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Solving nomenclatural problems of genus-group names of the cuckoo-wasps (Hymenoptera, Chrysididae): objectively invalid and unavailable names, new type-species designations, new names, a new genus and new synonymies

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Abstract

Information is provided for 143 objectively invalid or unavailable genus-group names used in Chrysididae; 34 are objectively invalid, of which 18 are junior homonyms (five of these are also currently junior subjective synonyms), 18 are junior objective synonyms (two of these are also junior homonyms) of which seven are unjustified emendations, and two are unnecessary replacement names. The remaining 109 names are unavailable; 96 are incorrect subsequent spellings, most of them were originally *lapsus calami* or misprints, one is hereby deemed to be an incorrect original spelling, eight are *nomina nuda*, three were originally published as junior synonyms and never adopted before 1961 as valid names of any taxa, and one is a vernacular name previously considered as valid. Gender, type species, taxonomic history and status are given for each name except for incorrect subsequent spellings and unjustified emendations. Some cases of homonymies with taxa currently classified as non-animal are discussed. For two such junior homonyms, denoting genus-group taxa considered as valid in the present work, new replacement names are proposed: *Linsenmaierella* Rosa & Pavesi **nom. nov.** for *Chrysidella* Linsenmaier, *nec* Pascher; and *Rhipidochrysis* Rosa & Pavesi **nom. nov.** for *Pleurochrysis* Bohart, *nec* Pringsheim. New generic synonymies are established: consequent on new type-species designations, *Leptoglossa* Klug becomes a junior objective synonym of *Parnopes* Latreille **syn. nov.**, and *Pyrochloris* Klug becomes a junior objective synonym of *Euchroeus* Latreille **syn. nov.**; *Pseudodichrysis* Trautmann is a junior objective synonym of *Dichrysis* Lichtenstein **syn. nov.** and the latter is in turn a junior subjective synonym of *Chrysis* Linnaeus. *Platycelia* Dahlbom is selected by the authors, acting as First Revisers, as the correct original spelling, and the simultaneously published *Platycoelia* is therefore deemed to be an incorrect subsequent spelling. The validation of *Philoctetes* Abeille de Perrin, not available when originally proposed, is discussed. *Morphochrysis* Rosa & Pavesi **gen. nov.** (type species: *Chrysis pulchella* Spinola) is here described; it includes members of the *Chrysis pulchella* species group previously included in *Gonodontochrysis* Semenov-Tian-Shanskij & Nikol'skaya, an unavailable name. The *Chrysis zaravshanica* species group is merged with the *pulchella* species group. A new specific synonymy within this group is proposed: *Chrysis zaravshanica* Tarbinsky **syn. nov.** of *C. personata* Semenov-Tian-Shanskij.

Key words: family-group names, history, homonymy, taxonomy, nomenclature

Introduction

The present paper is intended as the first part of a major work attempting to update the systematics and nomenclature of the family Chrysididae. Besides the systematic problems discovered in the last years (see Historical background), during our study of this group a number of nomenclatural and taxonomic changes were found to have been introduced through the discovery of incorrect type-species designations, the unavailability of previously accepted names, new erroneous synonymies, overlooked homonymies, and so on. Cleaning up the nomenclature by removing objectively invalid and unavailable names is considered the first step before proposing a new classification.

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The final assessment of valid genus-group names, and of those subjectively invalid as junior subjective synonyms, will no doubt require further study. This is likely to result in the reevaluation of several genus-group names, currently treated as junior subjective synonyms, as well as in new replacement names for objectively invalid ones, e.g. *Acanthochrysis* Haupt, 1957 or *Chrysaspis* de Saussure, 1887 (see below), should they prove to be valid genus-group taxa.

As a first result however, many names, some of which have been widely used, proved objectively invalid because they are junior objective synonyms or junior homonyms, or are even unavailable as incorrect subsequent spellings or *nomina nuda*. It is to be stressed that, according to Art. 19 and 33 of the International Code of Zoological Nomenclature (ICZN 1999, throughout this paper referred to as "the *Code*"), an incorrect subsequent spelling is not separately available from the correct original one, while an unjustified emendation is available, as a junior objective synonym of the correct original spelling. However, according to Art. 33, both the above kinds of invalid spellings may become valid, because deemed to be the correct original spelling or a justified emendation respectively, if they prove to be in prevailing usage and attributed to the original authorship and date. In a few cases of invalid junior homonyms, denoting valid genus-group taxa according to the existing literature or to the present paper, new replacement names are proposed.

The present paper deals only with objectively invalid or unavailable genus-group names, irrespective of whether or not they denote valid taxa. To aid understanding of some abbreviations and terms associated with names, particularly as used in the older literature, note: m. = mihi [= by me], nob. = nobis [= by us], r. = recte [= correctly], sic [= as in the original text].

Historical notes on the nomenclatural rules

The present paper follows the provisions of the 4th edition of the International Code of Zoological Nomenclature (ICZN 1999), with subsequent amendments, the edition which is currently in effect and supersedes all previous editions. Nevertheless, a brief overview of the formerly adopted written and unwritten nomenclature rules, as well as of the treatment of the scientific names before (and sometimes also after) codified rules were adopted, is herewith given to provide additional context.

Written nomenclatural rules in zoology, such as Merton's Rules and Strickland's Code, were compiled in various countries since the late 1830s. Conventions and unwritten rules, varying across disciplines, countries, and languages, were also adopted. At the 1st (Paris 1889) and 2nd (Moscow 1892) International Zoological Congresses, zoologists agreed about the need to establish commonly accepted international rules.

The first compilation, "International Rules on Zoological Nomenclature", proposed at the 3rd International Congress for Zoology in Leiden in 1895 resulted in three versions (French, English, and German, of which only French was official), published in 1905. Since then, several amendments and modifications were introduced at subsequent zoological congresses (Boston 1907, Graz 1910, Monaco 1913, Budapest 1927, Padua 1930, Paris 1948, Copenhagen 1953, and London 1958), all published only in English, and only to be found in the congresses' reports or other official publications.

The above publications soon sold out, and it became increasingly difficult to obtain a complete set of the Rules with relevant amendments. In Copenhagen, a declaration was approved in 1953 to prepare a new comprehensive revision of the Rules, with both French and English versions to be substantive and of equivalent official force. In 1958, an Editorial Committee in London elaborated a completely new version of the nomenclatural rules, finally published on 9 November 1961 as the First Edition of the International Code of Zoological Nomenclature, followed by the Second (1964), Third (1985) and Fourth (1999) Editions, the last supplemented with a comprehensive amendment on online publication in 2012. It is also notable that translations into several other languages (e.g. Catalan, Chinese, Czech, German, Japanese, Russian, Spanish and Ukrainian) have recently been produced, and some have been approved as additional official texts by the International Commission on Zoological Nomenclature.

As a consequence of this relatively recent adoption of a comprehensive Code, throughout the 19th century, and sometimes also in the 20th, the treatment of names was often quite "creative". Compared to the presently adopted rules, some major differences emerge.

1) In the absence of a codified Principle of Priority, while priority was almost consistently respected for specific names, the same was not always true for generic ones. For example, Semenow (1891, 1892) included in

Pseudochrysis Semenow, 1891, as subgenera, some previously described genera, namely *Euchroeus* Latreille, 1809, *Spinolia* Dahlbom, 1854, *Spintharis* Dahlbom, 1854, and *Brugmoia* Radoszkowski, 1877; and Bischoff (1913) listed *Chrysura* Dahlbom, 1845 as an invalid synonym of *Achrysis* Semenow, 1892.

2) The denominations of the hierarchic levels for family-group names, and their respective endings, were not standardized. As examples, in Leach (1816: 735) the Tribe VIII. Chrysidides included Family I. Clepsida (later, Leach 1830: 146 corrected this to Cleptida), and Family II. Chrysida. du Buysson (1891–1896) divided the family Chrysididae into the tribes Cleptidae, Heteronychidae, Euchrysididae, and Parnopidae.

3) The formation of a family-group name from one generic name, selected as the type genus, was not considered as mandatory. Invalid, because incorrectly formed, family-group names, such as Heteronychidae, Holonychidae, and Euchrysididae, as well as their alternatives -inae or -ini, were largely used for decades.

4) The Principle of Coordination (see below, under Family-group names—B) Unavailable names), also not codified, was largely disregarded as well. Authors using a family-group name, e.g. family Chrysididae, for the first time at a different level, e.g. subfamily Chrysidinae, were often considered, or considered themselves, as the actual authors of the name. Dahlbom (1854) listed in his "Chrysidiformia" six families, all reported as newly created (Cleptidae nob., Elampidae nob., Hedychridae nob., Chrysididae nob., Euchroeidae nob. and Parnopidae nob.); Mocsáry (1889) reduced Dahlbom's families (without Euchroeidae) to subfamilies of the family Chrysididae Leach (see below), attributed either to Aaron 1885 (Cleptinae, Parnopinae) or to himself (Ellampinae [sic] mihi, Hedychrinae mihi, Chrysidinae mihi). More recently, despite the already existing Code, Semenov-Tian-Shanskij (1954b) divided the tribe Hedychrini Mocsáry into three subtribes, Hedychrina Semenov-Tian-Shanskij [sic] and the new ones Hedychridiina Semenov-Tian-Shanskij and Holopygina Semenov-Tian-Shanskij.

Historical background

The first chrysidid species were described by Linnaeus (1758), as *Sphex aurata*, currently *Pseudomalus auratus*, *S. cyanea,* currently *Trichrysis cyanea*, and *S. ignita,* currently *Chrysis ignita*. Linnaeus (1761) described the genus *Chrysis*, to which he added two further species, *C. fulgida* and *C. viridula*; at the same time, he described *Sphex semiaurata,* currently *Cleptes semiauratus*, the first species of *Cleptes*. Subsequent authors described some other genera, e.g. *Parnopes* Latreille, 1796; *Omalus* Panzer, 1801; *Cleptes* Latreille, 1802; *Hedychrum* Latreille, 1802; *Elampus* Spinola, 1806; *Stilbum* Spinola, 1806; *Euchroeus* Latreille, 1809, and several new species. Latreille (1802) also introduced, as *cleptiosa* and *chrysidides*, respectively, the family names Cleptidae and Chrysididae (see below, under Family-group names: A) Available names). No monographic work, however, dealt with Chrysididae until Dahlbom (1854), "Hymenoptera Europaea praecipue borealia. Tomus II. *Chrysis* in sensu Linnaeano". Dahlbom (1854) subdivided his "Hymenoptera Chrysidiformes" into six families (Cleptidae, Elampidae, Hedychridae, Chrysididae, Euchroeidae, Parnopidae) and 12 genera, with a total of 213 species. Incidentally, some genera listed by Dahlbom (1854), because supposedly used by specialists of the family, but considered not valid, such as *Nemophora* and *Poeciloechroa*, had indeed never been described before, and were first published in Dahlbom (1854) as junior synonyms (see below). Lichtenstein (1876) described eight *Chrysis* subgenera, based on Dahlbom's (1854) phalanges, the subgeneric category used in his times. Thirty-five years after Dahlbom (1854), Mocsáry (1889) published a new monograph of the family Chrysididae, including 733 species, subdivided into seven subfamilies (Amiseginae, Cleptinae, Allocoeliinae, Ellampinae [sic], Hedychrinae, Chrysidinae, and Parnopinae), 13 genera and 10 subgenera. Dalla Torre (1892) published Volume VI, dealing with Chrysididae, of his monumental Catalogus Hymenopterorum. All over this catalogue, he provided plenty of unjustified emendations of both generic and specific names which he considered to be orthographically incorrect. These "corrected" names, available and junior objective synonyms of the original ones, sometimes remained in use, causing confusion. Ashmead (1902) listed 33 genera, arranged in the 7 subfamilies proposed by Mocsáry (1889), with the correction of Ellampinae to Elampinae; he also listed the type species, or designated new ones, for most known chrysidid genera. Bodenstein (1939) published the first comprehensive work on generic names with relevant type species, listing 84 names, including invalid ones (junior synonyms, junior homonyms, and unavailable names). Linsenmaier (1951, 1959a, 1968, 1985, 1987, 1997) described 16 new worldwide subgenera (some of them subsequently recognized as valid genera) and introduced two new genus-group replacement names. However, his revisions were almost limited to the Palaearctic region, with a few revisions for some Neotropical genera (Linsenmaier 1984, 1985), and occasional

papers for other regions (Linsenmaier 1982, 1994). Nikol'skaya, based on unpublished notes of the late Semenov-Tian-Shanskij, in Semenov-Tian-Shanskij & Nikol'skaya (1954) and Semenov-Tian-Shanskij (1967) described some new genera, subgenera and species, in the former paper partly attributed to Semenov-Tian-Shanskij alone, partly to both authors, but some without explicit indications. In fact, the genus-group names *Allochrysis*, *Glossochrysis*, and *Gonodontochrysis* (see below), all originally considered subgenera of *Chrysis* Linnaeus, 1761, are usually attributed to Semenov-Tian-Shanskij in Semenov-Tian-Shanskij & Nikol'skaya (1954). However, in Semenov-Tian-Shanskij & Nikol'skaya (1954: 91) there is only a list of genera, or subgenera, already recognized by Semenov-Tian-Shanskij but still unpublished. These three names, however, as established in the original publication, are unavailable (Rosa 2018a), because published after 1930 with no description or definition (Art. 13.1 of the Code) and no designation of type-species (Art. 13.3). Consequently, the genus-group names *Allochrysis*, *Glossochrysis*, and *Gonodontochrysis* are to be considered as first published by Semenov-Tian-Shanskij & Nikol'skaya (1954), but unavailable from that publication. Similarly, the Elampini subgenus *Euchridium* Semenov-Tian-Shanskij, 1954a, based on a single species, *Hedychridium* (*Euchridium*) *trossulus* [sic] has to be considered a *nomen nudum*. It was correctly described in the following article by Semenov-Tian-Shanskij (1954b: 139), with description (in the key) and type-species designation.

Krombein (1957, 1960, 1980, 1983a, b, 1984) revised the Amiseginae and described 18 genera; he also described another two genera in the Chrysidinae, tribe Elampini (1969) and two fossil genera (1986). Kimsey and Bohart were among the most productive authors, and separately (Kimsey 1982, 1986b, 1987a, 1988a, 2005, 2014; Bohart 1966, 1980) or together (Bohart & Kimsey 1982) described about 20 genera of Amiseginae, Loboscelidiinae, and Chrysidinae, both Elampini and Chrysidini. Kimsey (1987b) also designated incorrect lectotypes of three Fabrician chrysidid species, including *Chrysis purpurata* Fabricius, 1787, which resulted in the synonymisation of *Euchroeus* Latreille, 1809 with *Chrysis* Linnaeus, 1761, and in the introduction of the name *Brugmoia* Radoszkowski, 1877 for the species formerly included in *Euchroeus*.

The most important contribution for the identification of worldwide genera and species groups is Kimsey & Bohart (1991), a volume informally called "the green book" by Krombein (1992). Kimsey & Bohart (1991) subdivided the Chrysididae into 4 subfamilies (Cleptinae, Amiseginae, Loboscelidiinae, and Chrysidinae) and 82 extant genera (in the text indicated as 84), plus five fossil genera; overall, they listed 193 generic names, available or unavailable. After the publication of this worldwide-referenced work, however, some European, Russian and Ukrainian authors did not agree with the definitions of genera given by Kimsey & Bohart (1991), and continued to follow Linsenmaier's (1959a) classification in part or entirely (e.g. Kunz 1994; Linsenmaier 1994, 1997, 1999; Mingo 1994; Arens 2001, 2002, 2004, 2014; Vinokurov 2008, 2011, 2012; Standfuss 2009; Brustilo & Martynov 2009; Martynova & Fateryga 2014; Van der Smissen 2010). The Kimsey & Bohart (1991) classification is far from being settled (Linsenmaier 1997; Carpenter 1999; Pauli *et al*. 2019); it was, anyway, considered the most comprehensive contribution for known subfamilies and tribes, and has been so far largely adopted to standardize the nomenclature (Rosa 2006; Rosa & Soon 2012; Rosa *et al*. 2013, 2014, 2015a, b, c, 2016a, b, 2017a, b). It is to be noted that Finnamore (1997) followed Bohart & Kimsey (1982) in the classification of chrysidid genera, not citing, and most likely unaware of Kimsey & Bohart (1991). His generic arrangement is therefore not considered in the present work.

Subsequent to Kimsey & Bohart (1991) many nomenclatural and taxonomic changes have been made. *Euchroeus* Latreille, 1809 (ICZN 1998) and *Pseudochrysis* Semenow, 1891 were revalidated (Rosa *et al*. 2017c). Eleven new genera and one new tribe were described: *Nipponosega* Kurzenko & Lelej, 1994; *Kimseya* Antropov, 1995, included in the newly described tribe Kimseyini Antropov, 1995; *Adscitis* Linsenmaier, 1997 (as subgenus of *Chrysis* Linnaeus, 1761), *Chrysidella* Linsenmaier, 1997 (as subgenus of *Primeuchroeus* Linsenmaier, 1968), *Calosega* Terayama, 1999; *Okinawasega* Terayama, 1999; *Arnoldia* Tarbinsky, 2004, *Pseudochrysura* Tarbinsky, 2004; *Senesega* Kimsey, 2005; *Oligogaster* Soliman & Kimsey, 2013; *Noumeasega* Kimsey, 2014; *Istiochrysis* Rosa & Xu in Rosa *et al*. 2016a, and *Leptopareia* Rosa & Xu in Rosa *et al*. 2016b. Five genera were resurrected: *Lustrina* Kurian, 1955 (Móczár 1996), *Neospinolia* Linsenmaier, 1968 (Linsenmaier 1997), *Chrysellampus* Semenov-Tian-Shanskij, 1932 (Rosa *et al*. 2015b), *Colpopyga* Semenov-Tian-Shanskij, 1954b (Rosa 2017) and *Prospinolia* Linsenmaier, 1968 (Pauli *et al.* 2019). Five genera were synonymised: *Microsega* Krombein, 1960 with *Amisega* Cameron, 1888 (Kimsey 1990), *Nesogyne* Krombein, 1957 with *Adelphe* Mocsáry, 1890 (Kimsey 2008), *Allochrysis* Kimsey & Bohart, 1991 with *Chrysis* Linnaeus, 1758 (Rosa 2018a), *Arnoldia* Tarbinsky, 2004 with *Pseudochrysis* Semenow, 1891 (Rosa 2018b), *Pseudochrysura* Tarbinsky, 2004 with *Spinolia* Dahlbom, 1854

(Rosa 2018b); the two Tarbinsky names subsequently proved to be unavailable (see below). The number of fossil genera was raised from five to 18; nine extinct genera were described, namely *Dahurochrysis* Rasnitsyn, 1990 (Chrysidinae), *Sphaerocleptes* Cockx *et al*., 2016 (given as Cleptinae, but actually Chrysidinae Elampini), *Auricleptes* Lucena & Melo, 2018 (Cleptinae), *Burmasega* Lucena & Melo, 2018 (Amiseginae), *Miracorium* Lucena & Melo, 2018 (*incertae sedis*), *Azanichrum* Lucena & Melo, 2018, and *Bohartiura* Lucena & Melo, 2018 (Chrysidinae), *Eosega* Martynova and *Foveorisus* Martynova in Martynova & Perkovsky, 2017 (Amiseginae). Moreover, Sorg (1988) transferred three extinct genera from Bethylidae to Chrysididae (*Palaeobethylus* Brues in Kieffer, 1914; *Palaeobethyloides* Brues, 1933 and *Uromesitius* Brues, 1933).

