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EUCOILINAE OF NORTH AMERICA: A REVISED CATALOG OF GENERA AND DESCRIBED SPECIES

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Abstract.—We present an updated catalog of North American Eucoilinae, bearing little resemblance to previous regional catalogs, which have been lagging behind in the recent systematic work in the group. The current catalog comprises 34 genera, arranged in six tribes. Of these genera, 9 are represented wholly by unidentified or undescribed species in the region, while the other 25 include 108 species recorded from the region. In comparison with previous catalogs, 24 genera and 41 species are added, and 34 species-level names are recombined, while 7 genera, five subgenera and 11 species are removed from the list of North American taxa. A modern, phylogenetically stable and type-based classification is implemented, as well as a tribal classification. In terms of nomenclatural acts, 25 new combinations are made (one is a reinstatement of an old combination); four new genus-level synonymies are made (*Tetramerocera* Ashmead junior synonym of *Ganaspis* Förster, *Bewelda* Quinlan and *Aporeucoela* Kieffer junior synonyms of *Hexacola* Förster, *Pentaplastidia* Weld junior synonym of *Trybliographa* Förster); eight new species-level synonymies are made; two species names are removed from synonymy; one new replacement name given (*Hexacola pennsylvanicus* for *Hexacola subaperta* Kieffer 1907 nec (Kieffer 1901a)).

Key Words: *Tetramerocera*, *Ganaspis*, *Bewelda*, *Aporeucoela*, *Hexacola*, *Pentaplastidia*, *Trybliographa*, Figitidae, Cynipoidea

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Eucoilinae is a very distinct subfamily of Figitidae (Cynipoidea), common worldwide, and previously recognized as a separate family (Eucoilidae). Ronquist (1995) demonstrated that the group unambiguously belongs within Figitidae, and recognized it as a subfamily. Occasionally today the status as a family is retained where limited attention has been

given to revisionary work carried out in the group during the last half-century (Nordlander 1982b (and citations therein), Ronquist 1995, Fontal-Cazalla et al. 2002, Buffington et al. 2007, Forshage and Nordlander 2008, Buffington et al. 2012). In North America, Cynipoidea faunistics rest on Louis H Weld's works from the 1950s and 1960s (1951, 1952, 1958, 1964,

1967), and the two later catalogs (Burks 1979, and Poole and Gentili-Poole 1996, *Nomina Insecta Nearctica* 1996; hereafter referred to as NIN, 1996) both essentially repeat Weld's work without implementing recent taxonomic changes.

In the 1980s, one of us (GN) prepared a revised version of Burks's (1979) catalog with type studies at the National Museum of Natural History, Washington (USNM; aided by Arnold Menke), but it remained unpublished as the Kieffer types in the California Academy of Sciences, San Francisco (CASC) were not studied. More recently we (MF and MB) had occasion to study the Kieffer types, and located some of the remaining scattered types that GN had not been able to examine. Further, a number of genera have recently been described and revised (Buffington 2002, 2004b, 2009, 2010a, 2010b, 2011; Forshage et al. 2008). Finally, based on studying larger collections of unidentified Nearctic cynipoids in the USNM, University of California Riverside (UCRC), Canadian National Insect Collection, Ottawa (CNCI), and elsewhere, we are able to add several genera to the list of Nearctic Eucolilinae, and to give assessments of distribution and abundance of the genera.

Many species have been transferred to new combinations compared with previous catalogs, and a number added. In fact, the overlap concerning genera and combinations with the most recent catalog is rather small. Of the genera and subgenera listed in previous North American catalogs, some were synonymized decades ago, some more recently, and a few are made junior synonyms here. All the subgeneric names employed in earlier catalogs have been either elevated to genera or recognized as synonyms. Twenty-three genera and 40 species are added to the North American list due to new combinations or new records

of taxa previously known from elsewhere (mostly the Neotropical or Palearctic regions).

Contrary to the previous catalogs, we have listed taxa reported from the Nearctic region rather than "America North of Mexico". It is a controversial and difficult task to determine which parts of Mexico are actually Nearctic, and in this case we have not considered it necessary to adhere rigidly to any particular outline of this border. In fact, very few eucolilina specimens collected in Mexico have been identified. Most of specimens pertain to taxa present also North of the United States border. Only four taxa are found in Mexico but not yet in the United States, recorded from four localities in Mexico, one of which is clearly Nearctic (San Lazaro, Baja Sur) while three are controversial (Ciudad Victoria and Gomez Farias, Tamaulipas, and Mazatlan, Sinaloa). Since these taxa would preferably have to be considered for any student of the entire Nearctic fauna regardless of what concept of the border might be utilized, they are included here. It concerns *Hexacola californicus* (Ashmead 1895) from Baja Sur, *Banacuniculus beardslleyi* Buffington, 2010 from Sinaloa, and *Moneucoela tinctipennis* Kieffer, 1907 and *Rhabdeucoela* sp. from Tamaulipas.

The majority of the North American species in this subfamily are still undescribed, and several genera are represented in the region by undescribed species only. Furthermore, there are genera present in the region that remain undescribed. It is also the case that in most genera that have described species in the Nearctic Region, these genera have not been revised on the species level, so the identity of the nominal species is uncertain and several synonymies may be necessary in the future. For several genera, the current status of knowledge allows us to point out that there are numbers of undescribed species

present in the Nearctic fauna, and in some cases we can make comparisons with the more well-known, recently keyed and cataloged European fauna.

There is still no usable key for identification of all North American eucoilines, even at the generic level. The European key of Forshage and Nordlander (2008) keys out all the major genera, cosmopolitan or Holarctic; while the tribes of Zaucoilini and Diglyphosematini are covered in the worldwide revisions of these tribes by Buffington (2009, 2011). Thus, the only North American genera which are not covered and recognizable by a combination of these three sources are those Neotropical genera of the four remaining tribes that transgress into the Nearctic (plus the probably accidental *Micreriodes* Yoshimoto). Of these, the only common genera are *Striatovertex* Schick, Forshage and Nordlander (cf. Schick et al. 2011) and *Paraganaspis* Díaz and Gallardo; while *Dieucoila* Ashmead, *Epicoela* Borgmeier, *Nordlandiella* Díaz, *Odonteucoila* Ashmead and *Triplasta* Kieffer, are all more rare and usually confined to the southwest or southernmost United States.

Earlier North American catalogs

The first catalog of the Cynipoidea of North America was compiled by Ashmead (1885), listing only five eucoiline species in two genera. Nearctic occurrences of eucoiline species were treated in the world catalog of Dalla Torre (1893) and the world monograph of Dalla Torre and Kieffer (1910). Together, these works added biological and distributional data, as well as rudimentary identification keys and numerous new combinations. However, both being global treatments, they did not focus on the Nearctic region and do not appear to have been used widely as faunistical sources for this part of the world.

The regional catalog by Weld (1951) represented a major step forward, and reflected a vast research effort. Weld lists 81 species (including varieties) in 14 genera (or 25 genus-level units counting subgenera and rest categories) for North America. His first supplement (Weld 1958) removes one species and adds one; and the second supplement (Weld 1967, published posthumously) changes the name of one subgenus and adds one species.

The next major step in Nearctic cataloging efforts was that of Burks (1979), which listed 80 species (including varieties) in 15 genera (or 26 genus-level units counting subgenera and residues) from America North of Mexico. The only difference from Weld (1951) and supplements is that one species (*Hexacola websteri* (Crawford, 1915)) was moved, for unknown reasons, from *Trybliographa* Förster (subgenus *Hexaplasta* Förster). Important changes in taxonomy from the 1960s (Hellén 1960, Kerrich and Quinlan 1960, Quinlan 1967) were overlooked.

NIN (1996) lists 83 species of Eucoilinae in 15 genera. This catalog is clearly different from the previous catalogs only in that it does not list subgenera and junior synonyms, nor full references or biological or distribution data. Additionally, NIN has incorporated a few recent taxonomic changes in the group (neglecting others), incorporated some (but not all) generic synonymies of Nordlander (1981), and included new species by Miller (1989) and Beardsley (1993).

Novelties In This Catalog

Compared with NIN, 24 genera are added as North American genera here, bringing the total to 34 genera. Eight of these genera are added by new combinations of species already in the older catalogs, either into more or less recently

described genera (*Agrostocynips* DeSantis, Díaz and Del Carmen Redolfi, *Banacuniculus* Buffington, *Paraganaspis* Díaz and Gallardo, and *Striatovertex*) or into old but previously misunderstood or incorrectly delineated genera (*Didyctium* Riley, *Gronotoma* Förster, *Leptopilina* Förster); lastly, one is included by extension of the area covered compared with previous catalogs (*Rhabdeucoela* Kieffer). The other 15 new genera are actually new records compared with NIN, of which some are recently published (*Marthiella* Buffington, *Nordlandiella*, *Quasimodoana* Forshage, Nordlander and Ronquist, *Sinatra* Buffington), but others were published decades ago (*Dicerataspis* Ashmead, *Glauraspidia* Thomson, *Trichoplasta* Benoit); 8 are published for the first time here (*Aganaspis* Lin, *Chrestosema* Förster, *Dieucoila*, *Epicoela*, *Micreriodes*, *Moneucoela* Kieffer, *Odonteucoila*, *Triplasta*).

The extralimital geographical distribution for the majority of genera added is Neotropical (*Agrostocynips*, *Banacuniculus*, *Dicerataspis*, *Dieucoila*, *Epicoela*, *Marthiella*, *Moneucoela*, *Nordlandiella*, *Odonteucoila*, *Paraganaspis*, *Rhabdeucoela*, *Striatovertex*, *Triplasta*); others are either predominantly Palearctic (*Glauraspidia*, *Quasimodoana*), Palearctic + Afrotropical (*Trichoplasta*), Palearctic + Oriental (*Chrestosema*), more or less cosmopolitan (*Aganaspis*, *Didyctium*, *Gronotoma*, *Leptopilina*) or mainly Oceanic (*Micreriodes*, *Sinatra*).

Simultaneously, 6 genera are removed from the list; one due to new combination (previous misidentification) (*Nordlanderia*), and five due to genus-level synonymizations, most of which were in fact already published before the previous North American catalog was published (*Aglaotoma*, *Eucoilidea*, *Hypoethria*, *Pseudeucoila*); one synonymy is new (*Aporeucoela*). Five taxa recognized as

subgenera in Burks (1979) are now considered synonyms. Two genera are considered *nomina inquirenda* (*Macroceruecoila* Ashmead, *Tetraplasta* Ashmead), and seven genera are retained from the previous catalogs.

