Jacek Szwedo
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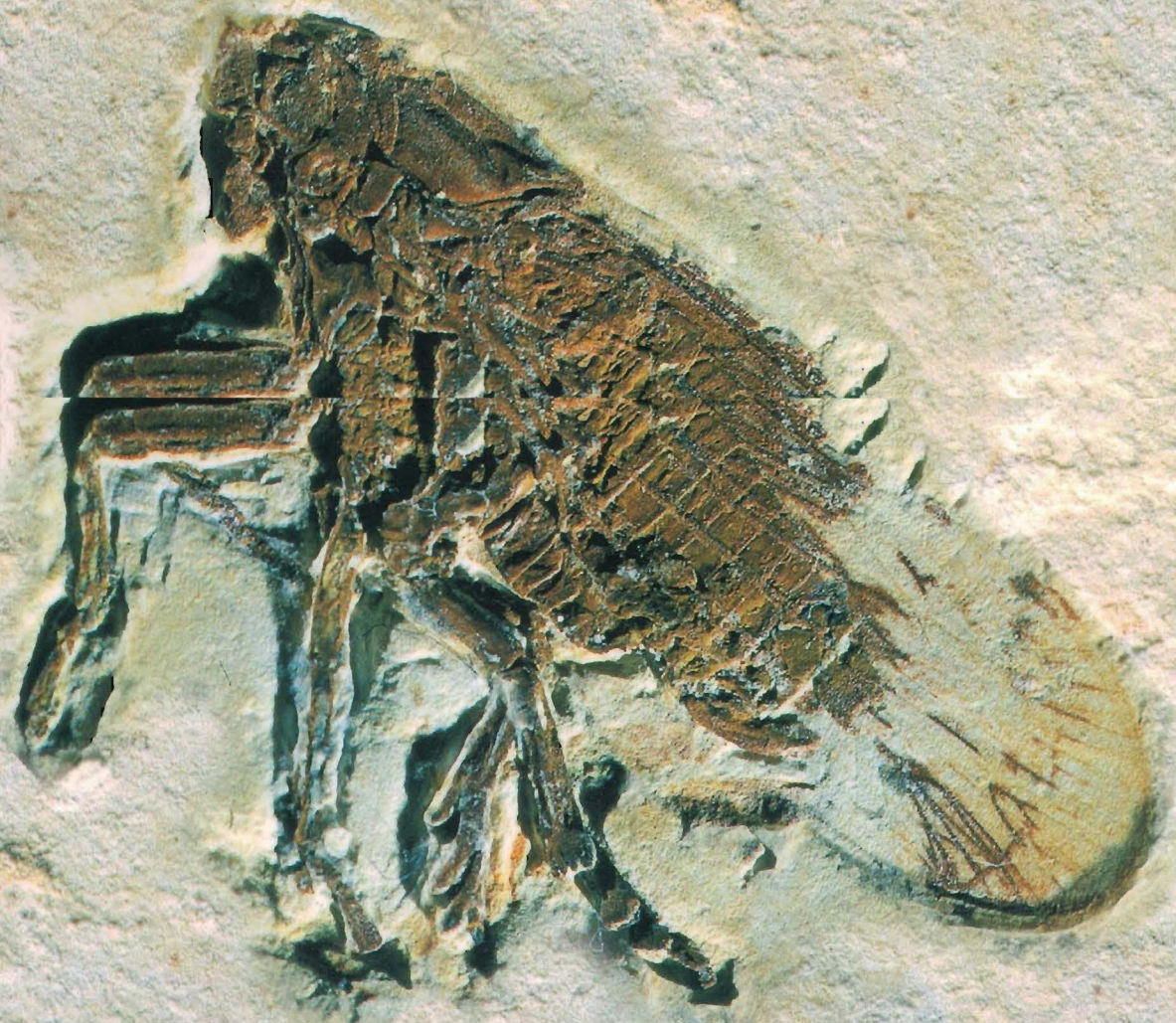
Fossil Planthoppers (Hemiptera: Fulgoromorpha) of the World

An annotated catalogue with notes on Hemiptera classification



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Fossil Planthoppers

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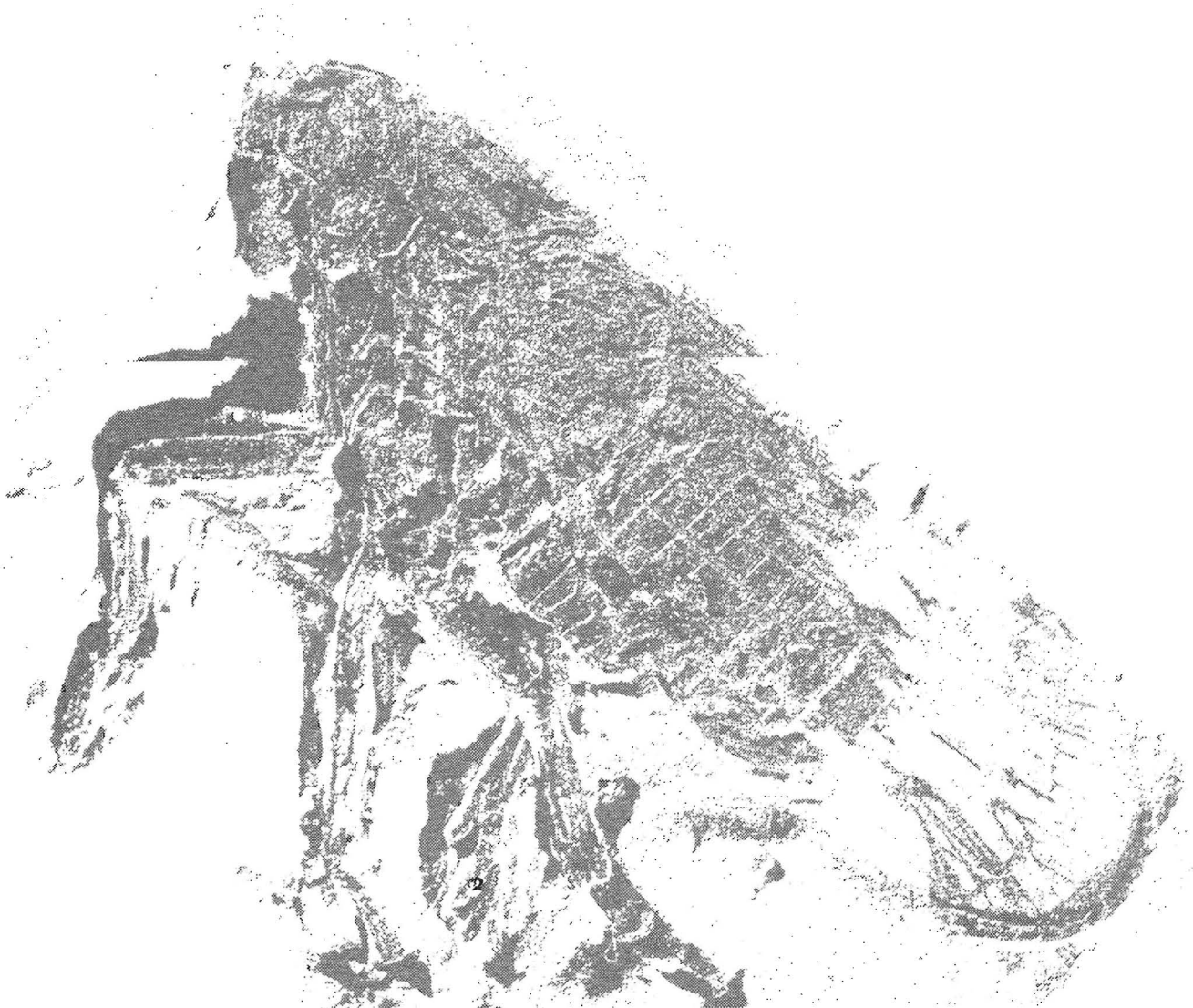

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Cover illustration: *Carpopodus difficilis* Hamilton, 1990 (Fulgoroidea: Lalacidae)

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Abstract.— Fossil taxa ascribed to Hemiptera Fulgoromorpha (including Fulgoroidea, with Fulgoridiidae† considered as a family, Surijokocixioidea† considered as a superfamily and Coleoscytoidea†) are listed, annotated and referenced. Species are arranged alphabetically in superfamilies, families and genera and provided with geological and geographical data, if available. Systematic data, dubious taxa and taxa excluded from particular families, moved to other groups or excluded from Fulgoromorpha are annotated and discussed. A list of all major taxonomic groups of Hemiptera, down to the family level, is provided. Papers of relevant information on fossil planthoppers are included in the reference list. Most taxa and all dubious taxa have been annotated and discussed for formal placement into other groups or excluded from Fulgoromorpha if necessary. The rank of Surijokocixiidae is raised to superfamily level — Surijokocixioidea stat. nov. A new species name — "*schandelahensis*" nom. nov. is proposed for *Fulgoridium rotundatum* Bode, 1953, name preoccupied by *Fulgoridium rotundatum* Handlirsch, 1939. The rank of Myerslopiidae (Cicadomorpha) is raised to superfamily level — Myerslopioidea stat. nov.