In recent years three major papers were published on the phylogeny and evolution of cuckoo wasps. Pauli *et al*. (2019) analysed 186 species of Chrysididae representing most major cuckoo-wasp lineages and genera. Results of this phylogenomic study proved inconsistent with the classification introduced by Kimsey & Bohart (1991), that is currently accepted, as many of the smaller genera within this classification system are nested within larger genera: several of the currently recognized genera proved para- or polyphyletic. Despite the data obtained, Pauli *et al.* (2019) refrained from taking formal taxonomic steps, i.e. formalizing the recognized discrete clades as distinct genera, thus leaving unchanged the previously accepted systematics. Another recent article by Pauli *et al*. (2021) corroborated the para- and polyphyletic nature of various currently accepted genera, as suggested by Pauli *et al*. (2019). This second study by Pauli *et al.* (2021) provided a phylogenetic backbone for comparative analyses across the major lineages of cuckoo wasps. It is the first cuckoo-wasp phylogeny that is robustly supported at all deeper splits obtained by compiling a substantial amount of phylogenomic data utilizing whole-body transcriptome sequencing and DNA target enrichment. All major chrysidoid lineages (families, subfamilies, and tribes) were supported as monophyletic. Amiseginae were inferred as the sister group of Cleptinae. Allocoeliini were inferred as the sister group of all remaining Chrysidinae, and Elampini were inferred as the sister group of a clade comprising Parnopini and Chrysidini. Finally, Lucena & Almeida (2022) reconstructed the evolutionary history of the cuckoo wasps with integrated phylogenetic, biogeographic and palaeontological data, which indicated that the major lineages started to differentiate around 130 Mya during the Early Cretaceous. They observed that the family Chrysididae, its subfamilies and tribes are monophyletic, in agreement with previous research (Kimsey & Bohart 1991; Carpenter 1999; Niehuis & Wägele 2004; Pauli *et al*. 2019), although, within the Chrysidinae, Elampini was placed as the sister-group of the other three chrysidine tribes, with Parnopini sister to the clade including Allocoeliini and Chrysidini.

Family-group names

A) Available names

Establishing which author first validly published a family-group name in Chrysididae is far more difficult than for genus- or species-group names. In fact, family-group names are also available if first published with an incorrect suffix according to Art. 29.2 of the Code; in this case they are treated as incorrect original spellings, to be corrected under the provisions of Art. 32.5.3.1, and retaining their original authorship and date according to Arts 11.7.1.3 and 19.2. Moreover, according to Art. 11.7.2, a family-group name published before 1900 not in latinized form, yet latinized by later authors and accepted as valid and as dating from its original publication, is thereby made available with the original authorship and date.

The authorship of the family names Cleptidae and Chrysididae belongs to Latreille (1802), who first introduced, both in French and Latin, the names "Cleptioses; *cleptiosa*" and "Chrysidides; *chrysidides*", in the same way as e.g. "Genre Clepte; *cleptes*", "Genre Chrysis; *chrysis*", and "Genre Hédychre; *hedychrum*". According to the above exposed provisions of the Code, Cleptiosa and Chrysidides are incorrect original spellings, available with the original authorship and date under the corrected spellings Cleptidae and Chrysididae, deemed to be the correct original spellings.

Leach (1815, in Brewster's Edinburgh Encyclopaedia first edition), published a detailed entry "Entomology", dealing with the classification of insects, also providing a large overview of historical entomological literature. We were unable to trace and see any copy of this first edition; yet we suppose that the first American edition of 1816 should not significantly differ from the original one. Leach (1816: 662), as well as in subsequent editions of the Encyclopaedia, in the list of entomological papers omitted Latreille (1802). The latter was therefore overlooked

by several subsequent authors (e.g. Smith 1874; Marquet 1879; Mocsáry 1889, Edney 1940, etc.), who attributed Chrysididae to Leach. Leach indeed (1816: 735), in the Division II of the Hymenoptera, reported "Tribe VIII. Chrysidides." including two "families", namely "Family I. Clepsida." (corrected to Cleptida in Leach 1830: 146) and "Family II. Chrysida.". Both "Cleptiosa" Latreille and "Clepsida" or "Cleptida" Leach were totally overlooked by the above authors.

Dahlbom (1854) created for "*Chrysis* in sensu Linnaeano" the group Chrysidiformia, including six families, all attributed to himself as newly described: Cleptidae nob., Elampidae nob., Hedychridae nob., Chrysididae nob., Euchroeidae nob. (in the Tabula Synoptica at p. 7 as Euchraeidae, yet in the description at p. 361 as Euchroeidae, together with the genus-name spelling *Euchroeus*, consistently used in the work; see below, under that genus), and Parnopidae nob. Mocsáry (1889) introduced a modern classification of the family, including in Chrysididae Leach [sic] seven subfamilies: Amiseginae m., Cleptinae Aaron [sic], Allocoelinae m. [recte Allocoeliinae], Ellampinae m. [sic] [recte Elampinae], Hedychrinae m. [sic], Chrysidinae m. [sic], and Parnopinae Aaron [sic]. Mocsáry (1890) added the new subfamily Adelphinae. Semenow (1892) divided the "Tribus Chrysididae m." [sic] into three "Subtribus", namely Pseudochrysididae m., Stilbidae m., and Chrysididae m. [sic]. Ducke (1902) described the new subfamily Pseudepyrinae based upon the new genus *Pseudepyris*. Bridwell (1919) described the family Alienidae based upon the new genus *Alienus*. Crèvecoeur & Maréchal (1936) described the subfamily Omalinae, accepted by some subsequent authors (Cavro 1950, Linsenmaier 1997). Semenov-Tian-Shanskij (1954b) described in the tribe Hedychrini the new subtribes Hedychridiina and Holopygina, both including several, some new, genera; most of them, except *Colpopyga* and *Haba*, are currently treated as junior subjective synonyms of *Hedychridium* and *Holopyga*, respectively. Maa & Yoshimoto (1961) described the family Loboscelidiidae for the genus *Loboscelidia* Westwood, 1874, formerly referred to either Diapriidae or Cynipidae, transferred to Bethyloidea *s.l.* (= Chrysidoidea) and placed next to the Chrysididae. The allocation of *Loboscelidia* to a separate family-group taxon (? Loboscelidoidea, see below) had indeed already been supposed by Rye (1878). Day (1977) noted that the valid name for the superfamily, previously referred to as Bethyloidea, was actually Chrysidoidea, because the name Chrysidoidea Latreille, 1802 has priority over Bethyloidea Haliday, 1838. According to the Principle of Coordination (Art. 36 of the Code), an author who established a nominal taxon at any rank in the family group is deemed to have simultaneously established coordinate nominal taxa at all other ranks in the family group. Day (1979), followed by subsequent authors (e.g. Bohart & Kimsey 1982, Krombein 1983a, and Kimsey & Bohart 1991) reduced Loboscelidiinae to a subfamily of Chrysididae. Antropov (1995) finally described the tribe Kimseyini based upon the new genus *Kimseya.*

Almost all family-group names were in turn used as family, subfamily, or tribe names; e.g. Allocoeliini (Bischoff 1910), Ellampini [sic] (Bischoff 1910), Omalini (Balthasar 1953), Hedychrini (Bischoff 1910), Kimseyinae (Pagliano 2008), Pseudochrysidini (Bischoff 1910) or Pseudochrysidinae (Benno 1950), Euchroeini (Bohart & Kimsey 1982), Parnopini (Bischoff 1910), Stilbini (Semenov-Tian-Shanskij 1967).

Considering the use of Cleptidae vs. Cleptinae, it is to be stressed that, prior to Day (1977), no author, even when treating Cleptinae as a subfamily of Chrysididae, realized that the family names Cleptidae and Chrysididae, to be attributed to Latreille (1802) (see above), had been introduced simultaneously and at the same level, the former also having page priority; no author had ever explicitly given precedence to either name, as provided by Art. 24.2.1 of the Code. Day (1977), acting as First Reviser, gave Chrysididae Latreille, 1802 precedence over Cleptidae Latreille, 1802.

Within the family Chrysididae, only the subfamilies Cleptinae, Amiseginae, Loboscelidiinae, and Chrysidinae, the latter with the tribes Allocoeliini, Elampini, Chrysidini, and Parnopini, are here considered valid. Adelphinae, Alieniscinae, and Pseudepyrinae are currently synonymised with Amiseginae; Omalini and Hedychrini are synonymised with Elampini; and Euchroeini, Pseudochrysidini and Stilbini are synonymised with Chrysidini. As for Kimseyini, morphological evidence, based on fair numbers of specimens of *Kimseya* species, some undescribed, suggest that the genus may actually belong to Elampini, as already supposed by Carpenter (1999), possibly related to *Prochridium* (Rosa *et al*., in prep.); biomolecular studies on this topic are also in progress (Niehuis *et al*., in prep.).

The incorrectly formed name Chrysidae, indeed more euphonic than Chrysididae, remained in use by several authors until the 50s of the 20th century, and even later (e.g. Haliday 1838; Dalla Torre & Kohl 1878; Morice 1913; Buckhurst *et al.* 1923; Blüthgen 1937; Berland & Bernard 1938; Ceballos 1941, 1959; Cavro 1950; Banaszak 1975). André (in du Buysson 1891–1896) in a note on the preface of the VI volume of "Species des Hyménoptères d'Europe et d'Algérie", states to have changed, after agreement by du Buysson, the title "Les Chrysidides" originally

given by the latter, into "Les Chrysides": "*M. R. du Buysson avait écrit «Chrysidides», ce qui, je le reconnais, est beaucoup plus correct au point de vue grammatical. Mais le nom de «Chrysides» est si connu et, en même temps, si harmonieux, qu'avec l'autorisation de l'auteur, je n'ai pas hésité à le substituer au précédent, malgré Vaugelas et ses successeurs. J'ai imité en cela l'exemple de mon ami, M. Abeille de Perrin, qui, tout en étant aussi fin lettré qu'entomologiste distingué, n'a pas craint, dans son Synopsis, d'employer ce vocable réprouvé des puristes, préférant se rendre coupable d'un barbarisme plutôt que de se servir d'un mot barbare pour désigner des êtres si charmants qu'on pourrait appeler les colibris des Hyménoptères. Que les grammairiens intransigeants veuillent donc bien se prendre a moi seul de cette faute volontaire et non à M. du Buysson qui eût été tout disposé à le satisfaire sans mon intervention.* ". ["M. R. du Buysson had written "Chrysidides", which, I admit, is much more correct from the grammatical point of view. But the name of "Chrysides" is so well known and, at the same time, so harmonious, that with the authorization of the author, I did not hesitate to substitute it for the previous one, despite Vaugelas and his successors. In this I have imitated the example of my friend, M. Abeille de Perrin, who, while being as fine a scholar as he is a distinguished entomologist, was not afraid, in his Synopsis, to use this condemned term of the purists, preferring to be guilty of barbarism rather than using a barbarous word to designate such charming beings that one might call the hummingbirds of Hymenoptera. Let the intransigent grammarians be so good as to blame me alone for this voluntary fault and not M. du Buysson who would have been quite ready to satisfy them without my intervention. "].

Other, less common incorrect spellings, such as Chrysidedae [sic] in Bingham (1898), and Chrysidiae [sic] in Brand (1929), are herewith considered mere *lapsus calami* or misprints, rather than deliberate incorrect subsequent spellings.

B) Unavailable names

According to Art. 29.1 of the Code, family group names are to be formed from the stem of a generic name, considered the type genus of the concerned taxon, by adding the appropriate suffix; Art. 29.2 specifies -oidea for superfamilies, -idae for families, -inae for subfamilies, -ini for tribes, -ina for subtribes. According to the Principle of Coordination (Art. 36), a taxon established at any rank in the family group is deemed to have been simultaneously established for nominal taxa at all other ranks in the family group; all these taxa have the same type genus, the same authorship and date, and their names differ only by the suffix. The author who first established the family Chrysididae, namely Latreille (1802) (see above), is accordingly deemed to have at the same time also established the subfamily Chrysidinae, the tribe Chrysidini, and the subtribe Chrysidina, as well as the superfamily Chrysidoidea; all these names have precedence over any other family-group nominal taxon in which the type genus *Chrysis* is included.

Any family-group name, formed other than from an available generic name, is unavailable. Before the nomenclature rules were codified, however, such names were introduced and largely accepted. du Buysson (1891–1896) divided the family Chrysididae into four tribes; besides Cleptidae and Parnopidae, both attributed to Aaron 1885 [sic], the two new names Heteronychidae and Euchrysididae were introduced. Bischoff (1910), as a contrast to the subfamily Heteronychinae du Buysson, 1891, introduced the new subfamily Holonychinae, including the tribes Pseudochrysidini Bischoff, 1910, Parnopini Aaron, 1885 [sic], Allocoeliini Mocsáry, 1889, and Euchrysidini du Buysson, 1891. These names, either as subfamilies (Medina y Ramos 1902; Mantero 1909; Trautmann 1927; Edney 1940; Tsuneki 1948, 1953; Benno 1950; Edney 1952, 1953, 1954a, b, 1956; Balthasar 1953; Linsenmaier 1968; Banaszak 1980) or tribes (Lepri 1910; Linsenmaier 1968, as "Sektionen" of the subfamily Chrysidinae) were largely used in the literature, sometimes also after the publication of the Code.

Other unavailable names, intended for family-group taxa, have been proposed and used for the family Chrysididae: Tubuliferi Latreille, 1804 (Tubulifera in Latreille 1807; followed by several authors, e.g. Kirchner, 1867; Aaron 1885; Gribodo 1881; Cresson 1887; Dalla Torre 1892; Ashmead 1896; Aurivillius 1911; Bingham 1903; Jörgensen 1912); Siphuria Rafinesque, 1815; Chrysostilba Förster, 1877.

Brèthes (1903) placed *Pleurocera* in Chrysidinae and asked whether there was sufficient reason to establish Pleurocerinae as a new subfamily ["N'y a-t-il pas motif bien suffisant pour établir la sous-famille Pleurocerinae?"]; however, he did not use Pleurocerinae as a valid name, thus it cannot be considered as available (Art. 11.5 of the Code).

Unavailable supraspecific names

Various kinds of names, all unavailable, have been proposed in the literature as subdivisions of the large genus *Chrysis*. Abeille de Perrin (1879) subdivided *Chrysis* into four "sections": *Auratae*, *Bicolores*, *Virides*, and *Zonatae*. du Buysson (1891–1896) subdivided the genus into eight "phalanges" based on Dahlbom's "phalanges": *Bidentatae*, *Inaequales*, *Integerrimae*, *Quadridentatae*, *Quinquedentatae*, *Unidentatae*, *Sexdentatae*, *Tridentatae*; each phalanx was in turn subdivided into five sections, *Auratae*, *Bicolores*, *Obscuratae*, *Virides*, *Zonatae*. Linsenmaier (1959a) grouped the subgenera of *Chrysis* into three "Abteilungen" (= divisions) of the genus, namely I. Incisicornia (*Chrysogona*, sensu Linsenmaier), II. Simplicicornia (*Chrysis*, *Praestochrysis*, *Pentachrysis*, *Pseudotetrachrysis*, *Octochrysis*, *Eurychrysis*, *Platycelia*, *Trichrysis*, *Chrysidea*), and III. Abbrevicornia (*Spintharina*, *Cornuchrysis*, *Pyria*). None of the above names of "phalanx", "section", or "division" is available as a genus-group name, because:

1) according to Art. 10.4 of the Code, an uninominal name proposed for a genus-group division of a genus, even if the division is denoted by a term such as "section" or "division", is deemed to be subgeneric, and according to Art. 11.8, a genus-group name must be, or be treated as, a noun in the nominative singular. None of the above names meets the latter provision;

2) moreover, as Linsenmaier's names are concerned, according to Art. 13.3, to be available every new genus-group name published after 1930 must be accompanied by the fixation of a type species in the original publication, which was not done by him.

Homonymies with genus-group names of currently non-animal taxa

When a scientific name is used for more than one species, genus or other taxon, it is considered to be a homonym when under provisions of the same Code. Junior homonyms are considered "*invalid*" according to the Zoological Code and "*illegitimate*" according to the International Code of Nomenclature for algae, fungi, and plants ("Botanical Code") (Turland *et al.* 2018). However, in the last several years a new question arose about the so-called *ambiregnal* organisms (Patterson 1986), in particular Protista (Protozoa) whose nomenclature may fall simultaneously under the jurisdiction of more than one code (typically the Botanical Code and the Zoological Code) owing to a combination of historical, cultural and biological reasons (Knapp *et al*. 2004). A great debate is still ongoing on how to solve the problem of these names in relation to nomenclatorial decisions (Patterson & Larsen 1991; Corliss 1995; Novarino & Lucas 1995; Blackwell & Powell 1999; Adl *et al.* 2005, 2007, 2018). Many protists' nomina are ambiregnal, as in the case of cryptomonads and chrysomonads (Patterson 1986; Novarino & Lucas 1993, 1995; Doweld 2015), and they have been considered under the dual jurisdiction of the Botanical and the Zoological Codes. Furthermore, according to Art. 2.2 of the Zoological Code, "*Any available name of a taxon that has at any time been classified as animal continues to compete in homonymy in zoological nomenclature even though the taxon is later not classified as animal*.". This extends the problem of validity beyond names currently considered to be ambiregnal.

During the present study some cases of homonymy were discovered between genus-group names in Chrysididae and some genera in Kingdom Chromista. This taxon, established by Cavalier-Smith (1981) but later much expanded in membership (e.g. Cavalier-Smith 2017), includes a group formerly called chrysomonads (Chrysomonadina) which for a long time were classified as Protozoa in several general works dealing with invertebrate animals by various authors, e.g. D'Ancona (1953: 463), Buchsbaum & Milne (1960: 22), Cockrum & McCauley (1980: 171), Meglitsch & Schram (1991: 27), Baccetti & al. (1991: 58). Such treatment of chrysomonads extended to all names at that time therein explicitly included, even to those originally described as plants, so that those names fall under the provisions of Art. 2.2. Furthermore, compilations of the genus-group names of animals, such as the widely used Nomenclator Zoologicus by Neave and successors (Neave 1939a, b; 1940a, b; 1950; Edwards & Vevers 1975; Edwards & Tobias 1993; Edwards *et al.* 1996) include "protozoan" names that the compilers considered to apply to animals, although Neave (1939a: viii) acknowledged that a few such names may have been included in error. Nevertheless, the inclusion of a name in the lists has generally been considered as evidence that it was applied to an animal. In addition, the placement of particular names in higher taxa generally provides information as to whether they were regarded to be governed by the Zoological (family names ending in "-idae") or the "Botanical" (family names ending in "-aceae") Codes.

Because of their peculiar golden or golden-brown colouring, chrysomonads (= "golden unities") (and some other chromists) include genera with names containing, or based on, the word "chrysis", some of which, namely *Acanthochrysis*, *Chrysidella*, *Dichrysis*, *Monochrysis*, *Pleurochrysis*, *Protochrysidis*, *Protochrysis*, *Tetrachrysis*, have proved identical to genus-group names in Chrysididae. Their original descriptions appeared as follows, with their citations copied directly from the Nomenclator Zoologicus where relevant:

Acanthochrysis Conrad, 1931, Mem. Mus. nat. Hist. Belgique, 47, 3.—Prot. (Neave 1939a: 13)
Acanthochrysis Haupt, 1957, Abh. Ber. st. Mus. Tierk., Dresden 113: 74.—Ins. (Hym.) (Edwards & Vevers 1975: 2)
Chrysidella Pascher, 1911, Ber. bot. Ges., 29, 194.—Prot. (Neave 1939a: 725)
Chrysidella Linsenmaier, 1997, Entomofauna, 18 (19), 260.—Chrysididae.
Dichrysis Lichtenstein, 1876, Petites Nouvelles ent., 2 (145), 27.—Hym. (Neave 1939b: 73)
Dichrysis Preisig, 1978, Vierteljahrsschr. naturforsch. Ges. Zürich, 123, 286.—Ochromonadaceae.
Monochrysis Lichtenstein, 1876, Petites Nouvelles ent., 2 (145), 27.—Hym. (Neave 1940a: 207)
Monochrysis Skuja, 1948, Symbolae Bot. Upsalienses, 9 (3), 243.—Chromulinaceae.
Pleurochrysis Pringsheim, 1955, Arch. Mikrobiol., 21, 409.—Chrysophyceae.
Pleurochrysis Bohart, 1966, Bull. Brooklyn ent. Soc., 58, 144.—Ins. (Hym.) (Edwards & Tobias 1993: 404)
Protochrysidis Skvortzov, 1969, Hydrobiologia 34 (3–4), 346.—Chromulinaceae.
Protochrysidis Carpenter, 1985, Psyche, Carob. 92 (4): 577.—Ins. (Hym.) (Edwards *et al*. 1996: 553)
Protochrysis Pascher, 1911, Ber. bot. Ges., 29, 191.—Prot. (Neave 1940a: 938)
Protochrysis Bischoff, 1916. Sehr. Ges. Konigsb., 56, 139.—Hym. (Neave 1940a: 938)
Tetrachrysis Lichtenstein, 1876, Petites Nouvelles ent., 2 (145), 27.—Hym. (Neave 1940b: 435)
Tetrachrysis Dop, 1980, Acta Bot. Neerl. 29, 65–86.—Phaeothamniaceae.