Forty-two species names are recombined compared with the earlier catalogs; 22 of these are previously published and 20 are new combinations here. Five species names are added by formal acts (synonyms, removals from synonymy, or replacement names) while 11 species names are removed from the list of American species by synonymy. These changes involve five new synonymies, one new removal from synonymy, two new combinations, and one new replacement name. Thirty-five names are added compared with earlier catalogs due to new records (of which 17 published for the first time here). Among these species there is also one reinstated combination and one removal from synonymy. The identity of 8 species listed in previous catalogs is considered so uncertain that they cannot be assigned to a genus.

No tribal names have been utilized within Eucoilinae in previous American catalogs. Some authors described a number of tribes (e.g., Belizin 1961, Kovalev 1979, 1994), which were usually poorly described and delimited, and eventually synonymized in Ronquist (1999). However, the "groups of genera" of Nordlander (1982a, 1982b) have been used by several workers, and recently they were shown to be (after some corrections) consistent with probable monophyletic groups in the first phylogenetic analysis of the subfamily (Fontal-Cazalla et al. 2002). Tribal names were subsequently reintroduced by Forshage et al. (2008) and Forshage and Nordlander (2008), with Zaeucoilini added by Buffington (2009). The tribal classification is not yet entirely stable and has not yet been fully implemented; here

we assign genera to the currently recognized tribes in accordance with what is suggested by phylogenetic analyses (Fontal-Cazalla et al. 2002; Forshage et al. 2008; Buffington et al. 2007; Buffington 2009, 2011). Some of the genera are explicitly associated for the first time with a tribal name herein (*Dieucoila*, *Nordlandiella*, *Odonteucoila*, *Paraganaspis*, *Triplasta*).

To summarize the nomenclatural acts in this paper, we are making 24 new combinations (one of which is a reinstatement of an old combination) and four new genus-level synonymies, based on examination of type specimens using modern, type- and phylogeny-based, concepts of the genera instead of out of date and key character-based systems that were relied upon in the past. We also make 6 new species-level synonymies, remove two species from synonymy, and introduce one new replacement name.

Catalog Format

As this is a regional catalog only, a complete set of details about descriptions, synonyms and types has not been considered to be within its scope; we feel this is best postponed to systematic revisions of groups included.

Tribes, genera and species are listed in alphabetical order.

For tribes, type genera and taxonomic history are given, as are references to general treatments of the group in those cases where such are available.

Genera are, from a practical viewpoint, the basic unit of classification in Eucoilinae. This results from the fact that most species are undescribed, and most available species names are not associated with recognizable taxa; thus, genera are given a fuller treatment than other taxonomic levels here. Immediately following the name, type species and a relevant selection of synonyms (those

that have ever been associated with Nearctic taxa) are given, and in some cases, other notes pertaining to nomenclatural formalities. Then follows an account of nomenclatural history as pertaining to the North American catalogs. Finally, a general characterization of the genus in terms of geographical distribution (when that has not already been discussed concerning the history of the taxon), species richness and abundance, and knowledge of biology in terms of host and habitat associations. References have not been given to host data; a separate paper summarizing the status of all published host records in Figitidae is forthcoming.

For species, a preferred combination is given, either with an indication of it being new, or the source of where the combination was first made, as well as other combinations previously used, followed by original combination (if different) indicated as “orig comb”. Within parenthesis the status and combination of the species in previous North American catalogs is given – “sic” (so) indicates that the combination and status therein is the same as here; “b sp” indicates that a name (here controversial or synonymized) was given as the valid name of a species-level taxon. Type location is given with standard abbreviations. Finally, a note about extralimital distribution is given for those taxa where it applies.

Species-level junior synonymies have been cited only to the extent they have been applied specifically in North America or referring to North American specimens, or have more or less recently been widely used. Synonyms are cited in their original combination, followed by a reference to synonymization, then other combinations which have been used, followed by the type location as well as status in previous North American catalogs.

All nomenclatural references have been listed in the bibliographical reference section for clarity.

Taxa only found in Mexico are noted to facilitate comparison with earlier catalogs that did not include Mexico.

No attempt has been made to specify the geographical distribution in North America of each species. With so few specimens identified to that level so far, such a task has been considered somewhat premature and not very meaningful from a biological viewpoint.

List Of Depositories

- AEIC American Entomological Institute, Gainesville
 ANIC Australian National Insect Collection, CSIRO, Canberra
 BMNH Natural History Museum, London (NHM)
 BPNM Bernice P Bishop Museum, Honolulu
 CASC California Academy of Sciences, San Francisco (CAS)
 CNCI Canadian National Collection of Insects, Ottawa (CNC)
 CUIC Cornell University, Ithaca
 INHS Illinois Natural History Survey, Champaign
 MLPA Museo de la Plata, Buenos Aires
 MNCN Museo Nacional de Ciencias Naturales, Madrid
 MNHN Muséum National d'Histoire naturelle, Paris
 MZLU Zoologiska Museet, Lund University, Lund (LZM)
 NMW Naturhistorisches Museum, Vienna
 OUMNH Oxford University Museum of Natural History, Oxford
 UAAM University of Arkansas Arthropod Museum, Fayetteville (UADE)
 UCDC University of California, Davis (UCD)
 UCRC University of California, Riverside (UCR)
 ULQC University of Laval, Quebec City

USNM National Museum of Natural History, Smithsonian Institution, Washington DC

ZMHB Museum für Naturkunde, Humboldt-Universität, Berlin

ZSM Zoologische Staatssammlung, München

Eucoilinae Thomson, 1862

Diglyphosematini Belizin, 1961

Type genus *Diglyphosema* Förster, 1869, an Old World genus; tribal name reintroduced in Forshage and Nordlander (2008), circumscription coincides with “*Gronotoma* group” sensu Nordlander (1982b) and Fontal-Cazalla et al. (2002); Buffington (2011) reviewed the tribe, characterized the genera, and provided a generic key.

Genus *Banacuniculus* Buffington, 2010

Type species *Eucoila hunteri* Crawford, 1913

Banacuniculus is a recently described genus (Buffington 2010a). Nearctic species belonging here were listed in *Pseudeucoila* in Weld, Burks and NIN; though not closely related to that taxon, which is itself a junior synonym of *Trybliographa*.

This genus is distributed throughout western half of North America, and also present locally in the Neotropics and in Pacific islands. They are locally (especially in the arid Southwest) not uncommon parasitoids of Agromyzidae.

Banacuniculus beardsleyi Buffington, 2010 type UCDC (Mexico only).

Banacuniculus brautigani Buffington, 2010 type UCRC.

Banacuniculus dis Buffington, 2010 type UCDC.

Banacuniculus hunteri (Crawford 1913) this combination Buffington, 2010, *Gronotoma hunteri* in Buffington, 2002, *Ganaspidium hunteri* in Beardsley, 1986,

Pseudeucoila hunteri in Weld, 1951, orig comb *Eucoila hunteri* (in *Pseudeucoila* (s str) in Weld and Burks, *Pseudeucoila* in NIN) type USNM.

Banacuniculus merickeli (Miller 1989) this combination Buffington, 2010, orig comb *Nordlanderia merickeli* (*Nordlanderia* in NIN) type lost (species present also in Neotropics).

Banacuniculus nigrimanus (Kieffer 1907) this combination Buffington, 2010, *Ganaspidium nigrimanus* in Buffington, 2004a; *Pseudeucoila nigrimanus* in Weld, 1952, orig comb *Eucoela nigrimanus* (in *Pseudeucoila* (subgenus uncertain) in Weld & Burks, *Pseudeucoila* in NIN) type CASC.

Banacuniculus strykeri Buffington, 2010 type USNM (species present also in Neotropics).

Banacuniculus utilis (Beardsley 1988) this combination Buffington, 2010, synonymized with *Eucoela nigrimanus* in Buffington, 2004b but removed from synonymy in Buffington, 2010, orig comb *Ganaspidium utilis* (missing in NIN) type BPNM (species present also in Neotropics).

Genus *Ganaspidium* Weld, 1955

Type species *Ganaspidium pusillae* Weld, 1955.

Ganaspidium was introduced in North American catalogs in Weld (1958) (sic in Burks and NIN) with one species. A second species, itself a junior synonym of the first, was treated in NIN as part of the Palearctic genus *Nordlanderia* Quinlan. Others were subsequently added in the revision of Buffington (2010b), but probably more yet undescribed species remain to be discovered.

This genus is distributed throughout western half of North America, and also present locally in the Neotropics. They are parasitoids of Agromyzidae.

Ganaspidium didionae Buffington, 2010 type UCDC (species present also in Neotropics).

Ganaspidium eldiablo Buffington, 2010 type USNM.

Ganaspidium flemingi Buffington, 2010 type UCDC (species present also in Neotropics).

Ganaspidium kolmaci Buffington, 2010 type USNM (species present also in Neotropics).

Ganaspidium konzaense Buffington, 2010 (misspelled in original description as *konzaensis*, gender ending here changed to agree with gender of genus name) type USNM.

Ganaspidium pusillae Weld, 1955 (sic in Weld (1958), Burks and NIN) type USNM syn *Nordlanderia navajoeae* Miller, 1989, synonymized by Buffington, 2010 (b sp in *Nordlanderia* in NIN) type lost.

Genus *Gronotoma* Förster, 1869

Type species *Gronotoma sculpturata* Förster, 1869, a European species.

syn *Eucoilidea* Ashmead, 1887a, synonymized by Hedicke, 1930, type species *Eucoilidea canadensis* Ashmead, 1887a

The Nearctic species of *Gronotoma* were listed as *Eucoilidea* in Weld, Burks and NIN. That genus was synonymized with *Gronotoma* by Hedicke (1930). Weld reinstated it as a genus (1951, 1952), but Beardsley (1988) and Buffington (2004b; 2010a) confirmed the synonymy. It remains unrevised on the species level, and the identity of most species is yet obscure.

This genus is globally widespread, and unlike other genera in this tribe, not uncommon in the eastern half of North America; parasites of Agromyzidae.

Gronotoma arcuata (Kieffer 1909) this combination Buffington, 2002, orig comb *Eucoelidia arcuata* (in *Eucoilidea* in Weld, Burks and NIN) type CASC.

Gronotoma canadensis (Ashmead 1887b) this combination Hedicke, 1930,

orig comb *Eucoilidea canadensis* (in *Eucoilidea* in Weld, Burks and NIN) type USNM.

Gronotoma crenulata (Kieffer 1908) this combination Buffington, 2002, orig comb *Eucoilidea crenulata* (in *Eucoilidea* in Weld, Burks and NIN) type CASC.

Gronotoma fuscipes (Kieffer 1907) this combination Buffington, 2002, orig comb *Eucoilidia fuscipes* (in *Eucoilidea* in Weld, Burks & NIN) type CASC.

Gronotoma longicornis (Ashmead 1887b) this combination Buffington, 2002, orig comb *Eucoilidea longicornis* (in *Eucoilidea* in Weld, Burks and NIN) type USNM.