Key words.— Insecta, Hemiptera, Fulgoromorpha, Coleoscytoidea†, Fulgoroidea, Surijokocixioidea† stat. nov., Myerslopioidea stat. nov., catalogue, fossils, dea, Surijokocixioidea† stat. nov., Myerslopioidea stat. nov., catalogue, fossils, taxonomy, stratigraphy, new names

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This work was first started in 1998 by Thierry Bourgoin in the framework of the FLOW project (Fulgoromorpha List On the Web: http://flow.snv.jussieu.fr/). Its objective was to provide a short review of the fossil Fulgoromorpha in the form of a list of valid described taxa of the group. However, it soon appeared that not only did the taxonomic status of many taxa prove to be unsatisfactory, but also that many errors and omissions occurred in the Metcalf and Wade catalogues (1963, 1966a, b). A review of the bibliography was therefore undertaken and produced by Fabrice Lefebvre at the end of 1999. Drafts of the lists and bibliography were then sent to Jacek Szwedo, and he began to annotate and complete the document. Decision was therefore taken to prepare a longer publication to provide a critical review of both taxonomic and bibliographic information available on the fossil Fulgoromorpha. Thus, the short paper planned in 1998 resulted in this 2004 book.

It is very important to note that only a limited fraction of these fossils has been rechecked, and that most of them still need to be confirmed. Changes in taxa placement within the different family group levels should be considered as formal. Nomenclatural modifications following these new placements have yet to be done, and all indications for it (our opinion) should be considered in the "note" section under all taxa of the catalogue. With this reservation in mind, four main lists are provided, in which all authors decisions have been annotated.

1. A list of valid Fulgoromorpha species without taxonomic problem, arranged by family;

2. A list of other valid Fulgoromorpha taxa for which obvious taxonomic problems have been detected (e.g. specimens wrongly placed for genus) and for which formal nomenclatural decisions need to be taken (e.g. description of a new genus, synonymies, etc.), out of the scope of this catalogue;

3. A list of taxa wrongly placed, at least at one time, within Fulgoromorpha. Some have already been placed elsewhere. We add some others for which we have found no evidence that they belong to this group. We formally remove them from Fulgoromorpha, giving indication of their new placement when available;

4. A list of *incertae sedis* taxa which have been cited at one time as Fulgoromorpha. Most of them do not share any characteristics with Fulgoromorpha, others are useless for scientific study because of their poor conservation, or because of only fragments being available.

Unless otherwise stated and specified by a reference to the author, notes indicate decisions taken by the authors of this catalogue.

Although this catalogue focuses on Fulgoromorpha, in the first part we provide also a list of almost all major groups of Hemiptera which have been described, from the family to the Hemiptera order level (including Sternorrhyncha and Heteroptera). This tentative of Hemiptera classification for fossils and extant taxa will help to better understand and follow the modifications proposed by the different authors, our modifications, and will provide the first overview of all major hemipteran taxa. For reasons already presented in Bourgoin and Campbell (2002), we have adopted a conservative view of the Hemiptera group terminology and classification using the traditional names: Cicadomorpha and Fulgoromorpha (Evans 1946) in place of Clypeorrhyncha and Archaeorrhyncha (Sorensen et al. 1995).

In all the lists of this catalogue, taxa below the superfamily level are alphabetically listed; groups with only fossil taxa are indicated by a '†'.

This catalogue needs to be viewed as the first step in our study of fossil Fulgoromorpha. Particularly our list of valid Fulgoromorpha taxa may serve as the base for further examination of taxonomic problems which need to be solved in the future. We hope that this work will promote and advance the study of this wonderful group and that most of these problems will be solved for the next edition.

This work is part of the FLOW project: Fulgoromorpha Lists on the Web (http://flow.snv.jussieu.fr/) and a contribution to BEFRI: Biodiversity and Evolution of Fulgoromorpha: a global Research Initiative (http://bach.snv.jussieu.fr/befri/).

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Paris – Warsaw, Th. Bourgoin, J. Szwedo and F. Lefebvre

I

About Hemiptera Phylogeny and Classification

(Th. Bourgoin, J. Szwedo and F. Lefebvre)

Because classification represents the backbone of such catalogues, a short introduction to Hemiptera classification and the place of Fulgoromorpha within, is necessary.

In recent years, phylogeny and classification of the Hemiptera have received renewed attention (Bourgoin 1993a; Wheeler et al. 1993; Campbell et al. 1994, 1995; Sorensen et al. 1995; Shcherbakov 1996; Bourgoin et al. 1997; Ax 1999; Ouvrard et al. 2000; Bourgoin and Campbell 2002). On the palaeontological side some recent papers (Hamilton 1992; Shcherbakov 2000a, b; Shcherbakov and Popov 2002) have also provided interesting results and a tentative attempt to combine neo– and palaeontological data has recently been published (Bourgoin and Campbell 2002).

The classification proposed by the last mentioned authors is here completed with some new results not available at the time of mid 2001, when the paper was written. Most important data are discussed below. The classification differs at several points from Shcherbakov and Popov's classification (2002: Fig. 179) in restricting suborders to probable monophyletic units as recognized by recent Hemiptera phylogenies, while Shcherbakov and Popov admit paraphyletic divisions (Cicadina, Cicadomorpha, Prosboloidea, Gerromorpha, ...) and interpret several fossil groups as grades (steps in evolution of a group) rather than clades (monophyletic units), following rules discussed in Rasnitsyn (1996, 2002).

The order Hemiptera Linnaeus, 1758, is divided in 6 suborders: Sternorrhyncha, Fulgoromorpha, Cicadomorpha, Coleorrhyncha, Heteroptera and one extinct suborder: Palaeorrhyncha†. The latter comprises currently only one family, Archescytinidae†, which needs re–study and reconsideration (Shcherbakov 2000b). Archescytinidae† are regarded as the most primitive and basal group for all the lineages of Hemiptera (Popov 1980),

but the taxonomic rank of the group is unclear. Shcherbakov (2000b) believes that Archescytinidae† demonstrate diversity in the head and ovipositor structure sufficient to divide this group into several families after detailed study. Descendants of archescytinids are considered to have given rise to the five main lineages of Hemiptera: Cicadomorpha, Coleorrhyncha, Fulgoromorpha, Heteroptera and Sternorrhyncha. Palaeorrhyncha† are paraphyletic and obviously represent a grade rather than a clade.

We follow Shcherbakov's views (1996) and include in Fulgoromorpha three main groups: Coleoscytoidea†, Surijokocixiidae† and Fulgoroidea. However, Surijokocixiidae†, whose relationships with Coleoscytoidea† and Fulgoroidea taxa remain unclear, are removed from the Fulgoroidea and kept as the third superfamily within Fulgoromorpha as Surijokocixioidea† stat. nov.

Within the Fulgoroidea, there is no agreement between the different phylogenies proposed from a morphological (Asche 1988; Emeljanov 1990) or molecular evidence (Bourgoin et al. 1997). We consider it premature to propose new names for groups of families whose monophyly still needs to be verified. This concerns in particular Cixiidae (Holzinger et al. 2001), Achilidae, Derbidae, Dictyopharidae, Fulgoridae — but the last two families together seem to form a monophyletic taxon (Bourgoin and Deiss 1994) — Issidae, Tropiduchidae, Kinnaridae (Bourgoin 1993b, 1997) and Lophopidae (Soulier-Perkins 2000). Two fossil taxa, Fulgoridiidae† and Lalacidae†, were proposed as subfamilies of Cixiidae by Shcherbakov (1996). As the monophyly of Cixiidae still remains controversial (Holzinger et al. 2001), we have chosen to keep these two extinct taxa as valid families.

MAJOR GROUPS OF HEMIPTERA TO THE FAMILY LEVEL (groups with only fossil taxa are indicated by a †)

Hemiptera Linnaeus, 1758

Cicadomorpha

NOTE. Unit Cicadomorpha was proposed by Evans (1946), it equals Clypeorrhyncha Sorensen, Campbell, Gill et Steffen–Campbell, 1995 (Sorensen et al. 1995).

Cercopoidea Westwood, 1838

NOTE. Ansorge (1996) considers Karajassidae† as a junior synonym of Archijassidae† which is placed in Membracoidea, while Hamilton (1992) places this family in Cercopoidea.

- ☐ Aphrophoridae Amyot et Serville, 1843

NOTE. According to Hamilton (2002), Aphrophoridae are based on superficial resemblance and after analysis of the characters, such as the articulation of the front legs and the folding of the wings, the Aphrophoridae seems to be a miscellaneous assembly of genera.