Of the above, the following chrysidid names are clearly the senior homonyms and therefore potentially valid and unaffected by considerations of possible ambiregnality: *Dichrysis* Lichtenstein, 1876; *Monochrysis* Lichtenstein, 1876; *Tetrachrysis* Lichtenstein, 1876. However, the other chrysidid names are potentially objectively invalid as junior homonyms: *Acanthochrysis*; *Chrysidella* Linsenmaier, 1997; *Pleurochrysis* Bohart, 1966; *Protochrysidis* Carpenter, 1985; *Protochrysis* Bischoff, 1916.

Acanthochrysis, although considered a junior homonym of the flagellate *Acanthochrysis* Conrad, 1931 by Mingo (1994: 210), because of the inclusion of both names in the Nomenclator Zoologicus, is currently considered to be a junior subjective synonym of *Chrysis* Linnaeus, 1761 (see below). No replacement name is thus needed.

Chrysidella Linsenmaier, 1997 is indeed a junior homonym of *Chrysidella* Pascher, 1911 (the latter appears in the Nomenclator Zoologicus). Although the senior name is an objective (homotypic) junior synonym of *Zooxanthella* Brandt, 1881 and therefore invalid (illegitimate); in the contest of a revision of Chrysididae invalid genus names, a replacement name for *Chrysidella* Linsenmaier, 1997 is highly desirable, since *Chrysidella* Pascher was being considered as an animal at some time, and is proposed below.

Pleurochrysis Bohart, 1966 must be considered a junior homonym of *Pleurochrysis* Pringsheim, 1955. Although the latter was clearly described as an alga (placed in the Chrysophyceae), and is currently considered a legitimate "botanical" name or as a junior synonym of *Chrysotila* Anand, 1937 (Prymnesiophyceae) (Andersen *et al.* 2014); it was explicitly included in a major work on the Protozoa (Hibberd & Leedale 1985: 79), but as a junior synonym of *Hymenomonas* Stein, 1878 in the zoological order Prymnesiida. Searches of the literature have shown that *Pleurochrysis* Pringsheim has been used as a legitimate/valid name over the last 10 years more frequently than has *Pleurochrysis* Bohart. Consequently, a replacement name for *Pleurochrysis* Bohart is needed, and is proposed below.

Protochrysidis Carpenter, 1985 similarly does not compete as a junior homonym with *Protochrysidis* Skvortzov, 1969, a name proposed for a flagellate alga (in the family Protochrysidaceae) and never considered to be an animal. The current status of the Skvortzov name is unclear, but it is not included in Nomenclator Zoologicus 1939–1996 (http://www.insecta.bio.spbu.ru/z/nomenclator_zoologicus_PDF.htm) or the Index to Organism Names (ION—http://www.organismnames.com/query.htm, and is found instead in various online aggregators, including the Interim Register of Marine and Nonmarine Genera (IRMNG—https://www.irmng.org/index.php), Index Nominum Genericorum (ING—https://naturalhistory2.si.edu/botany/ing/) and AlgaeBase (https://www.algaebase.org/), as a member of Chromulinaceae; the contention by Doweld (2015) that it "is currently treated as an *incertae sedis* protistan taxon" and therefore "nomenclaturally available in zoological nomenclature" is thus clearly wrong, since "protistans" as a whole have never all been considered to be animals.

Protochrysis Bischoff, 1916 is indeed a junior homonym of *Protochrysis* Pascher, 1911 (the latter appears in the Nomenclator Zoologicus), as recognized by Carpenter (1985) who proposed *Protochrysidis* Carpenter, 1985 as new replacement name for *Protochrysis* Bischoff, 1916. Later, Doweld (2015) also proposed a new replacement name (*Eochrysis* Doweld, 2015) for *Protochrysis* Bischoff, 1916 because he mistakenly considered Carpenter's earlier replacement name to be a junior homonym of *Protochrysidis* Skvortzov, 1969 (see above); this action was unnecessary and therefore invalid.

On some recent online publications or websites, the generic name *Pseudochrysis* is found, associated with the names *roscoffensis* (Dangeard, 1934) or *pseudoroscoffensis* (Gayral & Fresnel, 1983) (Chromista, Haptophyta, Coccolithophyceae). However, the generic name *Pseudochrysis* in Chromista was never described, being a mere inadvertent error for *Pleurochrysis* Pringsheim, 1955, which originally occurred during the compilation of a collection catalogue, so that there is no possibility of homonymy with *Pseudochrysis* Semenow, 1891 (Hymenoptera, Chrysididae). For the current status of the latter, see Rosa *et al.* (2017c).

Materials and methods

We here adopt a structure similar to the catalogue on genus-group names of Mutillidae compiled by Lelej & Brothers (2008). Although many and various kinds of subsequent spellings of generic names, different from the correct original spelling, were discovered and are here reported, yet several are likely to remain unnoticed. Although about 3,000 works were examined for this study, this was not possible for some literature, in particular minor references. For each name, except for incorrect subsequent spellings and unjustified emendations, the following information is given: the gender, in some cases not in agreement with usage; the type species and the kind of its designation, original or subsequent; the taxonomic history with synonymies and current status.

Results

Objectively invalid and unavailable genus-group names

Acanthochrysis Haupt, 1957 (as subgenus of *Chrysis* Linnaeus, 1761). Abhandl. Ber. Staatl. Mus. Tierk. Dresd. 23: 74 (description in key).

Gender. Feminine.

Type species. *Chrysis cerastes* Abeille de Perrin, 1877, by original designation.

Taxonomic history. Junior subjective synonym of *Cornuchrysis* Balthasar, 1953 (as subgenus of *Chrysis* Linnaeus, 1761) according to Linsenmaier (1959a: 172). Junior subjective synonym of *Chrysis* Linnaeus, 1761 according to Kimsey & Bohart (1991: 316). Junior homonym of *Acanthochrysis* Conrad, 1931 (originally described as a flagellate, Chrysomonadinae, Euchromulinaceae; currently Chromista, Chrysophyceae, Chromulinaceae) according to Mingo (1994: 210); *Acanthochrysis* Conrad was included in the Nomenclator Zoologicus (Neave 1939a) and therefore evidently treated as an animal at some time. Objectively invalid name.

Note. Although an objectively invalid name, there is no need to propose a replacement name because it is currently considered to be a junior subjective synonym; should further work indicate that it should be recognized as a distinct genus-group taxon, then a new name will be required.

Acrotoma Mocsáry, 1902. Termész. Füzet. 25: 537.

Gender. Feminine.

Type species. *Acrotoma braunsii* Mocsáry, 1902, by monotypy.

Taxonomic history. Reduced to subgeneric status (in *Hedychridium* Abeille de Perrin, 1878) by Linsenmaier (1959a: 43). Reinstated to generic status by Edney (1962: 858). Junior subjective synonym of *Hedychridium* Abeille de Perrin, 1878 according to Kimsey (1988b: 194). In Kimsey (1988b) the type species is erroneously indicated as *Hedychridium dybowskyi* du Buysson, 1898b (incorrect subsequent spelling of *H. dybowskii*), which is the type species of *Buyssonia* Mocsáry, 1902. Resurrected with subgeneric status (in *Hedychridium* Abeille de Perrin, 1878) by Pagliano & Scaramozzino (1990: 26). Junior subjective synonym of *Hedychridium* Abeille de Perrin, 1878 and

junior homonym of *Acrotoma* Boettger, 1881 (Mollusca, Clausiliidae) according to Kimsey & Bohart (1991: 181). Resurrected with subgeneric status by Linsenmaier (1999: 4). Junior subjective synonym of *Hedychridium* Abeille de Perrin, 1878 and junior homonym of *Acrotoma* Boettger, 1881 (Mollusca, Clausiliidae) according to Madl & Rosa (2012: 86). Objectively invalid name.

Note. Although an objectively invalid name, there is no need to propose a replacement name because it is currently considered to be a junior synonym; should further work indicate that it should be recognized as a distinct genus-group taxon, then a new name will be required.

Adelpha Schulz, 1906. Spolia Hym.: 153. Unjustified emendation, therefore junior objective synonym, of *Adelphe* Mocsáry, 1890. Junior homonym of *Adelpha* Hübner, 1819 (Lepidoptera, Nymphalidae). Objectively invalid name.

Aliensiscus (in: Linsenmaier 1959a. Mitt. Schweiz. Ent. Ges. 32: 8). Incorrect subsequent spelling of *Alieniscus* Benoit, 1951. Unavailable name.

Alienus Bridwell, 1919. Proc. Hawaiian Ent. Soc. 4: 117.

Gender. Masculine.

Type species. *Alienus aenigmaticus* Bridwell, 1919, by monotypy.

Taxonomic history. *Alienus* Bridwell was described in the newly erected family Alienidae Bridwell, 1919, tentatively included in the Serphoidea (= Proctotrupoidea). Junior homonym of *Alienus* Handlirsch, 1906 (Blattodea, Blattinopsidae). Replaced by *Obenbergerella* Strand, 1929: 25. The intricate history of this genus was recapitulated by Krombein (1957: 150), who finally transferred it to the subfamily Amiseginae of the Chrysididae. Objectively invalid name.

Note. The family name Alienidae Bridwell, 1919 is available, although objectively invalid because based on a junior homonym (Art. 39). The replacement family name Alieniscidae Benoit, 1951 was proposed to include *Alieniscus* Benoit, 1951 and *Obenbergerella* Strand, 1929. According to Art. 39, if a family-group name is invalid because based on a junior homonym, "it must be replaced either by the next oldest available name from among its synonyms [...] or, if there is no such synonym, by a new name based on the valid name (whether a synonym or a new replacement name (nomen novum)) of the former type genus". The valid replacement name for Alienidae is therefore Obenbergerellidae based on *Obenbergerella,* the replacement name for *Alienus*. This was done by Ghesquière (1951) who proposed Obenbergerellini as a tribe of Myrmosinae in the Tiphiidae.

Allochrysis (in: Semenov-Tian-Shanskij & Nikol'skaya 1954: 123, as subgenus of *Chrysis* Linnaeus, 1761). Trudy Zool. Inst. Akad. Nauk SSSR 15: 123. *Nomen nudum*. Unavailable name.

Note. Semenov-Tian-Shanskij & Nikol'skaya (1954: 123) introduced the subgenus *Allochrysis* in *Chrysis* Linnaeus, 1761, based on *C.* (*Allochrysis*) *ear* Semenov-Tian-Shansky, 1910, *C.* (*Allochrysis*) *pavlovskii* Semenov-Tian-Shanskij & Nikol'skaya, 1954, and *C.* (*Allochrysis*) *laetula* Semenov-Tian-Shanskij & Nikol'skaya, 1954. The name *Allochrysis* however, as established in the original publication, is unavailable (Rosa 2018a), because it was published after 1930 with no description or definition (Art. 13.1 of the Code) and no designation of type species (Art. 13.3). Junior subjective synonym of *Chrysis* Linnaeus, 1761 according to Linsenmaier (1968: 87), who placed the species included in *Allochrysis* in the *Chrysis rufitarsis* group. Kimsey & Bohart (1991: 286) raised *Allochrysis*, attributed to "Semenov, 1954" (= Semenov-Tian-Shanskij & Nikol'skaya 1954), to genus level, and provided the first complete description of the genus and a type-species designation, namely *Chrysis pavlovskii* Semenov-Tian-Shanskij & Nikol'skaya, 1954, thus indeed becoming the authors of the genus, which is currently a junior subjective synonym of *Chrysis* Linnaeus, 1761 (Rosa 2018a).

Alocochrysis Haupt, 1957 (as subgenus of *Chrysis* Linnaeus, 1761). Abh. Staatl. Mus. Tierk. Dresden 23: 73 (description in key).

Gender. Feminine.

Type species. *Sphex cyanea* Linnaeus, 1758, by original designation.

Taxonomic history. Junior objective synonym of *Trichrysis* Lichtenstein, 1876: *Sphex cyanea* Linnaeus, 1758 is also the type species by monotypy of *Trichrysis* Lichtenstein, 1876. Junior objective synonym of *Trichrysis*

Lichtenstein, 1876 according to Linsenmaier (1959a: 169). Resurrected with subgeneric status (in *Chrysis* Linnaeus, 1761) by Pagliano & Scaramozzino (1990: 32). Junior objective synonym of *Trichrysis* Lichtenstein, 1876 according to Kimsey & Bohart (1991: 568). Objectively invalid name.

Anthracias Klug, 1839. Verhandl. Königl. Preuss. Akad. Wissensch. Berlin 1839: 2.

Gender. Masculine.

Type species. *Anthracias capensis* Smith, 1874 by subsequent designation of Smith 1874 (no species originally included). According to Art. 67.2.2 of the Code, "If a nominal genus or subgenus was established before 1931 [...] without included nominal species [Art. 12], the nominal species that were first subsequently and expressly included in it are deemed to be the only originally included nominal species."

Taxonomic history. Junior homonym of *Anthracias* Dejean, 1834 (Coleoptera, Tenebrionidae). Replaced by *Allocoelia* Mocsáry, 1889. Transferred to the newly established subfamily Allocoeliinae by Mocsáry (1889: 61). Objectively invalid name.

Arctochrysis Haupt, 1957 (as subgenus of *Chrysis* Linnaeus, 1761). Abh. Staatl. Mus. Tierk. Dresden 23: 72 (description in key).

Gender. Feminine.

Type species. *Chrysis austriaca* Fabricius, 1804, by original designation.

Taxonomic history. Junior objective synonym of *Chrysura* Dahlbom, 1845: *Chrysis austriaca* Fabricius, 1804 is also the type species of *Chrysura* Dahlbom, 1845 by subsequent designation of Bodenstein (1939: 125). Junior subjective synonym of *Chrysis* Linnaeus, 1761 according to Linsenmaier (1959a: 91). Resurrected with subgeneric status (in *Chrysis* Linnaeus, 1761) by Pagliano & Scaramozzino (1990: 40). Junior objective synonym of *Chrysura* Dahlbom, 1845 according to Kimsey & Bohart (1991: 480). Objectively invalid name.

Arnoldia (in: Tarbinsky 2004. Euroasian Entomol. J. 3: 249). *Nomen nudum*. Unavailable name.

Note. Junior subjective synonym of *Pseudochrysis* Semenow, 1891, and also objectively invalid name, because junior homonym of *Arnoldia* Mayer-Eymar, 1887 (Mollusca), *Arnoldia* Kieffer, 1895 (Diptera), *Arnoldia* Vlasenko, 1931 (Trematoda), *Arnoldia* Hovasse, 1956 (Protozoa), according to Rosa (2018b: 262). The genus name *Arnoldia* Tarbinsky, 2004, however, has subsequently proved to be unavailable, because the type species is a *nomen nudum*. The original description of *Arnoldia seraphimi* Tarbinsky, 2004, the type species by original designation and also the only species included in the genus, is invalid, since the name and location of the collection housing the holotype were omitted in the original description, contrary to the requirements of Art. 16.4.2 of the Code. The specific name *Arnoldia seraphimi* is accordingly not available, and not eligible for type-species designation. *Arnoldia* Tarbinsky, because it was established after 1930 without a valid type-species designation, according to Art. 13.3 is also not available.

Brethesia Linsenmaier, 1985 (as subgenus of *Neochrysis* Linsenmaier, 1959a). Entomofauna 6: 429 (key) 461 (description).

Gender. Feminine.

Type species. *Chrysis ameghinoi* Brèthes, 1903, by original designation.

Taxonomic history. Junior homonym of *Brethesia* Schrottky, 1909 (Hymenoptera, Pompilidae) and *Brethesia* Timberlake, 1919 (Hymenoptera, Encyrtinae). Replaced by *Brethesiella* Linsenmaier, 1987, in turn itself a junior homonym (see below). Objectively invalid name.

Brethesiella Linsenmaier, 1987 (as subgenus of *Neochrysis* Linsenmaier, 1959a). Mitt. Schweiz. Ent. Ges. 60: 144.

Gender. Feminine.

Type species. *Chrysis ameghinoi* Brèthes, 1903, by automatic designation.

Taxonomic history. Replacement name for *Brethesia* Linsenmaier, 1985, *nec* Schrottky, 1909 (Hymenoptera, Pompilidae), *nec* Timberlake, 1919 (Hymenoptera, Encyrtinae). Junior homonym of *Brethesiella* Porter, 1920 (Hymenoptera, Encyrtinae) according to Pagliano & Scaramozzino (1990: 4) and replaced by *Boffachrysis* Pagliano & Scaramozzino, 1990. Junior subjective synonym of *Pleurochrysis* Bohart, 1966 according to Kimsey & Bohart

(1991: 523). Resurrected with subgeneric status (in *Neochrysis* Linsenmaier, 1959a) by Linsenmaier (1997: 269). Objectively invalid name.

Brugmoja (in: Semenow 1892. Horae Soc. Ent. Ross. 26: 485 (in key), 488). Incorrect subsequent spelling of *Brugmoia* Radoszkowski, 1877. Unavailable name.

Brugmonia (in: Vinokurov 2007. Proc. Stavropol Rus. Entomol. Soc. 3: 27). Incorrect subsequent spelling of *Brugmoia* Radoszkowski, 1877. Unavailable name.

Bugnonia (in: Brauns 1911. Zs. f. wiss. Insektenbiol.7: 91). Incorrect subsequent spelling of *Buyssonia* Mocsáry, 1902. Unavailable name.

Callista Schulz, 1906. Spolia Hym.: 154.

Gender. Feminine.

Type species. Not designated.

Taxonomic history. Given as a replacement name for *Calliste* Lepeletier de Saint-Fargeau & Serville, 1825, actually a new name. Schulz (1906: 154) considered "*Calliste*" a valid senior synonym of *Pyria* Lepeletier de Saint-Fargeau & Serville, 1825, noting that it was a senior homonym of *Calliste* Boie, 1826 (Aves, Emberizidae), yet also an incorrect spelling to be corrected as *Callista*. "Calliste", however, is a vernacular name, thus unavailable (see below), and *Callista* Schulz, 1906 is actually a new name, not an emendation. *Callista* Schulz, 1906 was considered a *nomen nudum* by Bodenstein (1939), which is not correct, because the reference to *Pyria* Lepeletier de Saint-Fargeau & Serville, 1825, in a work published before 1931, constitutes an "indication" in the sense of the Code (Art. 12.2.1) and makes the genus validly described, including the same species as *Pyria*. Junior objective synonym of *Pyria* Lepeletier de Saint-Fargeau & Serville, 1825. Junior homonym of *Callista* Poli, 1791 (Bivalvia, Veneridae). Objectively invalid name.

Calliste (in: Lepeletier de Saint-Fargeau & Serville 1825. Enc. méthod.: 253). Vernacular name. Unavailable name.

Note. Lepeletier de Saint-Fargeau & Serville (1825: 253) listed some generic names in the French vernacular (Stilbe—for *Stilbum*, Elampe—for *Elampus*, Hédychre—for *Hedychrum*, Euchrée—for *Euchroeus*, Clepte—for *Cleptes*), and introduced the name "Calliste", not corresponding to any existing genus in Chrysididae, seemingly intended to refer to *Callistus*, *Callista*, or maybe *Callistum*. In the same work (Lepeletier de Saint-Fargeau & Serville 1825: 494), however, the authors described the genus with the name *Pyria*, noting that the name "Calliste" had already been used by Bonelli (1810) for a genus of carabid beetles [*Callistus*], so effectively stating that their "Calliste" had been intended to refer to *Callistus*. "Calliste", as published in Lepeletier de Saint-Fargeau & Serville (1825), is just a French vernacular name used as a temporary reference to a genus due to be described later in the work and therefore not intended itself as a scientific name (Art. 1.3.5 of the Code).

Carnopes (in: Brèthes 1903. An. Mus. Nac. Hist. Nat. Buen. Aires, 1: 292). Incorrect subsequent spelling of *Parnopes* Latreille, 1796. Unavailable name.

Chaenochrysis (in: Fernández 2001. Biota Colomb. 2: 98). Incorrect subsequent spelling of *Caenochrysis* Kimsey & Bohart, 1981. Unavailable name.

Chedychridium (in: Banaszak & Kochanowski 1994. Studia Przyrod. 10: 10). Incorrect subsequent spelling of *Hedychridium* Abeille de Perrin, 1878. Unavailable name.

Chlumis Gistel, 1848. Naturg. Thier.: 216. Unjustified emendation, therefore junior objective synonym, of *Chrysis* Linnaeus, 1761. Objectively invalid name.

Note. Gistel (1848: 142) correctly reported the genus name *Chrysis* in his catalogue. Nevertheless, Gistel (1848: 216) in the final corrections to his monograph, and without any justification, emended the name "*Chrysis* (in *Chlumis*, N. [=Nobis])" clearly citing both names as a deliberate intention to replace Linnaeus' name.

