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Family-Group Names for Earwigs (Dermaptera)

MICHAEL S. ENGEL¹ AND FABIAN HAAS²

ABSTRACT

Family-group names for all taxa of earwigs (living and extinct) are listed with dates and sources indicated; in total 85 entries are recorded along with a single entry of dubious taxonomic identity (i.e., Ocelliidae, *nomen dubium*, a name apparently applied to a fossil earwig nymph of uncertain status and identity). This survey revealed two instances in which currently accepted names must be changed owing to priority by an older name: Platylabiinae and Cosmiellinae must be replaced by Palicinae and Skendylinae, respectively, as the family-group names remain valid despite synonymy of their type genera. The type genus of Verhoeff's Gonolabididae (as Gonolabidae) is *Gonolabis*, not *Gonolabina* (which is the type genus of Gonolabinae, *Gonolabiinae auctorum*) as asserted by various authors. In addition, the generally asserted authorship and dates of numerous names are found to be incorrect and are therefore revised herein. Most notably, the name Carcinophorinae as used by Hincks was a *nomen nudum* and therefore unavailable (the name was first made available by Popham). The widely employed spellings (all incorrectly formed) of Anataelinae, Challinae, Protolabinae, Anophthalmolabiinae, Titanolabinae, Gonolabinae, Brachylabiinae, Isolabiinae, Antisolabiinae, Parisolabiinae, Chaetospanini, Irdexinae, Eudohrniinae, Rudraxinae, Gonolabiinae, Rhyacolabiinae, and Kinellinae are corrected to Anataeliinae, Challiinae, Protolabidinae (= Echinomatinae), Anophthalmolabidinae, Titanolabidinae, Gonolabidinae (= Anisolabidinae), Brachylabidinae, Isolabidinae, Antisolabidinae, Parisolabidinae, Chaetospaniini, Irdicinae (= Spongophorinae), Eudohrniinae (= Neolobophorinae), Rudracinae, Gonolabinae, Rhyacolabidinae (= Ancistrogastrinae), and Kinesinae, respectively. The following nomenclatural changes are proposed: *Acrania*, reinstated as genus; *Epicranopygia*, new synonym of *Acrania*; *Acrania angulata*, new combination; *A. constricta*, new combination; *A. eximia*, reinstated combination; *A. fletcheri*, new combination; *A. picta*, reinstated combination; *A. triangulata*, new combination; *A. vittipennis*, new combination; *Pyge*, reinstated as genus; *Paracranopygia*, new synonym of *Pyge*;

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Pyge assamensis, new combination; *P. bakeri*, new combination; *P. burmensis*, new combination; *P. comata*, new combination; *P. formosa*, new combination; *P. maculipes*, new combination; *P. meghalayana*, new combination; *P. modesta*, reinstated combination; *P. pallidipennis*, new combination; *P. proxima*, new combination; *P. semenovi*, new combination; *P. siamensis*, new combination; *P. similis*, new combination; *P. tonkinensis*, new combination; *P. variegata*, new combination; *P. vicina*, new combination; *Paradiplatys*, reinstated as genus; *Lobodiplatys*, *Heterodiplatys*, and *Epidiplatys*, reduced to subgenera of *Paradiplatys* (and their included species reinstated in combination with *Paradiplatys*); *Paradiplatys (Lobodiplatys) coriaceus*, reinstated combination; *P. (Paradiplatys) conradti*, reinstated combination; *P. (P.) lamottei*, reinstated combination; *P. (P.) pectinatus*, reinstated combination; *P. (P.) salvazae*, reinstated combination; *P. (P.) spinulosus*, reinstated combination; *P. (Heterodiplatys) bicolor*, reinstated combination; *P. (H.) bihamatus*, reinstated combination; *P. (H.) burri*, reinstated combination; *P. (H.) rotundicollis*, reinstated combination; *P. (H.) schoutedeni*, reinstated combination; *P. (Epidiplatys) gladiator*, reinstated combination; **Cretolabiinae**, new subfamily (Anisolabididae); *Paratitanolabis*, new synonym of *Titanolabis*; *Titanolabis bormansi*, new combination; and ***Titanolabis myanmarensis***, new name.

ZUSAMMENFASSUNG

Die Namen aller Familiengruppen der Dermaptera (rezente wie ausgestorbene) werden einschließlich der entsprechenden Quellen aufgelistet. Insgesamt konnten nicht weniger als 85 Namen ausfindig gemacht werden, einschließlich eines Eintrags mit zweifelhafter taxonomischer Identität (Ocellidae, *nomen dubium*, ein Name der anscheinend für eine fossile Nymphe mit unklarer Zugehörigkeit und Status verwendet wird). Diese Übersicht enthüllt zwei Fälle, in denen derzeit akzeptierte Namen aufgrund der Priorität anderer: Platylabiinae und Cosmiellinae durch Palicinae bzw. Skendylinae ersetzt werden müssen, da die Namen der Familiengruppen, trotz der Synonymisierung der Typusgattungen, gültig bleiben. Die Typusgattung von Verhoeffs Gonolabididae (als Gonolabidae benannt) ist *Gonolabis* und nicht *Gonolabina* (die wiederum die Typusgattung für Gonolabinae [Gonolabiinae *auctorum*] ist), wie von einigen Autoren versichert wird. Darüberhinaus kann gezeigt werden, dass einige gebräuchliche Autorenschaften inkorrekt sind und dementsprechend hier revidiert werden. Vor allem trifft dies auf den Namen Carcinophorinae zu, der von Hincks eingeführt, sich als *nomen nudum* erweist und daher nicht verfügbar ist (er wurde zuerst von Popham verfügbar gemacht). Die häufig anzutreffenden, dennoch falsch abgeleiteten Schreibweisen von Anataelinae, Challinae, Protolabinae, Anophthalmolabiinae, Titanolabinae, Gonolabinae, Brachylabinae, Isolabinae, Antisolabinae, Parisolabinae, Chaetospanini, Irdexinae, Eudohrniae, Rudraxinae, Gonolabinae, Rhyacolabinae, und Kinellinae werden zu Anataeliinae, Challiinae, Protolabidinae (= Echinomatinae), Anophthalmolabidinae, Titanolabidinae, Gonolabidinae (= Anisolabidinae), Brachylabidinae, Isolabidinae, Antisolabidinae, Parisolabidinae, Chaetospaniini, Irdicinae (= Spongophorinae), Eudohrniinae (= Neolobophorinae), Rudracinae, Gonolabinae, Rhyacolabidinae (= Ancistrogastriinae) bzw. Kinesinae berichtigt. Folgende nomenklatorischen Änderungen werden vorgeschlagen: *Acrania*, wiederhergestellt als Gattung; *Epicranopygia*, neues Synonym von *Acrania*; *Acrania angulata*, neue Kombination; *A. constricta*, neue Kombination; *A. eximia*, wieder hergestellte Kombination; *A. fletcheri*, neue Kombination; *A. picta*, wieder hergestellte Kombination; *A. triangulata*, neue Kombination; *A. vittipennis*, neue Kombination; *Pyge*, wiederhergestellt als Gattung; *Paracranopygia*, neues Synonym von *Pyge*; *Pyge assamensis*, neue Kombination; *P. bakeri*, neue Kombination; *P. burmensis*, neue Kombination; *P. comata*, neue Kombination; *P. formosa*, neue Kombination; *P. maculipes*, neue Kombination; *P. meghalayana*, neue Kombination; *P. modesta*, wieder hergestellte Kombination; *P. pallidipennis*, neue Kombination; *P. proxima*, neue Kombination; *P. semenovi*, neue Kombination; *P. siamensis*, neue Kombination; *P. similis*, neue Kombination; *P. tonkinensis*, neue Kombination; *P. variegata*, neue Kombination; *P. vicina*, neue Kombination; *Paradiplatys*, wiederhergestellt als Gattung; *Lobodiplatys*, *Heterodiplatys*, und *Epidiplatys* werden zu Untergattungen von *Paradiplatys* heruntergestuft und ihre Arten mit *Paradiplatys* kombiniert; *Paradiplatys (Lobodiplatys) coriaceus*, wieder hergestellte Kombination; *P. (Paradiplatys) conradti*, wieder hergestellte Kombination; *P.*

(*P.*) *lamottei*, wieder hergestellte Kombination; *P.* (*P.*) *pectinatus*, wieder hergestellte Kombination; *P.* (*P.*) *salvazae*, wieder hergestellte Kombination *P.* (*P.*) *spinulosus*, wieder hergestellte Kombination; *P.* (*Heterodiplatys*) *bicolor*, wieder hergestellte Kombination; *P.* (*H.*) *bihamatus*, wieder hergestellte Kombination; *P.* (*H.*) *burri*, wieder hergestellte Kombination; *P.* (*H.*) *rotundicollis*, wieder hergestellte Kombination; *P.* (*H.*) *schoutedeni*, wieder hergestellte Kombination; *P.* (*Epidiplatys*) *gladiator*, wieder hergestellte Kombination; **Cretolabiinae**, neue Unterfamilie (Anisolabididae); *Paratitanolabis*, neues Synonym *Titanolabis*; *Titanolabis bormansi*, neue Kombination und ***Titanolabis myanmarensis***, neuer Name.

INTRODUCTION

Nomenclature is the set of pragmatic principles that stabilize the names employed in biology. Although not often recognized, taxonomy is by its nature a dynamic field of study, particularly in the revolutionized world of cladistic phylogenetics. Rules of nomenclature serve to maximize the continuity in the usage of names and, more importantly, the communication of volumes of data associated with the taxa to which we give these names. All intellectual endeavors related to the biological sciences depend on effective transmittal of information, and vital to this is the correct application of scientific names. While a tremendous amount of effort in Zoology is spent on ensuring the correct usage of species-group and genus-group names, family-group names are often employed with relatively little consideration and, as a result, may frequently be incorrect. Herein we have attempted to catalog for the first time the family-group names for earwigs (Dermaptera), correctly identifying their type genus, combining stem, and their precedence in competitions of nomenclatural priority. Although there have been several, comprehensive overviews of Dermaptera classification to the level of genera and species (e.g., Popham, 1965, 1968a, 1968b, 1968c; Popham and Brindle, 1966a, 1966b, 1966c, 1967a, 1967b, 1968, 1969; Steinmann, 1986, 1989a, 1989b, 1990, 1993), these accounts were found to have numerous errors in the application of family-group names, prompting this catalog and overview. Names above the family group are not regulated in zoological nomenclature and for this reason the numerous ordinal, subordinal, &c. names proposed for earwigs are not considered, although they are briefly summarized. As in any historical endeavor some obscure references may have been missed and earlier name usages may have

been overlooked. However, we believe this list to be relatively complete and to correctly indicate for the first time the author and date by which each name became taxonomically available. As such, a few changes to earwig classification owing to priority are noted.

The Principle of Coordination (ICZN, 1999: Art. 36) has, unfortunately, not generally been applied in the Dermaptera, with different authors and dates applied to names based on the same type genus but at different ranks. This principle simply states that once a name has been validly established for a particular type genus, regardless of its rank, it is simultaneously validated at all other ranks in the family group with the same authorship and date. For example, although the family Chelisochidae is frequently attributed to Burr (1907), since he was the first to use this name at the family rank (e.g., Steinmann, 1975, 1989b, 1993; Sakai, 1982; Engel, 2003), the correct authorship is Verhoeff (1902a), since he was the first author to propose a name in the family group based on the type genus *Chelisoche*. Changes in rank within the family group (e.g., elevating a tribe to family) do not affect authorship or date of any name based on the same type genus. The corrected authorship and date of all names is provided in the catalog presented herein and summarized in table 1.