- ☐ Cercopidae Westwood, 1838
- ☐ Cercopionidae† Hamilton, 1990
- ☐ Clastopteridae Dohrn, 1859

NOTE. According to Hamilton (2002), Machaerotinae Stål, 1866, formerly treated as a separate family, is included in this group.

- ☐ Epipygidae Hamilton, 2002
- ☐ Epipygidae Hamilton, 2002
- ☐ Procercopidae† Handlirsch, 1906

NOTE. According to Hamilton (1992), this family belongs to Membracoidea. Shcherbakov (1992, 1996) places it in Cercopoidea. Mistakenly given superfamilial status by Bourgoin and Campbell (2002, fig. 8).

Cicadoidea Latreille, 1802

- ☐ Cicadidae Latreille, 1802
- ☐ Tettigarctidae Distant, 1906

NOTE. Becker-Migdisova (1962a, b), Shcherbakov (1996) and Dietrich (2002) suggested Cicadoprosbolidae† to be synonymized under Tettigarctidae. See also comments to Cicadoprosbolidae† in *incertae sedis* section.

Dysmorphoptiloidea† Handlirsch, 1906

- Dysmorphoptilidae† Handlirsch, 1906

NOTE. Hamilton (1992) includes 3 families in this superfamily: Dysmorphoptilidae†, Eoscartellidae† and Magnacicadiidae†. Family Dysmorphoptilidae† was considered as *incertae sedis* by Becker-Migdisova (1962b), placed in Cicadelloidea: Coelidiidae [sic!] by Metcalf and Wade (1966a), and Carpenter (1992) listed it as a valid family between Procercopidae† and Cercopidae. Shcherbakov and Popov (2002) placed Dysmorphoptilidae† within Prosboloidea†, together with Prosbolidae†, Prosbolopseidae† and Ingruidae†.

- Eoscartellidae† Evans, 1956

NOTE. The family was synonymized under Dysmorphoptilidae† (Shcherbakov 1984), but Carpenter (1992) listed it as a separate family. Hamilton (1992) considered it a distinct family within Dysmorphoptiloidea†.

- Magnacicadiidae† Hong et Chen, 1981

NOTE. It is possible that these Middle Triassic fossils should be placed within Prosboloidea†. The only genus was tentatively assigned to Dysmorphoptilidae† by Shcherbakov (1984).

Hylicelloidea† Evans, 1956

- Archijassidae† Becker-Migdisova, 1962

NOTE. According to Shcherbakov (1992) and Shcherbakov and Popov (2002), Archijassidae† belong to Hylicellidae†. Ansorge (1996) considers Karajassidae† as a junior synonym of Archijassidae† which is placed in Membracoidea, while Hamilton (1992) places Archijassidae† in Cercopoidea.

- Chiliocyclidae† Evans, 1956
- Hylicellidae† Evans, 1956

NOTE. Family comprises two subfamilies Hylicellinae† Evans, 1956 and Vietocyclinae† Shcherbakov, 1988.

Ligavenoidea† Hamilton, 1992

- Ligavenidae† Hamilton, 1992

Membracoidea Rafinesque, 1815

- Aetalionidae Spinola, 1850
- Cicadellidae Latreille, 1802

NOTE. Shcherbakov (1992) transferred *Jascopus notabilis* Hamilton to Cicadellidae: Ledrinae, and considers Jascopidae† Hamilton, 1972, to belong to Membracoidea: Cicadellidae: Ledrinae. In contrast, Hamilton (1992) interprets Jascopidae† as a separate family, known from the Triassic, Jurassic and Cretaceous, with a few genera. All recent morphological and molecular phylogenies indicate that Cicadellidae is a paraphyletic taxon with respect to Melizoderidae, Aetalionidae and Membracidae (Dietrich 1999, 2002; Hamilton 1999, Dietrich et al. 2001).

- Karajassidae† Shcherbakov, 1992

NOTE. Ansorge (1996) considers Karajassidae† as a junior synonym of Archijassidae† which he placed in Membracoidea.

- Melizoderidae Deitz et Dietrich, 1993
- Membracidae Rafinesque, 1815
- Ulopidae Le Peletier et Serville, 1825

Myerslopioidea Evans, 1957, **stat. nov.**

- Myerslopiidae Evans, 1957

NOTE. The group seems to be related to Cercopoidea and Cicadoidea, and in some characters to Membracoidea as well. In most recent analyses using both morphological and molecular data (Bourgoin and Campbell 2002, Dietrich et al. 2001, Dietrich 2002) this taxon is placed as a sister group of the extant Membracoidea. Formerly this group was regarded as subunit within Ulopidae, together with some taxa regarded now as belonging to Cicadellidae (Hamilton 1999; Szwedo and Gębicki 2001).

longing to Cicadellidae (Hamilton 1999; Szwedo and Gębicki 2001).

Palaeontinoidea† Handlirsch, 1906

- Dunstaniidae† Tillyard, 1916
- Mesogereonidae† Tillyard, 1921
- Palaeontinidae† Handlirsch, 1906

NOTE. Evans (1956) doubted that *Palaeontina oolitica* Butler, 1873 is a homopteran, Becker-Migdisova (1962b), Popov (1980) and Carpen-

ter (1992) listed Palaeontinidae† in Homoptera. See also comments to Cicadomorphidae† in *incertae sedis*.

Pereborioidea† Zalessky, 1930

- Curvicubitidae† Hong, 1984

NOTE. The Middle Triassic family Curvicubitidae was first described in Lepidoptera and Kozlov (1988) transferred this group to Hemiptera. The family was placed in Cicadomorpha: Pereborioidea† and comprises *Curvicubitus triassicus* Hong, 1984, from Tongshuan Formation, Jinshuoguan, Shaanxi Province: China, and genus *Beaconiella*† Evans, 1963 (Shcherbakov 1996, 2000b).

- Ignotalidae† Riek, 1973
- Pereboriidae† Zalessky, 1930

NOTE. Martynov [1939b(1937b)] postulated 'Pereboridae' to be an ancestral group for Dictyopharidae. This family as 'Pereboridae' was listed in Becker-Migdisova (1946), as Pereboriidae† placed in Fulgoromorpha by Becker-Migdisova (1962b), and within Fulgoroidea by Metcalf and Wade (1966a). The same placement was given by Riek (1976) for the fossil genus *Perissovena*† Riek, 1976, from Natal, South Africa (with a question mark) and by Pinto and Pinto de Ornellas (1981) with doubts concerning the following fossil genera *Pereboria*† Zalessky, 1930, *Neuropibrocha*† Becker-Migdisova, 1961, *Kaltanopibrocha*† Becker-Migdisova, 1961. *Gondwanaptera*† Pinto et Ornellas, 1981, from Brazil originally described in 'Fulgoroidea: Pereboridae' was transferred to Cicadomorpha: Pereborioidea†: Pereboriidae† by Shcherbakov (1984).

- Prosbolopseidae† Becker-Migdisova, 1946

NOTE. This family as 'Prosbolopsidae' was listed by Becker-Migdisova (1946) in Fulgoroidea. According to Shcherbakov (1984) it includes subfamilies Ivaiinae† Becker-Migdisova, 1960 and Prosbolopseinae† Becker-Migdisova, 1946. Mundidae† Becker-Migdisova, 1958 has been synonymized under Ivaiinae† by Shcherbakov (1984). See also comments on Mundidae† Becker-Migdisova in *incertae sedis* section.

Prosboloidea† Handlirsch, 1906

NOTE. A problematic paraphyletic group corresponding to a grade rather than a clade (Bourgoin and Campbell 2002), in which several ba-

sal lineages of the Cicadomorpha, Coleorrhyncha and Heteroptera have been mixed: Prosboloidea† s.s., Pereborioidea†, Palaeontinoidea† and Ingruidae†. How all these superfamilies are linked together still needs to be worked out. It is here restricted to one family — Prosbolidae†. Ingruidae† are ranged within the Coleorrhyncha group as, according to Popov and Shcherbakov (1991) and Shcherbakov and Popov (2002), they presumably form an ancestral group (= grade) for Coleorrhyncha.

□ Prosbolidae† Handlirsch, 1906

Note. Shcherbakov (1984) synonymized Permoglyphidae† Handlirsch, 1939 under Prosbolidae†. See also comments on Permoglyphidae† Handlirsch in *incertae sedis*.

Coleorrhyncha Myers et China, 1929

Note. Coleorrhyncha and Heteroptera were recognized by Schlee (1969c) as forming a monophyletic group: Heteropteroidea, renamed as Heteropterodea by Zrzavy (1992) to avoid any confusion with the suffix –oidea. Popov and Shcherbakov (1996) argued against Heteroptero(i)dea as a monophyletic unit, interpreted putative synapomorphies of Coleorrhyncha and Heteroptera as homoplasies. This grouping (= Prosorrhyncha Sorensen, Campbell, Gill et Steffen-Campbell, 1995) was however confirmed by molecular analyses (Wheeler et al. 1993, Sorensen et al. 1995, Ouvrard et al. 2000).