Chrisis (in: Skibińska 1982. Memorabilia Zool. 36: 61–72). Incorrect subsequent spelling of *Chrysis* Linnaeus, 1761. Repeated by other authors (e.g., Banaszak 2010: 19; Szafranski 2011: 552). Unavailable name.

Note. In Skibińska (1982), throughout the article, the family name is given as Chrisididae, including titles in the final literature, moreover the genus *Chrysis* and other related genus names were spelled as *Chrisis* and *Pseudochrisis*. Other authors used *Chrisididae* (e.g. Szafranski 2011) and/or *Chrisis* intentionally or mistakenly as valid names (e.g. Kowalczyk & Szczepko 2004; Ivanov *et al.* 2005; Banaszak & Twerd 2010).

Chrisogona (in: du Buysson 1895–1896. Cat. méthod. Chrys. France: 55). Incorrect subsequent spelling of *Chrysogona* Förster, 1853. Repeated by other authors (e.g., Tarbinsky 2004: 244). Unavailable name.

Chryaspis (in: Ashmead 1902. Canad. Ent. 34: 225). Incorrect subsequent spelling of *Chrysaspis* de Saussure, 1887. Unavailable name.

Chrysagona (in: Brauns 1911. Zs. f. wiss. Insektenbiol. 7: 18). Incorrect subsequent spelling of *Chrysogona* Förster, 1853. Unavailable name.

Chrysaspis de Saussure, 1887. Soc. ent. 4: 25.

Gender. Feminine.

Type species. *Chrysaspis grandidieri* de Saussure, 1887, by monotypy.

Taxonomic history. Junior subjective synonym of *Hexachrysis* Lichtenstein, 1876 (as subgenus of *Chrysis* Linnaeus, 1761) according to du Buysson (1910a: 129). Resurrected with generic status by Bodenstein (1939: 125). Junior subjective synonym of *Pyria* Lepeletier de Saint-Fargeau & Serville, 1825 (as subgenus of *Chrysis* Linnaeus, 1761) according to Linsenmaier (1959a: 177). Resurrected with generic status by Pagliano & Scaramozzino (1990: 61). Junior subjective synonym of *Chrysis* Linnaeus, 1761 according to Kimsey & Bohart (1991: 315). Junior homonym of *Chrysaspis* Saunders, 1869 (Coleoptera, Buprestidae). Objectively invalid name.

Note. Although an objectively invalid name, there is no need to propose a replacement name because it is currently considered to be a junior synonym; should further work indicate that it should be recognized as a distinct genus-group taxon, then a new name will be required.

Chryselampus (in: Schmidt 1977, as subgenus of *Omalus* Panzer, 1801. Linz. biolog. Beitr. 9: 98). Incorrect subsequent spelling of *Chrysellampus* Semenov-Tian-Shanskij, 1932. Repeated by other authors (e.g., Tarbinsky 2004). Unavailable name.

Note. There is little doubt that the change of *Chrysellampus* to *Chryselampus* is intentional, based on the correct original spelling *Elampus* instead of *Ellampus*, yet in Schmidt (1977) there is no evidence of that. *Chryselampus* therefore is not a "demonstrably intentional change", according to Art. 33.2.1 of the Code, and cannot be interpreted as an unjustified emendation. According to Art. 33.5, in any case of doubt between incorrect subsequent spelling and unjustified emendation, the concerned name is to be considered an incorrect subsequent spelling.

Chrysidella Linsenmaier, 1997 (as subgenus of *Primeuchroeus* Linsenmaier, 1968). Entomofauna 18: 260.

Gender. Feminine.

Type species. *Chrysogona siamensis* Bischoff, 1910, by original designation.

Taxonomic history. Linsenmaier (1968: 38) transferred the *siamensis* species group from *Chrysidea* Bischoff, 1913 (as subgenus of *Chrysis* Linnaeus, 1761) to his newly erected subgenus *Primeuchroeus* of *Euchroeus* Latreille, 1809. *Primeuchroeus* was raised to generic level by Bohart (1988: 21). Linsenmaier (1997: 260) agreed in recognizing *Primeuchroeus* as a valid genus, and created for his *Primeuchroeus siamensis* species group the new subgenus *Chrysidella*. Junior homonym of *Chrysidella* Pascher, 1911 (originally described as a flagellate, Chrysomonadinae, *Phaeochrysidales* (Cryptomonadinae); currently Chromista, Dinophyceae). *Chrysidella* Pascher was included in the Nomenclator Zoologicus (Neave 1939a), therefore evidently being considered as an animal at some time. Objectively invalid name.

Note. *Chrysidella* Pascher, 1911 is an objective (homotypic) junior synonym of *Zooxanthella* Brandt, 1881 and therefore permanently invalid (illegitimate). Confusion between the Pascher and Linsenmaier names is unlikely, however, being *Chrysidella* Pascher, 1911 included in the Nomenclator Zoologicus, and previously considered

as an animal, we here replace *Chrysidella* Linsenmaier, 1997 with *Linsenmaierella* Rosa & Pavesi, **nom. nov.** (see below). *Chrysidella* Linsenmaier, 1997, here regarded as a valid genus-group name, has been rarely used; stability in nomenclature (a prime aim of the Codes) would therefore be hardly threatened by introduction of a new replacement name for it.

Chrysius (in: Vorobyeva 2007. Nautsch. wedom. Belg. 5: 57). Incorrect subsequent spelling of *Chrysis* Linnaeus, 1761. Unavailable name.

Chrysoura (in: Dalla Torre 1892. Catal. Hym. Vol. 6: 40). Incorrect subsequent spelling of *Chrysura* Dahlbom, 1845, listed as subgenus of *Chrysis* Linnaeus, 1761. Unavailable name.

Note. Although Dalla Torre (1892: 40) reported the Greek etymology (from ourà = tail), yet he did not list both Dahlbom's original spelling and the emended one, nor did he explicitly state the change to be intentional. According to Art. 33.2.1, this is not a demonstrably intentional change (emendation), but merely an incorrect subsequent spelling.

Cladiola (in: Kimsey & Bohart 1991. Chrys. Wasps World: 181). Incorrect subsequent spelling of *Claudiola* Semenov-Tian-Shanskij & Nikolskaya, 1954. Repeated by Pagliano (2008: 130). Unavailable name.

Clepes (in: Strumia, Dapporto & Wolf 2007. Frustula entomol. 27–29: 177). Incorrect subsequent spelling of *Cleptes* Latreille, 1802. Unavailable name.

Cleptis (in: Beck 1836. Proc. Geolog. Soc. Lond. 43: 219). *Nomen nudum*. Unavailable name.

Note. *Cleptis* Beck, 1836 has been variously interpreted by previous authors. In fact, Beck (1836) did not provide any description, neither of the species nor of the genus, but simply listed the name in a letter sent to The Geological Society of London and entitled "Notes on the Geology of Denmark", read by the President on the 16th of December 1836 and published in the Proceedings (vol II, n° 43) of the said Society. In the letter is reported: "[…] In other districts the formation is composed of clay, which also contains mica, flat masses of hydraulic limestone, like the septaria of the London clay, and occasionally a few organic remains, consisting of scales of fishes apparently belonging to the Cyprinidae; the elytra of beetles, the cases of the larvae of Phryganaea, and an hymenopterous insect which the author has called *Cleptis Stenstrupii*." Dalla Torre (1892: 98) listed this species as *Chrysis steenstrupii* [sic] Beck, 1836, whereas Mingo (1994: 196) and Pagliano (2008: 131) without any evidence, tentatively considered *Cleptis* Beck, 1836 a *lapsus calami* for *Cleptes*. The specific name *Cleptis stenstrupii* Beck, 1836 is unavailable, because it was published without any description, definition, or indication (Art. 12.1 of the Code), thus a *nomen nudum*. The genus-group name *Cleptis* Beck, 1836, also published without any description, definition, or indication (e.g. combination with an available specific name, according to Art. 12.2.5), is a *nomen nudum* and unavailable as well. According to Art. 11.5.2, both names were not made available by Dalla Torre (1892), nor by subsequent authors.

Cleptis (in: Ito, Okutani & Hiura 1977. Colour. ill. Ins. Japan: 327). Incorrect subsequent spelling of *Cleptes* Latreille, 1802. Repeated by other authors (e.g. Franz 1982: 347). Unavailable name.

Clossochrysis (in: Semenov-Tian-Shanskij 1967. Trudy Zool. Inst. Akad. Nauk SSSR 43: 156). Incorrect subsequent spelling of *Glossochrysis* Semenov-Tian-Shanskij & Nikol'skaya, 1954. Unavailable name.

Colopyga (in: Kimsey & Bohart 1991. Chrys. Wasps World: 181). Incorrect subsequent spelling of *Colpopyga* Semenov-Tian-Shanskij, 1954b. Repeated by Pagliano (2008: 135). Unavailable name.

Colpopiga (in: Tarbinsky 2004. Euroasian Entomol. J. 3: 244). Incorrect subsequent spelling of *Colpopyga* Semenov-Tian-Shanskij, 1954b. Unavailable name.

Cornychrysis (in: Vinokurov 2011. Proc. Samara Rus. Acad. Sci. 13: 1062). Incorrect subsequent spelling of *Cornuchrysis* Balthasar, 1953. Unavailable name.

Crysellampus (in: Linsenmaier 1997: 249, as subgenus of *Omalus* Panzer, 1801. Entomofauna 18: 249). Incorrect subsequent spelling of *Chrysellampus* Semenov-Tian-Shanskij, 1932. Unavailable name.

Crysis (in: Ducke 1907. Boll. Soc. ent. ita. 38: 19). Incorrect subsequent spelling of *Chrysis* Linnaeus, 1761. Frequent in subsequent literature (e.g. Vinokurov 2012). Unavailable name.

Crysogona (in: Ducke 1907. Boll. Soc. ent. ita. 38: 19). Incorrect subsequent spelling of *Chrysogona* Förster, 1853. Unavailable name.

Dipllorrhos (in Mocsáry 1889. Chrysid. orbis terr. univers.: 81). Incorrect subsequent spelling of *Diplorrhos* Aaron, 1885. Unavailable name.

Note. *Dipllorrhos* (in Mocsáry 1889: 81) is evidently a misprint, corrected by Mocsáry himself in the same paper (Emendanda, p. 639), but nevertheless an incorrect subsequent spelling. *Diplorrhus* (in Mocsáry 1889: 81) was erroneously considered an unjustified emendation of *Diplorrhos* Aaron, 1885 by Mingo (1994: 208). Mocsáry actually used *Diplorrhos* as the valid name (considered a subgenus of *Ellampus* [sic] Spinola, 1806), only noting that the correct Latin spelling of the name should be *Diplorrhus* ["*Diplorrhos* (r. [= recte] *Diplorrhus*)"]. *Diplorrhus*, never reported by other authors, is therefore not to be considered an emendation or even an incorrect subsequent spelling since it was never used as a valid name.

Eichrum (in: Vinokurov 2004. Mater. VIII inter. sci. ecol. conf.: 34). Incorrect subsequent spelling of *Euchrum* Semenov-Tian-Shanskij, 1954b. Unavailable name.

Elampos (in: Dahlbom 1854. Disp. method. Hym. 2: xv). Incorrect subsequent spelling of *Elampus* Spinola, 1806. Unavailable name.

Ellampus Agassiz, 1847. Nomencl. Zool. Fasc. XII Index Univ.: 135 and 136. Unjustified emendation, therefore junior objective synonym, of *Elampus* Spinola, 1806. *Ellampus* was used by several authors and attributed to the original author and date, yet it never was in prevailing usage, so it cannot be deemed to be a justified emendation under Art. 33.2.3.1 of the Code. Objectively invalid name.

Note. Kimsey & Bohart (1991: 163) reported *Ellampus* Agassiz, 1846, since this is the date often attributed to the whole of Agassiz's Nomenclator Zoologicus, and appearing in one of the editions. However, fascicles of the Nomenclator Zoologicus were actually published from 1842 to 1847; according to Bowley & Smith (1968) and a typewritten page bound in with a copy of the whole work in the Museum of Comparative Zoology, the Nomina Systematica Hymenopterorum was published in 1845, and the Nomenclatoris Zoologici Index Universalis in 1847. In Nomina Systematica Hymenopterorum (Agassiz 1845: 12) the name is correctly spelled *Elampus*; the unjustified emendation *Ellampus* appears later, in the Index Universalis (Agassiz 1847: 135 and 136).

Eochrysis Doweld, 2015. Zootaxa 4058: 589. Unnecessary replacement name for *Protochrysis* Bischoff, 1916, *nec* Pascher, 1911 (Chromulinaceae), therefore junior objective synonym. Objectively invalid name.

Note. Doweld (2015) mistakenly considered *Protochrysidis* Carpenter, 1985 (validly proposed as a replacement name for *Protochrysis* Bischoff, 1916, see below) as a junior homonym of *Protochrysidis* Skvortzov, 1969 (a name proposed under the "Botanical" Code for a flagellate alga and actually never considered to be an animal), and thus unnecessarily proposed a second replacement name for *Protochrysis* Bischoff, 1916.

Euchaerus (in: Eiselt 1836. Gesich. System. Liter. Insectenk.: 98). Incorrect subsequent spelling of *Euchroeus* Latreille, 1809. Unavailable name.

Euchoreus (in: Mingo, Gayubo & Rueda 1990. Eos 65: 43). Incorrect subsequent spelling of *Euchroeus* Latreille, 1809. Unavailable name.

Euchraeus (in: Blanchard 1840. Hist. nat. des Insectes: 297). Incorrect subsequent spelling of *Euchroeus* Latreille, 1809. Unavailable name.

Note. The spellings *Euchroeus* and *Euchraeus* are apparently different interpretations of the original, potentially ambiguous spelling *Euchræus* Latreille, 1809: 49. Although the ligature used in the original reference is clearly a combination of O and E (not A and E, as is very evident from the use of capital letters) the spelling *Euchraeus* was used by various European authors (in particular by English, French and Swiss authors in the XIXth century, e.g. Brullé 1846, Assmuss 1862, Walker 1871, Frey-Gessner 1887, Dusmet y Alonso 1932, Casolari & Casolari Moreno 1980), yet never often enough to be considered in prevailing usage. The spelling *Euchroeus* (as corrected according to Art. 32.5.2 of the Code), has much more commonly been used, and must be accepted as the correct original spelling, and *Euchraeus* is an incorrect subsequent spelling.

Euchreous (in: Edney 1948. Occ. Pap. Nat. Mus. S. Rhodesia 2: 181). Incorrect subsequent spelling of *Euchroeus* Latreille, 1809. Unavailable name.

Euchreus (in: Gogorza 1880. Actas R. Soc. esp. His. nat. 8: 31). Incorrect subsequent spelling of *Euchroeus* Latreille, 1809. Unavailable name.

Euchrium (in: Vinokurov 2007. Proc. Stavropol Rus. Entomol. Soc. 3: 26). Incorrect subsequent spelling of *Euchrum* Semenov-Tian-Shanskij, 1954b. Unavailable name.

Euchroeides (in: Lucas 1905. Archiv Naturges. 71: 445). Incorrect subsequent spelling of *Euchroeoides* Nurse, 1904. Repeated by Kimsey (1983 and 1986a) and Pagliano & Scaramozzino (1990: 85). Unavailable name.

Euchroëus (in: Drogoszewski 1933. Polsk. Pismo Entomol. 11: 113). Incorrect subsequent spelling of *Euchroeus* Latreille, 1809. Unavailable name.

Euchroides (in: Bischoff 1913. Gen. Ins.: 22). Incorrect subsequent spelling of *Euchroeoides* Nurse, 1904. Later used by several authors (e.g. Linsenmaier 1959a, Bohart & Kimsey 1982, Pagliano 2008). Unavailable name.

Euchröus (in: Brauns 1911. Zs. f. wiss. Insektenbiol. 7: 16). Incorrect subsequent spelling of *Euchroeus* Latreille, 1809. Unavailable name.

Euchrydium (in: Tarbinsky 2004. Euroasian Entomol. J. 3: 244). Incorrect subsequent spelling of *Euchridium* Semenov-Tian-Shanskij, 1954. Unavailable name.

Exachrysis (in: Guiglia 1928. Ann. Mus. civ. Sto. nat. Genova 52: 501). Incorrect subsequent spelling of *Hexachrysis* Lichtenstein, 1876. Unavailable name.

Gaulea (in: Fernández 2001. Biota Colomb. 2: 98). Incorrect subsequent spelling of *Gaullea* du Buysson, 1910b. Unavailable name.

Glossochrysis (in: Semenov-Tian-Shanskij & Nikol'skaya 1954, as subgenus of *Chrysis* Linnaeus, 1761). Trudy Zool. Inst. Akad. Nauk SSSR 15: 116. *Nomen nudum*. Unavailable name.

Note. Semenov-Tian-Shanskij & Nikol'skaya (1954) introduced the subgenus *Glossochrysis* (in *Chrysis* Linnaeus, 1761), without any description or diagnosis, based on three species, namely *C. svetlana* Semenov-Tian-Shanskij in Semenov-Tian-Shanskij & Nikol'skaya, 1954, *C. turcomana* Semenov-Tian-Shanskij & Nikol'skaya, 1954, and *C. matrona* Semenov-Tian-Shanskij & Nikol'skaya, 1954. The type species was not fixed. The name *Glossochrysis* Semenov-Tian-Shanskij & Nikol'skaya, 1954 is not available, because it was published after 1930 with no description or definition (Art. 13.1 of the Code) and no designation of type species (Art. 13.3). Kimsey & Bohart (1991: 316) attributed the subgenus *Glossochrysis* to "Semenov, 1954a" (actually Semenov-Tian-Shanskij & Nikol'skaya, 1954), and fixed *Chrysis svetlana* as the type species; yet they listed *Glossochrysis*, for which no description or diagnosis was given, as a synonym of *Chrysis* Linnaeus, 1761, including *C. svetlana* (= *C. sacrata* du Buysson, 1898a) in the *Chrysis maculicornis* species group, for which a diagnosis was provided. Being published subsequent to 1930, the name was not made available by Kimsey & Bohart (1991) by a mere "indication", such

as the inclusion of one or more specific names, or a diagnosis of a species group including the type species of the subgenus, according to Art. 12.2; furthermore, since the name was published as a synonym (of *Chrysis*), and therefore not considered as valid, even a complete description would not have made it available, according to Art. 11.5.

Gonodontochrysis (in: Semenov-Tian-Shanskij & Nikol'skaya 1954, as subgenus of *Chrysis* Linnaeus, 1761. Trudy Zool. Inst. Akad. Nauk SSSR 15: 120). *Nomen nudum*. Unavailable name.

Note. Semenov-Tian-Shanskij & Nikol'skaya (1954) introduced the subgenus *Gonodontochrysis*, without any description or definition, including three species, *Chrysis* (*Gonodontochrysis*) *succincta* Linnaeus, 1767 in the introduction (p. 90), and two new species, namely *Chrysis* (*Gonodontochrysis*) *flamma* Semenov-Tian-Shanskij, and *Chrysis* (*Gonodontochrysis*) *dolens* Semenov-Tian-Shanskij & Nikol'skaya, in the species list (p. 120). The type species was not fixed. A further taxon, *Chrysis pulchella rubicunda* Semenov-Tian-Shanskij (p. 121), was a *nomen nudum*, only described later by Semenov-Tian-Shanskij (1967), who added to the subgenus 13 further taxa. The name *Gonodontochrysis* Semenov-Tian-Shanskij & Nikol'skaya, 1954 is not available, because it was published after 1930 with no description or definition (Art. 13.1 of the Code) and no designation of type species (Art. 13.3). Junior subjective synonym of *Chrysis* Linnaeus, 1761 according to Linsenmaier (1968: 58). Kimsey & Bohart (1991: 316) attributed the subgenus *Gonodontochrysis* to "Semenov, 1954a" (actually Semenov-Tian-Shanskij & Nikol'skaya, 1954), and fixed *Chrysis flamma* as the type species; yet they listed *Gonodontochrysis*, for which no description or diagnosis was given, as a synonym of *Chrysis* Linnaeus, 1761, including *C. flamma* in the *Chrysis pulchella* species group. As for *Glossochrysis* (see above), the name was not made available by Kimsey & Bohart (1991). Correctly considered a *nomen nudum* by Mingo 1994: 210.

Herein we describe the new genus *Morphochrysis* Rosa & Pavesi, **gen. nov.** to accommodate the species currently included in the *C. pulchella* group (see below).