In some instances the name currently in use for a subfamily is incorrect, perhaps owing to the general disregard for the Principle of Coordination, described above. This disregard or misunderstanding has led to a failure to correctly identify instances of priority. The most serious failure to follow the Principle of Priority (ICZN, 1999: Art. 23) is with the name Labiinae, which is, in fact, a junior synonym of Isolabellinae in the current system (e.g., Steinmann, 1989b, 1990). Thus, the valid name for this group is Isolabellinae. However, owing to the confusion created by such

TABLE 1. Hierarchical Classification of Dermaptera

Order	DERMAPTERA	de Geer, 1773
Suborder	†Archidermaptera	Bey-Bienko, 1936
Superfamily	†Protodiplatyoidea	Martynov, 1925a
Family	†Protodiplatyidae	Martynov, 1925a
	= † <i>Longicerciatidae</i>	Zhang, 1994
Family	†Dermapteridae	Vishniakova, 1980
Subfamily	†Dermapterinae	Vishniakova, 1980
	= † <i>Sinopalaeodermatidae</i>	Zhang, 2002
Subfamily	†Turanoviinae	Engel, 2003, <i>nomen translatum</i>
Suborder	†Eodermaptera	Engel, 2003
Superfamily	†Semenovioloidea	Vishniakova, 1980
Family	†Semenovioliidae	Vishniakova, 1980
Family	†Turanodermatidae	Engel, 2003
Suborder	Neodermaptera	Engel, 2003
Infraorder	Protodermaptera	Zacher, 1910
Superfamily	Karschielloidea	Verhoeff, 1902a
Family	Karschiellidae	Verhoeff, 1902a
Superfamily	Pygidicranoidea	Verhoeff, 1902a
Family	Diplatyidae	Verhoeff, 1902a
Family	Pygidicranidae	Verhoeff, 1902a
Subfamily	†Burmapygiinae	Engel & Grimaldi, 2004
Subfamily	Anataeliinae	Burr, 1909b, <i>nomen correctum</i>
Subfamily	Blandicinae	Burr, 1915
Subfamily	Brindlensiinae	Srivastava, 1985b
Subfamily	Challiinae	Steinmann, 1973, <i>nomen correctum</i>
Subfamily	Cylindrogastrinae	Maccagno, 1929
Subfamily	Diplatymorphinae	Boeseman, 1954
Subfamily	Echinomatinae	Burr, 1910a
	= <i>Protolabidinae</i>	Bey-Bienko, 1959a, <i>nomen correctum et invalidum</i>
	= <i>Prolabiscinae</i>	Bey-Bienko, 1959b
Subfamily	Esphalmeninae	Burr, 1909a
Subfamily	Pygidicraninae	Verhoeff, 1902a
Subfamily	Pyragrinae	Verhoeff, 1902a
Infraorder	Epidermaptera	Engel, 2003
Parvorder	Paradermaptera	Verhoeff, 1902a
Superfamily	Hemimeroidea	Sharp, 1895
Family	Hemimeridae	Sharp, 1895
Superfamily	Apachyoidea	Verhoeff, 1902a
Family	Apachyidae	Verhoeff, 1902a
Parvorder	Metadermaptera	Engel, 2003
Superfamily	Anisolabidoidea	Verhoeff, 1902a
Family	Anisolabididae	Verhoeff, 1902a
Subfamily	†Cretolabiinae	Engel & Haas, <i>subfamilia novum</i>
Subfamily	Anisolabidinae	Verhoeff, 1902a
	= <i>Gonolabidinae</i>	Verhoeff, 1902a, <i>nomen correctum</i>
	= <i>Psalinae</i>	Burr, 1909b
	= <i>Landicinae</i>	Burr, 1915
	= <i>Carcinophorinae</i>	Popham, 1965
	= <i>Placolabidinae</i>	Srivastava, 1999
Subfamily	Anophthalmolabidinae	Steinmann, 1975, <i>nomen correctum</i>
Subfamily	Antisolabidinae	Brindle, 1978a, <i>nomen correctum</i>
Subfamily	Brachylabidinae	Burr, 1908a, <i>nomen correctum</i>
Subfamily	Gonolabinae	Popham and Brindle, 1966c, <i>nomen correctum</i>
Subfamily	Idolopsalinae	Steinmann, 1975
Subfamily	Isolabidinae	Verhoeff, 1902b, <i>nomen correctum</i>
Subfamily	Palicinae	Burr, 1910a
	= <i>Platylabiinae</i>	Burr, 1911c
Subfamily	Parisolabidinae	Verhoeff, 1904, <i>nomen correctum</i>
Subfamily	Titanolabidinae	Srivastava, 1982, <i>nomen correctum</i>

TABLE 1 (Continued)

Parvorder Eteodermaptera Engel, 2003
Nanorder Plesiodermaptera Engel, 2003
Superfamily Labiduroidea Verhoeff, 1902a
Family Labiduridae Verhoeff, 1902a
Subfamily Allostethinae Verhoeff, 1904
Subfamily Labidurinae Verhoeff, 1902a
Subfamily Nalinae Steinmann, 1975
Nanorder Eudermaptera Verhoeff, 1902a
Superfamily Forficuloidea Latreille, 1810
Family Arixeniidae Jordan, 1909
Family Spongiphoridae Verhoeff, 1902a
Subfamily Caecolabiinae Steinmann, 1990
Subfamily Cosmogeracinae Brindle, 1982
Subfamily Geracinae Brindle, 1971
Subfamily Isolaboidinae Brindle, 1978b
Subfamily Isopyginae Hincks, 1951
Subfamily Labiinae Burr, 1909b, <i>nomen conservandum</i> [ICZN, 2005]
= <i>Isolabellinae</i> Verhoeff, 1902b, <i>nomen rejiciendum</i> [ICZN, 2005]
Subfamily Nesogastrinae Verhoeff, 1902a
Subfamily Pericominae Burr, 1911a
Subfamily Ramamurthiinae Steinmann, 1975
= <i>Physogastrinae</i> Ramamurthi, 1967, <i>nomen invalidum</i>
Subfamily Rudracinae Srivastava, 1995, <i>nomen correctum</i>
Subfamily Sparattinae Verhoeff, 1902a
Tribe Auchenomini Burr, 1909b
Tribe Chaetospaniini Steinmann, 1990, <i>nomen correctum</i>
Tribe Sparattini Verhoeff, 1902a
Subfamily Spongiphorinae Verhoeff, 1902a
= <i>Homotaginae</i> Srivastava, 1985a
= <i>Irdicinae</i> Srivastava, 1985a, <i>nomen correctum</i>
Subfamily Strongylopsalinae Burr, 1911a
Subfamily Vandicinae Burr, 1911a
Family Chelisochidae Verhoeff, 1902a
Subfamily Chelisochinae Verhoeff, 1902a
= <i>Chelisochellinae</i> Steinmann, 1975
Subfamily Genitalatinae Steinmann, 1987
Subfamily Kinesinae Srivastava, 2003, <i>nomen correctum</i>
Family Forficulidae Latreille, 1810
Subfamily Allodahliinae Verhoeff, 1902a
Subfamily Ancistrogastriinae Verhoeff, 1902a
= <i>Sarcinatricinae</i> Steinmann, 1975
= <i>Rhyacolabidinae</i> Steinmann, 1975, <i>nomen correctum</i>
Subfamily Anechurinae Verhoeff, 1902a
= <i>Chelidurinae</i> Verhoeff, 1902a
Subfamily Diaperasticinae Burr, 1907
Subfamily Forficulinae Latreille, 1810
= <i>Apterygidinae</i> Verhoeff, 1902a
= <i>Doratinae</i> Burr, 1907
Subfamily Neolobophorinae Burr, 1907
= <i>Eudohrniinae</i> Burr, 1907, <i>nomen correctum</i>
Subfamily Opisthocosmiinae Verhoeff, 1902a
= <i>Eparchinae</i> Burr, 1907
Subfamily Skendylinae Burr, 1907
= <i>Cosmiellinae</i> Steinmann, 1975
Neodermaptera incertae sedis
Family †Ocelliidae Ewing, 1942, <i>nomen dubium</i>

a required change, a petition to grant priority under plenary powers to Labiinae was submitted to and approved by the Commission (Engel, 2004; ICZN, 2005). Another required change under the Code is the usage of Skendylinae Burr, 1907, in place of Cosmiellinae Steinmann, 1975. Skendylinae is the only valid name for this subfamily and, because changing the name back to its taxonomically correct epithet is not so damaging, no petition was submitted to conserve Cosmiellinae. The synonymy of *Skendyle* Burr, 1907, with *Cosmiella* Verhoeff, 1902a, apparently led to the confusion that Skendylinae, although older (i.e., having priority), should be a synonym of Cosmiellinae. This is not correct, and Skendylinae is indeed valid despite the synonymy of its type genus (ICZN, 1999: Art. 40.1), since the synonymy of *Skendyle* was not done until 1989 (Steinmann, 1989b; ICZN, 1999: Art. 40.2). A similar situation is true for Platylabiinae versus Palicinae and no action was taken to conserve the junior name.

In the following list, names are listed in order by priority according to date of establishment and in their form as originally proposed (even as originally misspelled: corrected spellings of all names are in table 1). The format generally follows that used for other family-group name summaries (e.g., Engel and Krishna, 2004; Engel, 2005). Daggers (†) indicate names for fossil lineages. The author and date are given for the first usage of a family-group name based on the indicated type genus. Finally, the correct orthography of the family-group name is provided. This stem is to be used when adding family-group suffices (e.g., -oidea, -idae, -inae, -ini, -ina) to the name. There is understandable difficulty in determining the appropriate termination for family-group names, particularly for those based on generic names of third-declension Greek nouns, e.g., *labis*, meaning “forceps”. Family-group names are to be based on the genitive singular form (ICZN, 1999: Art. 29.3.1). For the example given, the genitive singular form is *labidos*. Thus, names based on *labis* have the stem *labid-* while names based on *labia* (Latin, meaning “lips”) have the stem *labi-*. Thus, Anisolabididae (Anisolabidinae, Anisolabidini, &c.) is the correct spelling for a family-

group name based on *Anisolabis* while Labiidae (Labiinae, Labiini, &c.) is the correct spelling for a family-group name based on *Labia*.

Various Latin terms and phrases are employed for taxonomic events herein. A listing of this terminology and their English equivalents is summarized as follows: *pro* (for, or, in place of), *nec* (not), *nomen conservandum* (a conserved name), *nomen correctum* (a corrected name, i.e., the stem has required a correction in spelling), *nomen dubium* (a dubious name), *nomen illegitimum* (an illegitimate name), *nomen imperfectum* (an imperfect name), *nomen invalidum* (an invalid name), *nomen novum* (a replacement name), *nomen nudum* (a bare name, i.e., a name without an associated description), *nomen praeoccupatum* (a preoccupied name), *nomen rejiciendum* (a rejected name), *nomen translatum* (an altered name, i.e., altered in suffix); *recte* (corrected as).

To all of this is appended several nomenclatural changes for earwigs that were identified in connection with the production of the present work, including the description of a new, extinct subfamily (see appendix).

CLASSIFICATION OF DERMAPTERA

Table 1 briefly summarizes the current hierarchical classification of Dermaptera, with a particular emphasis on the application of taxonomic names. This summary is not meant to be a definitive classification of the order. Higher earwig classification is in the process of being cladistically revised (e.g., Haas, 1995; Haas and Kukalová-Peck, 2001; Haas and Klass, 2003; Colgan et al., 2003; Grimaldi and Engel, 2005; Jarvis et al., 2005), and the current outline is meant solely to provide a preliminary foundation from which to correctly apply family-group names throughout the order as such work progresses.

