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A Catalog of the World Xylophagidae (Insecta: Diptera)

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Introduction

The Xylophagidae are a small family of primitive "orthorrhaphous" Brachycera comprising nine genera and 133 species. The family has a widespread distribution over much of the world, but is absent from the Afrotropical Region. Some taxa within the family have relictual distributions as well as peculiar or otherwise striking morphology, sometimes leading to the recognition of several monotypic families within the group (e.g., Nagatomi 1996). However, the known larvae have very distinctive autapomorphic features that clearly indicate that these genera form a monophyletic group (Woodley 1989). One genus, *Austroleptis* Hardy, currently placed in the Rhagionidae (Nagatomi 1996), remains of uncertain affinity and it is possible that it belongs in the Xylophagidae. Only discovery of its larva is likely to resolve this issue.

The limits of the family Xylophagidae have a complex history and have fluctuated widely since Fallén (1810) first proposed the family-group name for the two genera *Coenomyia* (as *Sicus*) and *Xylophagus*. Meigen (1820) added present-day beridine Stratiomyidae and Xylomyidae to the family which started the trend of including taxa with relatively unmodified antennae and an elongate abdomen to the Xylophagidae. As exotic Diptera became available to European taxonomists, some species with relatively plesiomorphic wing venation and a body form similar to *Xylophagus* were placed in the genus although they are now known to belong to Asilidae (*Xylophagus vittatus* Walker, 1837) and Therevidae (e.g., *Xylophagus brunneus* Wiedemann, 1824; *Xylophagus latistria* Walker, 1848; *Xylophagus canescens* Walker, 1848). Westwood (1840) recognized the importance of similarities in the larvae and mode of pupation in Stratiomyidae and present-day Xylomyidae and excluded the latter from the xylophagids, which he renamed "Caenomyidae". However, this was not always followed. For instance, Schiner (1862) placed the xylomyids in Xylophagidae, and placed *Coenomyia* in its own family. Osten Sacken (1878) placed xylomyids, *Xylophagus*, *Rachicerus*, and *Bolbomyia* Loew (Rhagionidae) in the Xylophagidae, and *Coenomyia* and *Arthropeas* in the "Coenomyidae". Later

he (Osten Sacken 1891) combined his concept of xylophagids with present-day rhagionids in a broad family Leptidae (=Rhagionidae). This was more or less followed by subsequent authors such as Williston (1896), Verrall (1909), Malloch (1917), and Leonard (1930) although Verrall and Malloch included the xylomyids in the Stratiomyidae. Enderlein (1921) proposed yet another arrangement, putting the xylophagids, including *Heterostomus* and *Anacanthaspis*, in the Stratiomyidae as a subfamily mixed with some chiromyzine and beridine stratiomyid genera, and placing *Rachicerus* in the Solvinae with present-day xylomyids.

The instability in the concept of Xylophagidae and where the included genera should be placed was due to their generalized features which resulted in taxa based on plesiomorphic similarities. With the advent of cladistic methodology, the Xylophagidae gradually became more rigorously defined. In various papers Hennig addressed family composition and their interrelationships, summarized in his general treatment of the entire order Diptera (Hennig 1973). His superfamily Xylophagoidea comprised three families, Xylophagidae, Rachiceridae, and Coenomyiidae, which together contained most of what are included in Xylophagidae today. However, his Coenomyiidae did contain genera currently placed in Pelecorhynchidae, and *Dialysis* was still included in the Rhagionidae. Nagatomi (1975a, b, c) presented an extensive character discussion and refined the definition of the Coenomyiidae to include *Dialysis* for the first time and exclude the pelecorhynchid genera and *Bolbomyia*. Nagatomi (1977) postulated that the Xylophagidae *sensu lato* was monophyletic based on adult characters, and although he recognized four families, the group contained all the genera currently placed in the family. Woodley (1989) preferred an inclusive single family Xylophagidae, based primarily on the synapomorphic character states found in known larvae. Based only on general appearance, Nagatomi (1992) postulated that *Exeretonevra* and *Heterostomus* were possibly sister taxa. The discovery of the larva of the aberrant genus *Exeretonevra* (Palmer & Yeates 2000) fully corroborated the hypothesis that the genus belonged in Xylophagidae.

Because there are so few genera in the Xylophagidae, I have not chosen to recognize subfamilies within the family. Palmer & Yeates (2000) recognized the Coenomyiinae based upon the adult clypeus being set in a deep facial groove, which they considered a synapomorphy of the group. This grouping contains all the genera in the family except *Xylophagus* and *Rachicerus*. The relationships among the genera of this group remain unknown, but a sister-group relationship between *Coenomyia* and *Odontosabula* seems tenable because both genera have scutellar spines, a probable synapomorphy. The larvae of this group of genera generally inhabit soil (Palmer & Yeates 2000: 26).

Palmer & Yeates (2000) also recognized the subfamily Xylophaginae, to include *Xylophagus* and *Rachicerus*, but did not elaborate further on character evidence, although they did note that larvae of these two genera inhabit decaying wood or occur under bark. A number of characters do indicate a sister-group relationship between these two genera: 1) the reduced alula of the wing (Hennig 1973); 2) first segments of the cercus fused medially in adult females (Nagatomi & Iwata 1976); 3) adult male with eyes widely separated; and 4) male terminalia with epandrium large and convex, nearly or entirely concealing the cerci in dorsal view.

Key to world genera of Xylophagidae

1. Wing venation aberrant, with fusion of basal areas of R_{4+5} and M_{1+2} and presence of r-r and r-m crossveins resulting in a closed cell r_{2+3} + r_4 (see Palmer & Yeates 2000: fig. 15); abdominal tergite one with a pair of glabrous, glandular plaques; known only from continental Australia and Tasmania. ..... *Exeretonevra* Macquart
   Wing venation normal, without fusion of R_{4+5} and M_{1+2} and no supernumerary closed r cell; abdominal tergite one without glandular plaques; widespread, but not known from continental Australia or Tasmania 2
2. Antennal flagellomeres completely fused, forming a single flagellomere with a small, ovoid base and a long, slender, arista-like style..... *Dialysis* Walker
   Antennal flagellum usually with eight distinct flagellomeres (15 or more in *Rachicerus*), occasionally with some fusion, but always at least several flagellomeres visible. 3
3. Wing with alula narrow, posterior margin nearly straight, incision obsolete; male dichoptic. 4
   Wing with alula wide, posterior margin strongly rounded, incision distinct; male holoptic or nearly so 5
4. Antennal flagellum with 15 or more flagellomeres, usually slightly to very strongly pectinate (females of a few species without any asymmetry to flagellomeres); wing with cell m_3 closed before wing margin. ..... *Rachicerus* Walker
   Antennal flagellum with eight or occasionally seven flagellomeres, never pectinate; wing with cell m_3 open at wing margin.....
   ..... *Xylophagus* Meigen

5. Scutellum with a pair of well-developed spines (reduced to tubercles in two species of *Coenomyia*). 6
Scutellum without armature. 7
6. Eye densely pilose; first antennal segment nearly twice as long as its diameter; large, very robust flies..... *Coenomyia* Latreille
Eye with only very sparse, microscopic pilosity; first antennal segment about as long as its diameter; large, slender flies. .... *Odontosabula* Matsumura
7. Palpus with second segment greatly inflated with apical portion bent ventrally, and apical half largely without hairs; large, robust flies with a velvety black abdomen, tergites 1-3 each with a narrow golden apical band; known only from Chile .. *Heterostomus* Bigot
Palpus with second segment not inflated and not bent ventrally, entire segment evenly haired; variable in size, but usually much smaller and more slender than above, and abdomen differently colored; widespread, not known from Neotropics. 8
8. Scutellum with posteromedial margin distinctly impressed, appearing slightly bilobed; large robust flies similar to *Coenomyia* in general habitus; known only from eastern Palaearctic. ....*Anacanthaspis* Röder
Scutellum with posteromedial margin evenly rounded (faintly impressed in *A. magna*); smaller, usually more slender flies; Nearctic and Palaearctic. ..... *Arthropeas* Loew

Discussion of recognized genera

Anacanthaspis Röder. This genus contains two similar species from the eastern Palaearctic. These are large, robust, *Coenomyia*-like flies that are black and have a conspicuous pattern of pale gray tomentum on the scutum and abdomen, and yellowish wings. The continental and Japanese forms have previously been regarded as a single species, but Yang & Nagatomi (1994) pointed out structural differences and suggested the two be recognized as distinct. I have followed their lead and formally recognize two species.

Arthropeas Loew. Members of the genus *Arthropeas* are mostly medium-sized flies with a general appearance similar to *Atherix* (Athericidae). They have a more or less pale abdomen banded with darker coloration. Nagatomi & Nagatomi (1988) recently revised the genus. I have elevated the status of the two varieties described by Malloch (1932) from Tibet to species level

as they have wing patterns that differ from *A. sibirica*. However, these taxa are known from few specimens, and further material and study is needed to elucidate their status.

Arthropeas magna from the Nearctic Region differs significantly from other members of the genus. Some of these differences are summarized by Nagatomi & Nagatomi (1988: 377-378). The species is more robust than other *Arthropeas*, with the abdomen wider and less tapered. It has a general appearance similar to a small *Coenomyia* or *Anacanthaspis*. The scutellum is similar to that found in the latter genus, but is not deeply impressed, although close examination reveals a slight medial impression on the posterior margin. It is possible that a detailed study will reveal that *Arthropeas magna* is more closely related to *Anacanthaspis* than other *Arthropeas* and should be included in that genus.