Halopyga (in: Tournier 1878. Mitt. Schweiz. Ent. Ges. 5: 305). Incorrect subsequent spelling of *Holopyga* Dahlbom, 1845 according to Bodenstein (1939: 127). Unavailable name.

Note. Unjustified emendation of *Holopyga* Dahlbom, 1845 according to Kimsey & Bohart (1991: 226). In Tournier (1878) there is no evidence of an intentional change in the original spelling of the name; therefore, according to Art. 33.2.1 of the Code, the change cannot be interpreted as "demonstrably intentional", therefore not an unjustified emendation. Anyway, according to Art. 33.5, in any case of doubt between an incorrect subsequent spelling and an unjustified emendation, the name is to be considered an incorrect subsequent spelling.

Haxachrysis (in: Uchida 1927. Ins. Matsumurana 1: 149). Incorrect subsequent spelling of *Hexachrysis* Lichtenstein, 1876. Unavailable name.

Hedichridium (in: Pagliano 2008. Monogr. Mus. reg. Sci. nat. 43: 183). Incorrect subsequent spelling of *Hedychridium* Abeille de Perrin, 1878. Repeated by other authors (e.g. Strumia 2008: 379). Unavailable name.

Hedichrum (in: Brullé 1846. Hist. Nat. des Insectes: 52). Incorrect subsequent spelling of *Hedychrum* Latreille, 1802. Repeated by other authors (e.g. Costa 1882: 56, Shibaev 2006). Unavailable name.

Hedychnidium (in: Cockerell 1927. Philippine J. Sci. 33: 275). Incorrect subsequent spelling of *Hedychridium* Abeille de Perrin, 1878. Unavailable name.

Hedychridum (in: Vinokurov 2007. Proc. Stavropol Rus. Entomol. Soc. 3: 26). Incorrect subsequent spelling of *Hedychridium* Abeille de Perrin, 1878. Unavailable name.

Hedychrium (in: Spinola 1806. Insectorum Liguriae 1: 10). Incorrect subsequent spelling of *Hedychrum* Latreille, 1802. Unavailable name.

Hedychrydium (in: Banaszak & Twerd 2010. Polsk. Pism. Entomol. 79: 295). Incorrect subsequent spelling of *Hedychridium* Abeille de Perrin, 1878. Unavailable name.

Hedycrum (in: Lepeletier de Saint-Fargeau 1806. Ann. Mus. Natl. hist. nat. Paris 7: 120). Incorrect subsequent spelling of *Hedychrum* Latreille, 1802. Unavailable name.

Note. Bodenstein (1939: 127) and Mingo (1994: 202) considered *Hedycrum* by Lepeletier a *lapsus calami*. The name *Hedycrum* indeed is intentionally written and used for the generic diagnosis and for thirteen species listed in the text, yet there is no evidence of an intentional change by the author (Art. 33.2.1 and 33.5 of the Code). Later used by other authors (e.g. Wesmael 1839, Gasperini 1887, Meunier 1888). Attributed as an unjustified emendation to Say (1825: 65; actually originally Say 1824: 330) according to Bodenstein (1951: 720), Krombein (1979: 1226) and Mingo (1994: 202); this is a mystery since Say only used the correct spelling *Hedychrum*.

Hexachridium (in: Linsenmaier 1959a, as subgenus of *Hedychridium* Abeille de Perrin, 1878. Mitt. Schweiz. Ent. Ges. 32: 223). Incorrect subsequent spelling of *Hexachrydium* Bischoff, 1913. Repeated by other authors (e.g. Linsenmaier 1994: 159, Madl & Rosa 2012: 94). Unavailable name.

Holapyga (in: De Stefani 1895. Nat. Sicil. 14: 181). Incorrect subsequent spelling of *Holopyga* Dahlbom, 1845. Unavailable name.

Holophrys Dalla Torre, 1892. Catal. Hym. Vol. 6: 7. Unjustified emendation, therefore junior objective synonym, of *Holophris* Mocsáry, 1890. Objectively invalid name.

Holopyza (in: Hackman 1958. Mem. Soc. pro Fauna et Flora Fenn. 34: 163). Incorrect subsequent spelling of *Holopyga* Dahlbom, 1845. Unavailable name.

Homaleuchrium (in: Vinokurov 2007. Proc. Stavropol Rus. Entomol. Soc. 3: 26). Incorrect subsequent spelling of *Homaleuchrum* Semenov-Tian-Shanskij, 1954b. Unavailable name.

Homalus Agassiz, 1847. Nomencl. Zool. Fasc, XII, Index Univ.: 184 and 258. Unjustified emendation, therefore junior objective synonym, of *Omalus*. Objectively invalid name.

Note. Pagliano (2008: 224) reported *Homalus* Agassiz, 1846, since this is the date often attributed to the whole of Agassiz's Nomenclator Zoologicus, and appearing in one of the editions. However, fascicles of the Nomenclator Zoologicus were actually published from 1842 to 1847; according to Bowley & Smith (1968) and a typewritten page bound in with a copy of the whole work in the Museum of Comparative Zoology, the Nomina Systematica Hymenopterorum was published in 1845, and the Nomenclatoris Zoologici Index Universalis in 1847. In Nomina Systematica Hymenopterorum (Agassiz 1845: 23) the name is correctly spelled *Omalus*; the unjustified emendation *Homalus* appears later, in the Index Universalis (Agassiz 1847: 184 and 258). The unjustified emendation was used by Saunders (1873: 411), Mocsáry (1889: 83, as corrected on p. 639) and Dalla Torre (1892: 7).

Hyalichroeus Linsenmaier, 1959a (as subgenus of *Euchroeus* Latreille, 1809). Mitt. Schweiz. Ent. Ges. 32: 65 (in key), 70 (description).

Gender. Masculine.

Type species. *Spintharis chrysonota* Dahlbom, 1854, by original designation.

Taxonomic history. Replacement name for *Spintharis* Dahlbom, 1854, *nec* Klug, 1845 (see below). Junior objective synonym of *Spintharosoma* Zimmermann, 1959 (also replacement name for *Spintharis* Dahlbom, 1854) according to Linsenmaier 1959b: 235. Objectively invalid name.

Isadelphia Semenow, 1902. Russ. Entomol. Rev. 2: 353.

Gender. Feminine.

Taxonomic history. Unnecessary replacement name for "*Isadelphus*" in Semenow (1902: 35), *nec Isadelphus* Förster, 1868 (Hymenoptera Ichneumonidae), the former actually unavailable because it is an incorrect subsequent spelling of *Jsadelphus* Semenow, 1901. Used as valid name by following authors: Linsenmaier (1968: 125, 1969: 372), Semenov-Tian-Shanskij (1967: 182), Kimsey (1987c: 90), Kimsey & Bohart (1991: 579); Strumia & Yildirim (2008: 84); Madl & Rosa (2012: 107); Rosa *et al.* (2013: 41, 2017a: 14); Pauli *et al*. (2019: 330). Linsenmaier (1968: 125) noticed and used Semenow's replacement name, yet subsequently (1987: 157) returned to use of *Isadelphus*. Junior objective synonym of *Jsadelphus* Semenow, 1901. Objectively invalid name.

Note. *Jsadelphus* Semenow, 1901 is the valid generic name, evidently not a *lapsus calami* since that spelling occurs twice, once for the genus as a whole and also in the name of the type species "*Jsadelphus schmiedeknechti* (Mocs. 1900)", and it is not included in the errata list for that issue of the journal (which includes a misspelling in Semenow's paper, "basis" instead of "basin"). Semenow (1902: 353) mistakenly considered the spelling *Jsadelphus* a junior homonym of *Isadelphus* Förster, 1868 (Hymenoptera, Ichneumonidae) and replaced it with *Isadelphia* (as "nom. nov. pro *Isadelpho*"). The correct original spelling was overlooked by all subsequent authors, who obviously considered the spellings with *i* and with *j* homonymous (according to the Code, Art. 58.3, such homonymy applies to species-group names, but not more broadly); for example, Linsenmaier (1959a, in the alphabetical index: 224–225), lists together the names starting with *i* (e.g. *iberica*, *ignicollis*, *immaculata*) and with *j* (e.g. *japonica*, *javana*, *jaxartis*). Koçak & Kemal (2015: 130) first noted the difference, and returned to the correct original spelling. Reversal of precedence with *Isadelphia* Semenow, 1902 under Art. 23.9 of the Code is not applicable, because of the date of publication of the name and its recent use.

Isadelphus (in: Semenow 1902. Russ. Entomol. Rev. 2: 35). Incorrect subsequent spelling of *Jsadelphus* Semenow, 1901. Unavailable name.

Note. The name *Isadelphus* was used as a presumed valid name, overlooking or disregarding both the homonymy with *Isadelphus* Förster, 1868 and Semenow's replacement name *Isadelphia*, by several authors: Bischoff (1910: 435, 1913: 31); Invrea (1953: 64); Zimmermann (1952: 362); Balthasar (1953: 37); Linsenmaier (1959a: 184, 1987: 157); Schmidt (1977: 128). It is to be stressed that at least some of the above authors (see e.g. the index in Linsenmaier 1959a) apparently considered the spellings with i and j as fully equivalent.

Ischnochrysis Haupt, 1957 (as subgenus of *Chrysis* Linnaeus, 1761). Abh. Staatl. Mus. Tierk. Dresden 23: 73 (description in key).

Gender. Feminine.

Type species. *Chrysogona gracillima* Förster, 1853, by original designation.

Taxonomic history. Junior objective synonym of *Chrysogona* Förster, 1853, as first noted by Linsenmaier (1959a: 77); *Chrysogona gracillima* Förster, 1853 is also the type species of *Chrysogona* Förster, 1853. Resurrected with subgeneric status (in *Chrysis* Linnaeus, 1761) by Pagliano & Scaramozzino (1990: 107). Junior subjective synonym of *Chrysis* Linnaeus, 1761 according to Kimsey & Bohart (1991: 316). Objectively invalid name.

Leptoglossa Klug, 1839. Verhandl. Königl. Preuſs. Akad. Wissensch. Berlin: 2.

Gender. Feminine.

Type species. No species originally included. *Chrysis carnea* Fabricius, 1775 (= *Chrysis grandior* Pallas, 1771) hereby included, thus type species by monotypy.

Taxonomic history. Klug (1839) described two genera without including any species: "In der ersten Abtheilung mit einfachen Klauen schliesst sich zunächst an *Parnopes* oder vielmehr *Anthracias* eine ebenfalls neue, *Euchroeus* nicht unähnliche Gattung mit langgestreckter an der Spitze ausgerandeter Ligula: *Leptoglossa* an, dann *Pyrochloris* mit verlängerter an der Spitze gerundeter Ligula." [= In the first division with simple claws, a new genus not dissimilar to *Euchroeus*, is nearest to *Parnopes* or rather to *Anthracias*, with elongate ligula that is emarginate at the tip: *Leptoglossa*, and then *Pyrochloris* with elongate ligula rounded at the tip.]. The short description of the ligula makes the two generic names available. The name *Leptoglossa* Klug, 1839 has apparently not been used as valid since then, and does not appear in Kimsey & Bohart (1991), while Pagliano (2008: 250) erroneously indicated *Leptoglossa* Klug, 1839 (followed by *Leptoglossa* Solsky, 1870 (Coleoptera)) as a generic name not belonging to Hymenoptera, without indicating the relevant order or family. Junior objective synonym of *Parnopes* consequent on present type-species designation. Objectively invalid name.

Note. According to Art. 67.2.2 of the Code, "If a nominal genus or subgenus was established before 1931 without included nominal species [Art. 12], the nominal species that were first subsequently and expressly included in it are deemed to be the only originally included nominal species"; no deadline is established for such a subsequent inclusion. We consider that an inappropriate, subsequent type species designation could make *Leptoglossa* Klug, 1839 the valid senior synonym of another, well known genus, threatening the stability of nomenclature. We therefore make *Leptoglossa* Klug, 1839 a permanently invalid name as a junior objective synonym, by fixation of a type species which is already the type species of another generally accepted genus. The statement "genus not dissimilar

to *Euchroeus*, is nearest to *Parnopes* or rather to *Anthracias* [= *Allocoelia* Mocsáry, 1887]" is quite obscure, yet not in conflict with the choice of *Parnopes* (type species *Chrysis carnea* Fabricius, 1775 (= *Chrysis grandior* Pallas, 1771) by subsequent designation of Latreille, 1802: 317), whose features match the only understandable part of the diagnosis, namely the "elongated ligula that is emarginate at the tip". Therefore, we hereby include in the genus *Leptoglossa* Klug, 1839 the nominal species *Chrysis carnea* Fabricius, 1775, according to Art. 67.2.2 of the Code deemed to be the only originally included nominal species, thus the type species by monotypy. *Leptoglossa* Klug, 1839 is therefore a junior objective synonym of *Parnopes* Latreille, 1796 **syn. nov.**

Loboacelidia (in: Pagliano & Scaramozzino 1990. Mem. Soc. ent. ita. 68: 116). Given as valid generic name in Diapriidae. Incorrect subsequent spelling of *Loboscelidia* Westwood, 1874. Unavailable name.

Lobosalidia (in: Pagliano & Scaramozzino 1990. Mem. Soc. ent. ita. 68: 116). Given as valid generic name (but without author or date) in Chalcidoidea. Incorrect subsequent spelling of *Loboscelidia* Westwood, 1874. Unavailable name.

Loboscelidea (in: Dalla Torre 1898. Catal. Hym. Vol. 5: 431). Incorrect subsequent spelling of *Loboscelidia* Westwood, 1874. Repeated by Hadlington & Hoschke (1959). Listed erroneously by Pagliano & Scaramozzino (1990: 116) as *Loboscelidea* Rye, 1876. Unavailable name.

Loboscelidioidea (in: Pagliano 2008. Mem. Mus. reg. St. nat. 43: 256). Incorrect subsequent spelling of *Loboscelidoidea* Dalla Torre, 1898. Unavailable name.

Loboscelidoidea Dalla Torre, 1898. Catal. Hym. Vol. 5: 431.

Gender. Feminine.

Type species. *Loboscelidia rufescens* Westwood, 1874, by original designation.

Taxonomic history. Rye (1876: 365), under Proctotrypidae, reported the genus *Loboscelidia* Westwood, 1874 as follows: "*Loboscelidia* [? *Loboscelidoidea*] [...]. Dubiously referred to the *Diapriides*, and stated in some respects to approach the *Cynipidæ*", thus tentatively proposing *Loboscelidoidea* as a new family-group name for a genus of uncertain systematic position. Misinterpreted as generic name and emendation of *Loboscelidia* Westwood, 1874 by Dalla Torre (1898: 431), actually the author of the name, with *Loboscelidea* [sic] *rufescens* Westwood as the only species included. *Loboscelidia rufescens* Westwood, 1874 is automatically the type species, which makes *Loboscelidoidea* Dalla Torre, 1898 a junior objective synonym of *Loboscelidia* Westwood, 1874. Unjustified emendation of *Loboscelidia* Westwood, 1874, attributed to Rye (1876), according to Pagliano & Scaramozzino (1990: 116), followed by Kimsey & Bohart (1991: 143). Unjustified emendation of *Loboscelidia* Westwood, 1874, attributed to Rye (1876), according to Pagliano (2008: 256). Unjustified emendation, therefore junior objective synonym of *Loboscelidia* Westwood, 1874 according to the present paper. Objectively invalid name.

Lustrinia (in: Móczár 1998. Entomofauna 19: 502). Incorrect subsequent spelling of *Lustrina* Kurian, 1955. Repeated in Wei *et al.* 2013: 56. Unavailable name.

Microchrydium (in: Strumia 1995. Boll. Soc. ent. ita. 126: 259). Incorrect subsequent spelling of *Microchridium* Bohart, 1980. Unavailable name.

Muesenbeckidium (in: Pagliano 2008. Mem. Mus. reg. St. nat. 43: 286). Incorrect subsequent spelling of *Muesebeckidium* Krombein, 1969. Unavailable name.

Myrmecopsis Walker, 1866. Trans. Ent. Soc. Lond. 2: 441.

Gender. Feminine.

Type species. *Myrmecopsis nigricans* Walker, 1866, by monotypy.

Taxonomic history. Junior homonym of *Myrmecopsis* Newman, 1850 (Lepidoptera, Erebidae). Replaced by *Myrmecomimesis* Dalla Torre, 1897: 87. *Myrmecopsis* Walker was originally described as a chalcidoid genus based on a brachypterous female, erroneously considered a male, and transferred to Chrysididae by Krombein (1957: 159). Objectively invalid name.

Myrmecosega (in: Carpenter 1986. J. New York Entomol. Soc. 94: 330). *Nomen nudum.* Unavailable name.

Note. Carpenter (1986: 330), in the final list of the taxa examined for his well known cladistic study of the Chrysidoidea, listed *Myrmecosega bispinosa* and *Myrmecomimesis nigricans*, both without author and date, in the subfamily Amiseginae. The species *bispinosa* Riek, 1955 was originally described together with the new genus *Cresmophaga* Riek, 1955, of which it is the type species. *Myrmecosega* therefore, if available, would be objectively invalid, as a junior objective synonym of *Cresmophaga*. The latter genus was synonymised with *Myrmecomimesis* Dalla Torre, 1897 by Krombein (1957: 170). *Myrmecosega* cannot be considered an incorrect subsequent spelling of *Myrmecomimesis*, because both genera are listed by Carpenter (1986), in combination with different specific names. *Myrmecosega*, because it was published after 1930 without any description, definition, or bibliographic reference, is not made available by its mere combination with an available specific name, according to Art. 13.1 of the Code. Listed as a valid generic name by Pagliano & Scaramozzino (1990: 131). Considered (as *Myrmecosega* Pagliano & Scaramozzino, 1990) a *nomen nudum* by Pagliano (2008: 288).

Nemophora Dahlbom, 1854 (as synonym of *Chrysis* Linnaeus, 1761). Hym. Europ.: 168.

Gender. Feminine.

Type species. *Chrysis carinata* Dahlbom, 1854, by monotypy.

Taxonomic history. Dahlbom (1854: 96) reported *Nemophora* in a list of supposedly described generic names; under "Chrysis carinata Spinol." (1854: 167–168) he reported "*Chrysis carinata* Spinola in litteris" and "*Nemophora carinata* Draege" from Spinola's collection (noting that the specimen had been collected by Draege); in a partial key to valid species of *Chrysis* (1854: between pp. 50 and 51) only "*Chrysis carinata* Spinol." appears; finally, in the alphabetic index (1854: 403, 408), "carinata Spin." was listed as a valid name under "CHRYSIS Linn.", and "*carinata* Draeg." as a synonym under "Nemophora", but in the systematic index of valid names (1854: 399) "carinata" only appears under CHRYSIS and *Nemophora* is not included. The genus-group name *Nemophora* Dahlbom, 1854 is thus not available, because it was first published as a junior synonym (Art. 11.6 of the Code). Bodenstein (1939: 128), however, considered *Nemophora* to be an available genus-group name, and indicated as type species by monotypy "*Nemophora carinata* Spinola (in Dahlbom, 1854) [= *Chrysis carinata* Spinola (in Dahlbom, 1854), *nec* Say, 1829 *nec* Guérin-Méneville, 1842 = *Chrysis capensis* Mocsáry, 1887 = *Chrysis* (*Chrysogona*) *capensis* (Mocsary)]", the last name being that which he considered the valid one; he thus treated *Nemophora* as a junior subjective synonym of *Chrysis* Linnaeus, 1761. *Nemophora* Dahlbom, 1854 was listed as junior synonym of *Chrysis* Linnaeus, 1761 by Kimsey & Bohart (1991: 315, also as junior homonym of *Nemophora* Block, 1799), Mingo (1994: 209), Madl & Rosa (2012: 15). The name *Nemophora*, because it was never adopted as the valid name of a taxon before 1961, cannot be made available under the provisions of Art. 11.6.1. On the other hand, if available, it would be objectively invalid, because it would be a junior homonym of *Nemophora* Hoffmannsegg, 1798 (Lepidoptera, Adelidae). Unavailable name.

Notazes (in: Trautmann & Trautmann 1919. Zs. Wiss. Insekt. Berl. 15: 35). Incorrect subsequent spelling of *Notozus* Förster, 1853. Unavailable name.

Notorus (in: Antiga & Bofill 1903. Catàlech insectes Catalunya: 3). Incorrect subsequent spelling of *Notozus* Förster, 1853. Unavailable name.

