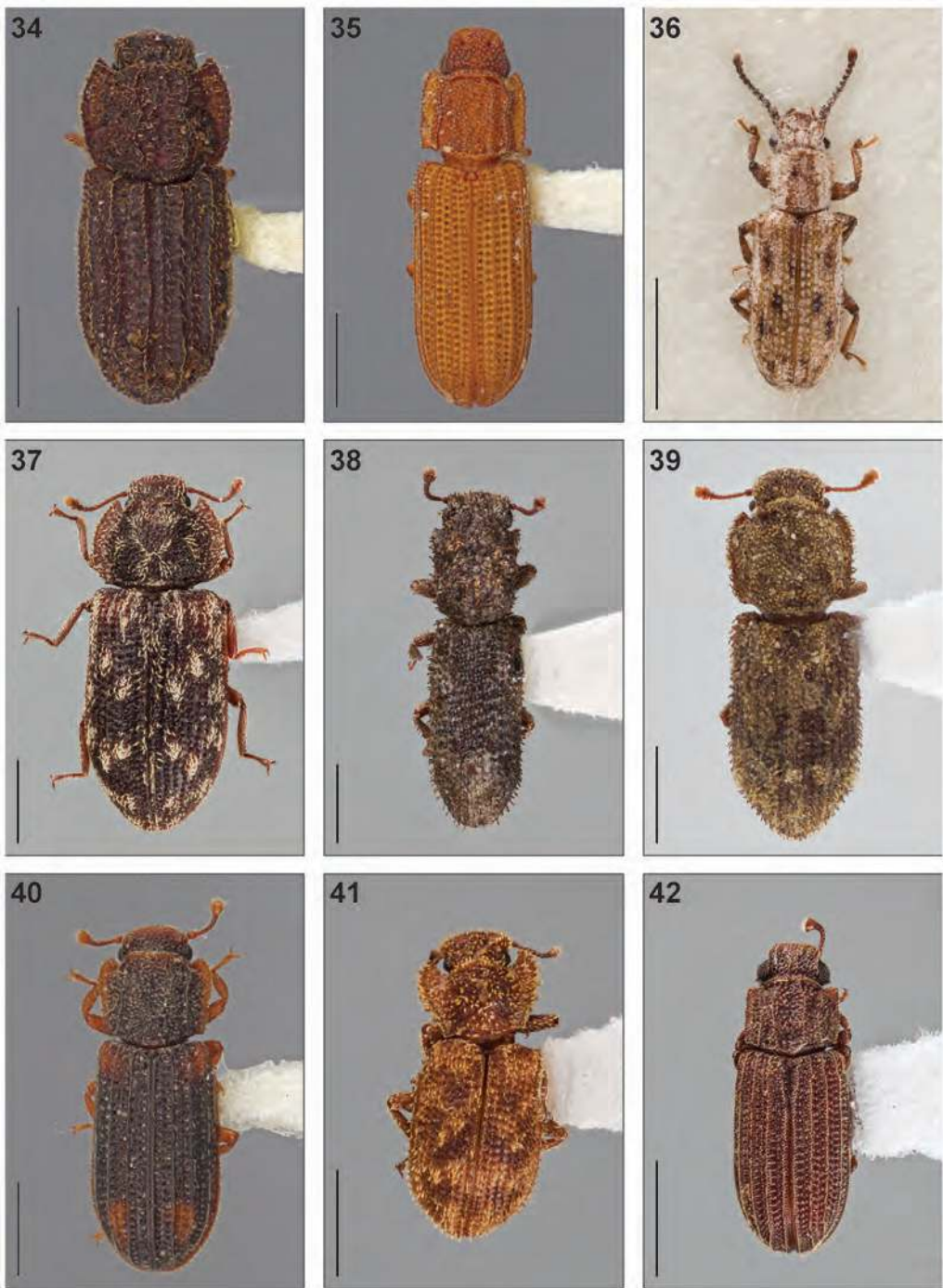
verrucatus (Hinton 1935b: 206). **New combination** [from *Labrotrichus*].