Coenomyia Latreille. *Coenomyia* is a very distinctive genus of large, robust flies of dull, pale brownish to blackish color, with two blunt scutellar spines. *Coenomyia ferruginea* (and probably the other species as well) has a very distinctive, maple syrup-like odor that is retained long after death (Verrall 1909: 259). The summary provided by Yang & Nagatomi (1994) for the Chinese fauna contains a key to world species. Oldroyd (1966) also published a synopsis of the genus with notes on some morphological characters.

Dialysis Walker. Species of *Dialysis* are elongate flies of moderate size, easily recognized within Xylophagidae by the structure of the antennal flagellum, which is composed of a single flagellomere with an elongate arista-like style. This antennal structure resulted in the genus being placed in the Rhagionidae until its relationships were studied in detail by Nagatomi (1975a, b). Adults have an odor similar to that of *Coenomyia*. The first description of the larva of *Dialysis* (Webb & Lisowski 1983) unequivocally confirmed its place in the Xylophagidae. Webb (1978) revised the Nearctic species, and Yang & Nagatomi (1994) provided a treatment of the Chinese species.

Exeretonevra Macquart. This genus of four species, confined to eastern Australia and Tasmania, remained enigmatic until recently. Palmer & Yeates (2000) provided an excellent historical review of this genus. Bernardi (1972) showed that its usual placement in the Nemestrinidae was based on superficial similarity in wing venation rather than true homology. Subsequent authors generally allied the genus with *Coenomyia* and its relatives, but some placed *Exeretonevra* in its own family (e.g., Nagatomi 1977; and see summary in Woodley 1989: 1376). The recent discovery of the larva of

Fig. 1: *Coenomyia ferruginea* (Scopoli), male.

Exeretonevra (Palmer & Yeates 2000) clearly showed that *Exeretonevra* is a xylophagid.

Heterostomus Bigot. *Heterostomus* contains a single species, *H. curvipalpis* Bigot, from central Chile. Its large size, unique general appearance, and relictual distribution has helped confuse its placement in the lower Brachycera (see summary in Woodley 1989: 1376), even though Bigot (1857, 1879) originally allied *Heterostomus* with xylophagids. Recognition of a monotypic family (e.g., Nagatomi 1985b, 1996) does little to illuminate its relationships. Nagatomi (1985b) provided a detailed redescrip-

tion of *Heterostomus*, including male and female terminalia. Sinclair *et al.* (1994) found that the structure of the male terminalia support the position of *Heterostomus* within Xylophagomorpha. As with other enigmatic taxa, discovery of the larva of *Heterostomus* will prove crucial in resolving its placement.

Odontosabula Matsumura. Species of *Odontosabula* have the general appearance of a large *Dialysis* (i.e., elongate and relatively slender), but are easily identified by their two scutellar spines and more plesiomorphic antennal flagellum. Two scutellar spines are shared only with *Coenomyia* in the family, possibly indicating a sister-group relationship between the two genera. *Odontosabula* is known only from the eastern Palaearctic Region, and was treated in detail by Nagatomi (1985a).

The original description for *Odontosabula* requires some discussion. On page 78 of his work, Matsumura (1905) listed the species as "Sabula (?) gloriosa Mats." This seems to indicate that he thought it might be in the genus *Subula* Meigen (= *Xylomya* Rondani), which he misspelled as "*Sabula*". On the legend to plate XXIII, he called the species "*Odontosabula gloriosa* Mats." Previous authors (e.g., Nagatomi 1985a) have cited page 78 as the original description of *Odontosabula*, which is incorrect, since the name does not appear there. Therefore, as first reviser, I regard the legend to plate XXIII, figure 8 (although it really refers to figure 7, as pointed out by Nagatomi 1985a: 226), as the correct original combination.

Rachicerus Walker. The largest genus of Xylophagidae, *Rachicerus*, contains slightly over half the species in the family. It is the only genus of xylophagids that is found in tropical forest regions. The distinctive, apomorphic structure of the antennal flagellum with 15 or more flagellomeres makes *Rachicerus* easy to recognize. Its distinctness has led some authors to segregate the genus into its own family (e.g., Hennig 1967; Nagatomi 1970, 1982), but larvae of *Rachicerus* are typical xylophagids in every respect (Greene 1926). I have recognized only one genus in this catalog, dismissing two small segregate genera in which two species have been placed. I discuss the rationale for this decision below for the two taxa involved.

1. *Paleorachicerus* Nagatomi. This genus is based on a Baltic amber fossil, originally described as *Electra formosa* Loew (*Electra* being preoccupied, *Paleorachicerus* is a replacement name; see Evenhuis 1994 for a summary of nomenclature). Three or four species of *Rachicerus*-like flies have been described from Baltic amber, which Hennig (1967) suspected actually belong to two species that exhibit sexual dimorphism. Males of the

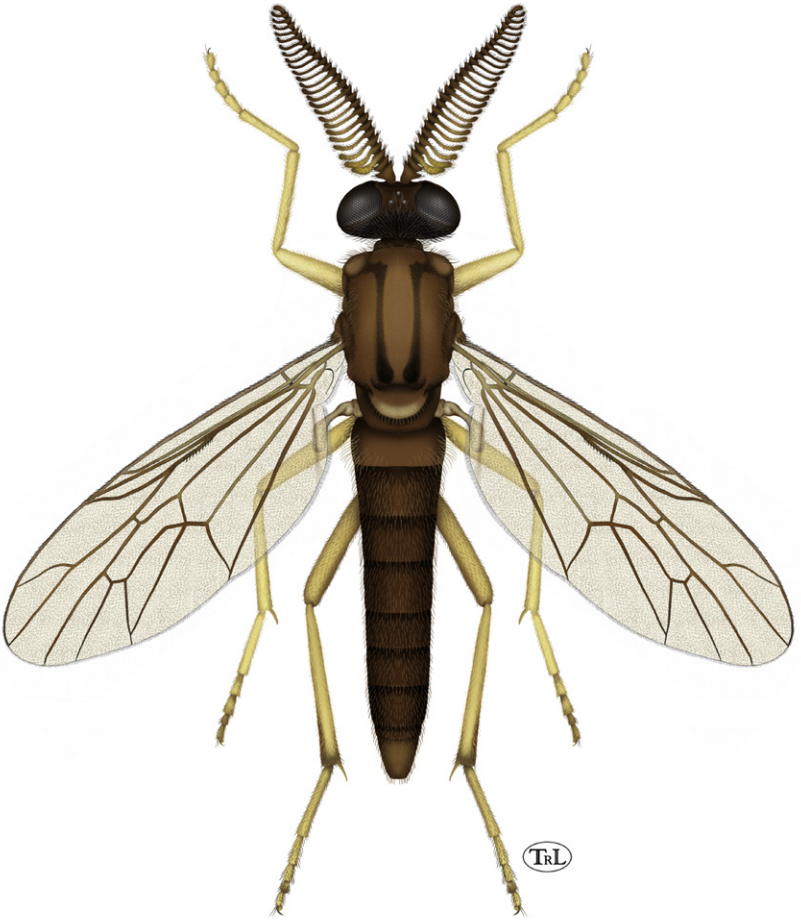

Fig. 2: *Rachicerus obscuripennis* Loew, male.

fossil species have slightly to strongly bipectinate antennal flagellomeres, while known females have flagellomeres without distinct processes.

Frey (1954) described an extant species in the fossil genus, *Electra relicta*, from a single male and female collected in the Philippines. His placement of the species in *Electra* was based on the female antennal flagellum, which lacks pectinations, and apparently on the assumption that the antennal flagellum of the species was strongly sexually dimorphic. However, both antennal flagellae of the male Frey examined were missing. Frey (1954: 4) stated that there was no sexual dimorphism in the antennae in the Oriental *Rachicerus* that he studied. However, Hennig (1967: 4) pointed out

that of the 16 species he saw, Frey had both sexes for only one species! All *Rachicerus* I have examined for which sexes are reliably associated (about a dozen species) show at least moderate sexual dimorphism in the antennal flagellum. I think it is likely that all species of *Rachicerus* are sexually dimorphic in this regard. Furthermore, several species, including the type species of the genus (*R. fulvicollis*), have females with cylindrical antennal flagellae, not exhibiting any sort of asymmetry to the flagellomeres. Finally, I have not observed any extant species in which there is any evidence of a second process on the flagellomeres, the critical character found in the Baltic amber species. My observations confirm the doubts of Hennig (1967) and Nagatomi (1982) that *Electra relicta* Frey belongs in the same genus as the Baltic amber fossil described by Loew. Thus, I am assigning Frey's species to *Rachicerus*. *Paleorachicerus* is only known from fossil taxa.

2. *Gymnorhachicerus* Frey. Frey (1954) erected *Gymnorhachicerus* for a single species from Myanmar. The only character state used to diagnose the genus was the bare laterotergite ("metapleura"). Nagatomi (1982) reexamined Frey's material, and stated that no other striking difference between Frey's species and *Rachicerus* was found. He expressed doubt about the validity of Frey's genus. In the material of *Rachicerus* I have studied, *R. nitidus* from the Nearctic Region, as well as four unnamed Neotropical species, have a laterotergite with only tomentose vestiture, lacking any erect hairs. As this character is clearly variable in *Rachicerus*, with the state of having no hairs on the laterotergite being found in species unrelated to *G. pilosus*, I am synonymizing *Gymnorhachicerus* with *Rachicerus*.

Nagatomi (1970, 1982) revised the Old World species of *Rachicerus*. Webb (1984) treated the taxonomy of the Nearctic species. The species from the Neotropical Region are more poorly known and are in need of modern revision.