Gronotoma melanagromyzae Beardsley, 1988 (missing in NIN) type BPNM

Gronotoma minor (Provancher, 1888) this combination Kieffer, 1901a, orig comb *Eucoila minor* (missing in Weld and Burks, in *Eucoila* in NIN) type ULQC.

Gronotoma nigricornata Buffington, 2004b replacement name, type as following:

syn *Eucoilidea nigricornis* Kieffer, 1908 secondary junior homonym, nec *Gronotoma nigricornis* Kieffer, 1901a (missing in Weld, Burks and NIN) type CASC

Gronotoma rufipes (Gillette 1891) this combination Buffington, 2002, orig comb *Eucoilidea rufipes* (in *Eucoilidea* in Weld, Burks & NIN) type reported as missing from USNM, but could possibly be in another collection.

Genus *Sinatra* Buffington, 2011

Type species *Cothonaspis pacifica* Yoshimoto, 1962.

This genus was recently described (Buffington 2011) to accommodate a Pacific species that had not previously been reported from North America. The genus remains monotypic for the time being. The genus and its single species has a somewhat circumpacific distribution, recorded from southwestern North America

as well as islands of the Pacific and of the eastern Palearctic. It is not uncommon in southwestern North America, and parasitizes Agromyzidae.

Sinatra pacifica (Yoshimoto 1962) this combination Buffington, 2011, *Disorygma pacifica* in Beardsley, 1986, orig comb *Cothonaspis pacifica* (not in Burks or NIN) type BPNM (species spread around the Pacific).

Eucoilini Thomson, 1862

Type genus *Eucoila* Westwood, 1833; tribal name reintroduced in Forshage et al. (2008), circumscription coincides with “*Trybliographa* group” sensu Nordlander (1982b) and Fontal-Cazalla et al. (2002); for characterization and overview see Forshage et al. (2008).

Genus *Eucoila* Westwood, 1833

Type species *Eucoila crassinerva* Westwood, 1833, a Palearctic species.

Eucoila is the type genus of Eucoilini and various poorly known species-level taxa have been assigned here over the years. It has been present in all previous North American catalogs, but the species listed within the genus, from Ashmead (1903b) to NIN, are mostly species of *Striatovertex*, a genus which was only recently formally described (Schick et al. 2011) but known to be separate from *Eucoila* since Nordlander (1981). Only one species of true *Eucoila* is known to occur in the Nearctic.

The spelling of this taxon requires mentioning. Kieffer, prior to Kieffer (1908), misspelled the genus as *Eucoela* (and his numerous generic names derived from it therefore have -oe- instead of -oi-). This misspelling is actually an unjustified emendation first made by Agassiz (1846) and followed by some authors and in some works up to the early 20th century.

Rare, found in eastern North America; world distribution of the genus *sensu stricto*

(excluding numerous species not belonging there but often not yet formally moved) is basically Holarctic, peripherally transgressing into the Oriental region. Included species are all found in dung and carrion, and the Nearctic taxon regularly in rodent's nests, where they parasitize Muscidae, Calliphoridae and Sarcophagidae.

Eucoila hirticornis (Kieffer 1910) this combination Weld, 1951, orig comb *Lytosema hirticornis* (sic in Weld, Burks and NIN) type ZMHB.

Genus *Leptopilina* Förster, 1869

Type species *Cothonaspis longipes* Hartig, 1841, a European species.

This genus was long poorly understood and the species belonging to it treated under various other generic names. Nordlander (1980) redescribed the genus and made a number of new combinations and synonymies, some of which concerned Nearctic taxa, but NIN nevertheless repeated the obsolete data of Weld and Burks and did not include the genus. Several names are poorly known, and very few North American specimens in collections are identified to species; there are likely undescribed species in the region. Widespread and often common in the Nearctic, parasitoids of Drosophilidae, present all over the world.

Leptopilina boulandi (Barbotin, Carton and Kelner-Pillault, 1979) this combination Nordlander, 1980, orig comb *Cothonaspis boulandi* (not in Burks or NIN) type MNHN (cosmopolitan species).

syn *Charips mahensis* Kieffer, 1911, synonymized by Nordlander, 1980 (homonym in *Leptopilina*) type BMNH.

Leptopilina clavipes (Hartig 1841) this combination Nordlander, 1980, orig comb *Cothonaspis clavipes* (not in Weld, Burks or NIN) (species also present in Palearctic) type ZSM.

Leptopilina heterotoma (Thomson, 1862) this combination Nordlander, 1980,

orig comb *Eucoila heterotoma* (present in Weld, Burks and NIN under its synonym name *Pseudeucoila bochei*) type MZLU (cosmopolitan species; full synonymy not given here).

syn *Ganaspis subnuda* Kieffer, 1904, synonymized by Nordlander, 1980 (not in Weld, Burks or NIN) type MNCN

syn *Pseudeucoila bochei* Weld, 1944, synonymized with *subnuda* by Quinlan, 1978, with *heterotoma* by Nordlander, 1980 (b sp in *Pseudeucoila* (s str) in Weld and Burks, in *Pseudeucoila* in NIN) type USNM.

Leptopilina nigroclavata (Kieffer 1907) **n. comb.** *Rhoptromeris nigroclavata* in Weld, 1951, orig comb *Eucoela (Rhoptromeris) nigroclavata* (in *Rhoptromeris* in Weld, Burks and NIN) Type in CASC (in poor condition) examined and considered to be a *Leptopilina*.

Leptopilina vitellinipes (Kieffer 1907) **n. comb.** *Hypoethria vitellinipes* in Weld, 1951, orig comb *Eucoela vitellinipes* (in *Hypoethria* in Weld, Burks & NIN) Type in CASC examined and considered to be a *Leptopilina*.

Genus *Quasimodoana* Forshage, Nordlander & Ronquist, 2008

Type species *Eucoila decipiens* Förster, 1855, a European species.

The genus *Quasimodoana*, and its Nearctic species, are recently described. There are single specimens in collections that probably represent a few undescribed Nearctic species, but these wasps are rare and poorly known. Rare but widespread in North America. Also present in Europe, probably present throughout Holarctic. Hosts unknown, appears to occur primarily in semi-open broad-leaved forest (though habitat data are mostly from Europe).

Quasimodoana gibba Forshage, Nordlander & Ronquist, 2008 type USNM

Genus *Trybliographa* Förster,
1869

Type species *Cothonaspis scutellaris* Hartig, 1840, a junior synonym of *T. rapae* (Westwood 1835).

syn *Anectoclis* Förster, 1869, synonymized by Nordlander, 1981, type species *Anectoclis indagatrix* Förster, 1869, a junior synonym of *Trybliographa filicornis* (Thomson 1877), a European species

syn *Hypoethria* Förster, 1869, synonymized by Nordlander, 1981, type species *Cothonaspis melanopterus* Hartig, 1843

syn *Pentaplastidia* Weld, 1951, type species *Cothonaspis clarimontis* Kieffer, 1909, **n. syn.** *Pentaplastidia* was originally described as a subgenus of *Trybliographa*, but its type species is not very different from other species of the *Trybliographa longicornis*-group, and currently no subgenera in *Trybliographa* are formally recognized.

syn *Pseudeucoila* Ashmead, 1903a, synonymized by Hellén, 1960, type species *Cothonaspis trichopsilus* Hartig, 1841, a European species.

syn *Psichacra* Förster, 1869, synonymized by Nordlander, 1981, type species *Cothonaspis longicornis* Hartig, 1840.

Trybliographa was present in Weld, Burks and NIN but with a narrower and only partially overlapping circumscription. Many actual *Trybliographa* species were there included in the large and vague genus *Pseudeucoila*, a name which Hellén (1960) demonstrated to be a junior synonym of *Trybliographa* (synonymy neglected in Burks & NIN). Nordlander (1981) made a study of the genus, showing *Hypoethria* and *Psichacra*, present as genera in the Nearctic catalog, to be synonyms, too. NIN implemented Nordlander's synonymizations, but it did not implement those of Hellén (that Nordlander confirmed and rested on). Many Nearctic

species of *Trybliographa* remain undescribed, and most specimens in North American collections remain unidentified (several new species will be described in the course of an ongoing revision by one of us (cf Forshage 2009)).

Trybliographa are widespread and abundant in North America, always being one of the most abundant groups of Eucolidae in the region, and, due to their relatively large size, they have been an easy prey for entomologists and typically make up a majority of eucolide specimens in collections gathered by handpicking/sweepnetting. The worldwide distribution is mainly Holarctic but single species occur in the Oriental region, in Australia, and locally in South America. Typically they are parasitoids of Anthomyiidae, occasionally attacking other calyptrate flies, in concealed substrates; often in mushrooms, or rotting habitats like dung, carrion, and compost, or root crops, cereals, flowerheads, and ferns.

Trybliographa agaricola (Thomson, 1862) this combination Hellén, 1960, orig comb *Eucoila agaricola* (not in Weld, Burks, or NIN) type MZLU (species present also in Palearctic).

Trybliographa atra (Hartig 1840) this combination reinstated Hellén, 1960, *Eucoila atra* in Giraud, 1860, *Trybliographa atra* in Förster, 1869, *Cothonaspis atra* in Kieffer, 1902, orig comb *Cothonaspis ater* (not in Weld, Burks, or NIN) type ZSM (species present also in Palearctic).

Trybliographa bakeriana Kieffer, 1908 this combination Weld, 1951, orig comb *Cothonaspis bakeriana* (in *Trybliographa (Tetraplasta)* in Weld and Burks, in *Trybliographa* in NIN) type CASC.

syn *Cothonaspis bakeriana* var *nigriventris* Kieffer, 1909 **n. syn.** *Trybliographa bakeriana* var *nigriventris* in Weld, 1951 (variety in *Trybliographa* (subg indet) Weld and Burks, in *Trybliographa* in NIN) Male type in CASC

examined and considered conspecific with *bakeriana*.

syn *Cothonaspis (Tetraplasta) pictipennis* Kieffer, 1909 **n. syn.** *Trybliographa pictipennis* in Weld, 1952 (in *Trybliographa (Tetraplasta)* in Weld and Burks, in *Trybliographa* in NIN) Female type in CASC examined and considered conspecific with *bakeriana*.

Trybliographa clarimontis (Kieffer 1909) this combination Weld, 1951, orig comb *Cothonaspis (Pentarhoptra) clarimontis* (in *Trybliographa (Pentaplastidea)* Weld and Burks, in *Trybliographa* in NIN) type CASC.

Trybliographa clavatipalpis (Kieffer 1907) **n. comb.** *Pseudeucoila clavatipalpis* Weld, 1951, orig comb *Eucoela clavatipalpis* (in *Pseudeucoila* (subg indet) Weld & Burks, in *Pseudeucoila* in NIN); male type in poor condition in CASC; examined and found to be a *Trybliographa*.