***Notocoxelus* Ślipiński and Lawrence, 1997**

(Fig. 39)

Notocoxelus Ślipiński and Lawrence 1997: 404. (2 species)

Currently recognized New World species of *Notocoxelus*:



Figs. 34–42. Dorsal habitus of New World colydiine genera, tribe Synchitini. **34)** *Megataphrus tenuicornis*; **35)** *Microprius rufulus*; **36)** *Monoedus guttatus*; **37)** *Namunaria guttulata*; **38)** *Neotrichus verrucatus*; **39)** *Notocoxelus* sp., Chile; **40)** *Paha laticollis*; **41)** *Paryphus serratus*; **42)** *Paxillobitoma clinei*.

angustatus (Solier 1851: 242). [from *Endophloeus* and *Phloeopsidius* Gebien, 1925, placement by Ivie *et al.* (2016)].
sylvaticus (F. Philippi in Philippi and Philippi 1864: 405). **New combination** [from *Coxelus*].

***Paha* Dajoz, 1984**
(Fig. 40)

Paha Dajoz 1984a: 155. (4 species)

Currently recognized species of *Paha*:

**guadalupensis* Dajoz 1984a: 155.
laticollis (LeConte 1863: 66) [*Ditoma*].
mexicana (Hinton 1935b: 210). **New combination** [from *Namunaria*].
mimetes (Sharp 1894b: 449). **New combination** [from *Synchita*].

***Paryphus* Erichson, 1845**
(Fig. 41)

Paryphus Erichson 1845: 256. (6 species)

Hystricones Sharp 1894b: 453. **New synonymy.**

Currently recognized New World species of *Paryphus*:

armatus (Sharp 1894b: 453). **New combination** [from *Hystricones*].
crassus Grouvelle 1892: 100.
erichsoni Grouvelle 1892: 99.
**lobatus* Erichson 1845: 257.
obesus Grouvelle 1892: 101.
serratus Grouvelle 1892: 100.

***Paxillobitoma* Lord and Ivie, 2016**
(Fig. 42)

Paxillobitoma Lord and Ivie 2016: 744. (1 species)

Currently recognized species of *Paxillobitoma*:

**clinei* Lord and Ivie 2016: 748.

***Pharax* Pascoe, 1860**
(Fig. 43)

Pharax Pascoe 1860: 113. (1 species)

Currently recognized New World species of *Pharax*:

**laticollis* Pascoe 1860: 114.

***Phloeodalis* Erichson, 1845**
(Fig. 44)

Phloeodalis Erichson 1845: 257. (2 species)

Currently recognized species of *Phloeodalis*:

**raucus* Pascoe 1863b: 82.
reitteri Grouvelle 1906: 123.

***Phloeonemus* Erichson, 1845**
(Fig. 45)

Phloeonemus Erichson 1845: 258. (7 species)

Currently recognized species of *Phloeonemus*:

adhaerens Sharp 1894b: 451.
catenulatus Horn 1878: 568.
**granulatus* Erichson 1845: 258.
haroldi Reitter 1878b: 114.
integer Reitter 1877a: 331.
interruptus Reitter 1877a: 330.
martorelli Fisher 1943: 131.

***Pristoderus* Hope, 1840**
(Fig. 46)

Pristoderus Hope 1840: 145. (6 species)

Sparactus Erichson 1845: 256 [Synonymy by Ślipiński and Lawrence (1997)].
Phloeopsidius Gebien 1925: 131 [Synonymy by Ivie *et al.* (2016)].

Currently recognized New World species of *Pristoderus*:

brasiliensis (Grouvelle 1896b: 184). **New combination** [from *Ulonotus*].
collaris (Kulzer 1966: 62) [*Phloeopsidius*, placement by Ivie *et al.* (2016)].
flexuosus (Solier 1851: 241) [*Endophloeus*, placement by Ivie *et al.* (2016)].
porteri (Brèthes 1925: 198). **New combination** [from *Endophloeus*].
regularis (Kulzer 1966: 61) [*Phloeopsidius*, placement by Ivie *et al.* (2016)].
sharpi (Reitter 1877a: 323). **New combination** [from *Endophloeus*].