Xylophagus Meigen. Species of *Xylophagus* are relatively slender, elongate flies that are black (the abdomen can be marked with reddish in *X. cinctus*), often with dark wing patterns. Because their larvae are easily found under bark and reared, species of *Xylophagus* are better known than those of other genera in the family. Krivosheina & Mamaev (1972) provided a synopsis of the Palaearctic species known at the time, and Webb (1979) revised the Nearctic fauna. Four species have been described since those papers. Woodley (1994) critiqued Webb's (1979) phylogenetic study of the Nearctic species, showing that characters used to recognize subgenera were not discrete which corroborated some observations made by Collin (1962) on the British species.

The following table lists the genera of Xylophagidae in the order found in the catalog, with a summary of the number of species known in each

zoogeographic region. The number in the total column can be less than the sum of those in individual regions if a species is known from more than one region. These numbers probably accurately reflect relative regional taxonomic diversity, even though tropical areas are poorly collected.

Taxon	Distribution						
	NE	NT	PA	AF	OR	AU	Total
Anacanthaspis Röder, 1889			2				2
Arthropeas Loew, 1850	2		4				6
Coenomyia Latrielle, 1797	1		3		2		4
Dialysis Walker, 1850	10		4		3		17
Exeretonevra Macquart, 1846						4	4
Heterostomus Bigot, 1857		1					1
Odontosabula Matsumura, 1905			5				5
Rachicerus Walker, 1854	5	9	2		47	6	69
Xylophagus Meigen, 1803	8		17				24
Unplaced species	1	1					2
Totals	27	11	37	0	52	10	133

Arrangement and format of the catalog

Most of the arrangement of this catalog is self-explanatory and need not be detailed here. I have not included family-group names because these have been very recently covered in great detail by Sabrosky (1999). Fossil taxa are not included because they were recently compiled by Evenhuis (1994).

Genus-group names. For each recognized genus in the Xylophagidae all genus-group names proposed are cataloged, with the valid name given in boldface type. I have included both original and subsequent incorrect spellings, but I have not made an exhaustive search of the literature for the latter, but recorded them when they were detected.

Species-group names. For each species of Xylophagidae recognized as valid the currently accepted valid name is given at the beginning of each entry in bold, followed by the author's name. This is followed on the same line by a summary of the known range of the species. These ranges are summarized at the country level, with a few exceptions in which states or provinces are included parenthetically (e.g., Australia, Canada, China, Mexico, USA). I have arranged the distributions by zoogeographic region.

Listed under the general catalog entry line, I have given all names that have been proposed that apply to that species. These are given in their original combination, using entirely original spelling, even if it does not agree in gender with the original genus name. These names are listed in chronological order with the author and reference. As with genus-group names, I have included both original and subsequent incorrect spellings, but again have not searched specifically for the latter category of errors.

For each proposed name for which type material is applicable, I have given the type status based on original and subsequent publications, the sex(es) of the material if determinable, the institution(s) where the material is deposited, and the type locality or localities. Type localities restricted or changed by lectotype designations are given based on published information or my own research. Geographic names for type localities have been modernized wherever possible, but occasionally are given within quotation marks if I could not interpret the locality unambiguously. Since there are a number of possible combinations for listing the status of type material, I am listing the notation I have used with brief explanation.

HT ♂: A holotype either proposed specifically or can be determined because the author only saw a single specimen, with known sex.

HT ?: A holotype based on the above criteria, but for which the sex cannot be determined from the literature. If examined, the specimen is so badly damaged that sex cannot be determined.

LT ♂: A lectotype validly designated, with known sex. The reference to the lectotype designation is given following the acronym for depository.

ST 2♂, 1♀: Syntypes are known for which a specific number of males and/or females can be determined.

ST 2♂, ♀: Syntypes are known for which a specific number of one sex can be determined, but the number of the other sex cannot be determined from available information.

ST ♂♀: Syntypes of both sexes (or a single sex if only one symbol is given) are known, but their number cannot be determined from available information.

ST 5?: Syntypes are known for which a specific number can be determined, but their sex(es) cannot be determined from available information.

ST ?: Syntypes are known but numbers and sexes cannot be determined from available information.

The assumption of holotype status of type specimens by subsequent authors occurs regularly. Article 74.6 of the *International Code of Zoological Nomenclature* outlines the conditions by which an assumption of holotype becomes a lectotype designation if a species name is found to be based on more than one specimen in cases where that is not clear from the original description (i.e., the original description neither implies or requires that there are syntypes, but it is subsequently determined that syntypes exist). Therefore, in some cases I have recorded the first published "assumption of holotype" that I am aware of in cases where there is no unequivocal evidence that only a single specimen was described.

As far as possible, institutions in which types are deposited have been cited. This information has been garnered from the literature, from correspondence with curators, published type lists, and my own museum work. In cases where type material is known to be destroyed, this is indicated. In cases where type material has not been located in a particular museum where it is supposed to reside, it is indicated as lost. The acronyms used for these institutions are given below. In those cases where some specific information on a particular collection has been used, I have cited the source.

AMNH	Department of Invertebrate Zoology, American Museum of Natural History, New York, New York, USA (examined)
ANIC	Division of Entomology, CSIRO, Canberra, Australia (David K. Yeates, personal communication)
ANSP	Department of Entomology, The Academy of Natural Sciences, Philadelphia, Pennsylvania, USA (examined)
BAUC	Department of Entomology, China Agricultural University, Beijing, China
BMNH	Department of Entomology, The Natural History Museum, London, England (examined)
BPBM	Department of Natural Sciences, Bernice P. Bishop Museum, Honolulu, Hawaii, USA (internet site)
CAS	Department of Entomology, California Academy of Sciences, San Francisco, California, USA (Arnaud 1979; internet site)
CNC	Canadian National Collection of Insects, Arachnids and Nematodes, Biological Resources Program, Agriculture Canada, Ottawa, Ontario, Canada (examined; internet site)
CUI	Department of Entomology, Cornell University, Ithaca, New York, USA
DEI	Deutsches Entomologisches Institut, Müncheberg, Germany (Rohlfien & Ewald 1979)

EUMJ Entomological Laboratory, Ehime University, Matsuyama, Japan
HNHM Zoological Department, Hungarian Natural History Museum, Budapest, Hungary
HUS Entomological Institute, Hokkaido University, Sapporo, Japan
IEME Institute for Evolution, Morphology, and Ecology of Animals, Moscow, Russia
INHS Illinois Natural History Survey, Champaign, Illinois, USA (Webb 1980)
IOC Instituto Oswaldo Cruz, Rio de Janeiro, Brazil
IZAS Institute of Zoology, Academia Sinica, Beijing, China
KU Entomological Laboratory, Kyushu University, Fukuoka, Japan
KUIC Entomological Laboratory, Kagoshima University, Kagoshima, Japan
MCSNG Museo Civico di Storia Naturale "Giacomo Doria", Genoa, Italy
MCSNM Museo Civico di Storia Naturale, Milan, Italy
MCZ Department of Entomology, Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA (examined)
MNHN Laboratoire d'Entomologie, Muséum National d'Histoire Naturelle, Paris, France (examined)
MVMA Division of Natural History, Museum of Victoria, Abbotsford, Victoria, Australia
MZUSP Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil
NMNS National Museum of Natural Science, Taichung, Taiwan
NMW II. Zoologische Abteilung (Insekten), Naturhistorisches Museum, Vienna, Austria
NRS Sektionen för Entomologi, Naturhistoriska riksmuseet, Stockholm, Sweden
NTU National Taiwan University, Taipei, Taiwan
OSUC Department of Entomology, Ohio State University, Columbus, Ohio, USA (internet site)
SCI Laboratory of Taxonomy and Ecology, Institute of Entomology, Academia Sinica, Shanghai, China
SEMC Snow Entomological Museum, Department of Entomology, University of Kansas, Lawrence, Kansas, USA (Byers *et al.* 1962)
UMO Hope Entomological Collections, The University Museum, Oxford University, Oxford, England (examined)
UNK Unknown depository of type material

USNM Department of Entomology, Smithsonian Institution, Washington, DC, USA (examined)
UZMCF Fabrician Collection, Zoologisk Museum, Copenhagen University, Copenhagen, Denmark (Zimsen 1964)
UZMH Zoological Museum, Finnish Museum of Natural History, University of Helsinki, Helsinki, Finland
ZMAN Zoologisch Museum, Instituut voor Taxonomische Zoologie, Universiteit van Amsterdam, Amsterdam, The Netherlands (de Jong 2000)
ZISP Zoological Institute, Academy of Sciences, St. Petersburg, Russia (Krivosheina *et al.* 1984)
ZMHU Zoologisches Museum an der Humboldt-Universität, Berlin, Germany
ZMUH Abteilung für Entomologie, Zoologisches Institut und Zoologisches Museum, Universität Hamburg, Hamburg, Germany (Weidner 1969)
ZMUM Zoological Museum, Moscow State University, Moscow, Russia
ZSI Zoological Survey of India, Calcutta, India

Taxonomic changes

NEW GENUS-GROUP SYNONYMIES:
Gymnorhachicerus Frey 1954 = *Rachicerus* Walker 1848.

NEW COMBINATIONS:
Rachicerus pilosus (Frey), from *Gymnorhachicerus* Frey.
Rachicerus relicta (Frey), from *Paleorachicerus* Nagatomi.

NEW CHANGES IN STATUS:
Anacanthaspis japonica Shiraki, elevated to species level.
Arthropeas sibirica var. *fenestralis* Malloch, elevated to species level.
Arthropeas sibirica var. *semifusca* Malloch, elevated to species level.
Xylophagus matsumurae inermis Krivosheina & Krivosheina, elevated to species level.