A still difficult question, which has strong influence on the rank and circumscription of particular groups, is the phylogenetic position of the epizoic Hemimeridae (on African hamster rats) and the Arixeniidae (on oriental bats). Both lineages have acquired a highly derived morphology and natural history (e.g., both are oviparous, both are largely paedo-

morphic) and were thus often regarded as separate suborders of the Dermaptera (as Hemimerina and Arixeniina). The remaining earwigs were thus classified into a third suborder, the Forficulina. However, there are indications that the epizoic lineages are indeed derived from within the main lineage of nonparasitic Dermaptera (i.e., the former suborder Forficulina; e.g., Haas and Klass, 2003) and should consequently be demoted in rank. Inclusion of these paedomorphic, epizoic parasites also has implications for the monophyly and definition of the Dermaptera and its constituent groups, issues that deserve further investigation as phylogenetic studies are expanded.

In table 1, names presently considered synonymous are italicized under the valid name. All names are presented with their corrected authorship, date, and spelling of their combining stem (when the stem, not the suffix, has required correction, then the name is labeled as “*nomen correctum*”, see above).

FAMILY-GROUP NAMES

In the following summary of family-group names in Dermaptera we have ordered the names by their nomenclatural priority, i.e., by date from which the name became available (ICZN, 1999: Art. 23), following the format of similar family-group name accounts (e.g., Engel, 2005; Engel and Krishna, 2004). For ease of use, the names are also summarized alphabetically in table 2. Readers wishing to locate a name based on a particular type genus but who are unfamiliar with its correct authorship and date can locate the name in table 2 and then find the appropriate place in the text (note that many authorships and dates employed in earwig taxonomy are nomenclaturally incorrect, e.g., Steinmann, 1989b).

1. Forficulariae Latreille, 1810: 244, 246. Type genus: *Forficula* Linnaeus, 1758. Combining stem: Forficul-. Note: Authorship of this name is often given to Stephens (1829a: 299; 1829b: 25; e.g., Steinmann, 1989b, 1993; Engel, 2003). However, Stephens was not the first to propose a family-group name based on *Forficula*. Latreille proposed the Forficulariae as a family for *Forficula* in Orthoptera. Article 11.7.1.3 (ICZN, 1999) states that “a family-

group name of which the family-group name suffix [Art. 29.2] is incorrect is available with its original authorship and date, but with a corrected suffix [Arts. 29, 32.5.3].” Indeed, even the example given on the same page is for a Latreille family-group name employing his typical family-group suffix (-ariae). The example states, “Latreille ... established a family Tipulariae, based on *Tipula* Linnaeus, 1758. The suffix -ariae is corrected to -idae; Tipulidae is attributed to Latreille, not to the author who first corrected the spelling.” The same applies for Latreille’s Forficulariae, and despite Stephens’s later action as the first author to employ a family-group name with what we today consider a correct suffix, Forficulidae (and its other forms) must date from 1810 with Latreille as author.

2. Hemimeridae Sharp, 1895: 217. Type genus: *Hemimerus* Walker, 1871. Combining stem: Hemimer-. Note: These paedomorphic, epizoic earwigs on hamster rats in sub-Saharan Africa are highly autapomorphic and as such have at times been considered a separate order or suborder under names such as Diploglossata, Dermodermaptera, and Hemimerina (e.g., de Saussure, 1879; Verhoeff, 1902c; Burr, 1911c; Popham, 1961; Nakata and Maa, 1974; see “Names above the Family Group”, below).

3. Karschiellidae Verhoeff, 1902a: 183. Type genus: *Karschiella* Verhoeff, 1902a. Combining stem: Karschiell-. Note: This group is variously grouped as a subfamily of Pygidicranidae but is now considered a separate, basal family (see table 1).

4. Anisolabidae Verhoeff, 1902a: 185, *nomen imperfectum* [recte Anisolabididae]. Type genus: *Anisolabis* Fieber, 1853. Combining stem: Anisolabid-. Note: In many modern works the terms Anisolabididae and Carcinophoridae are used interchangeably.

5. Gonolabidae Verhoeff, 1902a: 186, *nomen imperfectum* [recte Gonolabididae]. Type genus: *Gonolabis* Burr, 1900a. Combining stem: Gonolabid-. Note: Steinmann (1989a, 1989b) erroneously cites *Gonolabina* Verhoeff, 1902b, as the type genus for this name and thereby asserts that it is identical to the Gonolabiinae of Popham and Brindle (1966c). Verhoeff (1902a) clearly includes only *Gonolabis* in his “Gonolabidae” (in fact, he

TABLE 2
Alphabetical Arrangement of Family-Groups Names in Dermaptera
 (all names appear in their original form except *nomina imperfecta* are corrected)

Allodahliinae Verhoeff, 1902a	Idolopsalinae Steinmann, 1975
Allostethidae Verhoeff, 1904	Irdicinae Srivastava, 1985a
Anataeliinae Burr, 1909b	Isolabididae Verhoeff, 1902b
Ancistrogastrinae Verhoeff, 1902a	Isolabellinae Verhoeff, 1902b
Anechurini Verhoeff, 1902a	Isolaboidinae Brindle, 1978b
Anisolabididae Verhoeff, 1902a	Isopyginae Hincks, 1951
Anophthalmolabidinae Steinmann, 1975	Karschiellidae Verhoeff, 1902a
Antisolabidinae Brindle, 1978a	Kinesinae Srivastava, 2003
Apachyidae Verhoeff, 1902a	Labiduridae Verhoeff, 1902a
Apterygidini Verhoeff, 1902a	Labiidae Burr, 1909b
Arixeniidae Jordan, 1909	Landicinae Burr, 1915
Auchenominae Burr, 1909b	†Longiceriatidae Zhang, 1994
Blandicinae Burr, 1915	Nalinae Steinmann, 1975
Brachylabidinae Burr, 1908	Neolobophorinae Burr, 1907
Brindensiinae Srivastava, 1985b	Nesogastrinae Verhoeff, 1902a
†Burmapygiinae Engel and Grimaldi, 2004	†Ocelliidae Ewing, 1942
Caecolabiinae Steinmann, 1990	Opisthocosmiinae Verhoeff, 1902a
Carcinophorinae Popham, 1965	Palicinae Burr, 1910a
Chaetospaniini Steinmann, 1990	Parisolabidinae Verhoeff, 1904
Challiinae Steinmann, 1973	Pericominae Burr, 1911a
Cheliduridae Verhoeff, 1902a	Physogastrinae Ramamurthi, 1967
Chelisocheilinae Steinmann, 1975	Placolabidinae Srivastava, 1999
Chelisochini Verhoeff, 1902a	Platylabiinae Burr, 1911c
Cosmiellinae Steinmann, 1975	Prolabiscinae Bey-Bienko, 1959b
Cosmogracinae Brindle, 1982	†Protodiplatyidae Martynov, 1925a
†Cretolabiinae Engel and Haas, herein	Protolabidinae Bey-Bienko, 1959a
Cylindrogastrinae Maccagno, 1929	Psalinae Burr, 1909b
†Dermapterinae Vishniakova, 1980	Pygidicranidae Verhoeff, 1902a
Diasperasticinae Burr, 1907	Pyragrinae Verhoeff, 1902a
Diplatyinae Verhoeff, 1902a	Ramamurthiinae Steinmann, 1975
Diplatymorphinae Boeseman, 1954	Rhyacolabidinae Steinmann, 1975
Doratinae Burr, 1907	Rudracinae Srivastava, 1995
Echinomatinae Burr, 1910a	Sarcinatricinae Steinmann, 1975
Eparchinae Burr, 1907	†Semenoviolinae Vishniakova, 1980
Esphalmeninae Burr, 1909a	†Sinopalaeodermatidae Zhang, 2002
Eudohrniinae Burr, 1907	Skendylinae Burr, 1907
Forficulariae Latreille, 1810	Sparattinae Verhoeff, 1902a
Genitalatinae Steinmann, 1987	Spongiphorinae Verhoeff, 1902a
Geracinae Brindle, 1971	Strongylopsalinae Burr, 1911a
Gonolabidae Verhoeff, 1902a	Titanolabidinae Srivastava, 1982a
Gonolabininae Popham and Brindle, 1966c	†Turanodermatidae Engel, 2003
Hemimeridae Sharp, 1895	†Turanoviidae Engel, 2003
Homotaginae Srivastava, 1985a	Vandicinae Burr, 1911a

did not describe and add *Gonolabina* until Verhoeff, 1902b) and thus *Gonolabis* must be considered the type genus of this name (indeed, the family-group name is grammatically derived from *Gonolabis* and not *Gonolabina*), thereby making this name synonymous with Anisolabidinae (= Carcino-

phoridae Popham, 1965) in the current system of Dermaptera.

6. Cheliduridae Verhoeff, 1902a: 186. Type genus: *Chelidura* Latreille, 1825. Combining stem: Chelidur-.

7. Diplatyidae Verhoeff, 1902a: 187. Type genus: *Diplatys* Audinet-Serville, 1831. Com-

binning stem: Diplaty-. Note: This group is variously grouped as a subfamily of Pygidicranidae but is now considered a separate, basal family (see table 1).

8. Pygidicranidae Verhoeff, 1902a: 188. Type genus: *Pygidicrana* Audinet-Serville, 1831. Combining stem: Pygidicran-.

9. Pyragrinae Verhoeff, 1902a: 189. Type genus: *Pyragra* Audinet-Serville, 1831. Combining stem: Pyragr-. Note: The circumscription of the Pygidicranidae in taxonomic works is unstable, with various genera, and Karschiellidae as well as Diplatyidae, moved in and out of the taxon.

10. Labiduridae Verhoeff, 1902a: 189. Type genus: *Labidura* Leach, 1815. Combining stem: Labidur-. Note: The circumscription of the Labiduridae in taxonomic works is unstable, with various genera moved in and out of the taxon.

11. Nesogastrinae Verhoeff, 1902a: 191. Type genus: *Nesogaster* Verhoeff, 1902a. Combining stem: Nesogastr-.

12. Ancistrogastrinae Verhoeff, 1902a: 193. Type genus: *Ancistrogaster* Stål, 1855. Combining stem: Ancistrogastr-.

13. Spongiphorinae Verhoeff, 1902a: 193. Type genus: *Spongiphora* Audinet-Serville, 1831. Combining stem: Spongiphor-.

14. Allodahliinae Verhoeff, 1902a: 194. Type genus: *Allodahlia* Verhoeff, 1902a. Combining stem: Allodahli-.

15. Opisthocosmiinae Verhoeff, 1902a: 195. Type genus: *Opisthocosmia* Dohrn, 1865. Combining stem: Opisthocosmi-.

16. Chelisochini Verhoeff, 1902a: 196. Type genus: *Chelisoches* Scudder, 1876. Combining stem: Chelisocho-.

17. Anechurini Verhoeff, 1902a: 196. Type genus: *Anechura* Scudder, 1876. Combining stem: Anechur-.

18. Apterygidini Verhoeff, 1902a: 196. Type genus: *Apterygida* Westwood, 1839. Combining stem: Apterygid-.

19. Sparattinae Verhoeff, 1902a: 198. Type genus: *Sparatta* Audinet-Serville, 1839. Combining stem: Sparatt-. Note: Steinmann (1990) established a new tribe based on the genus *Sparatta* Audinet-Serville, 1839. However, according to the Principle of Coordination (ICZN, 1999: Art. 36) any family-group name based on *Sparatta* is

to take its authorship and date from its first available usage, in this case, Verhoeff (1902a).