Trybliographa coloradensis (Kieffer 1907) this combination Weld, 1951, orig comb *Cothonaspis coloradensis* (in *Trybliographa* (subg indet) Weld and Burks, in *Trybliographa* in NIN) type CASC.

Trybliographa cupulifera Provancher, 1881 **n. comb.** synonymized with *Diplolepis impatiens* Say, 1836 (currently *Striatovertex impatiens*) by Ashmead, 1885, here **removed from synonymy**, orig comb *Kleidotoma cupulifera* (synonym of *Eucoila impatiens* in Ashmead, Weld, Burks and NIN) Even though the type of Say's *impatiens* is lost, there is a well-established tradition of using that name for a common species of *Striatovertex* used for pest control (cf *Striatovertex impatiens* below). We examined Provancher's type in ULQC (it seems no previous authors have done that) and it belongs to a well-recognizable and relatively common species of the *Trybliographa floralis*-group.

syn *Eucoela bruneocincta* Kieffer, 1907 **n. syn.** *Pseudeucoila bruneocincta* in Weld, 1951 (b sp in *Pseudeucoila* (subg indet) Weld and Burks, in *Pseudeucoila* in NIN) Male type lacking head in CASC examined and considered conspecific with a common species of *Trybliographa* and with Provancher's *cupulifera*.

Trybliographa diaphana (Hartig 1841) this combination reinstated Kerrich and Quinlan, 1960, *Trybliographa diaphana* in Förster, 1869, *Eucoela diaphana* in Cameron, 1890, *Cothonaspis diaphana* reinstated in Dalla Torre and Kieffer, 1910, orig comb *Cothonaspis diaphana* (not in Weld, Burks, or NIN) type ZSM (species also present in Palearctic).

syn *Dimicrostrophis nigricornis* Provancher, 1888 **n. syn.** *Eucoela nigricornis* in Kieffer 1901a, *Trybliographa nigricornis* Weld, 1951 (b sp in *Trybliographa* (subg indet) Weld and Burks, b sp in *Trybliographa* in NIN) Upon examination of type in ULQC this was considered to be conspecific with the common *Trybliographa diaphana*, described from Europe.

Trybliographa foveator (Zetterstedt, 1838) **n. comb.** *Eucoila foveator* in Dahlbom, 1842, orig comb *Figites foveator* (not in Weld, Burks, or NIN) Type in MZLU examined, long known to be a *Trybliographa* (cf Ronquist and Forshage 2004) but explicit recombination not previously published. (also Palearctic species)

Trybliographa fuscostriata (Kieffer 1908) this combination Weld, 1951, orig comb *Cothonaspis fuscostriata* (in *Trybliographa* s str in Weld and Burks, in *Trybliographa* in NIN) type CASC.

Trybliographa gracilicornis (Cameron 1888) this combination Hellén, 1960, orig comb *Eucoila gracilicornis* (not in Weld, Burks, not in NIN) type BMNH (species also present in Palearctic).

Trybliographa klagesi (Kieffer 1907) this combination Weld, 1951, orig comb

Cothonaspis klagesi (in *Trybliographa* (subg indet) in Weld and Burks, in *Trybliographa* in NIN) type CASC.

Trybliographa lucida (Rohwer 1920) this combination Weld, 1951, orig comb *Hexaplasta lucida* (in *Trybliographa* (*Hexaplasta*) in Weld, *Trybliographa* (*Didyctium*) in Burks, in *Trybliographa* in NIN) type USNM.

Trybliographa mandibularis (Zetterstedt, 1838) this combination Hellén, 1960, *Eucoila mandibularis* in Dahlbom 1846, orig comb *Figites mandibularis* (not in Weld, Burks, or NIN) type MZLU (species also present in Palearctic).

Trybliographa melanoptera (Hartig 1843) this combination Nordlander, 1981, *Hypoethria melanoptera* in Förster 1869, *Eucoila melanoptera* in Giraud, 1860, orig comb *Cothonaspis melanopterus* (not in Weld, Burks, or NIN) type ZSM (species also present in Palearctic; full synonymy not given).

Trybliographa neocera (Kieffer 1907) this combination Weld, 1951, orig comb *Cothonaspis* (*Anectoclis*) *neocera* (in *Trybliographa* s str in Weld and Burks, in *Trybliographa* in NIN) type CASC.

Trybliographa rapae (Westwood 1835) this combination Kerrich and Quinlan, 1960 (or Hellén 1960), *Cothonaspis rapae* in Kieffer, 1901a, orig comb *Eucoila rapae* (sic in Weld, Burks and NIN) type OUMNH (species also present in Palearctic; full synonymy not given).

syn *Pseudeucoila gillettei* Washburn, 1906, synonymized by Weld, 1951 (sic in Weld and Burks, not in NIN) type not located.

Trybliographa rufipes (Hartig 1843) **comb. reinst.** *Trybliographa rufipes* in Förster, 1869, *Cothonaspis rufipes* reinstated Kieffer, 1902, orig comb *Cothonaspis rufipes* (not in Weld, Burks, or NIN) Type in ZSM examined, long known to be a *Trybliographa* (cf Ronquist and Forshage 2004) but explicit recombination

not previously published. (species also present in Palearctic)

Trybliographa scotica (Cameron 1883) **removed from synonymy**, synonymized with *Cothonaspis trichopsilus* Hartig, 1841 (valid as *Trybliographa trichopsilus*) by Nordlander, 1981, *Trybliographa scotica* in Quinlan, 1974, orig comb *Eucoila scotica* (not in Weld, Burks, or NIN) Type in BMNH examined and considered very close to but distinguishable and probably not conspecific with *trichopsilus*. Other taxa described from Europe are probably synonymous with *scotica*, but since neither of these were ever recorded from North America, those synonymies are left for a coming proper revision. Species also present in Palearctic.

Trybliographa simulatrix (Ruthe 1859) **n. comb.** *Pseudeucoila simulatrix* in Petersen 1957, *Eucoila simulatrix* reinstated in Hellén 1931, *Cothonaspis simulatrix* in Kieffer 1909, orig comb *Eucoila simulatrix* (not in Weld, Burks and NIN) Type in NMW examined and confirmed to be a *Trybliographa* (in congruence with its placement in *Pseudeucoila*).

syn *Eucoela alaskensis* Ashmead, 1902 **n. syn.** (b sp in *Pseudeucoila* (s str) in Weld and Burks, in *Pseudeucoila* in NIN) Type in USNM examined and considered to be conspecific with *simulatrix* described from Europe.

Trybliographa stigmata (Say 1836) **n. comb.** *Eucoila stigmata* in Ashmead, 1885, *Cothonaspis stigmata* in Kieffer, 1901a, *Pseudeucoila stigmata* in Weld, 1951, orig comb *Diplolepis stigmata* (in *Eucoila* in Ashmead, *Pseudeucoila* (s str) in Weld and Burks, in *Pseudeucoila* in NIN) Type lost, but it is a rare case where Say's original description (1836) is sufficient for recognition: this species is the characteristic large North American eucoiline with an infusate marginal cell, a very characteristic species of *Trybliographa*.

syn *Kleidotoma maculipennis* Provancher, 1881, synonymized by Ashmead, 1885 (sic in Ashmead, Weld and Burks, not in NIN) type ULQC.

Trybliographa strandi (Hedicke 1914) this combination Weld, 1952, orig comb *Cothonaspis (Anectoclis) strandi* (not in Weld, Burks, or NIN) type ZHMB (species also present in Palearctic)

Ganaspini Belizin, 1961

Type genus *Ganaspis* Förster, 1869; tribal name reintroduced in Forshage and Nordlander (2008), circumscription coincides with “*Zamischus* group” of Buffington et al. (2007), uniting “*Ganaspis* group”, “Neotropical grade” and most of “*Chrestosema* group” of Fontal-Cazalla et al. (2002).

Genus *Aganaspis* Lin, 1987

Type species *Aganaspis ocellata* Lin, 1987, an oriental species.

A relatively recently described genus; the single species encountered in North America was, though well known, not published from this region in previous catalogs. To this day, representatives of this genus are often confused with the superficially similar, but not closely related, *Trybliographa*. Only a cosmopolitan species is recorded from North America so far, but others might be present in the southern parts.

Synanthropically spread but still uncommon in North America. Overall distribution of the genus is worldwide but the only areas with several species are East Asia and South America. The wasps are parasitoids of Tephritidae and occasionally Lonchaeidae in fruit.

Aganaspis daci (Weld 1951) this combination Lin, 1987, orig comb *Trybliographa daci* (not in Weld, Burks or NIN) type USNM (non-native species, present in large parts of the world).

Genus *Chrestosema* Förster, 1869

Type *Chrestosema erythropum* Förster, 1869, a Palearctic species.

Chrestosema is a genus described from the old world, and not listed as Nearctic in previous catalogs; but several American specimens in collections stand under this name. Most of these specimens typically belong to *Dieucoila* (or yet undescribed genera near *Dieucoila*), but a few appear to represent probably undescribed species of *Chrestosema*. As the circumscription of this genus is somewhat uncertain, this assignment is uncertain, and they may turn out to belong to another genus upon careful analysis.

Uncommon in North America. Overall distribution is worldwide, but the genus is common mainly in the Palearctic and Oriental regions. Host records are scarce and uncertain but suggest an association with Drosophilidae.

Genus *Didyctium* Riley, 1879

Type species *Didyctium zigzag* Riley, 1879.

[Note: Up to this point, linguistic gender has been treated inconsistently in the genus *Didyctium* with some species names cited as feminine and some as neuter. The name itself is neuter in gender and gender endings should be changed accordingly.]

syn *Dimicrostrophis* Ashmead, 1887b, synonymized by Nordlander, 1981, type species *Dimicrostrophis ruficornis* Ashmead, 1887.

syn *Heptamerocera* Ashmead, 1896a, synonymized by Nordlander, 1981, type species *Heptamerocera robusta* Ashmead, 1896a.

The name *Didyctium* was reintroduced (misspelled *Didyctyum*), as a subgenus of *Trybliographa*, in Weld (1967), for the species that in the earlier catalog (Weld 1951) had been listed as subgenus

Hexaplasta. Burks catalog followed Weld (1967) (but emended the spelling to the original one), but since NIN did not list subgenera the species were simply *Trybliographa* there. This is rather remarkable since they are neither closely related nor particularly similar to *Trybliographa*. On the contrary, *Didyctium* is sometimes difficult to circumscribe from *Ganaspis* and *Hexacola* (*Hexaplasta* is in fact a junior synonym of *Hexacola*). The two genus-level junior synonyms cited here have occasionally been associated with North American taxa, but not listed in North American catalogs. On the species-level *Didyctium* is completely unrevised for North America, and we don't know how many species the following names actually represent, nor how many undescribed species are still there.

Didyctium are common and widespread in North America and across the world. They are associated with grasses and sometimes fungi, and most of the few host records are from Phoridae (but also Chloropidae and Lauxaniidae).