Catalog

Genus ANACANTHASPIS Röder

Anacanthaspis Röder, 1889: 8. Type species, *Anacanthaspis bifasciata* Röder, by monotypy.

bifasciata Röder. **Palaearctic:** China (Heilongjiang, Liaoning), Japan, Russia.

Anacanthaspis bifasciata Röder, 1889: 8. ST ♂♀ NMW [?]. Russia. Region of the Amur River.

japonica Shiraki. **Palaearctic:** Japan. **NEW STATUS.**

Anacanthaspis bifasciata var. *japonica* Shiraki, 1932: 487. ST ♂♀ NMNS [?]. Japan. Honshu: Kamikochi and Ibuki. Correct original spelling by present revision.

Anacanthaspis bifasciata var. *japanica*. Shiraki 1932: 489. Incorrect original spelling.

Genus ARTHROPEAS Loew

Arthropeas Loew, 1850a: 304. Type species, *Arthropeas sibirica* Loew, by monotypy.

Arthropaeas. Incorrect subsequent spelling. Marschall 1873: 322.

americana Loew. **Nearctic:** Canada (Ontario, Quebec), USA (Connecticut, Massachusetts, Michigan, Maine, Minnesota, New York, Pennsylvania, Vermont, Virginia, Wisconsin).

Arthropeas americana Loew, 1861: 316. HT ♀ MCZ [assumption by Webb (1983a: 742)]. USA. Northern Wisconsin.

fenestralis Malloch. **Palaearctic:** China (Sichuan). **NEW STATUS.**

Arthropeas sibirica var. *fenestralis* Malloch, 1932: 119. HT ♂ USNM. China. Sichuan: Kangding, 8900 ft.

Arthropeas sibirica feres. Incorrect subsequent spelling. Hua 2006: 57.

magna Johnson. **Nearctic:** Canada (Alberta, Manitoba, Saskatchewan), USA (Montana, Oregon, South Dakota).

Arthropeas magna Johnson, 1913: 11. HT ♂ MCZ. Canada. Manitoba: Beulah.

sachalinensis Matsumura. **Palaearctic:** Russia (Sakhalin).

Arthropeas sachalinensis Matsumura, 1916: 361. ST ♀ HUS [lost]. Russia. Sakhalin: "Ōtani".

semifusca Malloch. **Palaearctic:** China (Sichuan). **NEW STATUS.**

Arthropeas sibirica var. *semifusca* Malloch, 1932: 119. HT ♂ USNM. China. Sichuan: "Ja-Ze Pass", 16,000-17,150 ft.

sibirica Loew. **Palaearctic:** China (Beijing, Gansu, Hebei, Heilongjiang, Qinghai, Xizang), Korea, Russia.

Arthropeas sibirica Loew, 1850a: 305. ST ♂♀ ZMHU. Russia. Siberia.

Leptis tessella Motschulsky, 1859: 505. ST ? ZMUM. Russia. Siberia: Amur River between the Shilka River and Nikolayevsk-na-Amure.

Genus COENOMYIA Latreille

Coenomyia Latreille, 1797: 159. Type species, *Musca ferruginea* Scopoli, by subsequent monotypy (Latreille 1802: 439).

Sicus Fabricius, 1798: 547, 554. Type species, *Musca ferruginea* Scopoli, by designation of Sabrosky (1961: 228). Preoccupied, primary homonym of *Sicus* Scopoli, 1763. Although some authors regarded *Sicus* Fabricius as a misidentification, others regarded it as an independent proposal. I.C.Z.N. (1997) permanently rejected the name. See Sabrosky (1999: 281-282) for a discussion.

Coenomya. Incorrect subsequent spelling. Latreille 1802: 439.

Cynomyja. Incorrect subsequent spelling. Fabricius 1805: 76.

Caenomyia. Incorrect subsequent spelling. Latreille 1809: 280.

Cenomyia. Incorrect subsequent spelling. Bigot 1879: 184.

Caenomyia Scudder, 1882: 53 [unjustified emendation of *Coenomyia* Latreille].

Conomyia. Incorrect subsequent spelling. Matsumura 1916: legend to plate XXI.

basalis Matsumura. **Palaearctic:** Japan, Russia (Kuril Islands, Sakhalin).

Coenomyia basalis Matsumura, 1915: 47. ST ♀ HUS. Japan. Hokkaido: Sapporo.

Coenomyia apicalis Matsumura, 1915: 47. ST ♂ HUS. Japan. Hokkaido: Sahoro.

Coenomyia basalis Matsumura, 1916: 357. ST ♀♂ HUS. Japan. Hokkaido: Sapporo. Correct original spelling by revision of Nagatomi (1987: 716). Preoccupied, primary homonym of *Coenomyia basalis* Matsumura 1915.

Coenomyia grandis. Incorrect original spelling. Matsumura 1916: legend to plate XXI.

Coenomyia comans Enderlein, 1927: 47. ST 2♀ ZMHU. Japan. Honshu: Yokohama; ST 1♀ ZMHU. Japan. Honshu: Nikko Mountains. Syn. Nagatomi & Saigusa 1970: 260.

Coenomyia japonica Séguy, 1955: 290. ST ♂♀ MNHN. Japan. Honshu: Tokyo region, Mount Takao, near Hachioji. Syn. Nagatomi & Saigusa 1970: 260.

bituberculata Enderlein. **Palaearctic:** China (Xizang). **Oriental:** India, Nepal.

Coenomyia bituberculata Enderlein, 1921: 213. ST 3♀ ZMHU. India. Sikkim.

ferruginea (Scopoli). **Nearctic:** Canada (Manitoba, Ontario, Quebec), USA (Connecticut, Delaware, Georgia, Illinois, Indiana, Iowa, Kansas, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Pennsylvania, South Dakota, Tennessee, Virginia, Wisconsin). **Palaearctic:** Austria, Belgium, Czech Republic, Denmark, France, Germany, Hungary, Italy, Netherlands, Poland, Romania, Slovakia, Spain, Sweden, Switzerland.

Musca ferruginea Scopoli, 1763: 340. ST ? UNK [destroyed]. "Carniola" [= Slovenija?].

Musca olens Fuesslin, 1775: 54. ST ? UNK. Switzerland. "Foot of the Ütlibergs". Syn. Thompson & Pont 1994: 103.

Tabanvs bidens Fabricius, 1777: 307. ST 1? UZMCF. Austria.

Tabanvs bispinosus Fabricius, 1777: 308. ST ? UZMCF [lost]. Germany. Göttingen.

Tabanus bidentatus. Incorrect subsequent spelling of *Tabanus bidens* Fabricius. Fabricius 1781: 459.

Stratiomys testacea Fabricius, 1787: 330. ST ? UZMCF [lost]. "America meridionali".

Stratiomys crucis Fabricius, 1787: 330. ST ? UZMCF [lost]. USA. Virgin Islands: St. Croix. Note: this type locality is undoubtedly based on erroneous data; the species has never subsequently been collected in the Caribbean.

Musca australis Gmelin, 1790: 2833 [new name for *Stratiomys testacea* Fabricius, 1787].

Stratiomys macroleon Panzer, 1793a: 20. ST ♀ ZMHU [lost]. Germany. Nuremburg.

Stratiomys unguiculata Panzer, 1793b: 22. ST ♂ ZMHU [lost]. Germany. Dresden.

Stratiomys errans Fabricius, 1794: 263. ST ? UZMCF [lost]. Unknown (not stated); later given as "regionibus australioribus" (Fabricius 1805: 76).

Stratiomys major Schrank, 1795: 146. ST ? UNK. Germany. Bavaria: on the moor near Neuburg.

Stratiomys grandis Schrank, 1795: 146. ST ? UNK. Germany. Bavaria; ST ? UNK. Germany. Bavaria: Regensburg.

Stratiomys major. Schrank 1796: 175 [subsequent usage of *Stratiomys major* Schrank, 1795].

Stratiomys grandis. Schrank 1796: 175 [subsequent usage of *Stratiomys grandis* Schrank 1795].

Stratiomys palatina Schrank, 1796: 175. ST ? UNK. Germany. Bavaria: Neuburg.

Sicus bicolor Fabricius, 1798: 555 [new name for *Tabanus bispinosus* Fabricius 1781].

Sicus unicolor Meigen, 1804a: 122 [new name for *Stratiomys macroleon* Panzer, 1793].

Sicus aureus Meigen, 1804a: 122 [new name for *Stratiomys unguiculata* Panzer, 1793].

Coenomyia pallida Say, 1824: 369. ST 3♀ ANSP [destroyed]. USA. Minnesota: Minnesota River (as "St. Peter's River").

Musca grandis Schrank *in* Gistl, 1837: 17. ST ? UNK. Germany. Bavaria: "Burghausen". Preoccupied, secondary homonym of *Stratiomys grandis* Schrank, 1795.

Caenomyia cinereibarbis Bigot, 1879: 194. HT ♂ BMNH. USA. Maryland: Baltimore.

Coenomyia ferrugines. Incorrect subsequent spelling. Nagatomi 1987: 713.

maculata Yang & Nagatomi. **Oriental:** China (Fujian).

Coenomyia maculata Yang & Nagatomi, 1994: 82. HT ♂ BAUC. China. Fujian: Jian'ou.

Genus DIALYSIS Walker

Dialysis Walker, 1850: 4. Type species, *Dialysis dissimilis* Walker [= *Stygia elongata* Say], by monotypy.

Triptotricha Loew, 1872: 59. Type species, *Triptotricha lauta* Loew, by designation of James (1965a: 342).

Agnotomyia Williston, 1886: 106. Type species, *Stygia elongata* Say, by monotypy. Correct original spelling by revision of Williston (1895: 264).

Agnotemyia. Incorrect original spelling. Williston 1886: 106.