***Pseudocorticus* Hinton, 1935**
(Fig. 47)

Pseudocorticus Hinton 1935b: 212. (1 species)

Currently recognized species of *Pseudocorticus*:

**blairi* Hinton 1935b: 212.

***Rapthius* Lord and Ivie, 2016**
(Fig. 48)

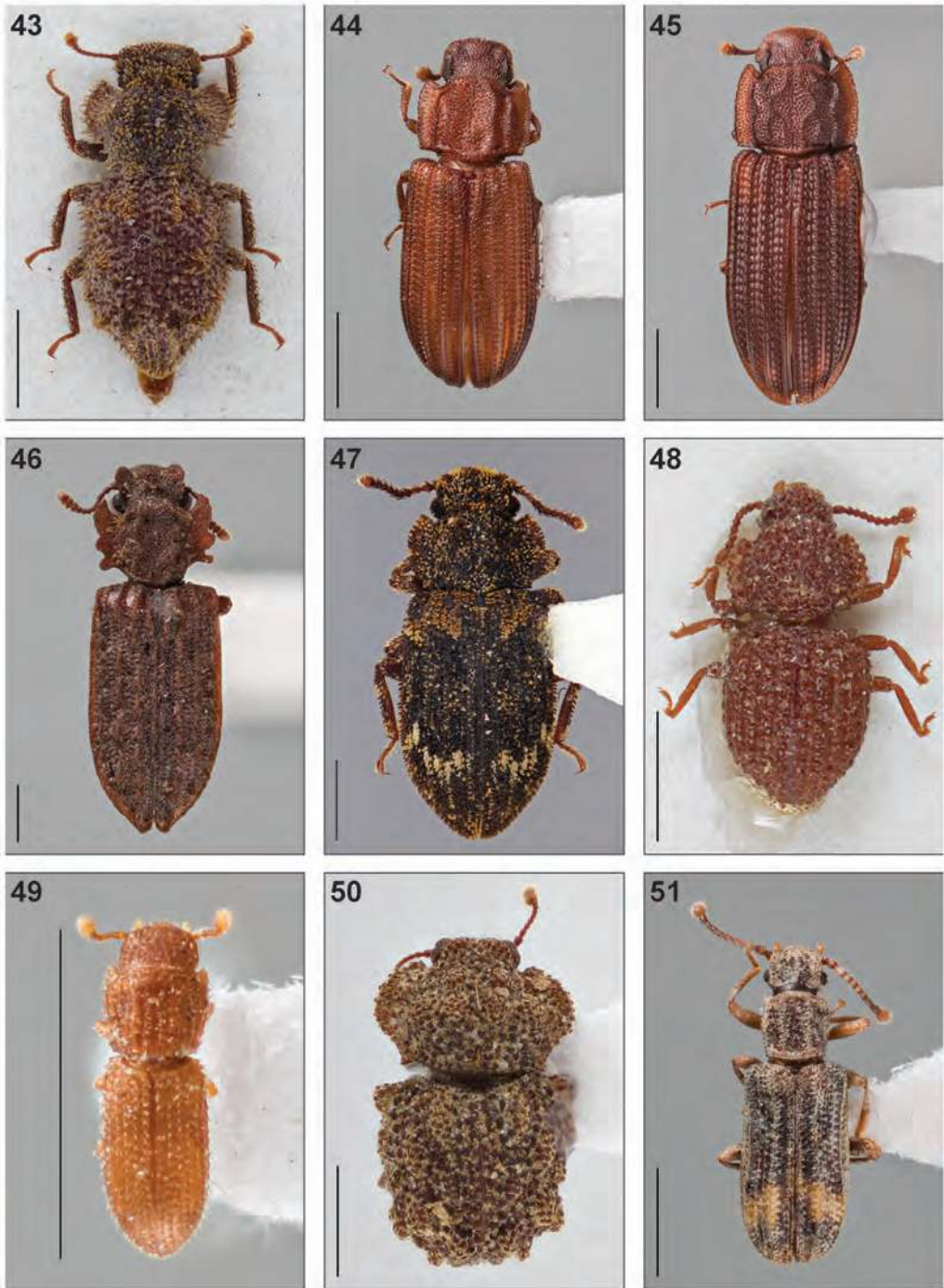
Rapthius Lord and Ivie 2016: 748. (1 species)