20. Apachyidae Verhoeff, 1902a: 200. Type genus: *Apachyus* Audinet-Serville, 1831. Combining stem: Apachy-.

21. Isolabidae Verhoeff, 1902b: 10, *nomen imperfectum* [recte Isolabididae]. Type genus: *Isolabis* Verhoeff, 1902b. Combining stem: Isolabid-.

22. Isolabellinae Verhoeff, 1902b: 15. Type genus: *Isolabella* Verhoeff, 1902b. Combining stem: Isolabell-. Note: This name is to be suppressed in favor of Labiidae Burr, 1909b (see below) whenever the two names are considered synonyms (Engel, 2004; ICZN, 2005).

23. Allostethidae Verhoeff, 1904: 70. Type genus: *Allostethus* Verhoeff, 1904. Combining stem: Allosteth-.

24. Parisolabinae Verhoeff, 1904: 119, *nomen imperfectum* [recte Parisolabidinae]. Type genus: *Parisolabis* Verhoeff, 1904. Combining stem: Parisolabid-.

25. Eudohrniinae Burr, 1907: 97, *nomen imperfectum* [recte Eudohrniinae]. Type genus: *Eudohrnia* Burr, 1907. Combining stem: Eudohrni-. Note: This name is a junior synonym of Neolobophorinae Burr, 1907.

26. Diaperasticinae Burr, 1907: 97. Type genus: *Diaperasticus* Burr, 1907. Combining stem: Diaperastic-.

27. Skendylinae Burr, 1907: 117. Type genus: *Skendyle* Burr, 1907. Combining stem: Skendyl-.

28. Neolobophorinae Burr, 1907: 118. Type genus: *Neolobophora* Scudder, 1875. Combining stem: Neolobophor-.

29. Eparchinae Burr, 1907: 120. Type genus: *Eparchus* Burr, 1907. Combining stem: Eparch-. Note: This name is a junior synonym of Opisthocosmiinae Verhoeff, 1902a.

30. Doratinae Burr, 1907: 123. Type genus: *Doru* Burr, 1907. Combining stem: Dorat-. Note: This name is a junior synonym of Forficulinae Latreille, 1810.

31. Brachylabinae Burr, 1908a: 247, *nomen imperfectum* [recte Brachylabidinae]. Type genus: *Brachylabis* Dohrn, 1864. Combining stem: Brachylabid-.

32. Arixeniidae Jordan, 1909: 323. Type genus: *Arixenia* Jordan, 1909. Combining

stem: Arixeni-. Note: The erroneous spelling Arixenidae is unfortunately common for these epizoic species on bats from Borneo and the Philippines. In the past the family was placed in a separate suborder (see "Names above the Family Group", below).

33. Esphalmeninae Burr, 1909a: 250. Type genus: *Esphalmenus* Burr, 1909a. Combining stem: Esphalmen-.

34. Anataelinae Burr, 1909b: 322, *nomen imperfectum* [recte Anataeliinae]. Type genus: *Anataelia* Bolivar, 1899. Combining stem: Anataeli-.

35. Labiidae Burr, 1909b: 323. Type genus: *Labia* Leach, 1815. Combining stem: Labi-. Note: This name is to be preserved in favor of Isolabellinae Verhoeff, 1902b (see below) whenever the two names are considered synonyms (Engel, 2004; ICZN, 2005). In many modern works the terms Labiidae and Spongiphoridae are used interchangeably.

36. Psalinae Burr, 1909b: 325. Type genus: *Psalis* Audinet-Serville, 1831. Combining stem: Psal-. Note: This name is a junior synonym of Anisolabidinae Verhoeff, 1902a.

37. Auchenominae Burr, 1909b: 326. Type genus: *Auchenomus* Karsch, 1886. Combining stem: Auchenom-.

38. Echinomatinae Burr, 1910a: 67. Type genus: *Echinosoma* Audinet-Serville, 1839. Combining stem: Echinomat-.

39. Palicinae Burr, 1910a: 67. Type genus: *Palix* Burr, 1910a. Combining stem: Palic-.

40. Pericominae Burr, 1911a: 59. Type genus: *Pericomus* Burr, 1911a. Combining stem: Pericom-.

41. Vandicinae Burr, 1911a: 59. Type genus: *Vandex* Burr, 1911a. Combining stem: Vandic-.

42. Strongylopsalinae, Burr, 1911a: 59. Type genus: *Strongylopsalis* Burr, 1900b. Combining stem: Strongylopsal-.

43. Platylabiinae Burr, 1911c: 43. Type genus: *Platylabia* Dohrn, 1867. Combining stem: Platylabi-. Note: This name is a junior synonym of Palicinae Burr, 1910a.

44. Blandicinae Burr, 1915: 425. Type genus: *Blandex* Burr, 1912. Combining stem: Blandic-.

45. Landicinae Burr, 1915: 445. Type genus: *Landex* Burr, 1915. Combining stem: Landic-.

Note: This name is a junior synonym of Anisolabidinae Verhoeff, 1902a.

46. †Protodiplatyidae Martynov, 1925a: 573. Type genus: †*Protodiplatys* Martynov, 1925a. Combining stem: Protodiplaty-.

47. Cyliandrogastrinae Maccagno, 1929: 7. Type genus: *Cyliandrogaster* Stål, 1855. Combining stem: Cyliandrogastr-.

48. †Ocelliidae Ewing, 1942: 95, *nomen dubium*. Type genus: †*Ocellia* Olfers, 1907. Combining stem: Ocelli-. Note: This name was proposed for an enigmatic fossil in Baltic amber that was originally believed to be an apterous hexapod of the Diplura (Ewing, 1942). The fossil is, however, actually an immature earwig of uncertain identity. The name Ocelliidae is, therefore, an available name within the Dermaptera but of uncertain status. It is likely a synonym of Forficulidae since species of this family are apparently the most common form in Baltic amber (Burr, 1911d; Wappler et al., 2005), although nymphs of Labiduridae and Pygidicranidae are also known in Baltic amber, so it is possible that Ocelliidae is instead synonymous with one of them. Olfers' (1907) original material must be located and examined in order to clarify the status of Ocelliidae, something best done in the context of a revision of all Baltic amber Dermaptera.

49. Isopyginae Hincks, 1951: 12. Type genus: *Isopyge* Borelli, 1931. Combining stem: Isopyg-.

50. Diplatymorphinae Boeseman, 1954: 5. Type genus: *Diplatymorpha* Boeseman, 1954. Combining stem: Diplatymorph-.

51. Protolabinae Bey-Bienko, 1959a: 598, *nomen imperfectum* [recte Protolabidinae] et *nomen illegitimum*. Type genus: *Protolabis* Bey-Bienko, 1959a [*nomen praeoccupatum, nec Protolabis* Cope, 1876 (Mammalia): see Prolabiscinae, below]. Combining stem: Protolabid-. Note: This family-group name is invalid since its type genus is a junior homonym (ICZN, 1999: Art. 39).

52. Prolabiscinae Bey-Bienko, 1959b: 943. Type genus: *Prolabisca* Bey-Bienko, 1959b [*nomen novum pro Protolabis* Bey-Bienko, 1959a]. Combining stem: Prolabisc-. Note: A replacement for Protolabidinae (see also Protolabinae, above).

- 53.** Carcinophorinae Popham, 1965: 132. Type genus: *Carcinophora* Scudder, 1876. Combining stem: Carcinophor-. Note: This name is traditionally attributed to Hincks (1954: p. 5) who first used the name as a subfamily of Labiduridae. However, Hincks (1954) failed to provide characters to differentiate the subfamily from other taxa or descriptive details of any kind for this group, an explicit requirement for availability for all family-group names established after 1930 (ICZN, 1999: Arts. 13.1, 13.2). The name Carcinophorinae in 1954 as used by Hincks was a *nomen nudum* and is unavailable. The first author to make a family-group name based on *Carcinophora* available was Popham (1965) who used the name as a family, Carcinophoridae, of Labioidea. The name must therefore take its date and authorship from Popham (1965). In many modern works the terms Carcinophoridae and Anisolabididae are used interchangeably.
- 54.** Gonolabinae Popham and Brindle, 1966c: 277, *nomen imperfectum* [recte Gonolabinae]. Type genus: *Gonolabina* Verhoeff, 1902b. Combining stem: Gonolabin-.
- 55.** Physogastrinae Ramamurthi, 1967: 237, *nomen illegitimum*. Type genus: *Physogaster* Ramamurthi, 1967 [*nomen praeoccupatum*, nec *Physogaster* Lacordaire, 1830 (Coleoptera), and others: see Ramamurthiinae, below]. Combining stem: Physogastr-. Note: This family-group name is invalid since its type genus is a junior homonym (ICZN, 1999: Art. 39).
- 56.** Geracinae Brindle, 1971: 158. Type genus: *Gerax* Hebard, 1917. Combining stem: Gerac-.
- 57.** Challinae Steinmann, 1973: 388, *nomen imperfectum* [recte Challinae]. Type genus: *Challia* Burr, 1904. Combining stem: Challi-.
- 58.** Anophthalmolabiinae Steinmann, 1975: 205, *nomen imperfectum* [recte Anophthalmolabidinae]. Type genus: *Anophthalmolabis* Brindle, 1968. Combining stem: Anophthalmolabid-.
- 59.** Idolopsalinae Steinmann, 1975: 206. Type genus: *Idolopsalis* Borelli, 1910. Combining stem: Idolopsal-.
- 60.** Nalinae Steinmann, 1975: 207. Type genus: *Nala* Zacher, 1910. Combining stem: Nal-.
- 61.** Ramamurthiinae Steinmann, 1975: 210. Type genus: *Ramamurthia* Steinmann, 1975 [*nomen novum pro Physogaster* Ramamurthi, 1967]. Combining stem: Ramamurthi-. Note: A replacement name for Physogastrinae (see above).
- 62.** Chelisocheinae Steinmann, 1975: 214. Type genus: *Chelisochea* Verhoeff, 1902a. Combining stem: Chelisoche-.
- 63.** Sarcinatricinae Steinmann, 1975: 216. Type genus: *Sarcinatrix* Rehn, 1903. Combining stem: Sarcinatric-.
- 64.** Cosmiellinae Steinmann, 1975: 217. Type genus: *Cosmiella* Verhoeff, 1902a. Combining stem: Cosmiell-.
- 65.** Rhyacolabinae Steinmann, 1975: 219, *nomen imperfectum* [recte Rhyacolabidinae]. Type genus: *Rhyacolabis* Rehn, 1921. Combining stem: Rhyacolabid-.
- 66.** Antisolabiinae Brindle, 1978a: 18, *nomen imperfectum* [recte Antisolabidinae]. Type genus: *Antisolabis* Burr, 1911b. Combining stem: Antisolabid-.
- 67.** Isolaboidinae Brindle, 1978b: 204. Type genus: *Isolaboides* Hincks, 1958. Combining stem: Isolaboid-.
- 68.** †Dermapterinae Vishniakova, 1980: 87. Type genus: †*Dermapteron* Martynov, 1925a. Combining stem: Dermapter-.
- 69.** †Semenoviolinae Vishniakova, 1980: 90. Type genus: †*Semenoviola* Martynov, 1925b. Combining stem: Semenoviol-.
- 70.** Cosmogeracinae Brindle, 1982: 35. Type genus: *Cosmogerax* Hebard, 1933. Combining stem: Cosmogerac-.
- 71.** Titanolabinae Srivastava, 1982a: 97, *nomen imperfectum* [recte Titanolabidinae]. Type genus: *Titanolabis* Burr, 1910b. Combining stem: Titanolabid-.
- 72.** Homotaginae Srivastava, 1985a: 206. Type genus: *Homotages* Burr, 1909b. Combining stem: Homotag-.
- 73.** Irdexinae Srivastava, 1985a: 206, *nomen imperfectum* [recte Irdicinae]. Type genus: *Irdex* Burr, 1911a. Combining stem: Irdic-. Note: This name is a junior synonym of Spongiphorinae Verhoeff, 1902a.
- 74.** Brindlensiinae Srivastava, 1985b: 45. Type genus: *Brindlensia* Srivastava, 1985b. Combining stem: Brindlensi-.
- 75.** Genitalatinae Steinmann, 1987: 114. Type genus: *Genitalata* Kapoor, 1974. Combining stem: Genitalat-.