Napemyia Webb, 1983b: 822. Type species, *Napemyia illinoensis* Webb, by original designation. Syn. Woodley 1993: 637.

Diaysis. Incorrect subsequent spelling. X. Yang 1997: 1805.

aldrichi Williston. **Nearctic:** Canada (British Columbia), USA (California, Idaho, Oregon, Washington).

Dialysis aldrichi Williston, 1895: 265. LT ♂ USNM [des. Webb 1978: 417]. USA. Idaho: Craig Mountain.

arakawae Matsumura. **Palaearctic:** Japan.

Dialysis arakawae Matsumura, 1916: 351. ST ♀ HUS. Japan. Honshu: Hakone; ST ♀ HUS. Japan. Shikoku.

cispacifica Bezzi. **Oriental:** China (Fujian), Taiwan.

Dialysis cispacifica Bezzi, 1912: 444. ST ♂♀ HNHM [destroyed], MCSNM. Taiwan. Toyenmongai.

dispar Bigot. **Nearctic:** Canada (British Columbia), USA (California, Idaho, Oregon, Washington).

Dialysis dispar Bigot, 1879: 197. LT ♂ BMNH [des. Webb 1978: 413]. USA. California.

Dialysis disparilis Bergroth, 1889: 296. ST ♂♀ UZMH [Webb's (1978: 413) assumption of holotype does not constitute a valid lectotype designation]. Canada. British Columbia: Vancouver Island. Syn. Webb 1978: 412.

elongata (Say). **Nearctic:** Canada (Quebec), USA (Connecticut, Georgia, Maine, Massachusetts, New Jersey, New York, North Carolina, Pennsylvania, Tennessee, Vermont, Virginia, West Virginia).

Stygia elongata Say, 1823b: 41. ST ? ANSP [destroyed]. USA. Pennsylvania.

Leptis humeralis. Nomen nudum [Massachusetts]. Harris 1835: 597.

Dialysis dissimilis Walker, 1850: 4. HT ♀ BMNH [assumption by Webb (1978: 420)]. North America.

fasciventris (Loew). **Nearctic:** USA (Arkansas, District of Columbia, Illinois, Indiana, Iowa, Kansas, Maryland, Minnesota, Missouri, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia).

Triptotricha fasciventris Loew, 1874: 380. LT ♀ MCZ [des. Webb 1978: 421]. USA. Pennsylvania.

Dialysis fasciiventris. Incorrect subsequent spelling. Bergroth 1889: 296.

flava D. Yang & C. Yang. **Oriental:** China (Zhejiang).

Dialysis flava D. Yang & C. Yang, 1995: 488. HT ♂ BAUC. China. Zhejiang Province: Mt. Baishanzu, 27.7°N, 119.1°E, 1800 m.

illinoensis (Webb). **Nearctic:** USA (Illinois).

Napemyia illinoensis Webb, 1983b: 823. HT ♂ INHS. USA. Illinois: Vermilion County, Forest Glen Forest Preserve, 5 mi SE of Westville. Correct original spelling by present revision.

Napemyia illinoiensis. Incorrect original spelling. Webb 1983b: 822.

iwatai Nagatomi. **Palaearctic:** Japan.

Dialysis iwatai Nagatomi, 1953: 13. HT ♂ KU. Japan. Honshu: Hyogo Prefecture, Takigun, Jôhokumura.

kesseli D. E. Hardy. **Nearctic:** USA (California).

Dialysis kesseli D. E. Hardy, 1949: 129. HT ♂ CAS. USA. California: Canyon Creek, north of Nevada City.

lauta (Loew). **Nearctic:** USA (California).

Triptotricha lauta Loew, 1872: 59. HT ♀ MCZ [assumption by Webb (1978: 423)]. USA. California.

Triptotricha discolor Loew, 1874: 379. HT ♂ MCZ [assumption by Webb (1978: 424)]. USA. California: San Francisco. Syn. Webb (1978: 423).

mentata Webb. **Nearctic:** USA (California, Washington).

Dialysis mentata Webb, 1978: 424. HT ♂ USNM. USA. California: San Bernardino County, Crestline.

meridionalis D. Yang & C. Yang. **Palaearctic:** China (Hubei, Sichuan).

Dialysis meridionalis D. Yang & C. Yang, 1997: 1456. HT ♀ IZAS. China. Sichuan: Wushan, 1850-1870 m.

pallens D. Yang & Nagatomi. **Oriental:** China (Zhejiang).

Dialysis pallens D. Yang & Nagatomi, 1994: 88. HT ♂ BAUC. China. Zhejiang: Mokanshan Mountain.

reparta Webb. **Nearctic:** USA (California).

Dialysis reparta Webb, 1978: 428. HT ♂ AMNH. USA. California: Riverside County, San Jacinto Mountains, Idyllwild.

rufithorax (Say). **Nearctic:** USA (Alabama, District of Columbia, Florida, Georgia, Illinois, Indiana, Kentucky, Maryland, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia).

Leptis rufithorax Say, 1823b: 36. ST ? ANSP [destroyed]. USA. Pennsylvania.

sinensis D. Yang & Nagatomi. **Palaearctic:** China (Guizhou, Hunan, Jiangxi).

Dialysis sinensis D. Yang & Nagatomi, 1994: 90. HT ♂ BAUC. China. Jiangxi: Lushan Mountain.

Genus EXERETONEVRA Macquart

Exeretonevra Macquart, 1846: 233. Type species, *Exeretonevra maculipennis* Macquart, by monotypy.

Exeretoneura. Marschall 1873: 331. Incorrect subsequent spelling.

angustifrons G. H. Hardy. **Australian:** Australia (New South Wales, Victoria).

Exeretoneura angustifrons G. H. Hardy, 1924: 458. HT ♂ MVMA [?]. Australia. Victoria: Gisborne.

maculipennis Macquart. **Australian:** Australia (New South Wales, Tasmania).

Exeretonevra maculipennis Macquart, 1846: 234. ST ♀ MNHN. Australia. Tasmania.

tertia Paramonov. **Australian:** Australia (New South Wales, Victoria).

Exeretoneura tertia Paramonov, 1953: 250. HT ♀ ANIC. Australia. Victoria: Millgrove.

zentae Paramonov. **Australian:** Australia (New South Wales).

Exeretoneura zentae Paramonov, 1953: 251. HT ♂ ANIC. Australia. New South Wales: near Braidwood.

Genus HETEROSTOMUS Bigot

Heterostomus Bigot, 1857: 283. Type species, *Heterostomus curvipalpis* Bigot, by monotypy.

Heterostomyia Bigot, 1879: 186 [new name for *Heterostomus* Bigot, 1857].

Heterostomatomyia. Incorrect subsequent spelling. Rye 1881: 5.

Heterostomatomyia. Unjustified emendation of *Heterostomyia* Bigot. Scudder 1884: 148.

Heterostomes. Incorrect subsequent spelling. Nagatomi 1991: 25.

curvipalpis Bigot. **Neotropical**: Chile.

Heterostomus curvipalpis Bigot, 1857: 285. ST 5? BMNH. Chile.

Heterostomyia flexipalpis. Nomen nudum. Bigot 1879: 186.

Heterostomyia inflexipalpis. Nomen nudum. Bigot 1879: 186.

Genus ODONTOSABULA Matsumura

Odontosabula Matsumura, 1905: legend to plate XXIII, figure 8 and page 2 of index. Type species, *Odontosabula gloriosa* Matsumura, by monotypy.

Stratioleptis Pleske, 1925: 182. Type species, *Stratioleptis czerskii* Pleske, by monotypy. Syn. Nagatomi & Saigusa 1970: 267.

czerskii (Pleske). **Palaearctic:** China (Heilongjiang), Korea, Russia.

Stratioleptis czerskii Pleske, 1925: 182. LT ♂ ZISP [des. Nartshuk *in* Nartshuk & Kandybina 1984: 5]. Russia. Tumen River, Nagornaya.

decora Nagatomi. **Palaearctic:** Japan.

Odontosabula decora Nagatomi, 1985a: 220. HT ♂ KUIC. Japan. Honshu: Fukui Prefecture, Hatogayu, near Mt. Haku.

fulvipilosa Nagatomi. **Palaearctic:** Japan.

Odontosabula fulvipilosa Nagatomi, 1985a: 223. HT ♂ KUIC. Japan. Honshu: Yamagata Prefecture, Mt. Îde.

gloriosa Matsumura. **Palaearctic:** Japan.

Odontosabula gloriosa Matsumura, 1905: legend to plate XXIII, figure 8 and page 2 of index. ST 1♀ HUS. Japan. presumably Kyushu; ST ♂♀ HUS [lost]. Japan. Honshu and Kyushu. Correct original combination by present revision.

Sabula (?) *gloriosa.* Incorrect original combination. Matsumura 1905: 78 ["*Sabula"* is an incorrect spelling of *Subula*, now a synonym of *Xylomya* Rondani (Xylomyidae)].

Stratioleptis pleskei Séguy, 1926: 12. HT ♂ MNHN. Japan. Kyushu: upper basin of the Sendai-gawa River. Syn. Nagatomi & Saigusa 1970: 268.

licenti (Séguy). **Palaearctic:** China (Heilongjiang), Japan, Korea, Russia.

Stratioleptis licenti Séguy, 1952: 243. HT ♂ MNHN. China. Heilongjiang: Kirin.

Genus RACHICERUS Walker

Rachicerus. *Nomen nudum*. Walker 1848: 124. Attributed to Haliday.

Rachicerus Walker, 1854: 103. Type species, *Rachicerus fulvicollis* Walker, by monotypy.

Rhyphomorpha Walker, 1861: 275. Type species, *Rhyphomorpha bilinea* Walker, by monotypy.