Currently recognized New World species of *Rapthius*:

**peruvianus* (Franz 1969: 144) (from *Tarphius*).

***Reylus* Ivie, Lord, Foley, and Ślipiński**
(Fig. 49)

Reylus Ivie, Lord, Foley, and Ślipiński. **New replacement name.** (1 species)



Figs. 43–51. Dorsal habitus of New World colydiine genera, tribe Sychitini. 43) *Pharax laticollis*; 44) *Phloeodalis raucus*; 45) *Phloeonemus integer*; 46) *Pristoderus regularis*; 47) *Pseudocorticus blairi*; 48) *Rapthius peruvianus*; 49) *Reylus chilensis*; 50) *Slipinskius chilensis*; 51) *Stenomonoedus garleppi*.

Erylus Dajoz 1969: 232 [not *Erylus* Gray, 1867 (Porifera)].

Currently recognized species of *Reylus*:
chilensis* (Dajoz 1969: 232). **New combination [from *Erylus*].

***Slipinskius* Lord and Ivie, 2016**
(Fig. 50)

Slipinskius Lord and Ivie 2016: 750. (1 species)

Currently recognized New World species of *Slipinskius*:
**chilensis* (Franz 1969: 143) [*Tarphius*].

***Stenomonoeus* Heinze, 1954**
(Fig. 51)

Stenomonoeus Heinze 1954: 163. (1 species).
New tribal placement.

Currently recognized species of *Stenomonoeus*:
**garleppi* Heinze 1954: 164.

***Synchita* Hellwig in Schneider, 1792**
(Fig. 52)

Synchita Hellwig in Schneider 1792: 401.
(10 species)
Microsicus Sharp 1894b: 456. **New synonymy.**

Currently recognized New World species of *Synchita*:

dubia Hinton 1936: 58.
exilis (Grouvelle 1898b: 38). **New combination** [from *Catolaemus*].

fuliginosa Melsheimer 1846: 111.
Synchita nigripennis LeConte 1863: 67.

grouvellei Ivie, Lord, Foley, and Ślipiński
(replacement name for *Microsicus minimus*
Grouvelle, 1898, junior secondary homonym
of *Cicones minimus* Sharp, 1885). **New
replacement name.**

lecontei Ivie, Lord, Foley, and Ślipiński (replacement
name for *Synchita variegata* LeConte,
1858: 63, junior secondary homonym of
Cicones variegatus Hellwig in Schneider
1792: 403). **New replacement name.**

multimaculata (Grouvelle 1902: 759). **New
combination** [from *Catolaemus*].

parvula Guérin-Méneville 1844: 189. **Returned
to previous generic assignment.**

pauxilla (Pascoe 1863b: 81). **New combination**
[from *Bitoma*].

obscura Horn 1885: 140.

striatopunctata Guérin-Méneville 1844: 190.



Figs. 52–53. Dorsal habitus of New World colydiine genera, tribe Synchitini and *incertae sedis*. **52)** *Synchita fuliginosa*; **53)** *Phreatus rigidus*.

INCERTAE SEDIS

(1 genus, 2 species)

Phreatus Pascoe, 1863

(Fig. 53)

Phreatus Pascoe 1863b: 90. (2 species)

Currently recognized species of *Phreatus*:

immsi Hinton 1936: 79.

**rigidus* Pascoe 1863b: 90.

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