Didyctium fungicola (Crawford 1915) **n. comb.** *Trybliographa fungicola* in Weld, 1951, orig comb *Hexaplasta fungicola* (in *Trybliographa* (*Didyctium*) in Burks, in *Trybliographa* in NIN) Type in USNM examined and considered to belong to *Didyctium*.

Didyctium minutum (Crawford 1917) **n. comb.** *Trybliographa minuta* in Weld, 1951, orig comb *Hexaplasta minuta* (in *Trybliographa* (*Hexaplasta*) in Weld, in *Trybliographa* (*Didyctium*) in Burks, in *Trybliographa* in NIN) Type in USNM examined and considered to belong to *Didyctium*.

Didyctium nudicolle (Kieffer 1909) **n. comb.** *Pseudeucoila nudicollis* in Weld, 1951, orig comb *Eucoila* (*Eucoila*) *nudicollis* (in *Pseudeucoila* (subg indet) Weld and Burks, in *Pseudeucoila* in NIN) Type in CASC examined and

considered to belong to *Didyctium*. (species also present in Neotropics)

Didyctium quadripunctatum (Kieffer 1901a) **n. comb.** *Pseudeucoila quadripunctata* in Weld, 1951, orig comb *Eucoela* (*Psichacra*) *quadripunctata*, replacement name (in *Pseudeucoila* (*Hexamerocera*) in Weld and Burks, in *Pseudeucoila* in NIN) Type (under the following name) in CASC examined and considered to belong to *Didyctium*.

syn *Eucoela mexicana* Ashmead, 1895 type CASC, primary junior hononym (nec *Eucoila mexicana* Cameron, 1889).

Didyctium ruficorne (Ashmead 1887b) this combination Nordlander, 1981, *Eucoela ruficornis* in Kieffer 1901a, *Trybliographa ruficornis* in Weld, 1951, orig comb *Dimicrostrophis ruficornis* (in *Trybliographa* s str in Weld and Burks, in *Trybliographa* in NIN) type USNM.

Didyctium xystiforme (Ashmead 1887b) **n. comb.** *Pseudeucoila xystiformis* in Weld, 1951, orig comb *Dimicrostrophis xystiformis* (in *Pseudeucoila* (subg indet) in Weld and Burks, in *Pseudeucoila* in NIN) Type in USNM examined and considered to belong to *Didyctium*.

Didyctium zigzag Riley, 1879 this combination reinstated Weld, 1962, *Eucoela zigzag* in Cameron 1890, *Cothonaspis zigzag* in Kieffer, 1901a, *Trybliographa zigzag* in Weld, 1951 (in *Trybliographa* (*Hexaplasta*) in Weld 1951, in *Trybliographa* (*Didyctium*) in Weld 1967, in *Trybliographa* (*Didyctium*) Burks, in *Trybliographa* in NIN) type USNM.

Genus *Dieucoila* Ashmead, 1903a

Type species *Dieucoila subopaca* Ashmead, 1903a, a Neotropical species.

Dieucoila is a genus hitherto not reported from North America, though single specimens from this area are present in most large North American collections, probably representing undescribed species. The circumscription of this genus

is not clear, and when it is better studied, new genera may need to be erected for one or several species groups, including North American taxa.

Uncommon in North America and found mostly in the southern parts of the region. Main distribution of genus is Neotropical. No host records.

Genus *Epicoela* Borgmeier, 1935

Type species *Epicoela rubicunda* Borgmeier, 1935, a Neotropical species.

Epicoela is genus hitherto not reported from North America. Specimens from this region have not been identified to the species level and may represent one or more undescribed species.

Rare, found in southern North America; main distribution of genus is Neotropical. Wasps attack Tephritidae in fruit.

Genus *Ganaspis* Förster, 1869

Type species *Ganaspis mundata* Förster, 1869, a Palearctic species.

syn *Tetramerocera* Ashmead, 1896a, **n. syn.** type species *Tetramerocera variabilis* Ashmead, 1896a, a Neotropical species, for which Kieffer suggested the replacement name *Eucoela varians* Kieffer, 1901a when it entered in homonymy with *Aglaotoma variabilis* Ashmead, 1894a as he was moving both into *Eucoela*. The genus was reduced to a subgenus of *Eucoela* by Kieffer (1901a), moved to *Pseudeucoila* by Weld (1951) and then reinstated as a genus by Nordlander (1981). The type in BMNH (a fragment in USNM cannot be identified) belong to a representative of a rather characteristic species group which must be considered to be within the current rather broad concept of *Ganaspis*.

Ganaspis was present in the catalogs of Weld, Burks and NIN, though with a set of species differing from the current. Species have been moved to *Agrostocynips* and to the *nomina inquirenda* category, while others have been moved into *Ganaspis*

from *Trybliographa*. The genus *Ganaspis* is one of the largest and most difficult genera to circumscribe in the subfamily. The limits toward the other common similar genera *Didyctium* and *Hexacola* are not clear. Still, with the current rather wide concept of the genus, including for example the very distinct “*neotropica*-group”, it seems necessary to include *Tetramerocera* as a distinct species group to keep the genus possibly monophyletic. This species group has representatives in North America, but none that have been identified to species level, and the name has not been used in previous North American catalogs. With a future careful revision of this genus, several species groups may have to gain generic status. On the species-level, *Ganaspis* is completely unrevised for North America, and we do not know how many species the following names actually represent, nor how many undescribed species are still out there.

The wasps are common and widespread, in North America as well as worldwide, typically associated with fungi and fruit; host references are somewhat diverse, which might perhaps reflect the difficulty in circumscribing the genus; the more typical species are all, as far as known, parasitoids of Drosophilidae.

Ganaspis marlatti (Crawford 1915) **n. comb.** *Trybliographa marlatti* in Weld, 1951, orig comb *Hexaplasta marlatti* (in *Trybliographa (Hexaplasta)* in Weld, *Trybliographa (Didyctium)* in Burks, in *Trybliographa* in NIN) Type in USNM examined and considered to belong to *Ganaspis*.

Ganaspis neotropica (Díaz 1974) this combination Nordlander, 1982a, orig comb *Odonteucoila neotropica* Not previously reported from North America (not in Burks or NIN) type MLPA (species present also in Neotropics).

Ganaspis nigra (Kieffer 1907) this combination Weld, 1951, orig comb *Miteucoela*

nigra (sic in Weld, Burks and NIN) type CASC.

Genus *Glauraspidia* Thomson, 1862

Type species *Eucoila subtilis* Dahlbom, 1846, a junior synonym of *Glauraspidia microptera* (Hartig 1840).

syn *Aglaotoma* Förster, 1869, synonymized by Quinlan 1967, type species *Cothonaspis codrina* Hartig, 1841, a junior synonym of *Glauraspidia microptera* (Hartig 1840) (genus present in Weld, and in Burks and NIN, but with species belonging elsewhere)

Glauraspidia was not listed in previous American catalogs, but reported from North America by Nordlander (1982a), who also gave a brief characterization of an undescribed American species. Since then, specimens of the common European type species of the genus have also surfaced in American collections. The junior synonym *Aglaotoma* was listed as a valid American genus in Weld (1951), and still, after its synonymization, in Burks and NIN, hosting a species that actually belongs in *Paraganaspis*. One or two North American forms that we currently regard as possible to accommodate within *Glauraspidia* may turn out at closer study to be new genera.

Glauraspidia are rare in the New World, and species are typically Palearctic. They are mostly ground-dwelling among grasses, and the few uncertain host records that exist are of Phoridae and Lauxaniidae.

Glauraspidia microptera (Hartig 1840) this combination Cameron, 1890, orig comb *Cothonaspis micropterus* (not in Weld, Burks, or NIN) type ZSM (species also present in Palearctic; full synonymy not given).

Genus *Hexacola* Förster, 1869

Type species *Eucoila picicrus* Giraud, 1860, a junior synonym of *Hexacola hexatoma* (Hartig 1841).

[Note: Up to this point, linguistic gender has been treated inconsistently within *Hexacola*, with most but not all species names cited in the feminine. The name *Hexacola* is however, from the explicit etymology given in the original description, neuter. Numerous species names must therefore be changed accordingly into neuter gender endings.]

syn *Aporeucoela* Kieffer, 1908, type species *Aporeucoela fuscipes* Kieffer, 1908, **n. syn.**

syn *Bewelda* Quinlan, 1976, type species *Bewelda striata* Quinlan, 1976, a Neotropical species, **n. syn.**

syn *Hexaplasta* Förster, 1869, type species *Cothonaspis hexatoma* Hartig, 1841, synonymized by Kerrich and Quinlan, 1960

Hexacola was present in all previous North American catalogs, but many of species listed there belong in other genera (*Ganaspis* and *Kleidotoma*). The junior synonym *Hexaplasta* was present in Weld (1951) as a subgenus of *Trybliographa*, but in the supplement Weld (1958) changed the subgeneric name to *Didyctium*. *Aporeucoela* has been present in all North American catalogs as a valid genus. *Bewelda* was erected (Quinlan 1976) for a genus characterized but not named in Weld 1952, which was stated to occur in North America (but was not mentioned in North American catalogs). Thus, the many species of *Hexacola* listed here have been cited under very different genus names in previous North American catalog, very often under *Trybliographa* or its junior synonym *Pseudeucoila*, which they are neither closely related nor similar to. However, as stated above, *Hexacola* is difficult to circumscribe from *Didyctium* and *Ganaspis*.

The name *Aporeucoela* denotes a readily recognizable species group, which must however be treated as a part of *Hexacola* to make it possibly monophyletic.

Perhaps a future thorough revision will see a need to grant this species group, and perhaps others present in the area, generic status. The type species of *Bewelda* is without doubt a typical *Hexacola* making a synonymization necessary. Nothing in Weld's or Quinlan's (1967) descriptions suggests differences from *Hexacola*, and indeed most specimens identified as *Bewelda* in collections are *Hexacola*, though along with some difficult specimens perhaps representing a new genus. *Hexacola* is unrevised for North America on the species-level, and we are uncertain how many species the following names actually represent, nor how many undescribed species are still there.

Common in North America, as in most of the world. Some species are associated with Chloropidae on grasses, others with Ephydriidae on algal mats; there are also host records of Drosophilidae, Chloropidae, Lauxaniidae, Otididae, Agromyzidae and even aphids; if the latter is disregarded as a probably erroneous association, the width of other suggestions may still bear witness either to the difficulties of circumscribing the genus or to a real width in ecology.

Hexacola californicum (Ashmead 1895) **n. comb.** *Cothonaspis californica* in Kieffer, 1901a, orig comb *Hexaplasta californica* (in *Trybliographa (Hexaplasta)*) in Weld, removed in Weld 1958 with no reason stated but motivated by being described from Mexico, and consequently absent in Burks and NIN) Type in CASC examined and considered to belong to *Hexacola*. Mexico only.