Antidoxion Snellen van Vollenhoven, 1863: 6. Type species, *Antidoxion fulvicorne* Snellen van Vollenhoven, by monotypy. Syn. Osten Sacken 1881: 409.

Rhachicerus. Unjustified emendation of *Rachicerus* Walker. Loew 1872: 114.

Antidoxia. Incorrect subsequent spelling. Marschall 1873: 321.

Rhacicerus. Incorrect subsequent spelling. Malloch 1917: 346.

Rhachicerella Enderlein, 1921: 167. Type species, *Rachicerus honestus* Osten Sacken, by original designation. Syn. Nagatomi 1970: 418.

Rachicerella. Incorrect subsequent spelling. Carrera 1945: 120.

Gymnorhachicerus Frey, 1954: 7. Type species, *Gymnorhachicerus pilosus* Frey, by original designation. **NEW SYNONYMY.**

amorosus Nagatomi. **Oriental:** Laos.

Rachicerus amorosus Nagatomi, 1982: 53. HT ♂ BPBM. Laos. Vientiane Province: Ban Van Eue.

anachoreticus Nagatomi. **Oriental:** Laos.

Rachicerus anachoreticus Nagatomi, 1982: 54. HT ♂ BPBM. Laos. Vientiane Province: Ban Van Eue.

aterrimus Senior-White. **Oriental:** Sri Lanka.

Rhachicerus aterrimus Senior-White, 1924: 389. HT ♂ BMNH. Sri Lanka. Pattipola: 6200 ft.

bellus Osten Sacken. **Neotropical:** Panama.

Rhachicerus bellus Osten Sacken, 1886: 62. HT ♀ BMNH. Panama. Bugaba, 800-1500 ft.

bicolor Brunetti. **Oriental:** Sri Lanka.

Rhachicerus bicolor Brunetti, 1912: 461. HT ♀ BMNH. Sri Lanka. Kandy.

bifidus Nagatomi. **Oriental:** Malaysia (Sabah).

Rachicerus bifidus Nagatomi, 1970: 432. HT ♀ BPBM. Malaysia. Sabah: north of Kalabakan.

bilineus (Walker). **Australian:** Indonesia (Maluku).

Rhyphomorpha bilinea Walker, 1861: 275. ST ♀ UMO [lost]. Indonesia. Maluku: Pulau Bacan.

boarius Nagatomi. **Oriental:** Philippines.

Rachicerus boarius Nagatomi, 1970: 433. HT ♀ BPBM. Philippines. Luzon: Los Baños.

brevicornis Kertész. **Oriental:** Taiwan.

Rhachicerus brevicornis Kertész, 1914: 501. HT ♀ HNHM [destroyed]. Taiwan. Fuhosho.

endymion Nagatomi. **Oriental:** Malaysia (Sabah).

Rachicerus endymion Nagatomi, 1970: 435. HT ♂ BPBM. Malaysia. Sabah: north of Kalabakan.

fenestratus Kertész. **Oriental:** Taiwan.

Rhachicerus fenestratus Kertész, 1914: 500. HT ♀ HNHM [destroyed]. Taiwan. Janano-Taiko.

flabellum Nagatomi. **Oriental:** Malaysia (Sabah).

Rachicerus flabellum Nagatomi, 1970: 436. HT ♂ BPBM. Malaysia. Sabah: north of Kalabakan.

fluidus Nagatomi. **Australian:** Papua New Guinea (Papua New Guinea).

Rachicerus fluidus Nagatomi, 1970: 437. HT ♂ BPBM. Papua New Guinea. Papua New Guinea: Morobe District, Wau.

fulvicollis Walker. **Nearctic:** USA (Georgia, Illinois, Maryland, Massachusetts, Tennessee, Virginia).

Rachicerus fulvicollis. Nomen nudum. Walker 1848: 124 [attributed to Haliday].

Rachicerus fulvicollis Walker, 1854: 104. HT ♂ BMNH [assumption by Webb (1984: 305)]. USA. Georgia. Walker 1854: 104 [attributed to Haliday].

Rachicerus ruficollis. Incorrect subsequent spelling. Osten Sacken 1877: 212.

fulvicornis (Snellen van Vollenhoven). **Oriental:** Indonesia (Java).

Antidoxion fulvicorne Snellen van Vollenhoven, 1863: 6. HT ♀ ZMAN. Indonesia. Java.

galloisi Séguy. **Palaearctic:** Japan.

Rachicerus galloisi Séguy, 1948: 154. ST 1♂, 1♀ MNHN. Japan. Honshu: Chûzenji.

guttatus Nagatomi. **Oriental:** Indonesia (Java).

Rachicerus guttatus Nagatomi, 1970: 438. HT ♀ BMNH. Indonesia. Java: Lebak Sive, Mt. Gede.

hainanensis D. Yang & C. Yang. **Oriental:** China (Hainan).

Rachicerus hainanensis D. Yang & C. Yang, 2002: 725. HT ♀ BAUC. China. Hainan Island: Wuzhishan, 800 m.

honestus Osten Sacken. **Nearctic:** USA (California, Oregon).

Rachicerus honestus Osten Sacken, 1877: 211. HT ♂ MCZ. USA. California: San Rafael.

kotoshensis Nagatomi. **Oriental:** Taiwan.

Rachicerus kotoshensis Nagatomi, 1970: 440. HT ♂ NTU. Taiwan. Kotosho Island: Botel-Tobago.

Rachicerus kotoshoensis. Incorrect subsequent spelling. Hua 2006: 58.

lanei Carrera. **Neotropical:** Brazil.

Rachicerus lanei Carrera, 1940: 389. HT ♂ MZUSP. Brazil. São Paulo: Alto da Serra.

lepidus Nagatomi. **Oriental:** Nepal.

Rachicerus lepidus Nagatomi, 1982: 51. HT ♂ KU. Nepal. between Thurkupa (2600 m) and Papuan (2100 m).

lopesi Carrera. **Neotropical:** Brazil.

Rachicerus lopesi Carrera, 1940: 393. HT ♀ IOC. Brazil. Rio de Janeiro: Corcovado.

maai Nagatomi. **Oriental:** China (Fujian).

Rachicerus maai Nagatomi, 1970: 441. HT ♂ BPBM. China. Fujian: Tachulan, Shaowu.

maculipennis Frey. **Oriental:** Myanmar.

Rhachicerus maculipennis Frey, 1954: 5. HT ♂ UZMH. Myanmar. Kambaiti: 1800 m. Correct original spelling by present revision.

Rhachicerus maucilipennis. Incorrect original spelling. Frey 1954: 6.

marcusi Carrera. **Neotropical:** Brazil.

Rachicerus marcusi Carrera, 1940: 395. HT ♀ MZUSP. Brazil. São Paulo: Alto da Serra.

miyatakei Nagatomi. **Oriental:** Thailand.

Rachicerus miyatakei Nagatomi, 1970: 442. HT ♂ KU. Thailand. Mae Sa Waterfall, near Chiang Mai.

nigellus Nagatomi. **Oriental:** Indonesia (Java).

Rachicerus nigellus Nagatomi, 1970: 444. HT ♂ BPBM. Indonesia. Java.

niger Leonard. **Nearctic:** USA (California).

Rachicerus niger Leonard, 1930: 13. HT ♂ CUI. USA. California: Humboldt County, Blue Lake.

nigricornis Brunetti. **Oriental:** India.

Rhachicerus nigricornis Brunetti, 1920: 105. HT ♂ ZSI. India. West Bengal: Darjeeling, Peshoke Spur, 2000 ft.

nigrinus Wandolleck. **Oriental:** Indonesia (Sumatra).

Rhachicerus nigrinus Wandolleck, 1897: 290. HT ♀ ZMHU. Indonesia. Sumatra: Soekaranda.

nigripalpus Loew. **Neotropical:** Mexico.

Rachicerus nigripalpus Loew, 1874: 378. ST ♀ MCZ. Mexico.

Rachicerus nigripalpis. Incorrect subsequent spelling. James 1975: 24.3.

nimbosus Nagatomi. **Oriental:** Malaysia (Sabah).

Rachicerus nimbosus Nagatomi, 1970: 445. HT ♀ BPBM. Malaysia. Sabah: north of Kalabakan.

nitidus Johnson. **Nearctic:** Canada (Nova Scotia, Ontario, Quebec), USA (Delaware, District of Columbia, Illinois, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New York, Ohio, Pennsylvania, Rhode Island, Tennessee, Vermont, Virginia).

Rhachicerus nitidus Johnson, 1903: 22. LT ♂ MCZ [des. Webb 1984: 312]. USA. Pennsylvania: Philadelphia County, Overbrook.

obatratus Nagatomi. **Oriental:** Malaysia (Sabah).

Rachicerus obatratus Nagatomi, 1970: 446. HT ♂ BPBM. Malaysia. Sabah: north of Kalabakan.

obscuripennis Loew. **Nearctic:** USA (Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Minnesota, Missouri, Nebraska, New York, Pennsylvania, Tennessee, Virginia).