□ Ingruidae† Becker-Migdisova, 1960

Note. Ingruidae† are ranged within the Coleorrhyncha group as, according to Popov and Shcherbakov (1991) and Shcherbakov and Popov (2002), they presumably form an ancestral group (= grade) for Coleorrhyncha. These authors nevertheless assigned this family to Prosboloidea†.

cording to Popov and Shcherbakov (1991) and Shcherbakov and Popov

□ Progonocimicidae† Handlirsch, 1906

Note. Shcherbakov and Popov (2002) have raised this group to the superfamily level, while this taxon is probably paraphyletic: Peloridioidea being a sister taxon of part of Progonocimicoidea† only. The family comprises two subfamilies: Progonocimicinae† Handlirsch, 1906 and Cicadocorinae† Becker-Migdisova, 1958 (Popov and Shcherbakov 1991).

Peloridioidea Breddin, 1897

- Karabasiidae† Popov, 1985

  NOTE. The family comprises two subfamilies: Karabasinae† Popov, 1985 and Hoploridiinae† Popov et Shcherbakov, 1991 (Popov 1985, Popov and Shcherbakov 1991).

- Peloridiidae Breddin, 1897

  NOTE. Karabasiidae† and Peloridiidae form a probable monophyletic unit: Peloridioidea Breddin, 1897.

Fulgoromorpha

NOTE. The unit proposed by Evans (1946), equals Archaeorrhyncha Sorensen, Campbell, Gill et Steffen-Campbell, 1995 (Sorensen et al. 1995).

Coleoscytoidea† Martynov, 1935

- Coleoscytidae† Martynov, 1935

Fulgoroidea Latreille, 1807

- Acanaloniidae Amyot et Serville, 1843
- Achilidae Stål, 1866
- Achilixiidae Muir, 1923
- Caliscelidae Amyot et Serville, 1843
- Cixiidae Spinola, 1838
- Delphacidae Leach, 1815
- Derbidae Spinola, 1839
- Dictyopharidae Spinola, 1838
- Eurybrachidae Stål, 1862
- Eurybrachidae Stål, 1862
- Flatidae Spinola, 1838
- Fulgoridae Latreille, 1807
- Fulgoridiidae† Handlirsch, 1939

  NOTE. A new superfamily Fulgoridioidea† was postulated by Hamilton (1992, 1996) for this family plus a non–named family proposed to comprise genus *Karajassus*† Martynov, here placed in Membracoidea, in which we are following Shcherbakov (1992).

- Gengidae Fennah, 1949

- Hypochthonellidae China et Fennah, 1952
- Issidae Spinola, 1838
- Kinnaridae Muir, 1925
- Lalacidae† Hamilton, 1990
- Lophopidae Stål, 1866
- Meenoplidae Fieber, 1872
- Nogodinidae Melichar, 1898
- Ricaniidae Amyot et Serville, 1843
- Tettigometridae Germar, 1821
- Tropiduchidae Stål, 1866

Surijokocixioidea† Shcherbakov, 2000, **stat. nov.**
- Surijokocixiidae† Shcherbakov, 2000

Heteroptera

NOTE. Classification of true bugs follows mainly Schuh and Slater (1995) and Aukema and Rieger (1995, 1996, 1999, 2001). Paraphyletic Scytinopteroidea† are also placed here as ancestral to modern heteropterous bugs (Bourgoin and Campbell 2002).

Cimicomorpha

Cimicoidea Latreille, 1802
- Anthocoridae Amyot et Serville, 1843
- Cimicidae Latreille, 1802
- Plokiophilidae China, 1953
- Polyctenidae Westwood, 1874
- Polyctenidae Westwood, 1874
- Pterocimicidae† Popov, Dolling et Whalley, 1994
- Velocipedidae Bergroth, 1891

  NOTE. Unit of *incertae sedis* status within Cimicoidea.

Joppeicoidea Reuter, 1910
- Joppeicidae Reuter, 1910

Miroidea Hahn, 1831

- Microphysidae Dohrn, 1859
- Miridae Hahn, 1831

Nabidoidea Costa, 1853

- Medocostidae Štys, 1967
- Nabidae Costa, 1853

Reduvioidea Latreille, 1807

- Pachynomidae Stål, 1873
- Reduviidae *sensu lato* Latreille, 1807

  NOTE. Including Elasmodemidae Lethierry et Severin, 1896 and Phymatidae Laporte, 1832.

Thaumastocoroidea Kirkaldy, 1908

- Thaumastocoridae Kirkaldy, 1908

Tingoidea Laporte, 1833

- Tingidae Laporte, 1833
- Vianaididae Kormilev, 1955

Dipsocoromorpha

- Ceratocombidae Fieber, 1860
- Cuneocoridae† Handlirsch, 1920
- Dipsocoridae Dohrn, 1859
- Hypsipterygidae Drake, 1961
- Hypsipterygidae Drake, 1961
- Schizopteridae Reuter, 1891
- Stemmocryptidae Štys, 1983

Enicocephalomorpha

- Aenictopecheidae Usinger, 1932
- Enicocephalidae Stål, 1858
- Enicocoridae† Popov, 1980

  NOTE. This group is treated as a subfamily of Saldidae by Shcherbakov and Popov (2002).

Gerromorpha
Gerroidea Leach, 1815
- Gerridae Leach, 1815
- Hermatobatidae Coutière et Martin, 1901

Hebroidea Amyot et Serville, 1843
- Hebridae Amyot et Serville, 1843

Hydrometroidea Billberg, 1820
- Hydrometridae Stephens, 1829
- Macroveliidae McKinstry, 1942

Mesovelioidea Douglas et Scott, 1867
- Madeoveliidae Poisson, 1959
- Mesoveliidae Douglas et Scott, 1867
- Paraphrynoveliidae Andersen, 1978
- Veliidae Brullé, 1836

Leptopodomorpha
Leptopodoidea Brullé, 1863
- Leotichiidae China, 1933
- Leptopodidae Brullé, 1836
- Omaniidae Cobben, 1970

Saldoidea Amyot et Serville, 1843
- Aepophilidae Puton, 1879
- Aepophilidae Puton, 1879
- Archegocimicidae† Handlirsch, 1906
- Saldidae Amyot et Serville, 1843

NOTE. Including Mesolygaeidae† Zhang, 1991, according to Shcherbakov and Popov (2002).

Nepomorpha
Nepoidea Latreille, 1802
- Belostomatidae Leach, 1815
- Nepidae Latreille, 1802

Corixoidea Leach, 1815

- ☐ Corixidae Leach, 1815
- ☐ Shurabellidae† Popov, 1971

Gelastocoroidea Kirkaldy, 1897

- ☐ Gelastocoridae Kirkaldy, 1897
- ☐ Ochteridae Kirkaldy, 1906

Naucoroidea Leach, 1815

- ☐ Aphelocheiridae Fieber, 1815
- ☐ Naucoridae Leach, 1815
- ☐ Potamocoridae Hungerford, 1948
- ☐ Triassocoridae† Tillyard, 1922

Notonectoidea Latreille, 1802

- ☐ Notonectidae Latreille, 1802

Pleoidea Fieber, 1851

- ☐ Helotrephidae Esaki et China, 1927
- ☐ Mesotrephidae† Popov, 1971
- ☐ Pleidae Fieber, 1851
- ☐ Scaphocoridae† Popov, 1968

Pentatomomorpha

Aradoidea Brullé, 1835

- ☐ Aradidae Brullé, 1835
- ☐ Kobdocoridae† Popov, 1986
- ☐ Kobdocoridae† Popov, 1986
- ☐ Termitaphididae Myers, 1924

Coreoidea Leach, 1815

- ☐ Alydidae Stål, 1872
- ☐ Coreidae Leach, 1815
- ☐ Hyocephalidae Bergroth, 1906
- ☐ Rhopalidae Amyot et Serville, 1843
- ☐ Stenocephalidae Latreille, 1825

Idiostoloidea Štys, 1964

- Idiostolidae Štys, 1964

Lygaeoidea Schilling, 1829

- Berytidae Fieber, 1851
- Colobathristidae Stål, 1865
- Lygaeidae Schilling, 1829
- Malcidae Stål, 1865
- Pachymeridiidae† Handlirsch, 1906

Piesmatoidea Amyot et Serville, 1843

- Piesmatidae Amyot et Serville, 1843

Pyrrhocoroidea Amyot et Serville, 1843

- Largidae Amyot et Serville, 1843
- Pyrrhocoridae Amyot et Serville, 1843

Pentatomoidea Leach, 1815

- Acanthosomatidae Stål, 1864
- Aphylidae China, 1955
- Canopidae McAtee et Malloch, 1928
- Cydnidae *sensu lato* Billberg, 1820

  NOTE. Including Thyreocoridae Amyot et Serville, 1843; Pricecoridae† Pinto et Ornellas, 1974; and Latiscutellidae† Pinto et Ornellas, 1974 (Shcherbakov and Popov 2002).
- Lestoniidae China, 1955
- Megarididae McAtee et Malloch, 1928
- Megarididae McAtee et Malloch, 1928
- Mesopentacoridae† Popov, 1968
- Pentatomidae *sensu lato* Leach, 1815

  NOTE. Including Dinidoridae Stål, 1864; Scutelleridae Leach, 1815; and Tessaratomidae Stål, 1865.
- Phloeidae Amyot et Serville, 1843
- Plataspidae Dallas, 1851
- Probascanionidae† Handlirsch, 1939

NOTE. Carpenter (1992) placed the genus *Probascanion* Handlirsch, 1939, in Heteroptera *incertae sedis* section.