Notosus (in: Tournier 1878. Mitt. Schweiz. Ent. Ges. 5: 305). Incorrect subsequent spelling of *Notozus* Förster, 1853. Repeated by other authors (e.g. Dours 1874, Vorontsovkij 1930, Atanassov 1940, 1962, 1972, Tarbinsky 2004). Unavailable name.

Notozas (in: Jonathan *et al.* 1977. Newsl. Zool. Survey India: 85). Incorrect subsequent spelling of *Notozus* Förster, 1853. Unavailable name.

Odontochridium (in: Madl & Rosa 2012. Linzer biol. Beitr. 44: 107). Incorrect subsequent spelling of *Odontochrydium* Brauns, 1928. Unavailable name.

Olochrysis (in: Lichtenstein 1876 (as subgenus of *Chrysis* Linnaeus, 1761). Petit nouv. entom. 2: 27). Hereby deemed to be an incorrect original spelling of *Holochrysis* Lichtenstein, 1876, under Art. 33.2.1 of the Code (see below, under genus-group name deemed to be a justified emendation). Unavailable name.

Omulus (in: Mingo & Gayubo 1986. Actas VIII Jornadas A. e E.: 1015). Incorrect subsequent spelling of *Omalus* Panzer, 1801. Unavailable name.

Otochrysis (in: Dolfuss 1990. Zt. Arbeitsgem. Österr. Entomol.: 123). Incorrect subsequent spelling of *Octochrysis* Mocsáry, 1914. Unavailable name.

Panorbes (in: Hofmann 1834. Anleitung Insecten*:* 12). Incorrect subsequent spelling of *Parnopes* Latreille, 1796. Unavailable name.

Panorpes (in: Eversmann 1858. Bull. Soc. Imp. nat. Moscou 30: 566). Incorrect subsequent spelling of *Parnopes* Latreille, 1796. Unavailable name.

Parachrysis Kieffer, 1910. Ann. Soc. Ent. France 78: 287.

Gender. Feminine.

Type species. *Parachrysis metallica* Kieffer, 1910, by monotypy.

Taxonomic history. Originally described in the family Bethylidae Haliday, 1838. Transferred to Chrysididae subfamily Adelphinae by Krombein (1957: 208). Junior subjective synonym of *Adelphe* Mocsáry, 1890 according to Krombein (1957: 208). Transferred to subfamily Amiseginae by Krombein (1979: 1222) (as subgenus of *Adelphe*). Junior subjective synonym of *Adelphe* Mocsáry, 1890 according to Kimsey (1986b: 197). Junior homonym of *Parachrysis* Gribodo, 1879 (Hymenoptera, Chrysididae). Objectively invalid name.

Note. *Parachrysis* Gribodo, 1879 (Ann. Mus. civ. St. nat. 14: 334; type species *Chrysis longirostris* Gribodo, 1879, by monotypy) was validly described as a subgenus of *Chrysis* Linnaeus, 1761, yet its description remained unnoticed and the name overlooked by most subsequent authors (e.g., Mocsáry 1889; Dalla Torre 1892; Kimsey & Bohart 1991).

Peudochrysis (in: Brustilo & Martinov 2008. X Intern. Sci. Pract. Environ. Conf.: 34). Incorrect subsequent spelling of *Pseudochrysis* Semenow, 1891. Unavailable name.

Platycoelia (in: Dahlbom 1845. Disp. method. Hym. 2: iii, in key). Incorrect subsequent spelling of *Platycelia* Dahlbom, 1845 according to the present paper. Unavailable name.

Note. In the original description (Dahlbom, 1845) of the genus (type species *Platycelia ehrenbergi* Dahlbom, 1845, by monotypy), two different spellings are found, namely *Platycoelia* (key, p. iii) and *Platycelia* (description, p. 8). Dahlbom later (1854) also reported both *Platycoelia* (p. 96) and *Platycelia* (p. 220), moreover as a synonym of *Chrysis* Linnaeus, 1761; therefore, he cannot be deemed to have acted as First Reviser under Art. 24.2.4 of the Code. Semenov-Tian-Shanskij (1912: 210), under *Cephalochrysis* Semenov-Tian-Shansky, 1910, reported *Platycoelia* as invalid, because it is preoccupied by *Platycoelia* Dejean, 1834 (Coleoptera, Scarabaeidae). Bischoff (1913: 28) also considered *Cephalochrysis* a valid name, yet he reported Dahlbom's name as *Platycelia*. It seems obvious that, at the time, the two spellings were considered equivalent variants. At present, conversely, according to Art. 56.2 of the Code, "even if the difference between two genus-group names is only one letter, they are not homonyms", while variants differing only by *ae*, *oe* or *e* would indeed be homonyms in species-group names (Art. 58.1). *Platycelia* Dahlbom, 1845 accordingly, if deemed to be the correct original spelling, is not a junior homonym of *Platycoelia* Dejean, 1834. All the subsequent authors have used only *Platycelia*, as a valid generic or subgeneric name, or a junior subjective synonym of *Chrysis* Linnaeus, 1761; none of them, however, realized that neither spelling had ever been selected by a First Reviser as the correct original one, according to Art. 24.2.3. Because *Platycoelia* would be an objectively invalid junior homonym, and *Platycelia* has been almost universally considered the correct spelling, and is a potentially valid genus-group name, we herewith, acting as First Revisers, select *Platycelia* Dahlbom, 1845 as the correct original spelling, and make *Platycoelia* an incorrect subsequent spelling.

Pleurocera Guérin-Méneville, 1842 (as subgenus of *Chrysis* Linnaeus, 1761). Rev. Zool. 5: 149.

Gender. Feminine.

Type species. *Chrysis viridis* Guérin-Méneville, 1842, *nec* Olivier, 1790 (= *Chrysis bruchi* Brèthes, 1903), by monotypy.

Taxonomic history. Raised to generic status by Brullé (1846: 49). Reduced to subgeneric status (in *Chrysis* Linnaeus, 1761) by Bodenstein (1939: 130). Raised to generic status by Linsenmaier (1959a: 73). Junior homonym of *Pleurocera* Rafinesque, 1818 (Gastropoda, Pleuroceridae). Replaced by *Pleurochrysis* Bohart, 1966: 144. Objectively invalid name.

Pleurochrysis Bohart, 1966 (as subgenus of *Neochrysis* Linsenmaier, 1959a). Bull. Brooklyn Ent. Soc. 58: 144.

Gender. Feminine.

Type species. *Chrysis viridis* Guérin-Méneville, 1842, *nec* Olivier, 1790 (= *Chrysis bruchi* Brèthes, 1903), by automatic designation (see *Pleurocera* Guérin-Méneville, 1842).

Taxonomic history. Replacement name for *Pleurocera* Guérin-Méneville, 1842, *nec* Rafinesque, 1818 (Gastropoda, Pleuroceridae). Reduced to subgeneric status (in *Neochrysis* Linsenmaier, 1959a) by Bohart (1966: 144). Reinstated to generic status by Kimsey (1985: 270). Reduced to subgeneric status (in *Neochrysis* Linsenmaier, 1959a) by Linsenmaier (1985: 429). Reinstated to generic status by Kimsey & Bohart (1991: 522). Reduced to subgeneric status (in *Neochrysis* Linsenmaier, 1959a) by Linsenmaier (1997: 266). Reinstated to generic status by Fernández (2001: 98). Reduced to subgeneric status (in *Neochrysis* Linsenmaier, 1959a) by Pagliano (2008: 353). Reinstated to generic status by Lucena *et al.* (2012: 215). Junior homonym of *Pleurochrysis* Pringsheim, 1955 (originally described as Flagellate, Chrysophyceae: currently Chromista, Haptophyta, Coccolithophyceae) according to the present paper (see above). Replaced below by *Rhipidochrysis* Rosa & Pavesi, **nom. nov.** Objectively invalid name.

Poecilochroa (in: Linsenmaier 1959a. Mitt. Schweiz. Ent. Ges. 32: 91). Incorrect subsequent spelling of *Poeciloechroa* Dahlbom, 1854 (see below). Repeated by other authors (e.g. Casolari & Casolari Moreno 1980: 80; Pagliano 2008: 354). Unavailable name.

Poeciloechroa Dahlbom, 1854 (as synonym of *Chrysis* Linnaeus, 1761). Hym. Europ.: 96.

Gender. Feminine.

Type species. *Chrysis alternans* Dahlbom, 1854, by monotypy.

Taxonomic history. Dahlbom (1854: 96) reported *Poeciloechroa* in a list of supposedly described generic names; under "Chrysis alternans Klug" var. *a* (1854: 236) he reported specimens labelled as "*Chrysis* (Poeciloechroa) *alternans* Klug" from Spinola's collection, and "*Poeciloechroa bifasciata* Klug" from Drewsen's collection; in a partial key to valid species of *Chrysis* (1854: between pp. 196 and 197) only "*Chrysis alternans* Klug" appears; finally, in the alphabetic index (1854: 402, 408) "alternans Kl." was listed as a valid name under "CHRYSIS Lin.", and "*alternans* Kl." and "*bifasciata* Kl." as synonyms under "Poeciloechroa", but in the systematic index of valid names (1854: 400) "alternans" only appears under CHRYSIS and *Poeciloechroa* is not included. Klug never described the two above species or the (sub)genus *Poeciloechroa*. Although Bodenstein (1939: 130) considered *Poeciloechroa* to be an available genus-group name, and indicated as type species by monotypy "*Chrysis* (*Poeciloechroa*) *alternans* Klug (in Dahlbom, 1854) [= *Chrysis aurifascia* Brullé, 1846 = *Chrysis* (*Chrysis*) *aurifascia* (Brullé)]", the last name being that which he considered the valid one, he thus actually treated *Poeciloechroa* as an invalid junior subjective synonym of *Chrysis* Linnaeus, 1761. *Poeciloechroa* was considered valid and listed as a junior synonym of *Chrysis* Linnaeus, 1761 by Linsenmaier (1959a: 91), Kimsey & Bohart (1991: 315), Mingo (1994: 209) and Madl & Rosa (2012: 15). The genus-group name *Poeciloechroa* Dahlbom, 1854 is not available because it was first published as a junior synonym, and never adopted before 1961 as the valid name of a taxon (Art. 11.6 of the Code). Unavailable name.

Polydontus (in: Ashmead 1902. Canad. Ent. 34: 226). Incorrect subsequent spelling of *Polyodontus* Radoszkowski, 1877. Unavailable name.

Polyodontus Radoszkowski, 1877. Reise in Turkestan, Hym. Chrys.: 25.

Gender. Masculine.

Type species. *Polyodontus stchurovskyi* Radoszkowski, 1877, by monotypy.

Taxonomic history. Reduced to subgeneric status (in *Chrysis* Linnaeus, 1761) by Mocsáry (1889: 595). Reinstated to generic status by Ashmead (1902: 226) (with the incorrect subsequent spelling *Polydontus*). Reduced to subgeneric status (in *Chrysis* Linnaeus, 1761) by Bischoff (1910: 436). Junior subjective synonym of *Spinolia* Dahlbom, 1854 according to Bischoff (1913: 29). Resurrected with subgeneric status (in *Euchroeus* Latreille, 1809) by Linsenmaier (1968: 44). Raised to generic status by Pagliano & Scaramozzino (1990: 162). Junior subjective synonym of *Spinolia* Dahlbom, 1854 according to Kimsey & Bohart (1991: 548). Junior homonym of *Polyodontus* Eysenhardt, 1818 (Annelida, Polychaeta) and *Polyodontus* Solier, 1849 (Coleoptera, Staphylinidae). Objectively invalid name.

Note. Although an objectively invalid name, there is no need to propose a replacement name because it is currently considered to be a junior synonym; should further work indicate that it should be recognized as a distinct genus-group taxon, then a new name will be required.

Protochrysis Bischoff, 1916. Schrift. physik.-ökonom. Ges. Königsb. 56: 139.

Gender. Feminine.

Type species. *Protochrysis succinalis* Bischoff, 1916, by monotypy.

Taxonomic history. Junior homonym of *Protochrysis* Pascher, 1911 (originally described as a flagellate, Chrysomonadinae; currently Chromista, Chrysophyceae, Chromulinaceae). Replaced by *Protochrysidis* Carpenter, 1985. Unnecessarily replaced by *Eochrysis* Doweld, 2015 (see above). Objectively invalid name.

Note. *Protochrysis* Pascher was included in Neave (1940a) and therefore apparently considered as an animal name at some time (see discussion above).

Pseudhedychrum Abeille de Perrin, 1879 (as synonym of *Holopyga* Dahlbom, 1845). Ann. Soc. Linnéenne Lyon 26: 27.

Gender. Neuter.

Type species. *Chrysis fervida* Fabricius, 1781 by subsequent designation of Bodenstein (1939: 130).

Taxonomic history. The name *Pseudhedychrum* was first published by Abeille de Perrin (1879: 27), and provided with a description there. However, Abeille de Perrin (1879: 27) also explicitly stated that his initial idea to recognise three subgenera in *Holopyga*, namely *Holopyga*, *Philoctetes*, and *Pseudhedychrum*, proved not workable, so that all species initially to be included in *Philoctetes* and *Pseudhedychrum* were merely treated as *Holopyga*. The two former names therefore were not used as valid when first proposed, contrary to the requirements of Art. 11.5 of the Code. Although Abeille de Perrin (1879: Pl. I) illustrated the claws, and there explicitly stated that those with three teeth (Fig. 7, for *cicatrix*, *caudata* and *deflexa*) were subgenus *Philoctetes*, and those with two basal tubercles and two large teeth (Fig. 8, for *fervida, miranda* and *chloroidea*) were subgenus *Pseudhedychrum*, the use of the names in the captions to the figures is not sufficient to contradict his earlier statement not to formalize those genus-group names, since he explicitly rejected those names in the text. Junior subjective synonym of *Holopyga* Dahlbom, 1845 according to De Stefani (1888: 118), and Dalla Torre (1892: 20). Although Bodenstein (1939: 130) considered *Pseudhedychrum* to be an available genus-group name, and indicated as type species "*Holopyga* (*Pseudhedychrum*) *fervida* (Fabricius) [= *Chrysis fervida* Fabricius, 1781 = *Holopyga fervida* (Fabricius)]", the last name being that which he considered the valid one, he thus actually treated *Pseudhedychrum* Abeille de Perrin, 1879 as a junior subjective synonym of *Holopyga* Dahlbom, 1845; although he gave the date of Abeille de Perrin's paper as 1878, he provided the correct literature reference, so there is no question that he was referring to that paper. Junior subjective synonym of *Holopyga* Dahlbom, 1845 according to Mingo (1994: 203), and Pagliano & Scaramozzino (1990: 168). *Pseudhedychrum* Abeille de Perrin, 1879, is not available because it was first published as a junior synonym, and never adopted before 1961 as the valid name of a taxon (Art. 11.6 of the Code). Unavailable name.

Pseudochrisis (in: Skibińska 1982. Memorabilia Zool. 36: 61–72). Incorrect subsequent spelling of *Pseudochrysis* Semenow, 1891. Repeated by other authors. Unavailable name.

Pseudochrysura (in: Tarbinsky 2004. Euroasian Entomol. J. 3: 247). *Nomen nudum*. Unavailable name.

Note. Junior subjective synonym of *Pseudochrysis* Semenow, 1891 according to Rosa (2018b: 264). The genus name *Pseudochrysura* Tarbinsky, 2004 subsequently proved unavailable, because the type species is a *nomen nudum*. The original description of *Pseudochrysura zonsteini* Tarbinsky, 2004, the type species by original designation and also the only species included in the genus, is invalid, since the name and location of the collection housing the holotype were omitted in the original description, contrary to the requirements of Art. 16.4.2 of the Code. The specific name *Pseudochrysura zonsteini* is accordingly not available, and not eligible for type-species designation. *Pseudochrysura*, because it was established after 1930 without a valid type-species designation, according to Art. 13.3 is also not available. Unavailable name.

Pseudocrysis (in: Doronin 1996. Latv. Entomol. 35: 18). Incorrect subsequent spelling of *Pseudochrysis* Semenow, 1891. Unavailable name.

Pseudodichrysis Trautmann, 1921. Stett. Ent. Zt. 82: 132.

Gender. Feminine.

Type species. *Chrysis bihamata* Dahlbom, 1854, by monotypy.

Taxonomic history. *Pseudodichrysis* Trautmann, 1921 after its description was completely forgotten, and never cited by subsequent authors (e.g. Bodenstein 1939; Linsenmaier 1951, 1959a, 1968, 1997; Balthasar 1953; Kimsey & Bohart 1991; Mingo 1994). *Chrysis bihamata* Dahlbom, 1854, currently considered a member of the *Chrysis bihamata* species-group, is also the type species of *Dichrysis* Lichtenstein, 1876, by subsequent designation of Bodenstein (1939: 126). *Pseudodichrysis* Trautmann, 1921 is therefore a junior objective synonym of *Dichrysis* Lichtenstein, 1876 **syn. nov.**, the latter in turn currently considered a junior subjective synonym of *Chrysis* Linnaeus, 1761 **syn. nov.**. Objectively invalid name.

Pseudohedychrum (in: Pagliano 2008. Elenco mond. gen. Hymen.: 371). Incorrect subsequent spelling of *Pseudhedychrum* Abeille de Perrin, 1879. Unavailable name.

Pseudoomalus (in: Shibaev 2006. News Penza St. Ped. Univ. 5: 110). Incorrect subsequent spelling of *Pseudomalus* Ashmead, 1902. Unavailable name.

Pseudospilonia (in: Vinokurov 2007. Proc. Stavropol Rus. Entomol. Soc. 3: 27). Incorrect subsequent spelling of *Pseudospinolia* Linsenmaier, 1951. Unavailable name.

Pseudoyalus (in: Strumia & Fallahzadeh 2015. J. Ins. Biodiv. 3: 19). Incorrect subsequent spelling of *Pseudomalus* Ashmead, 1902. Repeated by Strumia *et al.* (2016). Unavailable name.

Pseufochrysis (in: Atanassov 1940. Mitt. Bulg. Entomol. Ges. 11: 216). Incorrect subsequent spelling of *Pseudochrysis* Semenow, 1891. Unavailable name.

Pyrochloris Klug, 1839. Verhandl. Königl. Akad. Wissensch. Berlin: 2.

Gender. Feminine.

Type species. No species originally included. *Chrysis purpurata* Fabricius, 1787 hereby included, thus type species by monotypy.

Taxonomic history. Klug (1839) described two genera, *Leptoglossa* and *Pyrochloris*, with no species included (see above, under *Leptoglossa* Klug, 1839, for full explanation). *Pyrochloris* Klug, 1839 is only described as "mit verlängerter an der Spitze gerundeter Ligula." [= with elongate ligula rounded at the tip.]. The short description of the ligula makes the generic name available. Junior subjective synonym of *Chrysis* Linnaeus, 1761 according to Kimsey & Bohart (1991: 315), although no species had ever been included in *Pyrochloris*, and the genus was not identifiable from the extremely concise diagnosis. Junior objective synonym of *Euchroeus* Latreille, 1809 consequent on present type-species designation. Objectively invalid name.

Note. According to Art. 67.2.2 of the Code, "If a nominal genus or subgenus was established before 1931 without included nominal species [Art. 12], the nominal species that were first subsequently and expressly included

in it are deemed to be the only originally included nominal species"; no deadline is established for such a subsequent inclusion. We consider that an inappropriate, subsequent type species designation could make *Pyrochloris* Klug, 1839 the valid senior synonym of another, well known genus, threatening the stability of nomenclature. We therefore make *Pyrochloris* Klug, 1839 a permanently invalid name as a junior objective synonym, by fixation of a type species which is already the type species of another generally accepted genus. The elongate ligula rounded at the tip is also found in *Euchroeus* Latreille, 1809, at least in its type species, *Chrysis purpurata* Fabricius, 1787, and nothing in the description argues against this. Therefore, we hereby include in the genus *Pyrochloris* Klug, 1839 the nominal species *Chrysis purpurata* Fabricius, 1787, according to Art. 67.2.2 of the Code deemed to be the only originally included nominal species, thus the type species by monotypy. *Pyrochloris* Klug, 1839 is therefore a junior objective synonym of *Euchroeus* Latreille, 1809 **syn. nov.**

Pyrosoma (in: Dahlbom 1854, as synonym of *Chrysis* Linnaeus, 1761. Hym. Eur.: 96). *Nomen nudum*. Unavailable name.