Rhachicerus obscuripennis Loew, 1863: 4. LT ♀ MCZ [des. Webb 1984: 303]. USA. Illinois.

oliverioi Carrera. **Neotropical:** Brazil.
Rachicerus oliverioi Carrera, 1940: 391. HT ♀ IOC. Brazil. São Paulo: Bananal (Bocaina).

omissinervis de Meijere. **Oriental:** Indonesia (Pulau Simeulue).
Rhachicerus omissinervis. *Nomen nudum*. De Meijere 1914: L.
Rhachicerus omissinervis de Meijere, 1916: 18. HT ♀ ZMAN. Indonesia. Pulau Simeulue, Pulu Babi.

opiparus Nagatomi. **Oriental:** Indonesia (Sumatra).
Rachicerus opiparus Nagatomi, 1970: 447. HT ♀ BMNH. Indonesia. Sumatra: Boekit Itam, Benkoelen, 540 m.

opulentus Nagatomi. **Oriental:** Malaysia (Pahang).
Rachicerus opulentus Nagatomi, 1970: 449. HT ♀ BMNH. Malaysia. Pahang: Cameron Highlands.

orientalis Ôuchi. **Oriental:** China (Zhejiang).
Rhachicerus orientalis Ôuchi, 1938: 64. ST 2♂, 3♀ SCI. China. Zhejiang: Tianmu Shan.

pantherinus Nagatomi. **Oriental:** China (Guangdong).
Rachicerus pantherinus Nagatomi, 1970: 450. HT ♂ USNM. China. Guangdong: Yim Na San, 750 m.

patagiatus Enderlein. **Oriental:** Taiwan.
Rhachicerus patagiatus Enderlein, 1913: 538. HT ♀ DEI. Taiwan. Hoozan.

pauciarticulatus Frey. **Oriental:** Philippines.
Rhachicerus pauciarticulatus Frey, 1954: 7. HT ♀ UZMH. Philippines. Luzon Island: Santo Tomas.

picticornis Kertész. **Neotropical:** Costa Rica.
Rhachicerus picticornis Kertész, 1923: 89. HT ♂ HNHM [destroyed]. Costa Rica. Suiza de Turrialba.

pictipennis Kertész. **Oriental:** Taiwan.
Rhachicerus pictipennis Kertész, 1914: 502. ST 2♂, 1♀ HNHM [destroyed]. Taiwan. Kosempo; ST 1♀ HNHM [destroyed]. Taiwan. Janano-Taiko.

pilosus (Frey). **Oriental:** Myanmar. **NEW COMBINATION.**
Gymnorhachicerus pilosus Frey, 1954: 7. ST 4♂ UZMH. Myanmar. Kambaiti, 1800 m.

plagosus Nagatomi. **Oriental:** India (Kerala).
Rachicerus plagosus Nagatomi, 1970: 452. HT ♀ BMNH. India. Kerala: Travancore, Periyar Dam, Thekkadi.

proximus Kertész. **Oriental:** Taiwan.
Rhachicerus proximus Kertész, 1914: 504. HT ♂ HNHM [destroyed]. Taiwan. Taihorin.

pullus Nagatomi. **Oriental:** India (Madras).

Rachicerus pullus Nagatomi, 1970: 453. HT ♂ USNM. India. Madras: Pulni Hills, Kodaikanal, 1950 m.

quatei Nagatomi. **Oriental:** Laos.

Rachicerus quatei Nagatomi, 1982: 55. HT ♂ BPBM. Laos. Luang: Prabang, 300 m.

relicta (Frey). **Oriental:** Philippines. **NEW COMBINATION.**

Electra relicta Frey, 1954: 3. ST 1♂, 1♀ UZMH [Nagatomi's (1982: 41) assumption of holotype does not constitute a valid lectotype designation]. Philippines. Leyte Island [as "Scyte"]: Santa Cruz.

robinsoni Edwards. **Oriental:** Indonesia (Sumatra).

Rhachicerus robinsoni Edwards, 1919: 26. HT ♀ BMNH. Indonesia. Sumatra: Korinchi, Siolak Daras, 3000 ft.

robustus Frey. **Oriental:** Philippines.

Rhachicerus robustus Frey, 1954: 6. HT ♂ UZMH. Philippines. Mindanao Island: Port Bange.

rusticus Nagatomi. **Oriental:** Sri Lanka.

Rachicerus rusticus Nagatomi, 1970: 454. HT ♀ BMNH. Sri Lanka.

sakishimanus Nagatomi. **Oriental:** Japan (Yaeyama Islands).

Rachicerus sakishimanus Nagatomi, 1982: 58. HT ♂ KU. Japan. Yaeyama Islands: Iriomote Island, Komi.

samuelsoni Nagatomi. **Australian:** Papua New Guinea (Papua New Guinea).

Rachicerus samuelsoni Nagatomi, 1982: 45. HT ♂ BPBM. Papua New Guinea. Papua New Guinea: Mt. Missim, 1300 m.

shannoni Carrera. **Neotropical:** Brazil.

Rachicerus shannoni Carrera, 1945: 125. HT ♀ MZUSP. Brazil. Rio de Janeiro: "Distrito Federal".

solivagus Nagatomi. **Oriental:** Thailand.

Rachicerus solivagus Nagatomi, 1970: 455. HT ♂ KU. Thailand. Chiang Dao: 70 km north of Chiang Mai.

spissus Nagatomi. **Oriental:** Sri Lanka.

Rachicerus spissus Nagatomi, 1970: 457. HT ♀ BMNH. Sri Lanka. Maskeliya.

steffani Nagatomi. **Australian:** Papua New Guinea (Papua New Guinea).

Rachicerus steffani Nagatomi, 1982: 46. HT ♀ BPBM. Papua New Guinea. Papua New Guinea: Central District, Brown Road 3.2 km S of Vanapa River.

tenuiculus Nagatomi. **Australian:** Papua New Guinea (Bismark Archipelago).

Rachicerus tenuiculus Nagatomi, 1970: 457. HT ♀ BPBM. Papua New Guinea. Bismark Archipelago: New Britain, Mt. Sinewit, Gazelle Pen.

tenuis Nagatomi. **Australian:** Indonesia (Irian Jaya).

Rachicerus tenuis Nagatomi, 1970: 458. HT ♀ BPBM Indonesia. Irian Jaya: Jazirah Doberai, Manokwari.

tigrinus Nagatomi. **Oriental:** Malaysia (Sabah).

Rachicerus tigrinus Nagatomi, 1970: 460. HT ♂ BPBM. Malaysia. Sabah: north of Kalabakan.

tristis Loew. **Palaearctic:** France, Spain.

Rachicerus tristis Loew, 1869: 24. HT ♂ ZMHU. Spain. Andalusia.

Xylomyia nubila Enderlein, 1921: 168. HT ♂ ZMHU. Spain. Andalusia. Syn. Kassebeer 2002: 200.

unicinctus Brunetti. **Oriental:** India.

Rhachicerus unicinctus Brunetti, 1920: 106. HT ♀ ZSI. India. West Bengal: Darjeeling, Peshoke, 1000 ft.

varipes Loew. **Neotropical:** Cuba.

Rhachicerus varipes Loew, 1863: 5. ST 1♂, 1♀ MCZ. Cuba.

varius Nagatomi. **Oriental:** Thailand.

Rachicerus varius Nagatomi, 1970: 461. HT ♂ KU. Thailand. Chiang Dao: 70 km north of Chiang Mai.

zonatus Osten Sacken. **Oriental:** Indonesia (Sumatra).

Rhachicerus zonatus Osten Sacken, 1881: 408. ST ♀ MCSNG. Indonesia. Sumatra: Mt. Singalang.

Genus XYLOPHAGUS Meigen

Erinna Meigen, 1800: 21. Type species, *Nemotelus cinctus* De Geer, by designation of Coquillett (1910: 539). Suppressed by I.C.Z.N. (1963: 339).

Xylophagus Meigen, 1803: 266. Type species, *Nemotelus cinctus* De Geer, by monotypy. Not preoccupied by *Xylophagus* Meuschen, 1778, as this name was published in a work subsequently suppressed for nomenclatural purposes by I.C.Z.N. (1954: 294).

Zylophagus. Incorrect subsequent spelling. Latreille 1809: 271.

Pachystomus Latreille, 1809: 286. Type species, *Rhagio syrphoides* Panzer, by monotypy.

Egiochus. Nomen nudum. Rafinesque 1815: 132.

Xilophagus. Incorrect subsequent spelling. Latreille 1829: 481.

Pachistomus. Incorrect subsequent spelling. Rondani 1856: 155.

Archimyia Enderlein, 1920: 281. Type species, *Xylophagus ater* Meigen, by designation of Enderlein (1921: 175) from first included species in the same paper.

Xylphagus. Incorrect subsequent spelling. Leonard 1930: 40.

Anaxylophagus Malloch, *in* Malloch, Green & McAtee, 1931: 216. Type species, *Xylophagus nitidus* Adams, by original designation. Described as subgenus of *Xylophagus*. Syn. Nagatomi & Saigusa (1969: 177).

admirandus Krivosheina & Mamaev. **Palaearctic:** Russia.

Xylophagus admirandus Krivosheina & Mamaev, 1972: 442. HT ♀ ZISP. Russia. Primorskiy kray: Suputinskiy Reserve.

albopilosus Miyatake. **Palaearctic:** Japan, Russia.

Xylophagus albopilosus Miyatake, 1965: 107. HT ♀ EUMJ. Japan. Shikoku: Ehime Prefecture, Misaka-toge, foot of Mt. Saragamine.

ater Meigen. **Palaearctic:** Austria, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Italy, Netherlands, Norway, Russia, Sweden.

Xylophagus ater Meigen, 1804b: 154. LT ♂ MNHN [des. Chandler 1998: 88]. Europe.

Erinna (*Archimyia*) *kowarzi* Pleske, 1925: 178. ST 1♂ ZISP [Nartshuk's (*in* Krivosheina *et al.* 1984: 6) assumption of holotype does not constitute a valid lectotype designation]. Austria. Waldegg; ST 1♂ UMO. Austria. Waldegg; ST 1♂ UMO. Romania. Orsova.

bungei (Pleske). **Palaearctic:** Russia.