- ☐ Protocoridae† Handlirsch, 1906
- ☐ Thaumastellidae Seidenstucker, 1960
- ☐ Urostylidae Dallas, 1851

Scytinopteroidea† Handlirsch, 1906

NOTE. Scytinopteroidea† represent a paraphyletic group Shcherbakov (1984, 1996, 2000b, 2002), Popov and Shcherbakov (1991, 1996) and Shcherbakov and Popov (2002) included Scytinopteroidea (excluding Granulidae†) in Cicadomorpha.

- ☐ Granulidae† Hong, 1980
- ☐ Ipsviciidae† Tillyard, 1920

NOTE. Tillyard [1920 (1919)] first placed this family in Fulgoroidea. Evans (1963) placed it in Cicadomorpha: Cercopoidea. Metcalf and Wade (1966a) listed it in Fulgoroidea. Shcherbakov (1984) assigned Ipsviciidae† to Scytinopteroidea†. Hamilton (1992) proposed Ipsvicioidea† within Cicadomorpha to comprise two families: Ipsviciidae† and Granulidae†.

- ☐ Paraknightiidae† Evans, 1950
- ☐ Scytinopteridae† Handlirsch, 1906

NOTE. Becker-Migdisova (1946) placed this family in Fulgoroidea. Metcalf and Wade (1966a) listed it within Fulgoroidea, but it was transferred to Scytinopteroidea† (Shcherbakov 1984).

- ☐ Serpentivenidae† Shcherbakov, 1984
- ☐ Stenoviciidae† Evans, 1956

NOTE. Listed within Prosboloidea† by Hamilton (1992).

NOTE. Listed within Prosboloidea† by Hamilton (1992).

Paleorrhyncha†

NOTE. A paraphyletic collective group of various families forming a grade rather than a clade, proposed by Carpenter (1931). The archescytinids are highly variable (Shcherbakov 2000b).

Archescytinoidea† Tillyard, 1926

- Archescytinidae† Tillyard, 1926

NOTE. The following families were listed by Metcalf and Wade (1966a) within Fulgoroidea but listed as synonyms of Archescytinidae† by Carpenter (1992): Lithoscytinidae† Carpenter, 1933; Maueriidae† Zalessky, 1939; Permopsyllidae† Tillyard, 1926; Permoscytinidae† Tillyard, 1926; Permoscytinopsidae† Zalessky, 1939 and Uraloscytinidae† Zalessky, 1939.

Sternorrhyncha

NOTE. The Sternorrhyncha group, first recognized by Duméril in 1806, has been divided in two main groups: Aphidina (= Aphidomorpha + Coccomorpha = Aphidiformes *sensu* Schlee 1969a, b, c) and Psyllina (= Aleyrodomorpha + Psyllomorpha = Psylliformes *sensu* Schlee 1969a, b, c). Palaeontological interpretations of Shcherbakov (2000a) follow this division but concur with all molecular results since Campbell et al. 1994. This dichotomic division is not followed here and we maintain four main groups within the Sternorrhyncha corresponding to the four main lineages: Psyllomorpha, Aleyrodomorpha, Aphidomorpha and Coccomorpha, for the same reasons as in Bourgoin and Campbell (2002). Coccomorpha, which include Coccoidea and various fossil taxa, are probably monophyletic group as well as Psyllomorpha and Aleyrodomorpha, Aphidomorpha probably not.

Aleyrodomorpha

Aleyrodoidea Westwood, 1840

- Aleyrodidae Westwood, 1840

Aphidomorpha

Aphidoidea Latreille, 1802

NOTE. Wegierek (2002) stated that Adelgidae and Phylloxeridae cannot be treated as a single developmental lineage, and that Adelgidae are not related to Aphidoidea. Below the "classic" scheme of aphid classification is retained.

- Adelgidae Annand, 1928

NOTE. According to Wegierek (2002), Adelgidae should not be placed in Aphidoidea. Adelgidae and Phylloxeridae do not constitute mono-

phylum (as proposed by Shaposhnikov 1964), and he postulate to treat these groups as three different lineages.

- Aphididae Latreille, 1802

NOTE. According to Nieto Nafria et al. (1997), about 125 names have been applied to taxa of the family–group level in Aphidoidea. All these groups have been replaced by the single family Aphididae. All suprageneric taxa in extant Aphididae are listed in this paper.

- Canadaphididae† Heie, 1981
- Cretamyzidae† Heie in Heie et Pike, 1992
- Drepanochaitophoridae† Zhang et Hong, 1999
- Drepanosiphidae Koch, 1857
- Greenideidae Baker, 1920
- Hormaphididae Mordvilko, 1908
- Lachnidae Koch, 1857
- Mindaridae Tullgren, 1909
- Oviparosiphidae† Shaposhnikov, 1979
- Pemphigidae Koch, 1857
- Phloeomyzidae Mordvilko, 1934
- Thelaxidae Baker, 1920

Palaeoaphidoidea† Heie, 1981

NOTE. Superfamily Canadaphidoidea† was created by Heie (1981) to comprise fossil families: Canadaphididae† Richards, 1966 and Palaeoaphididae† Heie, 1981; the former was later transferred to Aphidoidea (Heie and Pike 1996), so the superfamily Palaeoaphidoidea† was proposed by Shcherbakov and Popov (2002), most probably a paraphyletic group.

- Creaphididae† Shcherbakov et Wegierek, 1991 – paraphyletic group.
- Creaphididae† Shcherbakov et Wegierek, 1991
- Genaphididae† Handlirsch, 1907
- Palaeoaphididae† Richards, 1966
- Shaposhnikoviidae† Kononova, 1976
- Tajmyraphididae† Kononova, 1975
- Triassoaphididae† Heie, 1999

Phylloxeroidea Steffan, 1968

- Elektraphididae† Steffan, 1968

- Mesozoicaphididae† Heie in Heie and Pike, 1992
- Phylloxeridae Herrich–Schäffer in Koch, 1857

Pincombeoidea† Tillyard, 1922

NOTE. Shcherbakov (1990) placed Boreoscytidae† and Pincombeidae† within infraorder Pincombeomorpha and considered Boreoscytidae† as ancestors of Pincombeidae†. In the same paper he mentioned family Naibiidae† (never formally established!) as a missing link between Aphidomorpha and Coccomorpha. Shcherbakov (1990) placed a specimen named *Naibia zherichini* (found in Sakhalinian amber of probable Palaeocene age but not formally described!) in Coccomorpha: Naibioidea†, a superfamily defined as aphid–like four–winged precoccids with both sexes feeding and flying.

- Boreoscytidae† Becker-Migdisova, 1949
- Pincombeidae† Tillyard, 1922

Coccomorpha

Coccoidea Fallén, 1814

NOTE. Koteja (1974, 1996, 2000) separated Coccinea (= Coccoidea) in Orthezioidea Amyot et Serville, 1843 (= Archaeococcida auct.) — a probable paraphyletic taxon comprizing Margarodidae s.l., Ortheziidae, Carayonemidae and Phenacoleachiidae (Cook et al. 2002), and Coccoidea Fallén, 1814, *sensu stricto* (= Neococcida auct.) — a probable monophyletic group (Cook et al. 2002). He recognised several other taxa at the family level, most of them now regarded at a lower classification level (but see Cook et al. 2002): Acanthococcidae Signoret, 1875; Apiomorphidae MacGillivray, 1921; Calycicoccidae Brain, 1918; Cissococcidae Brain, 1918; Coelostomidiidae Morrison, 1927; Kerri-Cissococcidae Brain, 1918; Coelostomidiidae Morrison, 1927; Kerridae Lindinger, 1937; Kuwaniidae MacGilivray, 1921; Monophlebidae Signoret, 1875; Phenacoleachiidae Cockerell, 1902; Porphyrophoridae Signoret, 1875; Stictococcidae Lindinger, 1913; Xylococcidae Pergande in Hubbard and Pergande, 1898.