Hexacola floridanum (Ashmead 1896b) **n. comb.** *Aporeucoela floridana* in Weld, 1951, orig comb *Piezobria floridana* (in *Aporeucoela* in Weld, Burks and NIN) Type in USNM examined and considered to belong to *Hexacola*.

Hexacola fuscipes (Kieffer 1908) **n. comb.** orig comb *Aporeucoela fuscipes* (in

Aporeucoela in Weld, Burks and in NIN) Type in CASC (female lacking metasoma) examined, belonging to an easily recognizable species-group which must be considered to belong within the current circumscription of *Hexacola* (lacking the R1 vein in the forewing, so that the marginal cell is not proximally delimited and instead fused with the subcostal cell).

Hexacola hexatoma (Hartig 1841) this combination Kerrich and Quinlan, 1960, *Hexaplasta hexatoma* in Förster, 1869, *Cothonaspis hexatoma* reinstated in Kieffer, 1901a, orig comb *Cothonaspis hexatoma* (sic in Burks and in NIN) type ZSM (widespread species; full synonymy not given).

Hexacola maculipes (Ashmead 1887b) **n. comb.** *Eucoela maculipes* in Kieffer, 1901a, *Pseudeucoila maculipes* in Weld, 1951, orig comb *Hexaplasta maculipes* (in *Pseudeucoila (Hexamerocera)*) in Weld & Burks, in *Pseudeucoila* in NIN) Type in USNM examined and considered to belong to *Hexacola*.

syn *Hexaplasta websteri* Crawford, 1915 **n. syn.** *Trybliographa websteri* in Weld, 1952 (b sp in *Trybliographa (Hexaplasta)*) in Weld, in *Hexacola* in Burks and in NIN) Type in USNM examined and considered conspecific with that of *maculipes*.

Hexacola neoscatellae Beardsley, 1989 (not in NIN) type BPBM (species also present in Hawaii).

Hexacola oscinidis (Ashmead 1893) **n. comb.** *Kleidotoma oscinidis* in Weld, 1951, orig comb *Heptameris oscinidis* (in *Kleidotoma (Heptameris)*) in Weld & Burks, in *Kleidotoma* in NIN) Type in USNM examined and considered to belong to *Hexacola*.

Hexacola pennsylvanicum **nom. nov.** for *Hexacola subaperta* Kieffer, 1907, n comb in Weld, 1951, orig comb *Ganaspis subaperta* type CASC (*Hexacola subaperta* in Weld, Burks and NIN) – nec

Hexacola subapertum (Kieffer 1901a) **n. comb.** (*Cothonaspis subaperta*) a Neotropical species, type CASC. Even though the 1901 *subaperta* is not a Nearctic species, we take this opportunity to acknowledge the homonymy emerging whenever the necessary new combinations are made, as both Kieffer's *subaperta* are considered upon examination of types to belong to *Hexacola*. Thus the Nearctic 1907 *subaperta* becomes a junior secondary homonym when both are in *Hexacola*, and we take this opportunity to suggest a replacement name for the Nearctic species. Etymology: *pennsylvanicum* is a latin adjective in neuter gender indicating the geographical origin of the type specimen (Jeannette, Pennsylvania, leg Klages).

Hexacola siphonophorae (Ashmead 1887a) **n. comb.** *Pseudeucoila siphonophorae* in Weld, 1951, orig comb *Eucoila siphonophorae* (in *Pseudeucoila* (subindet) in Weld and Burks, in *Pseudeucoila* in NIN) Type in USNM examined and considered to belong to *Hexacola*.

Hexacola zimmermanni (Kieffer 1910) **n. comb.** *Pseudeucoila zimmermanni* in Weld, 1951, orig comb *Eucoila (Hexamerocera) zimmermanni* (in *Pseudeucoila (Hexamerocera)* in Weld and Burks, in *Pseudeucoila* in NIN) Type in ZMHB examined and considered to belong to *Hexacola*.

Genus *Nordlandiella* Díaz, 1982

Type species *Nordlandiella abdominalis* Díaz, 1982, a Neotropical species.

Nordlandiella is a fairly recently described genus, and was recorded from North America only recently (Buffington 2004a).

In North America apparently confined to the southeasternmost parts (Florida) but not uncommon. Main distribution is Neotropical. Host records have been reported as Agromyzidae and Tephritidae.

Nordlandiella semirufa (Kieffer 1907) this combination Buffington, 2004a, orig comb *Cothonaspis (Anectoclis) semirufa* (not in Weld, Burks or NIN) type CASC

Genus *Odonteucoila* Ashmead, 1903a

Type species *Odonteucoila chapadae* Ashmead, 1903a, a Neotropical species.

Several species have been described in this genus from various regions, but Nordlander (1982a) demonstrated that only Neotropical species were congeneric with the type species. It was never listed in the North American catalogs, though specimens have been identified as belonging to this genus in American collections. As Nordlander demonstrated, typically the Holarctic taxa associated with this name were instead congeneric with *Trichoplasta* described from Africa. However, recently a Nearctic specimen of true *Odonteucoila* was found (not yet assigned to species).

In North America very rare and apparently confined to the southeasternmost parts (Mexico, Florida). Main distribution is Neotropical. Hosts are unknown.

Genus *Paraganaspis* Díaz and Gallardo, 1996

Type species *Paraganaspis egeria* Díaz & Gallardo, 1996, a Neotropical species.

Recently described genus, hitherto considered confined to the Neotropics, while a North American species belonging here was included in all catalogs from Weld to NIN in *Aglaotoma*, a genus that was actually synonymized with *Glauraspidia* by Quinlan (1967). There is at least one undescribed species present in North America.

The wasps are mostly southern but not entirely rare in North America. Main distribution of the genus is Neotropical. They are parasitoids of Sarcophagidae in dung.

Paraganaspis texana (Crawford 1913)
n. comb. orig comb *Aglaotoma texana*
(Aglaotoma texana in Weld, Burks and
 NIN) Type in USNM examined and con-
 sidered to belong to *Paraganaspis*.

Genus *Striatovertex* Schick,
 Forshage and Nordlander, 2011

Type species *Psilodora nudipennis*
 Kieffer, 1907, a Neotropical species.

Recently described genus. The included
 species have been listed under *Eucoila* in
 all the previous North American catalogs.
 Nordlander (1981) showed that this was
 a separate group demanding a genus of
 their own; after this they were usually re-
 ferred to as “*Eucoila*” with quotation
 marks, or “false *Eucoila*”. Schick did a lot
 of work on the group, which largely re-
 mains unpublished; after the final publica-
 tion of the new name (Schick et al. 2011),
 the species-level revision is still wanting.

Striatovertex are not uncommon
 throughout North America. They are also
 present in the Neotropics, and (introduced)
 in Hawaii and Australia. They attack
 Muscidae, Sarcophagidae and prob-
 ably Calliphoridae in dung and carrion.

Striatovertex cultra (Girault 1920) this
 combination Schick et al. 2011, *Eucoila*
cultra in Weld, 1951, orig comb *Psilo-*
dora cultra (in *Eucoila* in Weld, Burks
 and in NIN) type USNM.

Striatovertex erythropha (Ashmead
 1888) this combination Schick et al.
 2011, *Eucoila erythropha* in Weld, 1951,
 orig comb *Cothonaspis erythropus* (in
Eucoila in Weld, Burks and in NIN) type
 BMNH (according to Schick (unpubl)
 inaccessible in KSUC).

Striatovertex impatiens (Say 1836)
 this combination Schick et al. 2011,
Eucoila impatiens in Weld, 1951, orig
 comb *Diplolepis impatiens* (in *Eucoila*
 in Ashmead, Weld, Burks and in NIN)
 This is a well-known species utilized for

biological control of stable flies, and
 was as such successfully introduced in
 Hawaii in the early 20th century. How-
 ever, the type is long lost, and the current
 association of the name with this species
 is purely traditional, but well established
 in applied entomology and faunistics
 (Beardsley 1989 and references therein;
 Schick et al. 2011 and references
 therein).

Striatovertex rubripes Ashmead, 1887b,
 this combination Schick et al. 2011,
Pseudeucoila rubripes in Weld, 1951,
 orig comb *Eucoila rubripes* (in *Pseu-*
deucoila (subg indet) in Weld and Burks,
 in *Pseudeucoila* in NIN) type USNM.

Striatovertex rufocincta (Kieffer
 1907) this combination Schick et al.
 2011, *Eucoila rufocincta* in Weld, 1951,
 orig comb *Psilodora rufocincta* (in *Eu-*
coila in Weld, Burks and in NIN) type
 CASC.

syn *Lytosema atricornis* Kieffer, 1910,
 synonymized by Nordlander, 1981,
Eucoila atricornis in Weld, 1951 (b sp
 in *Eucoila* in Weld, Burks and NIN) type
 ZMHB.

Striatovertex septemspinosa (Gillette
 1891) this combination Schick et al.
 2011, orig comb *Eucoila septemspinosa*
 type INHS (in *Eucoila* in Weld, Burks
 and NIN).

Striatovertex vagabunda (Ashmead
 1885) this combination Schick et al.
 2011, *Eucoila vagabunda* in Weld, 1951,
 orig comb *Kleidotoma vagabunda* (in
Eucoila in Ashmead, Weld, Burks and
 NIN) type USNM.

Kleidotomini Hellén, 1960

Type genus *Kleidotoma* Westwood,
 1833; tribal name reinstated in Forshage
 and Nordlander (2008), circumscription
 coincides with “*Kleidotoma* group” sensu
 Nordlander (1982b) as revised in Fontal-
 Cazalla et al. (2002).

Genus *Cothonaspis* Hartig, 1840

Type species *Cothonaspis pentatomus* Hartig, 1840, a European species.

Cothonaspis has been present in all the previous catalogs from Weld on, with two species. These two species are in fact synonymous.

Rather uncommon in North America. Total distribution of the genus is worldwide, but they are common mainly in parts of the Palearctic. Since the single species from earlier North American catalogs has more recently been described also from Europe, and the most common European species is also present in North America, the fauna seems either Holarctic or easily dispersed synanthropically. They parasitize Sepsidae in dung and occasionally carrion or mushrooms, mostly associated with open, warm, more or less dry pastures.

Cothonaspis pentatomus Hartig, 1840 (not in Weld, Burks, or NIN) type ZSM (species also present in Palearctic).

Cothonaspis pratti (Crawford 1913) this combination Weld, 1951, orig comb *Psilosema pratti* (sic in Weld, Burks and NIN) type USNM, very similar to and possibly identical with the Palearctic *Cothonaspis longula* Nordlander, 1976.

syn *Microstilba americana* Girault, 1920
n. syn. *Cothonaspis americana* in Weld, 1951 (b sp in *Cothonaspis* in Weld, Burks and in NIN) Type in USNM examined and considered conspecific with *pratti*.