Erinna (*Archimyia*) *bungei* Pleske, 1925: 179. LT ♂ ZISP [des. Nartshuk *in* Krivosheina *et al.* 1984: 6]. Russia. Yakutiya: valley of Yana River, between Chizdach and Adycha.

Erinna bungi. Incorrect subsequent spelling. Hua 2006: 58.

caucasicus Krivosheina & Mamaev. **Palaearctic:** Azerbaijan, Russia.

Xylophagus caucasicus Krivosheina & Mamaev, 1982: 28. HT ♂ IEME. Russia. Krasnodarskiy kray: Novo-Prohladnoe.

cinctus (De Geer). **Nearctic:** Canada (Alberta, British Columbia, Northwest Territories, Nova Scotia, Ontario, Quebec, Saskatchewan, Yukon), USA (Alaska, California, Colorado, District of Columbia, Idaho, Maine, Massachusetts, Michigan, Minnesota, Mississippi, Montana, New Hampshire, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Virginia, Washington, West Virginia, Wisconsin, Wyoming). **Palaearctic:** Austria, Belgium, Czech Republic, Finland, France, Germany, Great Britain, Italy, Lithuania, Netherlands, Norway, Poland, Russia, Slovakia, Sweden, Switzerland, Yugoslavia.

Nemotelus cinctus De Geer, 1776: 183. ST ? NRS [destroyed]. Sweden.
Empis subulata Panzer, 1798: 23. ST ♂ ZMHU [lost]. Austria.
Rhagio syrphoides Panzer, 1800: 19. ST ♀ ZMHU [lost]. Germany. Baruth.
Xylophagus heros. *Nomen nudum* [Massachusetts]. Harris 1835: 597.
Xylophagus fasciatus Walker, 1848: 128. HT ♀ BMNH [assumption by Webb (1979: 510)]. Canada. Ontario: Albany River, St. Martin's Falls. Preoccupied, primary homonym of *Xylophagus fasciatus* Say 1829.
Xylophagus abdominalis Loew, 1870: 163. HT ♀ MCZ [assumption by Webb (1979: 510)]. USA. Texas. Syn. Webb 1979: 510.

competitus Wiedemann. **Palaearctic:** Austria, Czech Republic, Finland, France, Germany, Great Britain, Norway, Poland, Russia, Sweden.
Xylophagus competitus Wiedemann *in* Meigen, 1820: 13. ST ? NMW. Austria. Note: Because *X. ater* and *X. competitus* have been confused in the past (Chandler 1998), the identity of the species and its range is uncertain.

decorus Williston. **Nearctic:** Canada (Alberta, British Columbia, Yukon), USA (California, Idaho, Montana, Oregon, Washington).
Xylophagus decorus Williston, 1885: 121. HT ♀ SEMC. USA. Washington.
Xylophagus politus Malloch, *in* Malloch, Green & McAtee, 1931: 217. HT ♀ USNM. USA. Washington: Grays Harbor County, Hoquiam (originally erroneously stated as Burke, Colorado). Syn. Webb 1979: 519.

durango Woodley. **Nearctic:** Mexico (Durango).
Xylophagus durango Woodley, 1994: 308. HT ♂ CNC. Mexico. Durango: 24 mi W of La Ciudad, 7000 ft.

fulgidus Webb. **Nearctic:** Canada (Alberta, New Brunswick, Ontario, Quebec, Saskatchewan, Yukon), USA (Alaska, Colorado, Connecticut, New Hampshire, New York).
Xylophagus (*Archimyia*) *fulgidus* Webb, 1979: 512. HT ♂ OSUC. USA. Alaska: Savonoski, Naksek Lake.

gracilis Williston. **Nearctic:** Canada (British Columbia, Yukon), USA (Alaska, California, Oregon, Washington).
Xylophagus gracilis Williston, 1885: 121. LT ♂ SEMC [des. Webb 1979: 505]. USA. Oregon: Mt. Hood.

inermis Krivosheina & Krivosheina. **Palaearctic:** Finland, Russia. **NEW STATUS.**
Xylophagus matsumurae inermis Krivosheina & Krivosheina, 2000: 1225. HT ♂ IEME. Russia. Kamchatka Province: Kozyrevsk.

Note: characters given in the original description suggest that this taxon should be recognized at the species level.

junki Szilády. **Palaearctic:** Czech Republic, Finland, Germany, Great Britain, Lithuania, Norway, Poland, Russia, Sweden, Switzerland.

Xylophagus junki Szilády, 1932: 5. ST ♂♀ ZMUH [destroyed], HNHM [destroyed; UNK]. Germany. Harz and Berlin; Poland. Wölfelsgrund.

lugens Loew. **Nearctic:** Canada (New Brunswick, Ontario, Quebec), USA (Connecticut, District of Columbia, Georgia, Illinois, Indiana, Iowa, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Virginia).

Xylophagus politus. *Nomen nudum* [Massachusetts]. Harris 1835: 597.

Xylophagus lugens Loew, 1863: 6. HT ♀ MCZ [assumption by Webb (1979: 507)]. USA. New Hampshire (originally cited as Illinois; see Webb 1979: 507).

Xylophagus laceyi Curran, 1933: 2. HT ♀ AMNH. USA. New York: New Rochelle. Syn. James 1965a: 296.

lukjanovitshi Krivosheina & Mamaev. **Palaearctic:** Azerbaijan.

Xylophagus lukjanovitshi Krivosheina & Mamaev, 1972: 442. HT ♂ ZISP. Azerbaijan. Lenkoran District: Divagach.

matsumurai Miyatake. **Palaearctic:** Finland, Japan, Russia.

Xylophagus maculatus Matsumura, 1916: 360. ST ♀ HUS. Japan. Honshu: Nikko, Chuzenji. Preoccupied, primary homonym of *Xylophagus maculatus* Meigen, 1804.

Xylophagus matsumurai Miyatake, 1965: 105. New name for *Xylophagus maculatus* Matsumura, 1916.

Xylophagus omogensis Miyatake, 1965: 106. HT ♀ EUMJ. Japan. Shikoku: Ehime Prefecture, Omogokei. Syn. Nagatomi & Saigusa 1969: 181.

Xylophagus matsumurae. Incorrect subsequent spelling. Krivosheina & Mamaev 1972: 440.

mongolicus Kovalev. **Palaearctic:** Mongolia.

Xylophagus mongolicus Kovalev, 1982: 1763. HT ♀ ZISP. Mongolia. Arhangay Aymag: Tevshruleh.

nitidus Adams. **Nearctic:** Canada (Ontario, Quebec), USA (Michigan, New Hampshire).

Xylophagus nitidus Adams, 1904: 435. HT ♀ USNM [?; see Webb, 1979: 503]. USA. New Hampshire: Mt. Washington.

nudatus Nagatomi & Saigusa. **Palaearctic:** Japan, Russia.

Xylophagus nudatus Nagatomi & Saigusa, 1969: 186. HT ♀ KU. Japan. Hokkaido: Tokachi, Nukabira.

reflectens Walker. **Nearctic:** Canada (Alberta, Manitoba, New Brunswick, Nova Scotia, Ontario, Quebec), USA (District of Columbia, Illinois, Indiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia).

Xylophagus fascipennis. *Nomen nudum* [Massachusetts]. Harris 1835: 597.

Xylophagus reflectens Walker, 1848: 129. ST ♂♀ BMNH [Webb's (1979: 517) assumption of holotype does not constitute a valid lectotype designation]. USA. New York.

Xylophagus persequus Walker, 1850: 1. HT ♂ (stated ♀ by Walker) BMNH [assumption by Webb (1979: 517)]. North America.

Xylophagus longicornis Loew, 1870: 163. HT ♂ (stated ♀) MCZ [assumption by Webb (1979: 517)]. USA. Massachusetts. Syn. Webb 1979: 514.

Xylophagus rufipes Loew, 1870: 163. HT ♀ MCZ [assumption by Webb (1979: 517)]. USA. Massachusetts.

sachalinensis Pleske. **Palaearctic:** Japan, Mongolia, Russia.

Erinna (*Xylophagus*) *sachalinensis* Pleske, 1925: 180. HT ♀ ZISP. Russia. Sakhalin.

Xylophagus merus Nagatomi & Saigusa, 1969: 184. HT ♀ HUS. Japan. Hokkaido: Mt. Daisetsu. Syn. Krivosheina & Mamaev 1972: 441.

Xylophagus sacchalinensis. Incorrect subsequent spelling. Webb 1979: 491.

sibiricus Krivosheina & Krivosheina. **Palaearctic:** Russia.

Xylophagus sibiricus Krivosheina & Krivosheina, 2000: 1216. HT ♀ ZMUM. Russia. Krasnoyarsk Territory: Volochanka River.

signifer Krivosheina & Mamaev. **Palaearctic:** Russia.

Xylophagus signifer Krivosheina & Mamaev, 1972: 443. HT ♀ ZISP. Russia. Primorskiy kray: Suputinskiy Reserve.

splendidus Majer. **Palaearctic:** Mongolia.

Xylophagus splendidus Majer, 1985: 179. HT ♀ HNHM. Mongolia. Bulgan Aymag: 7 km N of Somon Chanzargalant, 1350 m.

Unplaced species

triangularis Say. **Nearctic:** USA (Missouri). Unrecognized, possibly Therevidae.

Xylophagus triangularis Say, 1823a: 30. ST ? ANSP [destroyed]. USA. Missouri.

Xylophagus riangularis. Incorrect subsequent spelling. Leonard 1930: 22.

vetustus Walker. **Neotropical:** Brazil. Unrecognized, possibly Therevidae.

Xylophagus ? *vetustus* Walker, 1854: 106. ST ♀ BMNH [lost]. Brazil. Pará.

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