Note. Dahlbom (1854: 96) reported *Pyrosoma* in a list of supposedly described generic names (see above, under *Nemophora* and *Poeciloechroa*), with no source, diagnosis, or species included; the name does not appear anywhere else in Dahlbom's paper. *Pyrosoma* Dahlbom, 1854 is therefore a *nomen nudum* as noted by Bodenstein (1939: 131), Kimsey & Bohart (1991: 315) and Mingo (1994: 209); the last two references placed it as a junior synonym of *Chrysis* Linnaeus, 1761. Moreover, should *Pyrosoma* Dahlbom erroneously be considered to be available, it would in any case be objectively invalid, as a junior homonym of *Pyrosoma* Péron, 1804 (Thaliacea, Pyrosomatidae).

Sintharis (in: Brauns 1913. Entomol. Mitt. 2 (7/8): 206). Incorrect subsequent spelling of *Spintharis* Dahlbom, 1854. Unavailable name.

Spintaria (in: Strumia & Yildirim 2008. Frustula Entom. 30: 72). Incorrect subsequent spelling of *Spintharina* Semenow, 1892. Unavailable name.

Spintharia (in: Koçak & Kemal 2015. Priamus, suppl. 38: 49, 131). Incorrect subsequent spelling of *Spintharina* Semenow, 1892. Unavailable name.

Spintharis Dahlbom, 1854 (*nec* Klug, 1845). Hym. Europ.: 350.

Gender. Feminine.

Type species. *Spintharis chrysonota* Dahlbom, 1854, by subsequent designation of Zimmermann (1950: 320). The designation of *Pseudochrysis* (*Spintharis*) *virgo* Semenow, 1891 as type species by Semenow 1892: 485 is obviously invalid, not being an originally included species.

Taxonomic history. *Spintharis* Klug, 1845 was originally established for a heterogeneous assemblage of species. Dahlbom (1854: 350), although using the name "*Spintharis* Klug", effectively described a different genus with the same name, because he included in it only three new African species (*S. chrysonota* Dahlbom, 1854; *S. destituta* Dahlbom, 1854; *S. singularis* Dahlbom, 1854), none of them included in the original description of *Spintharis* Klug, 1845. *Spintharis* Klug, 1845 was used, either as a valid genus or a subgenus of *Chrysis* Linnaeus, 1761, by some authors (Richards 1935; Benson *et al*. 1937; Benno 1950; Linsenmaier 1951) to include species now placed in different genera but other authors (du Buysson 1891–1896; Bischoff 1913; Balthasar 1950; Zimmermann 1950) used *Spintharis* Dahlbom, 1854 and interpreted the name in Dahlbom's sense. *Spintharis* Dahlbom, 1854 was correctly recognized as a junior homonym of *Spintharis* Klug, 1845 by Zimmermann (1959: 32) who replaced it by *Spintharosoma* Zimmermann, 1959, and later by Linsenmaier (1959a: 70) who also noticed the homonymy and renamed it *Hyalichroeus* Linsenmaier, 1959a (see above), as a subgenus of *Euchroeus* Latreille, 1809. Objectively invalid name.

Note. Kimsey & Bohart (1991: 559), not realizing that *Spintharis* Dahlbom, 1854 was distinct from *Spintharis* Klug, 1845, did not recognize either *Spintharosoma* Zimmermann, 1959 or *Hyalichroeus* Linsenmaier, 1959a as new replacement names for the former, as had been clearly stated in both publications.

Splintharis (in: Mocsáry 1883. Ent. Nach.: 140). Incorrect subsequent spelling of *Spintharis* Dahlbom, 1854. Unavailable name.

Stilbium (in: Griffith *et al*. 1832. Anim. Kingdom 15: 434). Incorrect subsequent spelling of *Stilbum* Spinola, 1806. Repeated by Costa (1863: 70). Unavailable name.

Stilbumy (in: Strumia & Fallahzadeh 2015. J. Ins. Biodiv. 3: 26). Incorrect subsequent spelling of *Stilbum* Spinola, 1806. Unavailable name.

Stilbun (in: Iranmanesh *et al.* 2017. J. Insect Biodiv. Syst. 3: 300). Incorrect subsequent spelling of *Stilbum* Spinola, 1806. Unavailable name.

Stilibus Rafinesque, 1815. Analyse Nat.: 125. Unjustified emendation, therefore junior objective synonym, of *Stilbum* Spinola, 1806. Objectively invalid name.

Note. Rafinesque (1815), in his monographic work and in the subfamily "Chrysidia" listed the seven known genera of "*Les Chrysidiens*". Genus number 6 was emended as "*Stilibus* R. [= Rafinesque] *Stilbum* Spin." clearly citing both names as a deliberate proposition to replace Spinola's name.

Stylbum (in: Eiselt 1836. Gesich. System. Liter. Insectenk.: 98). Incorrect subsequent spelling of *Stilbum* Spinola, 1806. Repeated by Lepri (1910: 44). Unavailable name.

Teratochrysis Semenov-Tian-Shanskij, 1912 (as subgenus of *Chrysis* Linnaeus, 1761). Rus. Ent. Rev. 12: 198.

Gender. Feminine.

Type species. *Chrysis amoena* Eversmann, 1858, by subsequent designation of Bodenstein (1939: 132).

Taxonomic history. Junior objective synonym of *Pentachrysis* Lichtenstein, 1876 according to Bodenstein (1939: 132); *Chrysis amoena* Eversmann, 1858 had already been designated as type species of *Pentachrysis* Lichtenstein, 1876 by Ashmead (1902: 226). Junior objective synonym of *Pentachrysis* Lichtenstein, 1876 according to Kimsey & Bohart (1991: 559). Objectively invalid name.

Tetachrysis (in: Mocsáry 1882. Chrysid. Faun. Hung.: 50). Incorrect subsequent spelling of *Tetrachrysis* Lichtenstein, 1876. Unavailable name.

Tetrachridium (in: Kimsey & Bohart 1991. Chrys. Wasps World: 181). Incorrect subsequent spelling of *Tetrachrydium* Zimmermann, 1952. Repeated by Linsenmaier (1994: 159) and Pagliano (2008: 426). Unavailable name.

Tetracrysis (in: Janvier 1967. Publ. centro estudios entomol. 9: 37). Incorrect subsequent spelling of *Tetrachrysis* Lichtenstein, 1876. Unavailable name.

Trishrysis (in Shibaev 2006. News Penza State Ped. Univ. 5: 111). Incorrect subsequent spelling of *Trichrysis* Lichtenstein, 1876. Unavailable name.

Wollmania (in: Bodenstein 1939. Trans. Amer. Ent. Soc. 65: 132). Incorrect subsequent spelling of *Wollmannia* Mocsáry, 1909. Repeated by several subsequent authors, e.g. Linsenmaier (1959a) and Kimsey & Bohart (1991), yet there is no evidence of a demonstrably intentional change. According to Art. 33.2.1 and 33.5 of the Code, the name is to be considered an incorrect subsequent spelling. Unavailable name.

Zarundnidium (in: Vinokurov 2007. Proc. Stavropol Rus. Entomol. Soc. 3: 26). Incorrect subsequent spelling of *Zarudnidium* Semenov-Tian-Shanskij, 1954b. Unavailable name.

Zarundnium (in: Vinokurov 2007. Proc. Stavropol Rus. Entomol. Soc. 3: 26). Incorrect subsequent spelling of *Zarudnium* Semenov-Tian-Shanskij, 1954b. Unavailable name.

Zimmermannia Móczár, 1962 (as subgenus of *Cleptes*). Acta Zool. Acad. Scient. Hung. 8: 120.

Gender. Feminine.

Type species. *Ichneumon ignitus* Fabricius, 1787 [= *Cleptes ignitus* (Fabricius, 1787)], by original designation.

Taxonomic history. Junior subjective synonym of *Cleptes* according to Kimsey & Bohart (1991: 53). Junior homonym of *Zimmermannia* Hering, 1940 (Lepidoptera, Nepticulidae). Objectively invalid name.

Genus-group name deemed to be a justified emendation

Holochrysis Lichtenstein, 1876 (as subgenus of *Chrysis* Linnaeus, 1761). Petit nouv. entom. 2: 27. Originally unjustified emendation of *Olochrysis*, hereby deemed to be a justified emendation because in prevailing usage for a long time, under Art. 33.2.3.1 of the Code.

Gender. Feminine.

Type species. *Chrysis aerata* Dahlbom, 1854 (= *Chrysis trimaculata* Förster, 1853), by subsequent designation of Ashmead 1902: 226.

Taxonomic history. Replaced by Rye (1878) with the unjustified emendation *Holochrysis*, subsequently mostly used as the presumed valid name. Raised to generic status by Radoszkowski (1893: 242) (as *Olochrysis*). Reduced to subgeneric status (in *Chrysis* Linnaeus, 1761) by Bischoff (1910: 435) (as *Holochrysis*). Reinstated to generic status by Jansson (1922: 34) (as *Holochrysis*). Reduced to mere "section" of *Chrysis* Linnaeus, 1761 by Berland & Bernard (1938: 72) (as *Holochrysis*). Reinstated to generic status by Enslin (1939: 105) (as *Holochrysis*). Reduced to subgeneric status (in *Chrysis* Linnaeus, 1761) by Atanassov (1940: 209) (as *Holochrysis*). Reinstated to generic status by Cavro (1950: 8) (as *Holochrysis*). Junior subjective synonym of *Chrysura* Dahlbom, 1845 (as subgenus of *Chrysis* Linnaeus, 1761) according to Bodenstein (1951: 721) (as *Olochrysis*). Resurrected with generic status by Hertzog (1954: 105) (as *Holochrysis*). Junior subjective synonym of *Chrysogona* Förster, 1853 (as subgenus of *Chrysis* Linnaeus, 1761) according to Linsenmaier (1959: 77) (as *Olochrysis*, type species erroneously indicated as *Chrysis trimaculata* Förster, 1853). Resurrected with subgeneric status (as subgenus of *Chrysis* Linnaeus, 1761) by Atanassov (1962: 115) (as *Holochrysis*). Transferred with subgeneric status (in *Chrysura* Dahlbom, 1845) by Bohart & Kimsey (1982: 148) (as *Olochrysis*). Junior subjective synonym of *Chrysura* Dahlbom, 1845 according to Kimsey & Bohart (1991: 480) (as *Olochrysis*). Finnamore (1997: 873) followed Bohart & Kimsey (1982) in the classification of chrysidid genera, with *Olochrysis* a subgenus of *Chrysura* Dahlbom, 1845. Junior subjective synonym of *Chrysis* Linnaeus, 1761 according to Madl & Rosa (2012: 15) (as *Olochrysis*). Junior subjective synonym of *Chrysura* Dahlbom, 1845 according to Rosa *et al*. (2017b: 139) (as *Olochrysis*). Subjectively invalid name.

Note. Originally spelled *Olochrysis* by Lichtenstein (1876: 27). Spelled "[*H*]*Olochrysis*" by Rye (1878: 174), clearly aware that the original spelling was *Olochrysis*, in his opinion incorrect and to be emended as *Holochrysis*. This was actually an unjustified emendation according to Art. 33.2 of the Code. Dalla Torre (1892: 41) also indicated that the name should be emended to *Holochrysis*, yet actually considered it to be a junior synonym of *Chrysis* Linnaeus, 1761. Subsequently, the spelling *Olochrysis* was almost completely disregarded. By contrast, the spelling *Holochrysis*, either as a generic or subgeneric name, was used by many authors, from Mocsáry (1890) and Bischoff (1913) until Semenov-Tian-Shanskij (1967), and consistently attributed to Lichtenstein (1876). Although, over the past 50 years, only a few authors have treated *Holochrysis* as a valid genus-group name, after synonymizations of the taxon with *Chrysis* Linnaeus, 1761 by Linsenmaier (1959a: 77), and with *Chrysura* Dahlbom, 1845 by Kimsey & Bohart (1991: 480), none has considered *Olochrysis* as a valid name for the last 40 years; Bohart & Kimsey (1982), Kimsey & Bohart (1991), Finnamore (1997), Madl & Rosa (2012), Rosa *et al*. (2017) simply reported *Olochrysis* in lists of synonyms. Since recent (unpublished) molecular data argue for potential revalidation of the taxon, we consider that a decision on the appropriate spelling is needed. Because of its considerably more extensive use in the past literature for a valid taxon, we consider that the spelling *Holochrysis* should be preferred. Art. 33.2.3.1 of the Code provides that "when an unjustified emendation is in prevailing usage and is attributed to the original author and date it is deemed to be a justified emendation." There is no clear definition of "prevailing usage" in the Code, but it is clear that over the last century all the authors who described new species in this (sub)genus or used it as valid always used the spelling *Holochrysis*, and *Olochrysis* was merely used in lists of synonyms. *Holochrysis* Lichtenstein, 1876 is therefore deemed to be a justified emendation of *Olochrysis* Lichtenstein, 1876.

Distribution. Palaearctic.

Genus erroneously included in the family Chrysididae

Heterocoelia Dahlbom, 1854. Hym. Europ.: 21.

Gender. Feminine.

Type species. *Heterocoelia nigriventris* Dahlbom, 1854, by monotypy.

Note. The systematic position of this genus has long been debated. Dahlbom (1854) described *Heterocoelia* in the family Cleptidae. du Buysson (1891–1896: 64) included it in the tribe Cleptidae [sic] of the family Chrysididae (see above, under Historical notes on the nomenclatural rules); yet, in a supplement to the same work (p. 698), he recognized that *Heterocoelia* should be excluded from Chrysididae, and actually belonged in Proctotrypidae [sic], closely related to *Mesitius*. Mocsáry (1889: 31 (key) and 60 (description)), possibly overlooking du Buysson's corrigendum, included *Heterocoelia* in Chrysididae Cleptinae. Dalla Torre (1898: 551) included *Heterocoelia*, as a synonym of *Mesitius*, in Proctotrupidae Bethylinae; Berland & Bernard (1938: v) treated the Cleptidae as a distinct family, in which *Mesitius* was possibly to be included ("*Faut-il rappeler que le genre* Heterocoelia *par lequel R. du Buysson débute l'histoire des Cleptidae est justement un* Mesitius?"). Linsenmaier (1959a: 8) again included *Heterocoelia* in Chrysididae Cleptinae. *Heterocoelia* was definitively transferred to Bethylidae Mesitiinae by Móczár (1971).

Genus-group name invalid when originally described but validated later

Philoctetes Abeille de Perrin, 1879 (as synonym of *Holopyga* Dahlbom, 1845). Ann. Soc. Linnéenne Lyon 26*:* 27.

Gender. Masculine.

Type species. *Elampus micans* Klug, 1835 designated by Ashmead (1902: 228) (originally included as *Holopyga cicatrix* Abeille de Perrin, 1879, unnecessary replacement name for *Elampus micans* Klug, 1835, *nec Hedychrum micans* Lucas, 1849).

Taxonomic history. The name *Philoctetes* was first published by Abeille de Perrin (1879: 26), and provided with a description there. However, Abeille de Perrin (1879: 27) also explicitly stated that his initial idea to recognise three subgenera in *Holopyga*, namely *Holopyga*, *Philoctetes*, and *Pseudhedychrum*, proved not workable, so that all species initially to be included in *Philoctetes* and *Pseudhedychrum* were merely treated as *Holopyga*. Although Abeille de Perrin (1879: Pl. I) illustrated the claws and there explicitly stated that those with three teeth (Fig. 7, for *cicatrix*, *caudata* and *deflexa*) belonged to the subgenus *Philoctetes*, and those with two basal tubercles and two large teeth (Fig. 8, for *fervida, miranda* and *chloroidea*) to the subgenus *Pseudhedychrum*, the use of the names in the captions to the figures is not sufficient to contradict his earlier statement and to formalize those genus-group names, since he explicitly rejected those names in the text. *Philoctetes* and *Pseudhedychrum* were therefore not used as valid when first proposed, contrary to the requirements of Art. 11.5 of the Code.

du Buysson (1887), in a work extensively based on material and notes reported as having been provided to him by Abeille de Perrin, used *Philoctetes* as a valid genus name, explicitly attributed to Abeille de Perrin's (1879) paper, provided a more extensive description, described a new species with Abeille's manuscript name, and keyed the four species he included in the genus, namely *Ph. tiberiadis* n.sp., *Ph. micans* (Klug, 1835), *Ph. caudatus* (Abeille de Perrin, 1878), and *Ph. deflexus* (Abeille de Perrin, 1878), yet without a type-species designation. According to Art. 11.6.1 of the Code, if a name that was originally proposed as a synonym has been treated before 1961 as a valid name and used as such, then it is made available thereby, with the author and date of its original proposal. Thus du Buysson (1887), using *Philoctetes* as a valid name attributed to Abeille de Perrin (1879), made the name available from the original publication.

Ashmead (1902: 228) fixed "*Elampus micans*, Klug" as the type species of *Philoctetes* Abeille de Perrin. Although the name *micans* was not cited as valid by Abeille de Perrin (1879: 28) because it was erroneously considered a junior homonym of *Hedychrum micans* Lucas, 1849, the species concerned appeared under the replacement name *Holopyga cicatrix*, indicated as a "*Philoctetes*" in Pl. I, Fig. 7).

New replacement names

Linsenmaierella Rosa & Pavesi, **nom. nov.** for *Chrysidella* Linsenmaier, 1997, *nec* Pascher, 1911 (Chromista, Dinophyceae).

Gender. Feminine.

Etymology. Named in honour of Walter Linsenmaier.

Type species. *Chrysogona siamensis* Bischoff, 1910, by automatic designation.

Distribution. Oriental.

Rhipidochrysis Rosa & Pavesi**, nom. nov.** for *Pleurochrysis* Bohart, 1966, *nec* Pringsheim, 1955 (Chromista, Haptophyta, Coccolithophyceae).

Gender. Feminine.

Etymology. The name, from the Greek ῥιπίς, ῥιπίδος [rhipís, rhipídos] = fan, refers to the peculiar flabellate male antennae of the type species, unique among the known Chrysididae.

Type species. *Chrysis viridis* Guérin-Méneville, 1842, *nec* Olivier, 1790 (= *Chrysis bruchi* Brèthes, 1903), by automatic designation.

Distribution. Neotropical.

Description of new genus

Pauli *et al.* (2019), in their phylogenetic analysis based on molecular data, found a distinct clade containing five main lineages, all already considered as separate genera: *Argochrysis* Kimsey & Bohart, 1981, *Caenochrysis* Kimsey & Bohart, 1981, *Ceratochrysis* Cooper, 1952, *Pentachrysis* Lichtenstein, 1876 (including members of the *Chrysis inaequalis* group), *Spintharina* Semenow, 1892 and *Gonodontochrysis* Semenov-Tian-Shanskij, 1954b. Nevertheless, the last genus name being unavailable (see above), we here describe it for the first time, with the name *Morphochrysis* Rosa & Pavesi, **gen. nov.**

Morphochrysis Rosa & Pavesi, gen. nov.

Gonodontochrysis Semenov-Tian-Shanskij, 1954a (as subgenus of *Chrysis* Linnaeus, 1761): 120. Unavailable name.
Chrysis (*Chrysis*) *pulchella* group: Linsenmaier 1959a: 93 (key), 103 (diagnosis).
Chrysis pulchella group: Kimsey & Bohart 1991: 322 (key), 331 (Fig. 107o), 336 (Fig. 110h), 358 (diagnosis, discussion). Farhad *et al.* 2019: 1006 (diagnosis).
Chrysis zaravshanica group: Tarbinsky 2002: 23 (description).

Gender. Feminine.

Type species. *Chrysis pulchella* Spinola, 1808, by present designation.

Note. Some of the species included in this genus were previously included in *Gonodontochrysis* Semenov-Tian-Shanskij, 1954b, which is unavailable (see above). Linsenmaier (1959a) and Kimsey & Bohart (1991) included all members of *Morphochrysis* **gen. nov.** in the *Chrysis pulchella* species-group (Fig. 1). Tarbinsky (2002) described the *Chrysis zaravshanica* species-group based on a member of this genus (*Chrysis personata* Semenov, 1967 = *Chrysis zaravshanica* Tarbinsky, 2002 **syn. nov.**).

Distribution. Palaearctic.