Genus *Eutrias* Förster, 1869

Type species *Eucoila tritoma* Thomson, 1862.

This monotypic genus has been present in all the previous American catalogs from Weld on.

Uncommon in North America, appears confined to Texas. More common in the Palearctic. Weld (1951) interpreted its occurrence in North America as an import

from Europe. The wasps attack Sepsidae (and possibly Muscidae) in dung in open habitats.

Eutrias tritoma (Thomson 1861) this combination reinstated Weld, 1931, *Eutrias tritoma* in Förster, 1869, *Cothonaspis tritoma* in Kieffer, 1901a, orig comb *Eucoila tritoma* (sic in Weld, Burks and NIN) type ZMLU (species also present in Palearctic).

Genus *Kleidotoma* Westwood, 1833

Type species *Kleidotoma psiloides* Westwood, 1833, a European species.

syn *Coptereucoila* Ashmead, 1887b, synonymized by Kieffer, 1901a, type species *Coptereucoila americana* Ashmead, 1887b, currently *Kleidotoma ashmeadi* Kieffer, 1901a.

syn *Heptameris* Förster, 1869, synonymized by Forshage and Nordlander, 2008, type species *Eucoila pygmaea* Dahlbom, 1846, a European species

syn *Kleidotomidea* Rohwer and Fagan, 1917, synonymized by Forshage and Nordlander, 2008, type species *Kleidotoma hexatoma* Thomson, 1862, a European species.

syn *Tetrarhoptra* Förster, 1869, synonymized by Forshage and Nordlander, 2008, type species *Kleidotoma heterotoma* Thomson, 1862, a European species

syn *Trirhoptrasema* Kieffer, 1901b, synonymized by Ashmead, 1903b, type species *Kleidotoma americana* Ashmead, 1887b.

Kleidotoma is one of the more easily recognized genera of Eucoilinae, and has been present in all the North American catalogs. As a heading it has been largely populated by real *Kleidotoma* species (only a few have had to be moved to other genera). Numerous names have been proposed as subgenera of *Kleidotoma*, but as these have typically been characterized by numbers of articles in the female antennal club or other characters that are

superficial or apparently changing between closely related species, they have been assessed as of no systematic value and all synonymized under the main genus in a series of publications (Quinlan 1967, 1978; Forshage and Nordlander 2008). Weld and Burks use subgenera, NIN does not. On the species-level, *Kleidotoma* is completely unrevised for North America, and we are uncertain how many species the following names actually represent, nor how many undescribed species remain to be described.

Kleidotoma is one of the most widespread and abundant genera in North America as throughout the world. They are typically associated with more or less decomposing habitats, mushrooms, dung, carrion, sea wrack and compost, but they attack a wider range of host flies than any other genus of Eucolilinae, including Sepsidae, Ephydriidae, Drosophilidae, Agromyzidae, Canaceidae, Sphaeroceridae and Phoridae, and according to some accounts even the nematoceran family Sciaridae.

Kleidotoma alaskensis (Ashmead 1902) this combination Weld, 1951, orig comb *Tetrarhapta alaskensis* (in *Kleidotoma* (*Tetrarhoptra*) in Weld and Burks, in *Kleidotoma* in NIN) type USNM.

Kleidotoma americana Ashmead, 1887b (in *Kleidotoma* (s str) in Weld and Burks, in *Kleidotoma* in NIN) type USNM.

syn *Trirhoptrasema ashmeadi* Rohwer & Fagan, 1917 unnecessary replacement name, synonymized in Weld, 1951 (sic in Weld & Burks, not in NIN).

Kleidotoma ashmeadi Kieffer, 1901a, replacement name, type as following (in *Kleidotoma* (s str) in Burks, in *Kleidotoma* in NIN).

syn *Coptereucoila americana* Ashmead, 1887b, *Kleidotoma americana* in Kieffer, 1901a, secondary homonym (nec *Kleidotoma americana* Ashmead 1887b) type USNM.

Kleidotoma avenae (Fitch 1861) this combination Girault, 1920, orig comb *Allotria avenae* (in *Allotria* in Ashmead, in *Kleidotoma* but not assigned to subgenus in Weld and Burks, in *Kleidotoma* in NIN) type USNM

Kleidotoma californica Kieffer, 1908 (present in both *Kleidotoma* (*Kleidotomidea*) and *Hexacola* simultaneously in Weld 1951, but the latter placement denied in Weld 1958, thus only in *Kleidotoma* (*Kleidotomidea*) in Burks, in *Kleidotoma* in NIN) type CASC

Kleidotoma carolinensis Kieffer, 1910 (in *Kleidotoma* but not assigned to subgenus Weld and Burks, in *Kleidotoma* in NIN) type ZMHB.

Kleidotoma fossa Kieffer, 1908 (in *Kleidotoma* (s str) in Weld and Burks, in *Kleidotoma* in NIN) type CASC.

Kleidotoma lugens Kieffer, 1908 (in *Kleidotoma* (*Tetrarhoptra*) in Weld and Burks, in *Kleidotoma* in NIN) type CASC.

Kleidotoma marginata (Gillette 1891) this combination Weld, 1951, orig comb *Coptereucoila marginata* (in *Kleidotoma* (s str) in Weld and Burks, in *Kleidotoma* in NIN) type USNM.

syn *Kleidotoma marginata* var *glabra* Kieffer, 1908 **n. syn.** (listed somewhat ambiguously in Weld and Burks, as a separate entry (species-like) in *Kleidotoma* (s str) but explicitly saying "var." At least from the second edition of the zoological code (ICZN 1965), which was valid at the time of Weld's second supplement (1967) and Burks (1979) a pre-1961 variety name is to be treated as a subspecies name (in the current edition of the code (ICZN 1999) this is §45.6.4); not in NIN) type CASC.

Kleidotoma melanopa (Ashmead 1894b) **n. comb.** (*Eucoela melanopa* in Kieffer 1901a, *Trybliographa melanopa* in Weld 1951, orig comb *Hexaplasta melanopa*) (in *Trybliographa* (subg indet) Weld and Burks, in *Trybliographa* in NIN) type

apparently lost (not found in USNM nor BMNH) and the current placement is based on original description.

Kleidotoma parydrae Beardsley, 1993 (missed in NIN) type USNM.

Kleidotoma rufitarsis Ashmead, 1888 this combination Weld, 1951, orig comb *Coptereucoilia rufitarsis* (in *Kleidotoma* but not assigned to subgenus Weld and Burks, in *Kleidotoma* in NIN) type absent in USNM, considered lost.

Kleidotoma tristis Kieffer, 1908 (in *Kleidotoma* (*Tetrarhoptra*) in Weld and Burks, in *Kleidotoma* in NIN) type CASC.

Genus *Triplasta* Kieffer, 1901a

Type species *Kleidotoma atrocoxalis* Ashmead, 1896a, a Neotropical species.

Triplasta is a small Neotropical genus, not included in previous North American catalogs. They are parasitoids of Sepidae and Muscidae in dung. They are found in southern United States (Texas) and rare in North American collections. On the species level, this genus is in need of revision, and North American specimens have not been assigned to species.

Trichoplastini Kovalev, 1989

Type genus *Trichoplasta* Benoit, 1956; tribal name reinstated in Forshage et al. (2008), circumscription coincides with “*Rhoptromeris* group” sensu Nordlander (1982b) as revised in Fontal-Cazalla et al. (2002); for characterization and overview cf Forshage et al. (2008).

Genus *Rhoptromeris* Förster, 1869

Type species *Cothonaspis eucerus* Hartig, 1840, a junior synonym of *Rhoptromeris heptoma* (Hartig 1840), a Palearctic species.

syn *Hexamerocera* Kieffer, 1901a, synonymized by Nordlander, 1978, type species *Eucoila rufiventris* Giraud, 1860.

This genus has been present in all North American catalogs from Weld on, but the

single species included there is in fact a *Leptopilina*. Nevertheless, the genus is present in the Nearctic, through one species previously listed as a *Trybliographa*, and probably some undescribed species.

Hexamerocera was cited in Weld and Burks as a subgenus of *Pseudeucoila*, including species belonging neither in *Rhoptromeris* (of which *Hexamerocera* is a junior synonym) nor *Trybliographa* (of which *Pseudeucoila* is a junior synonym); NIN, not listing subgenera, had these species as *Pseudeucoila*, which had been a synonym of *Trybliographa* since Hellén (1960).

Rhoptromeris are widespread but not common in North America. The distribution of the genus is worldwide, but they are more common in the Old World and especially in the Afrotropical region. The wasps are as far as known parasitoids of Chloropidae in grasses.

Rhoptromeris aperta (Kieffer 1908) **n. comb.** *Trybliographa aperta* in Weld, 1951, orig comb *Eucoila* (*Rhoptromeris*) *aperta* (in *Trybliographa* (subg indet) in Weld and Burks, in *Trybliographa* in NIN) Type in CASC examined and considered to belong to *Rhoptromeris*.

Genus *Trichoplasta* Benoit, 1956

Type species *Trichoplasta basilewskyi* Benoit, 1956, a junior synonym of *T. tanganyikensis* (Weld 1944), an Afrotropical species.

syn *Armigerina* Belizin, 1968, synonymized in Forshage and Nordlander, 2008, type species *Armigerina apparella* Belizin, 1968.

Absent in all previous North American catalogs, this genus is in fact fairly common at in boreal habitats. It was first reported as present in the Nearctic when the identity of the genus was clarified by Nordlander (1982a), having been confused with *Odonteucoila* up to then. All North American species remain undescribed.

Widespread in North America, especially in the boreal region, but hardly abundant. The distribution of the genus is worldwide. In warmer areas, they are often associated with fruit, but in boreal areas they are typically associated with dead wood, and probably mostly with Drosophilidae and Lonchaeidae under bark, though biological data are sparse and contradictory. North American specimens are often stated to be reared from bark beetles, but since all well-documented host records of Eucolilinae are flies, and Cynipoids in general are conservative in terms of host switches, these records are perhaps, until further evidence, best interpreted as based on erroneous association (and the wasps presumably actually hatching from dipteran puparia in the same pieces of wood as the beetles).

Zaeucoilini Buffington, 2010

Type genus *Zaeucoila* Ashmead 1903a, a Neotropical genus; circumscription coincides with “*Zaeucoila* group” sensu Fontal-Cazalla et al. (2002) proposed by Diaz and Gallardo (1997); for a characterization and a key to genera see Buffington (2009).

Genus *Agrostocynips* Díaz, 1976

Type species *Agrostocynips clavatus* Díaz, 1976, a Neotropical species.

syn *Aegeseucoela* Buffington, 2002, synonymized by Buffington 2009, type species *Diranchis grenadensis* Ashmead, 1900, a Neotropical species.