76. Caecolabiinae Steinmann, 1990: 70. Type genus: *Caecolabia* Brindle, 1975. Combining stem: Caecolabi–.

77. Chaetospanini Steinmann, 1990: 173, *nomen imperfectum* [recte Chaetospaniini]. Type genus: *Chaetospania* Karsch, 1886. Combining stem: Chaetospani–.

78. †Longicerciatidae Zhang, 1994: 231. Type genus: †*Longicerciatata* Zhang, 1994. Combining stem: Longicerciat–. Note: This name is a junior synonym of †Protodiplytididae Martynov, 1925a.

79. Rudraxinae Srivastava, 1995: 76, *nomen imperfectum* [recte Rudracinae]. Type genus: *Rudrax* Srivastava, 1995. Combining stem: Rudrac–.

80. Placolabidinae Srivastava, 1999: 80. Type genus: *Placolabis* Bey-Bienko, 1959a. Combining stem: Placolabid–. Note: This name is a junior synonym of Anisolabidinae Verhoeff, 1902a.

81. †Sinopalaeodermatidae Zhang, 2002: 351. Type genus: †*Sinopalaeodermata* Zhang, 2002. Combining stem: Sinopalaeodermat–. Note: This name is a junior synonym of †Dermapterinae Vishniakova, 1980.

82. †Turanoviidae Engel, 2003: 116. Type genus: †*Turanovia* Vishniakova, 1980. Combining stem: Turanovi–.

83. †Turanodermidae Engel, 2003: 116, *nomen imperfectum* [recte †Turanodermatidae; rectified by Engel and Grimaldi, 2004]. Type genus: †*Turanoderma* Vishniakova, 1980. Combining stem: Turanodermat–.

84. Kinellinae Srivastava, 2003: 160, *nomen imperfectum* [recte Kinesinae]. Type genus: *Kinesis* Burr, 1907. Combining stem: Kines–.

85. †Burmapygiinae Engel and Grimaldi, 2004: 1018. Type genus: †*Burmapygia* Engel and Grimaldi, 2004. Combining stem: Burmapygi–.

86. †Cretolabiinae Engel and Haas, herein (see appendix). Type genus: †*Cretolabia* Popham, 1990. Combining stem: Cretolabi–.

NAMES ABOVE THE FAMILY GROUP

Presently zoological nomenclature does not regulate names applied above the family group (i.e., those names above superfamily). As such, the application and stabilization of suprafamilial names has largely come about by convention rather than regulation (e.g., principles like priority have no authority for such names). Table 3 provides a brief listing of

names applied to lineages of earwigs above the family group (e.g., suborders, infraorders, parvorders). We have not included those names pertaining to the extinct, likely paraphyletic, order †Protelytroptera Tillyard, 1931 (in part comprising Paleozoic, stem-group Dermaptera: see Grimaldi and Engel, 2005). †Protelytroptera and Dermaptera together comprise the superorder Dermapterida Boudreaux, 1979 (see hierarchical classification of Polyneoptera in Arillo and Engel, 2006). For a similar grouping of some taxa of the †Protelytroptera and the Dermaptera, the typified name Forficulida is used by some (e.g., Shcherbakov, 2002). Like †Protelytroptera we have also not included those names applicable to groupings above the level of order (i.e., above Dermaptera). Dermapteroidea Jeannel (*In* Grassé, 1949) is equivalent to Dermapterida but should be avoided owing to confusion with the standard suffix for the superfamily rank, i.e., –oidea. In general we recommend avoiding names for higher categories that terminate with suffixes identical to those employed within the family group as they only serve to confuse.

Our list includes only those names equivalent to Dermaptera or groupings of families within Dermaptera. Certainly taxonomic and phylogenetic concepts change through time and some names were originally formulated to include taxa not consistent with today's usages or notions (just as some modern assertions will, in time, similarly prove untenable). Even some of our most familiar and widely employed names fall into this category. For example, Eudermaptera and even Dermaptera were established by their original authors for amalgamations of taxa differing from the taxon membership we today ascribe to them (e.g., Eudermaptera in the sense of Verhoeff included all modern earwigs except Arixeniidae, Hemimeridae, and Apachyidae; Dermaptera as conceived by de Geer included not only earwigs but mantises, roaches, and many orthopterans). Another relevant example would be the "Orthoptera" which originally included earwigs, roaches, grasshoppers (and their kin), and occasionally dragonflies as well. To today's standards such an application is more a loose ecological grouping than anything else.

TABLE 3
Names Above the Family Group in Dermaptera
(names are ordered by date)

Name	Equivalent in current system ^a
<i>Dermaptera de Geer, 1773</i>	
Labidoura Duméril, 1806	= Dermaptera ^b
Placoda Billberg, 1820	= Dermaptera ^b
Trimera Zetterstedt, 1821	= Dermaptera ^b
Euplekoptera Westwood, 1831	= Dermaptera ^b
Dermatoptera Burmeister, 1838	= Dermaptera ^b
Euplexoptera Westwood, 1839	= Dermaptera ^b
Dermoptera Agassiz, 1848 ^c	= Dermaptera ^b
Harmoptera Fieber, 1852	= Dermaptera ^b
Euplectoptera Fischer, 1853	= Dermaptera ^b
Diploglossata de Saussure, 1879	= Hemimeridae
Diandria Verhoeff, 1902a	= Pygidicranoidea, Labiduroidea, Anisolabidoidea
Monandria Verhoeff, 1902a	= Karschielloidea, Forficuloidea
Eudermaptera Verhoeff, 1902a	
Paradermaptera Verhoeff, 1902a	= Apachyoidea
Dermodermaptera Verhoeff, 1902c	= Hemimeroidea
Holodermaptera Verhoeff, 1904	= Dermaptera ^b <i>sine</i> Hemimeroidea, Arixeniidae
Protodermaptera Zacher, 1910	
Arixeniina Burr, 1911b	= Arixeniidae
Hemimerina Burr, 1911b	= Hemimeroidea
Plecodermaptera Crampton, 1915	= Arixeniidae
Dermatoria Blatchley, 1920	= Neodermaptera
Dermatopteroidea Martynov, 1925	= Dermaptera
†Archidermaptera Bey-Bienko, 1936	
Dermapteroidea Kevan & Knipper, 1961	= Dermaptera
Catadermaptera Steinmann, 1986	= Neodermaptera <i>sine</i> Forficuloidea, Hemimeroidea, Arixeniidae
Mesodermaptera Steinmann, 1986	= Anisolabidoidea, Labiduroidea
†Eodermaptera Engel, 2003	
Neodermaptera Engel, 2003	
Epidermaptera Engel, 2003	
Metadermaptera Engel, 2003	
Plesiodermaptera Engel, 2003	
Eteodermaptera Engel, 2003	
Brachydermaptera Kluge, 2003	= Dermaptera
Pandermaptera Grimaldi & Engel, 2005	= †Eodermaptera + Neodermaptera

^aRefer to table 1 for current hierarchical system.

^bDermaptera is the current name for all earwigs, living and extinct, equivalent to the names proposed by authors in the first column to refer to all then known earwigs. The various fossil lineages, however, had not yet been discovered and as such these names roughly approximate Neodermaptera. Yet because each of these names was clearly established to encompass all Dermaptera, they would have included †Archidermaptera and †Eodermaptera had they been known at the time.

^cThis name is homonymous with the ordinal name for flying lemurs.

Nonetheless, we believe it is most conservative to maintain current usage of such names rather than create confusion by reverting to archaic names more closely matching our modern concepts of taxonomic composition (e.g., given the universal usage of Dermaptera

for earwigs it is preferable for taxonomic stability to retain this name rather than to revert to something like Labidoura, Euplekoptera, or Dermatoptera simply because they were originally established strictly for earwigs or a group of earwigs).

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REFERENCES

- Agassiz, L. 1848. Nomenclatoris zoologici index universalis: continens nomina systematica classium, ordinum, familiarum et generum animalium omnium, tam viventium quam fossilium: Secundum ordinem alphabeticum unicum disposita, adjectis homonymiis plantarum. Soloduri: Sumtibus et Typis Jent et Gassmann, x + 1135 + [1] pp.
- Arillo, A., and M.S. Engel. 2006. Rock crawlers in Baltic amber (Notoptera: Mantophasmatodea). *American Museum Novitates* 3539: 1–10.
- Audinet-Serville, J.G. 1831. Revue méthodique des insectes de l'ordre des Orthoptères. *Annales des Sciences Naturelles* 22: 28–65.
- Audinet-Serville, J.G. 1839. Histoire Naturelle des Insectes. Orthoptères. Paris: Roret, 776 pp.
- Bey-Bienko, G.Y. 1936. Insectes dermaptères. *In* Payha SSSR, 5 [Fauna of the USSR, 5]. Moscow: Akademii Nauk [Academy of Sciences], 239 pp. [In Russian]
- Bey-Bienko, G.J [sic: Y]. 1959a. Dermaptera of Szechuan and Yunnan. *Entomologicheskoe Obozrenie* [Revue d'Entomologie de l'URSS] 38(3): 590–627. [In Russian]
- Bey-Bienko, G.Y. 1959b. Correction to the article, "Dermaptera of Szechuan and Yunnan". *Entomologicheskoe Obozrenie* [Revue d'Entomologie de l'URSS] 38(4): 943. [In Russian]
- Billberg, G.J. 1820. *Enumeratio insectorum in museo Gust. Joh. Billberg.* Stockholm: Typus Gadelianus, 138 pp.
- Blatchley, W.S. 1920. Orthoptera of northeastern America, with especial reference to the faunas of Indiana and Florida. Indianapolis: Nature Publishing Co., 784 pp.
- Boeseman, M. 1954. The Dermaptera in the museums at Leiden and Amsterdam. *Zoologische Verhandlungen* 21: 1–122.
- Bolivar, I. 1899. *Anataelia*, genero nuevo de forficulido de las Islas Canarias. *Actas de la Sociedad Española de Historia Natural* 8: 97–99.
- Borelli, A. 1910. Mission géodésique de l'Équateur. Collections recueillies par M. le Dr. Rivet. Orthoptères Forficulides. *Bulletin du Muséum National d'Histoire Naturelle de Paris* 16: 156–158.
- Borelli, A. 1931. Nouveau genre et nouvelle espèce de Dermaptères de Madagascar. *Bulletin du Muséum National d'Histoire Naturelle, série 2*, 3: 492–495.
- Bormans, A., de. 1894. Viaggio di Leonardo Fea in Birmania et regioni vicine. LXI Dermaptères. *Annali del Museo Civico di Storia Naturale di Genova, serie 2*, 6: 371–409.
- Boudreaux, H.B. 1979. Arthropod phylogeny: with special reference to insects. New York: Wiley, viii + 320 pp.
- Brindle, A. 1968. A new genus and species of blind Dermaptera from the Galapagos Islands. *Mission Zoologique Belge aux Îles Galapagos et en Ecuador* 1: 171–176.
- Brindle, A. 1971. A revision of the Labiidae (Dermaptera) of the Neo-tropical and Nearctic regions. II. Geracinae and Labiinae. *Journal of Natural History* 5(2): 155–182.
- Brindle, A. 1975. Dermaptera from Reunion, with the description of a new genus and species of blind Dermaptera. *Annales de la Société Entomologique de France* 11(4): 763–766.
- Brindle, A. 1978a. The Dermaptera of Africa. Part 2. Koninklijk Museum voor Midden Afrika Tervuren Belgie *Annalen Zoologische Wetenschappen* 225: 1–204.
- Brindle, A. 1978b. Dermaptera from Kashmir and Ladakh (Insecta). *Senckenbergiana Biologica* 58(3–4): 203–209.
- Brindle, A. 1982. Dermaptera from Venezuela. Part 4. A new subfamily, a new genus, and new species of Labiidae. *Boletín de Entomología Venezolana* 2(4): 33–43.
- Burmeister, C.H.C. 1838. *Handbuch der Entomologie: Zweiter Band: Besondere Entomologie: Abtheilung 2: Kaukerfe, Gymnognatha (Erste Hälfte: vulgo Orthoptera).* Berlin: Reimer, viii + 457–756.
- Burr, M. 1900a. Forficulides exotiques du Musée Royal d'Histoire Naturelle de Bruxelles. *Annales de la Société Entomologique de Belgique* 44: 47–54.
- Burr, M. 1900b. Notes on the Forficularia.–V. Descriptions of new species and a new genus. *Annals and Magazine of Natural History, series 7*, 6: 79–88.
- Burr, M. 1904. Observations on the Dermatoptera, including revisions of several genera, and descriptions of new genera and species.