Description. Species of medium to large size, with head distinctly larger than pronotum; first flagellomere elongate in both sexes (length/width ratio 2.5–3.2); scapal basin medially polished or slightly corrugated in the upper part, occasionally finely punctate in females; face usually finely punctate and covered by dense, adpressed whitish pubescence in males; transverse frontal carina strongly developed, broadly M-like, sometimes with distinct rami almost encircling anterior ocellus or delimiting anterior ocellar area; malar space as long as 1.0–1.5 × anterior ocellus diameter; radial cell open, with fore-wing radial sector short, 0.5–2.5 × anterior ocellus diameter away from wing margin; second metasomal tergum with weak to moderate longitudinal medial carina; third metasomal tergum with distinct pit row; lateral edges of third tergum with a small tooth, or angle, at or beyond the middle, followed

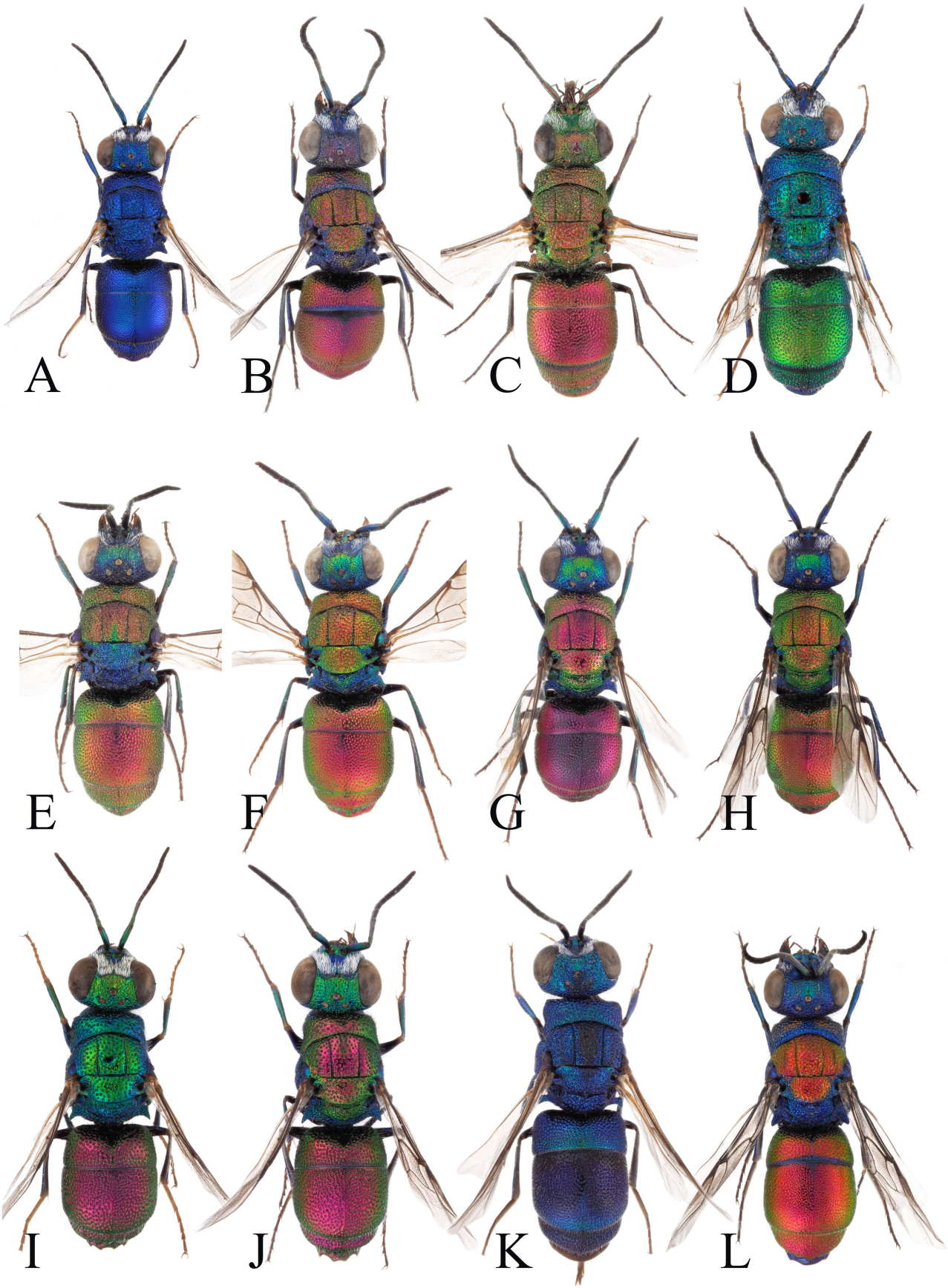

FIGURE 1. *Morphochrysis* **gen. nov.**, habitus, dorsal view. A. *M. asahinai*, ♀; B. *M. andradei*, ♀; C. *M. atechka*, ♀; D. *M. atechka*, ♂; E. *M. pulchella*, ♂; F. *M. pulchella*, ♀; G. *M. dives*, ♂; H. *M. dives*, ♀; I. *M. personata*, ♂; J. *M. rubicunda*, ♀; K. *M. trisinuata*, ♀; L. *M. turceyana*, ♀;

by a slight concavity, more or less marked depending on species; third tergum apicomedially usually biconvex, rarely convex (*Morphochrysis diadema*) to nearly straight (*Morphochrysis atechka* and *Morphochrysis intercurra*) (Fig. 2); black spots on second sternum oval or rectangular, in some species close to each other or completely fused medially and covering large part of the segment (e.g. *Morphochrysis pulchella* and *Morphochrysis calimorpha*); male eighth sternite quadrangular, apically broad; male genital capsule with slender and elongate gonocoxa, apically curved; male and female internal segments unusually round shaped (Fig. 3). Finally, this genus is supported by molecular phylogenetic analyses as a distinct clade (Pauli *et al*. 2019).

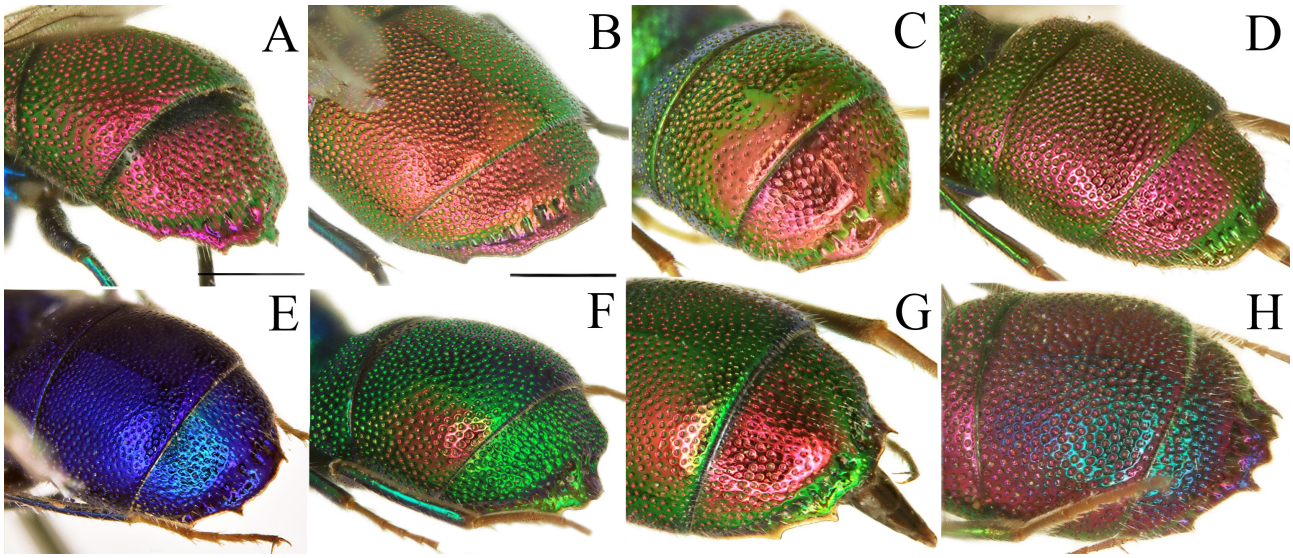

FIGURE 2. *Morphochrysis* **gen. nov.**, third metasomal tergum, postero-lateral view. A. *M. personata*, ♂; B. *M. pulchella*, ♀; C. *M. diadema*, ♂; D. *M. atechka*, ♀; E. *M. asahinai*, ♀; F. *M. urakensis*, ♂; G. *M. mosulensis*, ♀; H. *M. tedshensis*, ♀;

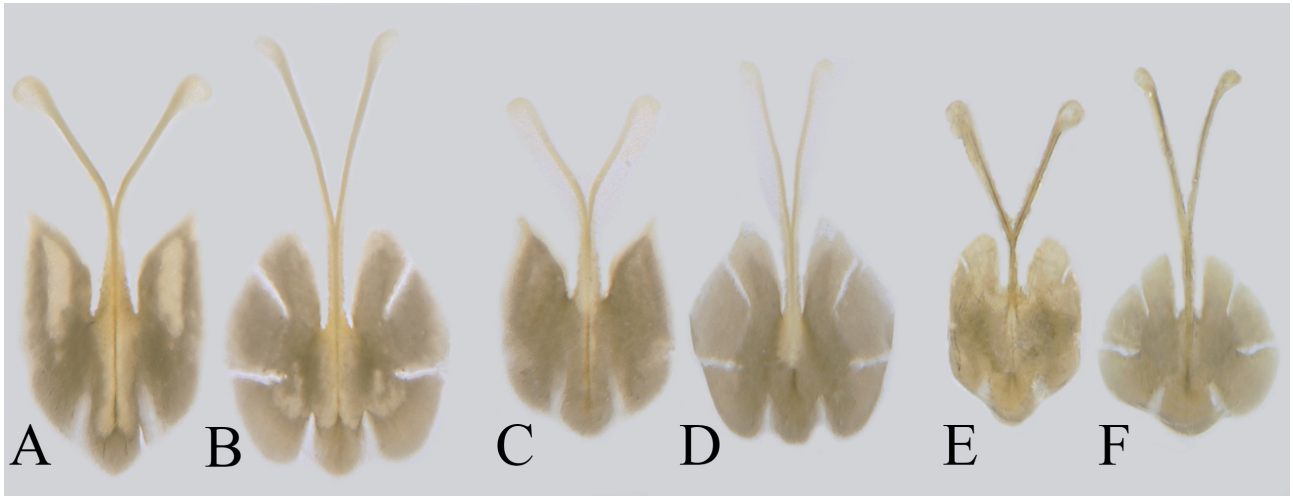

FIGURE 3. *Morphochrysis* **gen. nov.**, fifth and sixth female metasomal terga. A–B. *M. pulchella*; C–D. *M. calimorpha*; E–F. *M. goetheana*.

Hosts. Unknown.

Distribution. The genus currently includes 33 species occurring all over the Palaearctic Region, in particular in dry, semi-desert and desert areas. However, preliminary molecular and morphological data suggest that some Nearctic species, currently included in *Ceratochrysis* Cooper, 1952, may also belong here.

Species included. *Morphochrysis adolescentula* (Semenov-Tian-Shanskij, 1912) (Central Asia) (upgraded to species rank by Rosa *et al*. 2017a: 46); *M. andradei* (Linsenmaier, 1959a) (Iberian Peninsula); *M. asahinai* (Tsuneki, 1950) (Mongolia); *M. atechka* (du Buysson, 1898a) (North Africa); *M. belokobylskiji* (Rosa, 2019a) (Central Asia, Mongolia); *M. buxtoni* (Morice, 1921) (Iraq); *M. calimorpha* (Mocsáry, 1882) (replacement name for *Chrysis dives*

Dahlbom, 1854, *nec* Lucas, 1849, see Rosa & Xu 2015) (West Palaearctic) (subspecies: *M. c. siziliana* Linsenmaier, 1959a); *M. clivosa* (Linsenmaier, 1959a) (Iberian Peninsula); *M. cloe* (Semenov-Tian-Shanskij, 1967) (Central Asia); *M. diadema* (Rosa, 2018c) (Central Asia); *M. dives* (Lucas, 1849) (North Africa); *M. dusmetina* (Bohart in Kimsey & Bohart, 1991) (replacement name for *Chrysis dusmeti* Trautmann, 1926*, nec* García Mercet, 1904) (Iberian Peninsula); *M. flagrans* (Semenov-Tian-Shanskij, 1967) (Caucasus, Turkey) (synonym: *Chrysis turceyana* Linsenmaier, 1959a); *M. flamma* (Semenov-Tian-Shanskij, 1954) (Tadzhikstan); *M. foveata* (Dahlbom, 1845) (North Africa) (see Rosa & Vårdal 2015); *M. gamberoonensis* (Farhad, Rosa & Talebi, 2019) (Iran, Saudi Arabia); *M. gracilicornis* (Semenow, 1892) (Central Asia) (synonym: *Chrysis benjamini* Semenov-Tian-Shanskij, 1967); *M. hameri* (Linsenmaier, 1994) (Arabian Peninsula); *M. houbaraeensis* Strumia & van Harten, 2020; *M. intercurra* (Linsenmaier, 1968) (Middle East); *M. larochei* (Linsenmaier, 1993) (Canary Islands); *M. mosulensis* (Linsenmaier, 1968) (Iraq); *M. personata* (Semenov-Tian-Shanskij, 1967) (upgraded to species rank by Rosa *et al.* 2017a: 46) (Middle East, Central Asia) (synonym: *Chrysis zaravshanica* Tarbinsky, 2002 **syn. nov.**); *M. prodives* (Linsenmaier, 1968) (North Africa); *M. przewalskii* (Radoszkowski, 1887) (Palaearctic China); *M. pulchella* (Spinola, 1808) (West Palaearctic) (synonyms: *Chrysis sinuata* Brullé, 1833; *C. spinifera* Abeille de Perrin, 1878; *C. dives europaea* Linsenmaier, 1959a); *M. rubicunda* (Semenov-Tian-Shanskij, 1967) (Central Asia); *M. senescens* (Semenov-Tian-Shanskij, 1967) (upgraded to species rank by Rosa *et al.* 2017a: 47) (Central Asia); *M. retracta* (Linsenmaier, 1959a) (Pakistan); *M. tedshensis* (Linsenmaier, 1968) (Central Asia); *M. urakensis* (Linsenmaier, 1968) (Pakistan); *M. vahli* (Dahlbom, 1854) (North Africa); *M. ver* (Semenov-Tian-Shanskij, 1967) (Central Asia) [the last doubtfully included].

Diagnosis. Members of the genus *Morphochrysis* resemble species of the *Chrysis rufitarsis* and *Chrysis bihamata* groups. Besides molecular differences, from a morphological point of view, the genus *Morphochrysis* is characterised by the internal segments with a rounded shape (vs. unmodified); male genitalia with gonocoxa apically bent (vs. straight); a tooth, or angle, on the lateral edge of the third metasomal tergum (vs. lateral edge straight or curved without basal tooth in the other two *Chrysis* groups); prominent transverse frontal carina (vs. weak); elongate first flagellomere (vs. shorter); fore wing with open radial cell, with radial sector ending slightly (0.5) to distinctly (2.5 anterior ocellus diameter) far from the wing margin.

Discussion. Semenov-Tian-Shanskij (1954a) established *Gonodontochrysis* as a subgenus of *Chrysis* Linnaeus, 1761. However, being described with no generic diagnosis nor designation of type species, this name is unavailable (see above). Later, Semenov-Tian-Shanskij (1967) included in *Gonodontochrysis* other newly described heterogeneous species, for a total of 17 species and subspecies. In fact, his subgenus included species of five different species groups, namely *bihamata*, *eborata*, *pulchella*, *rufitarsis* and *slava* (Rosa *et al.* 2017a, Rosa 2019b). Of the 17 taxa included by Semenov-Tian-Shanskij, *C. aegle* Semenov-Tian-Shanskij, 1967, *C. capito* Semenov-Tian-Shanskij, 1967, *C. cephalotes* Semenov-Tian-Shanskij, 1967, and *C. kozlovi* Semenov-Tian-Shanskij, 1967 belong to the *C. bihamata* group; *C. eborata* Semenov-Tian-Shanskij, 1967 belongs to the monotypic *C. eborata* group; *C. dolens* Semenov-Tian-Shanskij and Nikol'skaya, 1954, *C. hafisi* Semenov-Tian-Shanskij, 1967, and *C. parthorum* Semenov-Tian-Shanskij, 1967 belong to the *C. rufitarsis* group; and *C. slava* Semenov-Tian-Shanskij, 1967 belongs to the recently established *C. slava* group (Rosa 2019b).

Linsenmaier (1959a) established the *pulchella* group, including 10 species and 2 subspecies (*Chrysis dives*, *C. dives europaea*, *C. retracta*, *C. asahinai*, *C. calimorpha*, *C. calimorpha siziliana*, *C. clivosa*, *C. pulchella*, *C. dusmeti*, *C. turceyana*, and *C. andradei*). Kimsey & Bohart (1991) followed Linsemaier's interpretation, and included 21 members. Conversely, Linsenmaier (1999: 144) proposed the *hydropica-pulchella* group without any diagnosis. Rosa (2005: 55) subdivided this group again into two species groups (*hydropica* and *pulchella*), based on the shape of the genitalia and the internal terga and sterna (Rosa 2005: Figs 13, 15, 17). These differences are now considered diagnostic at genus level, the internal terga and sterna of the *pulchella* group being unique, and those of the *hydropica* group similar to other members of the genus *Chrysis.* Tarbinsky (2002) established the *zaravshanica* group, based on the newly described *Chrysis zaravshanica* Tarbinsky, 2002. After examination of the type, we propose a new synonymy, *Chrysis personata* Semenov-Tian-Shanskij, 1967 = *C. zaravshanica* Tarbinsky, 2002 **syn. nov.**, and the merger of the *zaravshanica* group with the *pulchella* group.

Conclusions

In the present paper 143 genus-group names incorrectly used in Chrysididae over a span of 260 years are listed; 34 are objectively invalid, of which 18 are junior homonyms (five of these are also currently junior subjective synonyms), 18 are junior objective synonyms (two of these are also junior homonyms) of which six are unjustified emendations, and two are unnecessary replacement names. The remaining 109 names are unavailable; 96 are incorrect subsequent spellings (most of them were originally *lapsus calami* or misprints), one is hereby deemed to be an incorrect original spelling, eight are *nomina nuda*, three were originally published as junior synonyms and never adopted before 1961 as valid names of any taxa, and 1 is a vernacular name previously considered as valid. Several of these names were considered valid by some authors, and repeatedly appeared in the literature. In these cases, not all authors known to have used the invalid name are reported.

Considering a potential conflict with the high number of Chromista genera described, for the description of new Chrysididae genera we recommend to check that proposed names cannot be homonyms of previously described genera in "Protozoa" or at any time been used for a taxon considered to be an animal. For example, the following Chromista genera, other than those already listed above, have been found derived from the word *chrysis*: *Amphichrysis*, *Angulochrysis*, *Ankylochrysis*, *Arachnochrysis*, *Arthrochrysis*, *Atraktochrysis*, *Botryochrysis*, *Catenochrysis*, *Cryptochrysis*, *Chrysapsis*, *Chrysarachnion,* *Chrysidalis*, *Chrysidiastrum*, *Chrysolykos*, *Chrysostephanosphaera*, *Chrysothrix*, *Chrysotilos*, *Chrysoclonium*, *Chrysomeris*, *Coccochrysis*, *Corcontochrysis*, *Cryptochrysis*, *Cyathochrysis*, *Dermatochrysis*, *Didymochrysis*, *Echinochrysis*, *Epichrysis*, *Exanthemachrysis*, *Geochrysis*, *Gilsonichrysis*, *Gloenochrysis*, *Halichrysis*, *Heimiochrysis*, *Heliochrysis*, *Isochrysis*, *Kremastochrysis*, *Lepidochrysis*, *Leukochrysis*, *Mycochrysis*, *Myxochrysis*, *Nannochrysis*, *Nematochrysis*, *Phacochrysis*, *Pinguiochrysis*, *Placochrysis,* *Platychrysis*, *Podochrysis*, *Polypodochrysis*, *Porochrysis*, *Pseudoisochrysis,* *Pyramidochrysis,* *Rhamnochrysis*, *Rhizochrysis,* *Saccochrysis*, *Sarcinochrysis*, *Spirochrysis*, *Spongiochrysis*, *Stichochrysis*, *Stipitochrysis*, *Stylochrysis*, *Sulcochrysis*, *Thallochrysis*, *Tisochrysis*, *Tylochrysis*, *Volvochrysis* (names found on https://www.algaebase.org/ and https://www.marinespecies.org/index.php). Even if any of these names has never been used for an "animal", and therefore would not technically be considered as a homonym if proposed for a taxon in Chrysididae, the avoidance of potential confusion is important. It is to be stressed that the classification of some taxa as "non-animal" may have to be changed in the future, according to new molecular or other data. Myxozoa, e.g., formerly treated as Protozoa (Lee *et al.* 1985: 384), thus "protistans", are currently classified as Cnidaria.

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