Agrostocynips was considered a purely Neotropical genus, but one of the species currently included has been present in earlier North American catalogs as a *Ganaspis*. Systematical treatment can be found in Buffington (2004b, 2009) and Buffington and Scheffer (2008).

Very common in mid-western and eastern North America, also present in the Neotropics; parasitoids of Agromyzidae.

Agrostocynips diastrophi (Ashmead 1896b) this combination Buffington, 2004, orig comb *Ganaspis diastrophi* (in *Ganaspis* in Weld, Burks, and NIN) type USNM.

Agrostocynips robusta (Ashmead 1894a) this combination Buffington, 2004, orig comb *Chrestosema robusta* (not in Weld, Burks, or NIN) type USNM (species also present in Neotropics).

Genus *Dicerataspis* Ashmead, 1896a

Type species *Dicerataspis grenadensis* Ashmead, 1896a, a Neotropical species.

Nearctic occurrence of *Dicerataspis* was not mentioned in Weld (1951) but in Weld (1952), without being added to the supplements of the catalog, and so not making it into Burks or NIN. It was again omitted in Buffington (2009).

Uncommon in the Nearctic, they are so far found only in southern Texas, and very few North American specimens exist in collections, none of which have been assigned to species. Mainly distributed in the Neotropics, they are parasitoids of Drosophilidae and possibly Tephritidae in fruit.

Genus *Moneucoela* Kieffer, 1907

Type species *Moneucoela tinctipennis* Kieffer, 1907, a Neotropical species.

Moneucoela has not been present in earlier North American catalogs.

Mainly distributed in the Neotropics, there are no host records for *Moneucoela*, but all their close relatives are parasitoids of Agromyzidae. One Neotropical species is known from Mexico, and one unidentified species has been recorded in southern Texas.

Moneucoela tinctipennis Kieffer, 1907 type CASC (Mexico only, mainly a Neotropical species).

syn *Zaeucoila sexdentata* Kieffer, 1908, synonymized by Díaz and Gallardo, 1998

Genus *Marthiella* Buffington, 2009

Type species *Rhabdeucoela flavotincta* Kieffer, 1908.

Marthiella was recently described (Buffington 2009) and the single species included therein has not been present in earlier North American catalogs.

A single rare species has been recorded in the southwestern United States (Buffington 2002). Also present in Central America but everywhere uncommon, they are parasitoids of Agromyzidae.

Marthiella flavotincta (Kieffer 1908) this combination Buffington, 2009, *Aegeucoela flavotincta* in Buffington, 2002, orig comb *Rhabdeucoela flavotincta* (not in Weld, Burks, or NIN) type CASC (species also present in Neotropics).

Genus *Preseucoela* Buffington, 2004

Type species *Preseucoela imallshookupis* Buffington, 2004, a Neotropical species.

Preseucoela was recently described (Buffington 2004b) and species included therein have not been present in earlier North American catalogs (the genus name is often misspelled, especially in popular media, as "*Preseucoila*").

This genus is found in southwestern North America, with a preference for arid habitats. They also occur locally in the Neotropics, and are parasitoids of Agromyzidae.

Preseucoela heratyi Buffington, 2004, type AEIC (species also present in Neotropics).

Preseucoela pallidipes (Ashmead 1894a) this combination Buffington, 2004, orig comb *Chrestosema pallidipes* (not in Weld, Burks, or NIN) type USNM (species also present in Neotropics).

syn *Eucoila sanctimarci* Kieffer, 1908, synonymized by Buffington, 2004, *Pseudeucoila sanctimarci* in Weld, 1952 type CASC

syn *Eucoila transversa* Kieffer, 1908, synonymized by Buffington, 2004, *Pseudeucoila transversa* in Weld, 1952 type CASC.

Genus *Rhabdeucoela* Kieffer, 1907

Type species *Rhabdeucoela nitidifrons* Kieffer, 1907, a Neotropical species.

Rhabdeucoela has not been present in earlier North American catalogs, and is so far found only in Nearctic parts of Mexico. It is a mainly Neotropical genus.

Genera of uncertain placement, currently not assigned to a tribe

Genus *Micreriodes* Yoshimoto, 1962

Type species *Micreriodes guamensis* Yoshimoto, 1962.

This genus has not previously been recorded from the new world (and is thus absent in previous North American catalogs).

A single Nearctic specimen has recently turned up, caught in a Malaise trap in North Carolina. It may be an accidental synanthropical introduction. The genus is described from Pacific islands but is in fact widespread in the Palearctic.

Micreriodes guamensis Yoshimoto, 1962 (not in Burks or NIN) type USNM (widespread species in the Palearctic, described from the Pacific).

Genera of uncertain status that have been reported from the Nearctic

Macrocereucoila Ashmead, 1887b

This genus (and its only species *Macrocereucoila longicornis* Ashmead 1887b) was described from North America, but type is lost and description is ambiguous. The name was present as a subgenus of *Pseudeucoila* in Weld and Burks, not in NIN. The only species included was the type species. Possibly a synonym of *Striatovertex* or *Trybliographa*.

Tetraplasta Ashmead, 1903b

This genus (and its only species *Tetraplasta unica* Ashmead 1903b), was described from North America, but type is lost and description is ambiguous. It was present as a subgenus of *Trybliographa* in Weld and Burks, not in NIN. Most species included actually belong in *Trybliographa* (*longicornis* group). Possibly a synonym of *Trybliographa*.

[Comment: *Tetraplasta* is the only new eucoiline genus in Ashmead's key to Cynipoid genera (Ashmead 1903b) which did not get a more explicit diagnosis in an almost simultaneous paper (Ashmead 1903a) – both give the printing date April 1903 in the margin. The characters used in the key to reach the taxon are sufficient to make the name available (§12.1). However, to ascertain the original publication of the names present in both, it should be noted that Evenhuis (2011) has clarified the publication dates of both journals. In this case, it is 6 March for *Proceedings of the Entomological Society of Washington* (Ashmead 1903a) and 15 March for *Psyche* (Ashmead 1903b); so the former paper has priority, and all names given in both (*Odonteucoila*, *Dieucoila*, *Pseudeucoila* and others), were accordingly originally published in the *Proceedings* paper (Ashmead 1903b).]

Genera that have been erroneously reported from the Nearctic

Hypodiranchis Ashmead, 1901a

The described species in this genus are all from Hawaii. It has not been listed in previous North American catalogs but there are several Nearctic specimens under this name in collections. These specimens are usually *Hexacola*.

Nordlanderia Quinlan, 1986

A Palearctic genus, described from Africa. It was listed for North America in

NIN. The two Nearctic species described in this genus by Miller (1989) are now in *Banacuniculus* Buffington (2010a) and *Ganaspidium* Weld (1955), respectively.

Zaeucoila Ashmead, 1903a

A Neotropical genus that may possibly transgress into the Nearctic. It has not been listed in previous North American catalogs, but there are several Nearctic specimens under this name in collections. These specimens usually belong to *Agrostocynips* Díaz 1976 or other genera of Zaeucoilini.

species-level *nomina inquirenda*
(listed in original combinations)

Eucoela (*Macrocereucoela*) *ashmeadiana* Dalla Torre & Kieffer, 1902, replacement name, type as following (listed as unnecessary replacement name in Weld, b sp in *Pseudeucoila* (*Macrocereucoila*) in Burks, in *Pseudeucoila* in NIN)

syn *Macrocereucoila longicornis* Ashmead, 1887b, *Eucoela longicornis* in Kieffer, 1901, a secondary junior homonym in *Eucoila* (nec *Cothonaspis longicornis* Hartig 1840) (b sp in *Pseudeucoila* (*Macrocereucoila*) in Weld, syn in Burks, not in NIN) type not found in USNM nor BMNH, reported lost by Weld, 1952.

syn *Eucoila* (*Macrocereucoila*) *ashmeadi* Dalla Torre and Kieffer, 1910, unnecessary replacement name, erroneously cited by Dalla Torre and Kieffer (1910) from Kieffer, 1901a where it does not occur (synonym in Weld & Burks, not in NIN)

Eucoila (*Psichacra*) *laticeps* Kieffer, 1908, *Psichacra laticeps* in Weld, 1951 (in *Psichacra* in Weld and Burks, in *Trybliographa* in NIN) type apparently lost; not found in CASC.

Figites mellipes Say, 1836, *Eucoila mellipes* in Ashmead, 1885, *Pseudeucoila mellipes* in Weld, 1951 (in *Eucoila*

in Ashmead, *Pseudeucoila* (subg indet) in Weld and Burks, in *Pseudeucoila* in NIN). Type lost, and the only thing that can really be said about its identity based on the original description only is that it belongs to Eucoilinae. We fail to see what Ashmead (1885) was basing his nomenclatural act upon, and even more so that of Weld (1951) when he moved the species to *Pseudeucoila* and identified a number of specimens (in USNM) as *Pseudeucoila mellipes*; these specimens belong to *Hexacola*.

Kleidotoma minima Provancher, 1883, synonymized with *Figites mellipes* Say, 1836, by Ashmead, 1885 (junior synonym of *Eucoila mellipes* in Ashmead, of *Pseudeucoila mellipes* in Weld and Burks, not in NIN) Type is lost, and even if Ashmead may have known more than we do about his contemporary Provancher's species, nothing suggests he knew Say's species well enough to have a solid basis for this synonymy. Today we cannot but regard both names as doubtful.

Diplolepis pedatus Say, 1836, *Eucoila pedata* in Ashmead, 1885, *Pseudeucoila pedata* in Weld, 1951 (in *Eucoila* in Ashmead, *Pseudeucoila* (subg indet) Weld and Burks, in *Pseudeucoila* in NIN) type lost.

Ganaspis reclusa Kieffer, 1908 (sic in Weld, Burks and NIN) type lost; reported as destroyed in Weld, 1952, empty pin extant in CASC.

Eucoila rufoscutata Kieffer, 1910, *Pseudeucoila rufoscutata* in Weld, 1952, suggested to be a *Trybliographa* by Schick (unpubl), (in *Eucoila* in Weld, Burks and in NIN); type in UAAM has not been available for study by the present authors.

Eucoila (Psichacra) troglodytes Kieffer, 1909, *Psichacra troglodytes* in Weld, 1951, *Trybliographa troglodytes* in Weld, 1952 (in *Psichacra* in Weld and Burks, in *Trybliographa* in NIN); type apparently

lost; not found in CASC, reported as missing in Weld, 1952.

Tetraplasta unica Ashmead, 1903b *Cothonaspis unica* in Dalla Torre and Kieffer, 1910, *Trybliographa unica* in Weld 1951 (in *Trybliographa (Tetraplasta)* in Weld, missing in Burks and NIN) type apparently lost; not found in USNM nor BMNH, reported as missing in Weld 1952.

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