- Aclerdidae Cockerell, 1905
- Asterolecaniidae Cockerell, 1896
- Beesoniidae Ferris, 1950

- Carayonemidae Richard, 1986
- Cerococcidae Balachowsky, 1942
- Coccidae Fallén, 1814
- Conchaspididae Green, 1896
- Cryptococcidae Kosztarab, 1968
- Dactylopiidae Signoret, 1875
- Diaspididae Targioni–Tozzetti, 1868
- Electrococcidae† Koteja, 2000
- Eriococcoidae Cockerell, 1899

  NOTE. Much probably a paraphyletic group (Cook et al. 2002)
- Grimaldiellidae† Koteja, 2000
- Halimococcidae Brown et McKenzie, 1962
- Inkaidae† Koteja, 1989
- Jersicoccidae† Koteja, 2000
- Kermesidae Signoret, 1875
- Kukaspididae† Koteja et Poinar, 2001
- Labiococcidae† Koteja, 2000
- Lecanodiaspididae Targioni–Tozzetti, 1869
- Margarodidae Cockerell, 1899

  NOTE. This family may be paraphyletic (Foldi 1997, Gullan and Sjaarda 2001, Cook et al. 2002)
- Matsucoccidae Cockerell, 1927
- Micrococcidae Silvestri, 1939
- Ortheziidae Amyot et Serville, 1843
- Phoenicococcidae Stickney, 1934
- Pityococcidae McKenzie, 1942
- Pityococcidae McKenzie, 1942
- Pseudococcidae Westwood, 1840
- Putoidae Beardsley, 1969
- Steingeliidae† Morrison, 1927
- Tachardiidae Green, 1896

Psyllomorpha

Protopsyllidioidea† Carpenter, 1931

- Protopsyllidiidae† Carpenter, 1931

Psylloidea Latreille, 1807

- Aphalaridae Löw, 1878

  NOTE. Including Liviidae Löw, 1879 and Rhinocolidae Becker-Migdisova, 1973.
- Calophyidae Vondraček, 1957
- Carsidaridae Crawford, 1914
- Homotomidae Heslop–Harrison, 1958
- Liadopsyllidae† Martynov, 1926
- Malmopsyllidae† Becker-Migdisova, 1985
- Neopsylloididae† Becker-Migdisova, 1985

  NOTE. Synonymized under Malmopsyllidae† by Klimaszewski and Wojciechowski (1992).
- Phacopteronidae Becker-Migdisova, 1973
- Psyllidae Latreille, 1807

  NOTE. Includes Ciriacremidae Enderlein, 1910.
- Rhinopsyllidae Becker-Migdisova, 1973
- Spondyliaspididae Schwarz, 1898
- Triozidae Löw, 1879

incertae sedis

- Cicadomorphidae† Evans, 1956

  NOTE. Family designated by Evans (1956) who doubted that *Palaeontina oolitica* Butler, 1873 was a homoptera. Place of Palaeontinidae† will be certain after re-examination of *Palaeontina* Butler, 1873 holotype, while Becker-Migdisova (1962b), Popov (1980) and Carpenter (1992) listed Palaeontinidae† in Homoptera. Treated as a synonym of Palaeontinidae†, Hamilton (1992) places this family within Palaeontinoidea†.
- Cicadoprosbolidae† Evans, 1956

  NOTE. Group of uncertain rank as a representing a family, a subfamilial taxon or just a synonym of Tettigarctidae. Transferred to Tettigarctidae by Becker-Migdisova (1962a, b), but Hamilton (1992) listed it as a distinct family within Cicadoidea. Dietrich (2002) also suggested Cicadoprosbolidae† to be included within Tettigarctidae.
- Cicadopsyllidae† Martynov, 1933

NOTE. Cicadopsyllidae†, listed by Metcalf and Wade (1966a) in Fulgoroidea, are included within Cicadomorpha: Prosboloidea†: Prosbolidae† (Shcherbakov 1984). Szelegiewicz (1971) placed this group in 'Psyllodea', opposing Klimaszewski (1964), who excluded it from psyllids.

☐ Karanabiidae†: Ross and Jarzembowski 1993, **nom. nud.**

NOTE. This unit was never formally established and it is therefore considered as a *nomen nudum*. Listed also in Labandeira (1994) following Ross and Jarzembowski (1993). The genus *Karanabis* Becker-Migdisova, 1962 was described in Nabidae (Becker-Migdisova 1962b).

☐ Mundidae† Becker-Migdisova, 1960

NOTE. Family Mundidae† Becker-Migdisova, 1960, first was listed by Becker-Migdisova (1946) as *nomen nudum* 'Mundiidae' and placed in Fulgoroidea (Becker-Migdisova 1946, 1960). It was transferred to Cicadomorpha: Prosboloidea†: Prosbolopseidae†, and synonymized under Ivaiinae† (Shcherbakov 1984).

☐ Permoglyphidae† Handlirsch, 1939

NOTE. Family Permoglyphidae† Handlirsch, 1939 is listed in Metcalf and Wade (1966a) within Fulgoroidea; it was synonymized by Shcherbakov (1984) under Prosbolidae† and placed in Cicadomorpha: Prosboloidea†. However, Carpenter (1992) listed Permoglyphidae† as a synonym of Pereboriidae†.

Once cited in Fulgoromorpha, then removed from Hemiptera

☐ Blattoprosbolidae† Becker-Migdisova, 1958

NOTE. The only genus is described upon a highly contorted fragment of a wing of Blattodea (Sharov 1966).

of a wing of Blattodea (Sharov 1966).

☐ Dictyocicadidae† Lameere, 1917

NOTE. Family Dictyocicadidae† Lameere, 1917, probably falls outside the homopteran lineage. Carpenter (1931) and Evans (1956) argue that the placement of this group within Homoptera is very doubtful. Metcalf and Wade (1966a) listed this family in Fulgoroidea. Handlirsch (1922) listed it as Insecta *incertae sedis*.

☐ Mecynostomidae† Lameere, 1917

NOTE. This family, listed in Metcalf and Wade (1966a) within Fulgoroidea, is included in Paleodictyoptera† (Carpenter 1992).

- Palaeocixiidae† Handlirsch, 1919

NOTE. This family, listed in Metcalf and Wade (1966a) within Fulgoroidea, with genera *Palaeocixius*† Brongniart, 1885 and *Fabrecia*† Meunier, 1911, is placed in Protorthoptera†: Hadentomidae† Handlirsch, 1906 (Carpenter 1992).

- Permofulgoridae† Tillyard, 1918

NOTE. The family, listed in Metcalf and Wade (1966a) within Fulgoroidea, with the genus *Permofulgor*† Tillyard, 1918, was placed in Protelytroptera† by Riek (1967).

- Protoprosbolidae† Laurentiaux, 1952

NOTE. This family, known from the Upper Carboniferous, was later mentioned in Becker-Migdisova (1962b), but not listed in Metcalf and Wade (1966a) or Carpenter (1992). Becker-Migdisova (1962b) placed it in Homoptera: Blattoprosbolomorpha† with Blattoprosbolidae†. Shcherbakov (1994) synonymized it under Ampelipteridae† Haupt, 1941, and placed in order Hypoperlida†.

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II

An annotated catalogue of fossil Fulgoromorpha

(J. Szwedo, Th. Bourgoin and F. Lefebvre)

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Wherever possible, we tried to use the latest data available about the stratigraphic placement of the fossil site or source of fossils. The stratigraphic position of fossil sites as well as data about other sources of fossils (particularly fossil resins) were confirmed using catalogues of fossil sites, e.g. a series of papers by Lewis and co-workers, Evenhuis's (1994) "Catalogue of Fossil Flies of the World", Heie and Wegierek's (1997) list of fossil aphids, Rasnitsyn and Zherikhin's (2002) "History of Insects", and other catalogues of fossils and papers dealing with stratigraphy and palaeontology of the sites (Eskov 2002; Rasnitsyn and Zherikhin 2002). Data from Günther Bechly's (2001) web site were also used. However, stratigraphy is a dynamic discipline and dating from various strata is always prone to new information leading to better estimates of geologic ages. By the same token, standardization of geologic ages of particular localities is complicated because of different views of stratigraphers.

List of valid Fulgoromorpha taxa

List of valid Fulgoromorpha taxa

Coleoscytoidea Martynov, 1935

Note. Coleoscytoidea is a problematic group, comprising aberrant Late Permian Coleoscytidae and a much less specified, undescribed yet, Early Permian family (Shcherbakov 1996). According to Shcherbakov and Popov (2002), who mention some undescribed Coleoscytoidea from Kungurian, Coleoscytoidea probably represent the earliest Fulgoromorpha.

Coleoscytidae Martynov, 1935

NOTE. Becker-Migdisova (1960a) mentioned that the family comprises three genera, Shcherbakov (personal communication) regarded Coleoscytidae as monogeneric.

Coleoscyta Martynov, 1935

Type species. *Coleoscyta rotundata* Martynov, 1935: Martynov 1935: 24, 34; Pl. I, Fig. 6; Text–fig. 30; by original designation.

= *Coleoscytodes* Martynov, 1935: Becker-Migdisova 1960a: 35; Type species: *Coleoscytodes elytrata* Martynov, 1935: Martynov 1935: 25, 35; Figs. 31, 32; by subsequent designation by Becker–Migdisova 1960a: 35.