- Transactions of the Entomological Society of London 1904: 277–322.
- Burr, M. 1907. A preliminary revision of the Forficulidae (sensu stricto) and of the Chelisochidae, families of the Dermaptera. Transactions of the Entomological Society of London 1907: 91–134, 1 pl. [iv].
- Burr, M. 1908a. Notes on the Forficularia.—XIII. A revision of the Brachylabidae (Isolabidae). Annals and Magazine of Natural History, series 8, 2: 246–255.
- Burr, M. 1908b. Notes on the Forficularia.—XIV. A revision of the Pygidicranidae. Annals and Magazine of Natural History, series 8, 2: 382–392.
- Burr, M. 1909a. Notes on the Forficularia.—XV. The Esphalmeninae. Annals and Magazine of Natural History, series 8, 3: 249–253.
- Burr, M. 1909b. Note on the classification of the Dermaptera. Deutsche Entomologische Zeitschrift 1909: 320–328.
- Burr, M. 1910a. The fauna of British India, including Ceylon and Burma: Dermaptera (Earwigs). London: Taylor and Francis, xviii + 217 pp., 10 pls.
- Burr, M. 1910b. A preliminary revision of the Labiduridae, a family of the Dermaptera. Transactions of the Entomological Society of London 1910: 161–203.
- Burr, M. 1911a. Vorläufige Revision der Labiiden. Deutsche Entomologische National-Bibliothek 2(8): 58–61. [Publication date: 15 April 1911]
- Burr, M. 1911b. On some South African Dermaptera (earwigs) in the South African Museum, Cape Town. Annals of the South African Museum 10(1): 1–17.
- Burr, M. 1911c. Dermaptera. In P.A.G. Wytzman (editor), Genera Insectorum (Fascicle 122), 1–112. Bruxelles: Wytzman, 112 pp., 9 pls.
- Burr, M. 1911d. Dermaptera (earwigs) preserved in amber from Prussia. Transactions of the Linnean Society of London 2: 145–150.
- Burr, M. 1912. Nachträge zu meiner Bearbeitung Dermaptera des k. k. naturhistorischen Hofmuseums, I, Nachtrag. Annalen des Kaiserlich-Königlichen Naturhistorischen Hofmuseums, Wien 26: 331–338.
- Burr, M. 1915. On the male genital armature of the Dermaptera. Part I.: Protodermaptera (except Psalidae). Journal of the Royal Microscopical Society 1915: 413–447.
- Colgan, D.J., G. Cassis, and E. Beacham. 2003. Setting the molecular phylogenetic framework for the Dermaptera. Insect Systematics and Evolution 34(1): 65–80.
- Cope, E.D. 1876. On a new genus of Camelidae. Proceedings of the Academy of Natural Sciences, Philadelphia 1876: 144–147.
- Crampton, G.C. 1915. The thoracic sclerites and the systematic position of *Grylloblatta campodeiformis* Walker, a remarkable annectant, “orthopteroid” insect. Entomological News 26(10): 337–350.
- Dohrn, H. 1864. Versuch einer Monographie der Dermapteren. Stettiner Entomologische Zeitung 25: 285–296, 417–429.
- Dohrn, H. 1865. Versuch einer Monographie der Dermapteren. Stettiner Entomologische Zeitung 26: 68–99.
- Dohrn, H. 1867. Neue und bisher nicht genügend bekannte Forficulinen. Stettiner Entomologische Zeitung 28: 343–349.
- Duméril, C.A.M. 1806. Zoologie analytique, ou méthode naturelle de classification des animaux, rendue plus facile à l’aide de tableaux synoptiques. Paris: Allais, xxxii + 344 pp.
- Engel, M.S. 2003. The earwigs of Kansas, with a key to genera north of Mexico (Insecta: Dermaptera). Transactions of the Kansas Academy of Science 106(3–4): 115–123.
- Engel, M.S. 2004. Case 3287: Labiinae Burr, 1909 (Insecta, Dermaptera): proposed precedence over Isolabellinae Verhoeff, 1902. Bulletin of Zoological Nomenclature 61(1): 23–24.
- Engel, M.S. 2005. Family-group names for bees (Hymenoptera: Apoidea). American Museum Novitates 3476: 1–33.
- Engel, M.S., and S. Chatzimanolis. 2005. Early Cretaceous earwigs (Dermaptera) from the Santana formation, Brazil. Polskie Pismo Entomologiczne 74(3): 219–226.
- Engel, M.S., and D.A. Grimaldi. 2004. A primitive earwig in Cretaceous amber from Myanmar (Dermaptera: Pygidicranidae). Journal of Paleontology 78(5): 1018–1023.
- Engel, M.S., and K. Krishna. 2004. Family-group names for termites (Isoptera). American Museum Novitates 3432: 1–9.
- Ewing, H.E. 1942. The origin and classification of the Apterygota. Proceedings of the Entomological Society of Washington 44(5): 75–98.
- Fieber, F.X. 1852. Orthoptera Oliv. (et omn. Auct.) Oberschlesiens. In A. Kelch (editor), Grundlage zur Kenntnis der Orthopteren (Gradflügler) Oberschlesiens, und Grundlage zur Kenntniss der Käfer Oberschlesiens [Erster Nachtrag], 1–6. Ratibor: Schulprogramm des Königlichen Gymnasiums zu Ratibor, 19 pp.
- Fieber, F.X. 1853. Synopsis der europäischen Orthopteren mit besonderer Rücksicht auf die in Böhmen vorkommenden Arten als Auszug aus dem zum Drucke vorliegenden Werke, “Die europäischen Orthoptera”. Lotos, Zeitschrift für Naturwissenschaften 3: 69–75, 90–104, 115–129, 138–154, 168–176, 184–188, 201–207, 232–238, 252–261. [These extracts

- were subsequently published as a single volume: Fieber, F.X. 1854. Synopsis der europäischen Orthoptera mit besonderer Rücksicht auf die in Böhmen vorkommenden Arten. Prague: Kath. Gerzäbek, iv + 78 pp.]
- Fischer, L.H. 1853. Orthoptera Europæa. Lipsiæ [Leipzig]: Engelmann, xx + 454 pp.
- Geer, C., de. 1773. Mémoires pour servir à l'Histoire des Insectes [tome troisième]. Stockholm: Hesselberg, viii + 696 pp., 44 pls.
- Grassé, P.-P. (editor). 1949. Traité de zoologie: tome IX. Paris: Masson et Cie, 1117 pp.
- Grimaldi, D., and M.S. Engel. 2005. Evolution of the Insects. Cambridge: Cambridge University Press, xv + 755 pp.
- Guérin-Méneville, F.E. 1838. Insectes du voyage de la Favorite. Magasin de Zoologie 8: 1–80.
- Haan, W., de. 1842. Bijdragen tot de Kennis der Orthoptera: Dermatoptera. In C.J. Temminck (editor), Verhandelinge over de natuurlijke Geschiedenis der Nederlandsche overzeesche bezittingen, door de Leden der Natuurkundige commissie in Oost-Indie en andere Schrijvers, Zoologie: 238–243.
- Haas, F. 1995. The phylogeny of the Forficulina, a suborder of the Dermaptera. Systematic Entomology 20(2): 85–98.
- Haas, F., and K.-D. Klass. 2003. The basal phylogenetic relationships in the Dermaptera. Entomologische Abhandlungen 61(2): 138–142.
- Haas, F., and J. Kukulová-Peck. 2001. Dermaptera hindwing [sic] structure and folding: new evidence for familial, ordinal and superordinal relationships within Neoptera (Insecta). European Journal of Entomology 98(4): 445–509.
- Hebard, M. 1917. A contribution to the knowledge of the Dermaptera of Panama. Transactions of the American Entomological Society 43: 301–334, 1 pl. [xxvii].
- Hebard, M. 1933. Notes on Panamanian Dermaptera and Orthoptera. Transactions of the American Entomological Society 59: 103–108.
- Hincks, W.D. 1951. The Dermaptera of the Belgian Congo, part I: Pygidicranidae. Annales du Musée du Congo Belge Tervuren, Série 8, Sciences Zoologiques 8: 7–50.
- Hincks, W.D. 1954. Dermaptera. Lunds Universitets Årsskrift, 2 Afdelning, Medicin samt Matematiska och Naturvetenskapliga Ämnen [Acta Universitatis Lundensis] 50(4): 1–10. [Publication date: 31 March 1954]
- Hincks, W.D. 1958. Some notes on Parisolabinae (Dermaptera). EOS, Revista Española de Entomología 34: 131–134.
- International Commission on Zoological Nomenclature. 1999. International Code of Zoological Nomenclature [4th ed.]. London: International Trust for Zoological Nomenclature, xxix + 306 pp.
- International Commission on Zoological Nomenclature. 2005. Opinion 2125: Labiidae Burr, 1909 (Insecta, Dermaptera): given precedence over Isolabellinae Verhoeff, 1902. Bulletin of Zoological Nomenclature 62(3): 167–168.
- Jarvis, K.J., F. Haas, and M.F. Whiting. 2005. Phylogeny of earwigs (Insecta: Dermaptera) based on molecular and morphological evidence: reconsidering the classification of Dermaptera. Systematic Entomology 30(3): 442–453.
- Jordan, K. 1909. Description of a new kind of apterous earwig, apparently parasitic on a bat. Novitates Zoologicae 16: 313–326, 3 pls. [16–18].
- Kapoor, V.C. 1974. *Genitalata mahajani* gen. et sp. nov. from Himachal Pradesh, India (Dermaptera: Chelisochidae). Zoological Journal of the Linnean Society 55(1): 83–86.
- Karsch, F. 1886. Ueber einige neue oder wenig bekannte Oehrwürmer (Dermaptera) der äthiopischen Region. Berliner Entomologische Zeitschrift 30: 85–91.
- Kevan, D.K.McE., and H. Knipper. 1961. Geradflügler aus Ostafrika. Beiträge zur Entomologie 11(3–4): 356–413.
- Kluge, N.J. 2003. About evolution and homology of genital appendages of insects. Proceedings of the Russian Entomological Society 74: 3–16. [In Russian]
- Lacordaire, J.T. 1830. Mémoire sur les habitudes des insectes coléoptères de l'Amérique méridionale (Hétéromères). Annales de Sciences Naturelles 20: 274–291.
- Latreille, P.A. 1810. Considérations générales sur l'ordre naturel des Animaux composant les classes des Crustacés, des Arachnides, et des Insectes; avec un Tableau méthodique de leurs genres, disposés en familles. Paris: Schoell, 444 pp.
- Latreille, P.A. 1825. Familles naturelles du règne animal, exposées succinctement et dans un ordre analytique, avec l'indication de leurs genres. Paris: J.B. Baillière, 570 pp.
- Leach, W.E. 1815. Entomology. In D. Brewster (editor), The Edinburgh Encyclopædia, vol. 9 (pt. 1): 57–172. Edinburgh: Blackwood, [2] + 766 pp.
- Linnaeus, C. 1758. Systema Naturae per Regna Tria Naturae, Secundum Classes, Ordines, Genera, Species, cum Characteribus, Differentiis, Synonymis, Locis, vol. 1, ed. 10, Reformata. Holmiae [Stockholm]: Salviae, 824 pp.
- Maccagno, T. 1929. Dermatteri. Il genera *Cylindrogaster* Stål. Bollettino dei Musei di