= *Coleoscyta*: Carpenter 1992: 252; Type species: *Coleoscyta rotundata* Martynov, 1935, by subsequent designation by Carpenter 1992: 252.

= *Coleoscytodes*: Carpenter 1992: 252; Type species: *Coleoscytodes venosa* Martynov, 1935, by subsequent designation by Carpenter 1992: 252.

NOTE. Becker-Migdisova (1960a) synonymized genera *Coleoscyta* Martynov and *Coleoscytodes* Martynov, and *Coleoscytodes venosa* Martynov (pars), i.e. hind wing, with *Coleoscyta rotundata* Martynov. These decisions were not taken into account in Metcalf and Wade's (1966a) catalogue, nor were the species described by Becker-Migdisova (1960a) listed there. Carpenter (1992) believed that generic names *Coleoscyta* and *Coleoscytodes* are *nomina nuda* [sic!]. He designated *Coleoscyta* Carpenter with *Coleoscyta rotundata* Martynov as type species, and *Coleoscytodes* Carpenter with *Coleoscytodes venosa* Martynov as type species, and synonymized these two genera under name *Coleoscyta* Carpenter.

sp.: Becker-Migdisova 1960a: 44, Fig. 18.

sp.. Upper Permian, Kazanian; Tikhie Gory, near mouth of Kama River:

Upper Permian, Kazanian; Tikhie Gory, near mouth of Kama River: Russia.

elytrata (Martynov, 1935)

= *Coleoscytodes elytrata* Martynov, 1935: Evans 1956: 195.

= *Coleoscytodes elytrata* Martynov, 1935: Carpenter 1992: 252.

Upper Permian, Kazanian; Sheïmo–Gora, Iva–Gora, Soyana River, Arkhangelsk District: Russia.

kamensis Becker-Migdisova, 1960: Becker-Migdisova 1960a: 42, Fig. 16.

Upper Permian, Kazanian; Tikhie Gory, near mouth of Kama River: Russia.

martynovi Becker-Migdisova, 1960: Becker-Migdisova 1960a: 41, Fig. 15.

Upper Permian, Kazanian; Tikhie Gory, near mouth of Kama River: Russia.

occallata Becker-Migdisova, 1960: Becker-Migdisova 1960a: 40, Fig. 14.

Upper Permian, Kazanian; Iva–Gora, Soyana River, Arkhangelsk District: Russia.

ramosa Becker-Migdisova, 1960: Becker-Migdisova 1960a: 43, Fig. 17.

Upper Permian; Soyana River, Arkhangelsk District: Russia.

rotundata Martynov, 1935: Martynov 1935: 24, 34; Pl. I, Fig. 6, Text–figs. 30, 2, 25, 35.

= *Coleoscytodes venosa* Martynov, 1935: Martynov 1935: 25, 35; Text–figs. 32; 24 (pars).

Upper Permian, Kazanian; Iva–Gora, Soyana River, Arkhangelsk District: Russia.

venosa (Martynov, 1935)

= *Coleoscytodes venosa* Martynov, 1935: Martynov 1935: 25, 35; Text–figs. 31; 24 (pars).

Upper Permian, Kazanian; Iva Gora, Soyana River, Arkhangelsk District: Russia.

Surijokocixioidea Shcherbakov, 2000, stat. nov.

Surijokocixiidae Shcherbakov, 2000

Surijokocixiidae: Shcherbakov 1988c: 8 — *nomen nudum.*

Surijokocixidae [sic!]: Sorensen et al. 1995: 51, Fig. 4 — *nomen nudum.*

Surijokocixidae [sic!]: Sorensen et al. 1995: 51, Fig. 4 — *nomen nudum.*

Surijokocixiidae: Shcherbakov 1996: 34, Fig. 4A — *nomen nudum.*

Surijokocixidae [sic!]: Nieto Nafria 1999: 425.

Note. A formal designation of the family is given in Shcherbakov (2000b) on page S251, but the family name was earlier mentioned in Shcherbakov 1988 and 1996 papers. The features of the family are: Permian–Triassic, distinct from Fulgoridiidae (known since the Jurassic) in the more distal branching of R and CuA and in the basally widened precostal carina of forewing. Shcherbakov and Popov (2002) stated that

Surijokocixiidae are the most "primitive", basal members of the oldest extant hemipteran superfamily — Fulgoroidea.

Boreocixius Becker-Migdisova, 1955

Type species. *Boreocixius sibiricus* Becker-Migdisova, 1955: Becker-Migdisova 1955: 1100; by original designation.

NOTE. Shcherbakov (2000b) listed this genus in Surijokocixiidae, Metcalf and Wade (1966a) and Carpenter (1992) in Cixiidae. Hamilton (1992) listed the genus in Cicadomorpha: Dysmorphoptiloidea: Eoscartellidae.

rotundatus Becker-Migdisova, 1955: Becker-Migdisova 1955: 1101, Fig. 2.

Lower Triassic; Malaya Kheta River, Taimyr National District: Russia.

sibiricus Becker-Migdisova, 1955: Becker-Migdisova, 1955: 1101, Fig. 1.

NOTE. Evans (1964) listed this species in unplaced Fulgoroidea.

Lower Triassic; Malaya Kheta River, Taimyr National District: Russia.

Scytocixius Martynov, 1939

Type species. *Scytocixius mendax* Martynov, 1939: Martynov 1939b (1937b): 34; by monotypy.

NOTE. Becker-Migdisova (1962b) stated that within this genus two species of the Upper Permian of Priural'ye (Orenburg District) and Kuznetsk Basin are comprised.

sp.: Martynova 1951: 150.

Upper Permian, Tatarian; Erunakovo Formation, Sokolova; Kuznetsk Basin, South Siberia: Russia.

mendax Martynov, 1939b: Martynov 1939b(1937b): 35, Fig. 15.

Upper Permian, Lower Tatarian; Kargala mines, Orenburg District, Priural'ye: Russia.

Priural'ye: Russia.

NOTE. Metcalf and Wade (1966a) mistakenly given locality of this fossil as Novosibirsk.

Surijokocixius Becker-Migdisova, 1961

= *Surijokocixius* Becker-Migdisova, 1955: Becker-Migdisova 1955: 1100 — *nomen nudum.*

Type species. *Surijokocixius tomiensis* Becker-Migdisova, 1961: Becker-Migdisova 1961: 359; by monotypy.

tomiensis Becker-Migdisova, 1961: Becker-Migdisova 1961: 360, Figs. 292, 293.
= *Surijokicixius* [sic!] *tomiensis* Becker-Migdisova, 1961: Evans 1964: 175.

NOTE. Evans (1964) listed this species in Cercopoidea.

Upper Permian, Kazanian/Tatarian; Suriyokova (Suriekova), Kuznetsk Basin: West Siberia: Russia.

NOTE. According to data provided in Evenhuis' catalogue of fossil Diptera (1994), Kuznetsk Basin localities are dated Middle/Upper Jurassic, Callovian to Oxfordian, because there are no Diptera in Paleozoic. Rasnitsyn and Zherikhin (2002) age Kuznetsk Formation (Kaltan) as Late Permian (Ufimian). However, Shcherbakov (2000b) argued, that stratum in which *Surijokocixius* Becker-Migdisova was found is younger (Latest Kazanian/Tatarian), as Kaltan belongs to the older formation than Suriekova.

Tricrosbia Evans, 1971

Type species. *Tricrosbia minuta* Evans, 1971: Evans 1971: 145; by original designation.

NOTE. Hamilton (1992) placed it in Cicadomorpha: Prosboloidea: Hylicellidae.

minuta Evans, 1971: Evans 1971: 145, Fig. 1.

Upper Triassic, Carnian; Mt. Crosby, Queensland: Australia.

Fulgoroidea Latreille, 1807

Achilidae Stål, 1866

Acixiites Hamilton, 1990

Type species. *Acixiites immodesta* Hamilton, 1990: Hamilton 1990:

Type species. *Acixiites immodesta* Hamilton, 1990: Hamilton 1990: 97; by original designation.

immodesta Hamilton, 1990: Hamilton 1990: 97, Figs. 37, 38, 40, 41, 107.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

costalis Hamilton, 1990: Hamilton 1990: 97, Figs. 39, 42, 108, 109.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

Cixidia Fieber, 1866

Type species. *Cicada confinis* Zetterstedt, 1828: Zetterstedt 1828: 527; by original designation by Fieber 1866: 499, Pl. VII, Fig. 55.

reticulata Germar et Berendt, 1856: Germar and Berendt 1856: 16, Pl. II, Fig. 4.

= *Pseudophana reticulata* Germar et Berendt, 1856 (pars).

= *Pseudophana reticulata* Germar et Berendt, 1856: Handlirsch 1906–1908: 1070.

= *Dictyophara reticulata* (Germar et Berendt, 1856): Metcalf and Wade 1966a: 126.