- Zoologia ed Anatomia Comparata della Reale Università di Torino 41(12): 1–15.
- Martynov, A.V. 1925a. To the knowledge of fossil insects from Jurassic beds in Turkestan. 2. Raphidioptera (continued), Orthoptera (s.l.), Odonata, Neuroptera. *Izvestiya Akademii Nauk Soyuza Sovetskikh Sotsialisticheskikh Respublik*, 6 seriya [Bulletin de l'Académie de l'Union des Républiques Soviétiques Socialistes, série 6] 19: 569–598.
- Martynov, A.V. 1925b. An interesting fossil beetle from Jurassic shales of North Turkestan. *Russkoe Entomologicheskoe Obozrenie* 19: 73–78. [In Russian]
- Nakata, S., and T.C. Maa. 1974. A review of the parasitic earwigs (Dermaptera: Arixeniina; Hemimerina). *Pacific Insects* 16(2–3): 307–374.
- Olfers, E.W.M. 1907. Die «Ur-Insekten» (Thysanura und Collembola im Bernstein). *Schriften der Königlichen physikalisch-ökonomischen Gesellschaft zu Königsberg* 48: 1–40.
- Popham, E.J. 1961. On the systematic position of *Hemimerus* Walker, a case for ordinal status. *Proceedings of the Entomological Society of London, Series B, Taxonomy* 30: 19–25.
- Popham, E.J. 1965. A key to dermapteran sub-families. *Entomologist* 98: 126–136.
- Popham, E.J. 1968a. Genera and species of the Dermaptera 7. Chelisoichidae (Forficuloidea). *Entomologist* 101: 133–136.
- Popham, E.J. 1968b. Genera and species of the Dermaptera 8. Eudohrminae, Neolobophorinae, Ancistrogastriinae, Diasperasticinae and Anechurinae (Forficulidae). *Entomologist* 101: 196–201.
- Popham, E.J. 1968c. Genera and species of Dermaptera (9) Opisthocosminae (Forficulidae). *Entomologist* 101: 276–280.
- Popham, E.J. 1990. Dermaptera. *Bulletin of the American Museum of Natural History* 195: 69–75.
- Popham, E.J., and A. Brindle. 1966a. Genera and species of the Dermaptera 1. Introduction and the Parisolabinae. *Entomologist* 99: 132–135.
- Popham, E.J., and A. Brindle. 1966b. Genera and species of the Dermaptera 2. The Brachylabinae and Platylabinae (Carcinophoridae). *Entomologist* 99: 241–246.
- Popham, E.J., and A. Brindle. 1966c. Genera and species of the Dermaptera 3. Carcinophorinae (Carcinophoridae) and Arixenidae [sic]. *Entomologist* 99: 269–278.
- Popham, E.J., and A. Brindle. 1967a. Genera and species of the Dermaptera 4. Pericominae, Vandicinae, Strongylopsalinae, Nesogastrinae, Isopyginae and Sparattinae (Labiidae). *Entomologist* 100: 35–38.
- Popham, E.J., and A. Brindle. 1967b. Genera and species of the Dermaptera 5. Spongiphorinae and Labiinae. *Entomologist* 100: 255–262.
- Popham, E.J., and A. Brindle. 1968. Genera and species of the Dermaptera 6. Labidurinae, Apachyinae and Allostethinae (Labiduridae). *Entomologist* 101: 105–109.
- Popham, E.J., and A. Brindle. 1969. Genera and species of the Dermaptera 10. Forficulinae (Forficulidae). *Entomologist* 102: 61–66.
- Ramamurthi, B.N. 1967. Dermaptera collected by the Noona Dan Expedition in the Philippine and Bismarck Islands. *Entomologiske Meddelelser* 35: 227–259.
- Rehn, J.A.G. 1903. Studies in American Forficulidae. *Proceedings of the Academy of Natural Sciences, Philadelphia* 55: 299–312.
- Rehn, J.A.G. 1921. Studies in Costa Rican Dermaptera and Orthoptera. *Transactions of the American Entomological Society* 47: 307–318, 1 pl. [xvii].
- Sakai, S. 1982. A new proposed classification of the Dermaptera with special reference to the check list of the Dermaptera of the world. *Bulletin of Daito Bunka University* 20: 1–108.
- Saussure, H., de. 1879. *Spiclegia entomologica genevensis*. 1. Sur le genre *Hemimerus* Walk. *Mémoires de la Société de Physique et d'Histoire Naturelle de Genève* 26: 399–420.
- Scudder, S.H. 1875. Notes on the Orthoptera from northern Peru, collected by Professor James Orton. *Proceedings of the Boston Society of Natural History* 17: 257–282.
- Scudder, S.H. 1876. Critical and historical notes on Forficulariae; including descriptions of new generic forms and an alphabetical synonymic list of the described species. *Proceedings of the Boston Society of Natural History* 18: 287–332.
- Sharp, D. 1895. *Insecta*. In S.F. Harmer and A.E. Shipley (editors), *The Cambridge natural history* [vol. 5], 81–565. London: Macmillan, xi + 584 pp.
- Shcherbakov, D.E. 2002. Order Forficulida Latreille, 1810. The earwigs and protelytrotterans (= Dermaptera DeGeer, 1773 + Protelytrotterata Tillyard, 1931). In A.P. Rasnitsyn and D.L.J. Quicke (editors), *History of insects*, 288–291. Dordrecht: Kluwer Academic Publishers, xii + 517 pp.
- Srivastava, G.K. 1982a. Studies on some Bormans' material of Dermaptera (Insecta). *Annali del Museo Civico di Storia Naturale "Giacomo Doria"* 84: 97–107.
- Srivastava, G.K. 1982b. Notes on Dubrony's (= Bormans) some [sic] material of Dermaptera (Insecta). *Annali del Museo Civico di Storia Naturale "Giacomo Doria"* 84: 373–392.

- Srivastava, G.K. 1985a. Studies on Bormans's (= Dubrony) some material of Dermaptera (Insecta). *Annali del Museo Civico di Storia Naturale "Giacomo Doria"* 85: 201–233.
- Srivastava, G.K. 1985b. Notes on some Dermaptera from Australia preserved in the Zoologisch Museum, Amsterdam. *Bulletin Zoologisch Museum Universiteit van Amsterdam* 10(9): 45–50.
- Srivastava, G.K. 1995. On the classification of Spongiphoridae (= Labiidae) with a list of species. *Records of the Zoological Survey of India* 95(1–2): 71–105.
- Srivastava, G.K. 1999. On the higher classification of Anisolabididae (Insecta: Dermaptera) with a check-list of genera and species. *Records of the Zoological Survey of India* 97(1): 73–100.
- Srivastava, G.K. 2003. On the higher classification of Chelisochidae (Insecta: Dermaptera) with a check list of species. *Records of the Zoological Survey of India* 101(3–4): 159–166.
- Stål, C. 1855. *Entomologiska Notiser (Hemipt., Orthopt., Forficulariae fran Caffernland. Nya Orthoptera). Öfversigt af Kongliga Vetenskaps-Akademiens Förhandlingar, Stockholm* 12: 345–353.
- Steinmann, H. 1973. A study for the higher taxa of the Pygidicranidae (Dermaptera). *Folia Entomologica Hungarica* 26(2): 385–400.
- Steinmann, H. 1974. A new generic classification of the species group of *Diplatys* Serville (Dermaptera: Pygidicranidae). *Acta Zoologica Academiae Scientiarum Hungaricae* 20: 187–205.
- Steinmann, H. 1975. Suprageneric classification of Dermaptera. *Acta Zoologica Academiae Scientiarum Hungaricae* 21(1–2): 195–220.
- Steinmann, H. 1986. Dermaptera: Catadermaptera I. Das Tierreich: eine Zusammenstellung und Kennzeichnung der rezenten Tierformen 102: xiv + 1–343.
- Steinmann, H. 1987. A new reclassification of the family Chelisochidae (Dermaptera). *Annales Historico-Naturales Musei Nationalis Hungarici* 79: 113–118.
- Steinmann, H. 1989a. Dermaptera: Catadermaptera II. Das Tierreich: eine Zusammenstellung und Kennzeichnung der rezenten Tierformen 105: xix + 1–504.
- Steinmann, H. 1989b. *World Catalogue of Dermaptera*. Dordrecht: Kluwer Academic Publishers, 934 pp.
- Steinmann, H. 1990. Dermaptera: Eudermaptera I. Das Tierreich: eine Zusammenstellung und Kennzeichnung der rezenten Tierformen 106: xviii + 1–558.
- Steinmann, H. 1993. Dermaptera: Eudermaptera II. Das Tierreich: eine Zusammenstellung und Kennzeichnung der rezenten Tierformen 108: xxii + 1–711.
- Stephens, J.F. 1829a. A systematic catalogue of British insects: being an attempt to arrange all the hitherto discovered indigenous insects in accordance with their natural affinities. Containing also the references to every English writer on entomology, and to the principal foreign authors. With all the published British genera to the present time. London: Baldwin and Cradock, Part 1: xxxiv + [1] + 416 pp., Part 2: 388 pp. [NB: both parts published simultaneously]
- Stephens, J.F. 1829b. The nomenclature of British insects; being a compendius list of such species as are contained in the Systematic Catalogue of British Insects, and forming a guide to their classification, &c., &c. London: Baldwin and Cradock, [ii] + 68 pp.
- Tillyard, R.J. 1931. Kansas Permian insects. Part 13. The new order Proteolytroptera, with a discussion of its relationships. *American Journal of Science* 21: 231–266.
- Verhoeff, K.W. 1902a. Über Dermapteren. 1. Aufsatz: Versuch eines neuen, natürlichen Systems auf vergleichend-morphologischer Grundlage und über den Mikrothorax der Insecten. *Zoologischer Anzeiger* 25: 181–208. [Publication date: 3 March 1902]
- Verhoeff, K.W. 1902b. Über Dermapteren (2. Aufsatz: neue ungeflügelte Eudermapterengattungen). *Sitzungsberichte der Gesellschaft naturforschender Freunde zu Berlin* 1902: 7–18.
- Verhoeff, K.W. 1902c. Die verwandtschaftliche Stellung von *Hemimerus*. *Sitzungsberichte der Gesellschaft naturforschender Freunde zu Berlin* 1902: 87–89.
- Verhoeff, K.W. 1904. Über Dermapteren. 5. Aufsatz: zwei neue Gruppen. *Archiv für Naturgeschichte* 70: 115–121.
- Vishniakova, V.N. 1980. Earwigs from the Upper Jurassic of the Karatau Range (Insecta, Forficulida). *Paleontologicheskii Zhurnal* [Paleontological Journal] 1980(1): 78–94. [In Russian]
- Walker, F. 1871. *Catalogue of the specimens of Dermaptera Saltatoria in the collection of the British Museum, Part V* [Part 5 and Supplement]. London: Trustees of the British Museum, 811–850 + 43 + 116 pp. [supplement encompasses p. 1–95]
- Wappler, T., M.S. Engel, and F. Haas. 2005. The earwigs (Dermaptera: Forficulidae) from the middle Eocene Eckfeld maar, Germany. *Polskie Pismo Entomologiczne* 74(3): 227–250.
- Westwood, J.O. 1831. Observations upon the eighteenth number of the Zoological Journal. *Zoological Journal* 5: 326–329.

- Westwood, J.O. 1839. An Introduction to the modern classification of insects; founded on the natural habits and corresponding organisation of the different families [vol. 1]. London: Longman, Orme, Brown, Green, and Longmans, xii + 462 pp.
- Zacher, F. 1910. Zur Morphologie und Systematik der Dermapteren (Vorläufige Mitteilungen). *Entomologische Rundschau* 27: 24, 29–30.
- Zetterstedt, J.W. 1821. Orthoptera Sveciae: disposita et descripta. Lundae [Lund]: Litteris Berlingianis, 132 pp.
- Zhang, J.-F. 1994. Discovery of primitive fossil earwigs (Insecta) from the Late Jurassic of Laiyang, Shandong and its significance. *Acta Palaeontologica Sinica* 33(2): 229–245. [In Chinese]
- Zhang, J.-F. 2002. The most primitive earwigs (Archidermaptera, Dermaptera, Insecta) from the Upper Jurassic of Nei Monggol Autonomous Region, northeastern China. *Acta Micropalaeontologica Sinica* 19(4): 348–362.

APPENDIX

NOMENCLATURAL NOTES FOR EARWIGS

In the process of studying the taxonomy and specimens of Dermaptera in the preparation of this catalog, a few nomenclatural difficulties or changes for modern earwigs were identified. These are attended to herein. In addition, the Early Cretaceous genera †*Cretolabia* and †*Kotejalabis* are placed in a new subfamily of Anisolabididae.

Family PYGIDICRANIDAE Verhoeff

Genus *Acrania* Burr, reinstated

Acrania Burr, 1915: 436. Type species: *Pygidicrania picta* Guérin-Méneville, 1838, by original designation.

Epicranopygia Steinmann, 1986: 269. Type species: *Pygidicrania picta* Guérin-Méneville, 1838, by original designation. **New synonymy.**

COMMENTS: Steinmann (1989b) erroneously considered *Epicranopygia* the valid name of this genus since *Acrania* had been considered a synonym of *Cranopygia* by earlier authors. Earlier synonymies do not render the name *Acrania* invalid, and it remains an available name for the group containing its type species, thereby making it the oldest available name for the present genus. *Acrania* is here reinstated, and *Epicranopygia* (based on the same type species) becomes a junior, objective synonym. The following nomenclatural changes are thus required: *Acrania angulata* (Srivastava), **new combination**; *A. constricta* (Hincks), **new combination**; *A. eximia* (Dohrn), reinstated combination; *A. fletcheri* (Bharadwaj and Kapoor), **new combination**; *A. picta* (Guérin-Méneville), reinstated combination; *A. triangulata* (Ramamurthi), **new combination**; *A. vittipennis* (Hincks), **new combination**.

Genus *Pyge* Burr, reinstated

Pyge Burr, 1908b: 390. Type species: *Pygidicrania modesta* de Bormans, 1894.

Paracranopygia Steinmann, 1986: 277. Type species: *Forficula pallidipennis* de Haan, 1842. **New synonymy.**

COMMENTS: Steinmann (1989b), for the same erroneous reasons discussed for *Acrania* (see above), provided a new name for this genus and relegated *Pyge* to synonymy. *Pyge* remains an available genus-group name for any group containing its type species. Thus, it becomes the valid name for the group appearing in the literature as *Paracranopygia*. The following combinations result: *Pyge assamensis* (Hincks), **new combination**; *P. bakeri* (Borelli), **new combination**; *P. burmensis* (Hincks), **new combination**; *P. comata* (Hincks), **new combination**; *P. formosa* (Hincks), **new combination**; *P. maculipes* (Hincks), **new combination**; *P. meghalayana* (Biswas et al.), **new combination**; *P. modesta* (de Bormans), reinstated combination; *P. pallidipennis* (de Haan), **new combination**; *P. proxima* (Hincks), **new combination**; *P. semenovi* (Burr), **new combination**; *P. siamensis* (Dohrn), **new combination**; *P. similis* (Zacher), **new combination**; *P. tonkinensis* (Hincks), **new combination**; *P. variegata* (Brindle), **new combination**; *P. vicina* (Hincks), **new combination**.

Family DIPLATYIDAE Verhoeff

Genus *Paradiplatys* Zacher, reinstated

COMMENTS: In recent monographic treatments this genus has been erroneously cited as *Lobodiplatys* Steinmann, 1974 (Steinmann, 1986, 1989b). These usages, however, are in violation of the Principle of Priority (ICZN, 1999: Art. 23), and the entire genus must bear the name of the oldest, included, available genus-group name (whether or not it was equivalent at its original proposal to what is today merely a subgenus of a larger taxonomic entity). Accordingly, the valid name for *Lobodiplatys* is *Paradiplatys*. The usage of these names in the literature is infrequent enough that there is no reason to petition the ICZN for suppression of *Paradiplatys* under the plenary powers. The resultant nomenclatural changes in the four subgenera are (the

utility of the subgeneric classification should be critically re-examined as Steinmann's subgenera likely render *Paradiplatys* s. str. paraphyletic):

***Paradiplatys (Lobodiplatys)*, new subgeneric placement:** *Paradiplatys (Lobodiplatys) coriaceus* (Kirby), reinstated combination.

***Paradiplatys (Paradiplatys)*:** *Paradiplatys (Paradiplatys) conradti* (Burr), reinstated combination; *P. (P.) lamottei* (Hincks), reinstated combination; *P. (P.) pectinatus* (Hincks), reinstated combination; *P. (P.) salvazae* (Burr), reinstated combination; *P. (P.) spinulosus* (Hincks), reinstated combination.

***Paradiplatys (Heterodiplatys)*, new subgeneric placement:** *Paradiplatys (Heterodiplatys) bicolor* (Dubrony), reinstated combination; *P. (H.) bihamatus* (Hincks), reinstated combination; *P. (H.) burri* (Hincks), reinstated combination; *P. (H.) rotundicollis* (Hincks), reinstated combination; *P. (H.) schoutedeni* (Hincks), reinstated combination.

***Paradiplatys (Epidiplatys)*, new subgeneric placement:** *Paradiplatys (Epidiplatys) gladiator* (Burr), reinstated combination.

Family ANISOLABIDIDAE Verhoeff
†*Cretolabiinae*, new subfamily

TYPE GENUS: †*Cretolabia* Popham, 1990.

DIAGNOSIS: Earwigs of average size (ca. 7–11 mm in length), not flattened. Compound eyes well developed. Scape short, much shorter than distance between antennae; antennae with 20 articles (known only for †*Kotejalabis*). Tegmina present and well developed. Probasisternum cordiform, lateral margins tapering posteriorly between procoxae; mesosternum roughly quadrate, posterior margin straight (not convex as in many Anisolabidinae). Abdomen ovoid (sides in †*Kotejalabis* more elongate, but still somewhat convex). Pygidium distinct, apparently bent ventrally, not fused to apicalmost tergum.

COMMENTS: Among anisolabidids †*Cretolabiinae* is similar to the subfamily Gonolabiniinae (as Gonolabidinae in Popham, 1990) in that both have cordiform probasisternum, albeit more strongly so in the gonolabiniines. The probasisternum in other neodermapterans is typically constricted posteriorly near the procoxae but then expands along its posterior margin. The cordiform shape is likely an apomorphic feature given its distribution across Neodermaptera and thus might indicate a relationship between the southern South American Gonolabiniinae (today occurring in Chile and Peru) and the fossil lineage. †*Cretolabiinae* can be differentiated from Gonolabiniinae by the more ovoid abdomen (roughly parallel-sided in gonolabiniines), by the presence of wings (absent in gonolabiniines), and by the separate apical abdom-

inal tergum and pygidium (fused in gonolabiniines), all notably plesiomorphic features.

The genus †*Kotejalabis*, from the same deposits as †*Cretolabia*, is tentatively included in †*Cretolabiinae* owing to a similar cordiform probasisternum (Engel and Chatzimanolis, 2005: fig. 4). Unlike †*Cretolabia*, †*Kotejalabis* has an elongate and prominent pygidium, shorter thorax, and differences in cercal form (Engel and Chatzimanolis, 2005). Although not discussed by Engel and Chatzimanolis (2005), †*Kotejalabis* also has an enlarged profurcasternum (= prosternellum) in comparison to †*Cretolabia* (cf. Popham, 1990: fig. 1; Engel and Chatzimanolis, 2005: fig. 4). In †*Cretolabia* the profurcasternum is a small, transverse sclerite (its width more than four times is length) tightly bordering the posterior margin of the probasisternum and no wider than the posterior width of the probasisternum. By contrast, in †*Kotejalabis* the profurcasternum, while also transverse, is longer, approximately twice as wide as long, and is slightly wider than the posterior margin of the probasisternum. In both genera the mesosternum is roughly quadrate with rounded corners, although in †*Cretolabia* the posterior margin is slightly narrower than the anterior margin while in †*Kotejalabis* the anterior and posterior margins are apparently equal.

Subfamily Titanolabidinae Srivastava
Genus *Titanolabis* Burr

Titanolabis Burr, 1910b: 168. Type species: *Forcinella colosseae* Dohrn, 1864.

Paratitanolabis Srivastava, 1982a: 98. Type species: *Paratitanolabis bormansi* Srivastava, 1982a, monobasic and original designation. **New synonymy.**

COMMENTS: The characters purported to differentiate *Titanolabis* from *Paratitanolabis* are relatively minor changes in the relative lengths of the male parameres (scarcely worthy subgeneric distinction and assuredly rendering *Titanolabis* paraphyletic). It is most conservative to recognize a single genus for this homogeneous group of Asian earwigs. The following two taxonomic changes are required:

Titanolabis bormansi (Srivastava), new combination
Paratitanolabis bormansi Srivastava, 1982a: 99.

Titanolabis myanmarensis, new name

Titanolabis bormansi Srivastava, 1982b: 379. *Nomen praeoccupatum*, nec *Titanolabis bormansi* Srivastava, 1982a.

ETYMOLOGY: The specific epithet is based on the country in which the species has been found, Myanmar (formerly Burma).