= *Cixidia reticulata* (Germar et Berendt, 1856): Emeljanov 1983a: 79.

NOTE. Only tentatively placed in this genus. On the basis of the original figures, Emeljanov (1983a, b) argues that the "nymph" of *Pseudophana reticulata* Germar et Berendt resembles representatives of Tropiduchidae, while the "pupa" is similar to the species of the genus *Cixidia* Fieber. The type material was probably lost during World War II, as it was sent to Königsberg in 1937. In the collection of Paläontologisches Institut Humboldt–Universität in Berlin there is a single specimen labeled as '*Pseudophana reticulata*'.

Eocene; Baltic amber, 'East Prussia' [?], Sambia Peninsula: Russia.

Elidiptera Spinola, 1839

Type species. *Elidiptera callosa* Spinola 1839: Spinola 1839a: 305, Pl. 15, Fig. 2; by monotypy.

regularis Scudder, 1890: Scudder 1890b: 297, Pl. XIX, Fig. 13.

NOTE. Only tentatively placed in this genus.

Oligocene; Chattian; Florissant, Teller County, Colorado: U.S.A.

Hooleya Cockerell, 1922

Type species: *Hooleya indecisa* Cockerell, 1922: Cockerell 1922: 160;

Type species: *Hooleya indecisa* Cockerell, 1922: Cockerell 1922: 160;

by monotypy.

indecisa Cockerell, 1922: Cockerell 1922: 160, Fig. 2.

NOTE. Originally placed in Derbidae, but transferred to Achilidae: Achillini by Emeljanov (1994a).

Eocene/Oligocene, (Oligocene); Gurnet Bay, Isle of Wight: United Kingdom.

Protepitera Usinger, 1939

Type species: *Protepiptera kaweckii* Usinger, 1939: Usinger 1939: 66; by original designation.

= *Proterpiptera* [sic!]: Lewis 1990: 54.

kaweckii Usinger, 1939: Usinger 1939: 66.

Eocene; Baltic amber, Baltic coast: Poland (?).

Ptychogroehnia Szwedo et Stroiński, 2001

Type species. *Ptychogroehnia reducta* Szwedo et Stroiński, 2001: Szwedo and Stroiński 2001b: 579, 582; by original designation.

NOTE. Described in the fossil tribe Ptychoptilini Emeljanov (Szwedo and Stroiński 2001b).

reducta Szwedo et Stroiński, 2001: Szwedo and Stroiński 2001b: 582, Figs. 5–10, 14–15.

Eocene; Baltic amber, Baltic coast.

Ptychoptilum Emeljanov, 1990

Type species. *Ptychoptilum major* Emeljanov 1990: Emeljanov 1990a: 7; by original designation.

NOTE. Type genus of the fossil tribe Ptychoptilini Emeljanov (Emeljanov 1990a).

major Emeljanov, 1990: Emeljanov 1990a: 10, Fig. 1.

Eocene; Baltic amber, Baltic coast.

minor Emeljanov, 1990: Emeljanov 1990a: 9, Fig. 2.

Eocene; Baltic amber, Baltic coast.

Cixiidae Spinola, 1838

Cixiidae Spinola, 1838

Bothriobaltia Szwedo, 2002

Type species. *Bothriobaltia pietrzeniukae* Szwedo, 2002: Szwedo 2002b: 198; by original designation.

pietrzeniukae Szwedo, 2002: Szwedo 2002b: 200, Figs. 1–8, 13–14.

NOTE. It is the first representative of the subfamily Bothriocerinae in Baltic amber (Szwedo 2002b). Another has recently been identified in Baltic amber inclusion, and two more in imprints of Uppermost Pal-

aeocene/Lowermost Eocene strata of Fur Formation of Denmark and Eocene strata of England respectively; unnamed species has been found in Oligocene/Miocene Dominican amber and figured in Schlee (1980, 1990), and a few more specimens have also been found in this amber.

Eocene; Baltic amber, Baltic coast, 'East Prussia'.

Cixius Latreille, 1804

Type species. *Cicada nervosa* Linnaeus, 1758; by subsequent designation by Curtis 1837: Pl. 673.

? sp.: Statz 1950: 3, Pl. I, Fig. 1, Pl. III, Fig. 28.

NOTE. Only tentatively placed in the genus *Cixius* Latreille.

Oligocene, Chattian; Rott: Germany.

sp.: Statz 1950: 4, Pl. I, Fig. 2, Pl. III, Fig. 29.

NOTE. Only tentatively placed in the genus *Cixius* Latreille.

Oligocene, Chattian; Rott: Germany.

petrinus Fennah, 1961: Fennah 1961: 11, Fig. 1, A, B.

NOTE. Only tentatively placed within the genus *Cixius* Latreille by Fennah (1961).

Lower Cretaceous, Barremian; The Upper Weald Clay Group, Dorset, England: United Kingdom.

vitreus Germar et Berendt, 1856: Germar and Berendt 1856: 12, Pl. I, Fig. 18.

NOTE. Type material of the species, ascribed to the genus *Cixius* Latreille by Germar and Berendt (1856), was probably lost during World War II, as it was sent to Königsberg in 1937.

Eocene; Baltic amber, Baltic coast, 'East Prussia'.

Fennahia Martins–Neto, 1988

Fennahia Martins–Neto, 1988

Type species. *Fennahia cretacea* Martins–Neto, 1988: Martins–Neto 1988b: 8; by original designation.

cretacea Martins–Neto, 1988: Martins–Neto 1988b: 9, Fig. 1, A.

Lower Cretaceous, Aptian; Santana Formation, Araripe Basin, Céara State: Brazil.

Hyalestes Signoret, 1865

Type species. *Hyalestes obsoletus* Signoret, 1865: Signoret 1865: 128, by monotypy.

rottensis Statz, 1950: Statz 1950: 4, Pl. III, Fig. 30.

NOTE. Only tentatively placed in this genus. The type material is lost according to H.F. Filkorn (personal communication).

Oligocene, Chattian; Rott: Germany.

Kulickamia Gębicki et Szwedo, 2000

Type species. *Kulickamia jantaris* Gębicki et Szwedo, 2000: Gębicki and Szwedo 2000a: 168; by original designation.

jantaris Gębicki et Szwedo, 2000: Gębicki and Szwedo 2000a: 169, Figs. 1–4, 8–12.

Eocene; Baltic amber, Baltic coast: Poland.

Mnemosyne Stål, 1866

Type species. *Mnemosyne cubana* Stål, 1866: Stål 1866b: 391; by monotypy.

? sp.: Fennah 1963: 45, Fig. 133.

NOTE. Identified on the basis of partly preserved tegmen (Fennah 1963).

Oligocene/Miocene; Chiapas amber, Chiapas: Mexico.

Karebodopoides Szwedo, 2001

Type species. *Mundopoides aptianus* Fennah, 1987: Fennah 1987: 1238; by subsequent designation by Szwedo 2001: 275.

= *Mundopoides* Fennah, 1987: Fennah 1987: 1237 nec *Mundopoides* Cockerell, 1925: Szwedo 2001: 275; Type species: *Mundopoides ap-*

Cockerell, 1925: Szwedo 2001: 275; Type species: *Mundopoides ap-*

tianus Fennah, 1987: Fennah 1987: 1238, by monotypy.

aptianus (Fennah, 1987): Fennah 1987: 1238, Figs. 1–12.

Lower Cretaceous, Hauterivian to Aptian (?); Lebanese amber: Jouar Es-Sous near Jezzine: Lebanon.

Oeclixius Fennah, 1963

Type species. *Oeclixius amphion* Fennah, 1963: Fennah 1963: 43; by monotypy and original designation.

= *Eoclixius* [sic!] *amphion* Fennah, 1963: Keilbach 1982: 230.

amphion Fennah, 1963: Fennah 1963: 43, Fig. 132, Pl. 2, lower left.

Oligocene/Miocene; Chiapas amber, Chiapas State: Mexico.

Oliarus Stål, 1862

Type species. *Cixius walkeri* Stål, 1859: Stål 1859: 272; by original designation.

kulickae Szwedo, 2000: Szwedo 2000a: 162, Figs. 1–9.

Oligocene/Miocene; Dominican amber, Haiti Island: Dominican Republic.

Oligocixia Gebicki et Wegierek, 1993

Type species. *Oligocixia electrina* Gebicki et Wegierek, 1993: Gebicki and Wegierek 1993: 121, 122; by original designation.

electrina Gebicki et Wegierek, 1993: Gebicki and Wegierek 1993: 122, Figs. 1–5.

Oligocene/Miocene; Dominican amber, Haiti Island: Dominican Republic.

Perunus Szwedo et Stroiński, 2002

Type species. *Perunus bruziorum* Szwedo et Stroiński, 2002: Szwedo and Stroiński 2002: 173; by original desigantion.

NOTE. This genus comprises the first representatives of Cixiidae: Pentastirini from Baltic amber (Szwedo and Stroiński 2002).

bruziorum Szwedo et Stroiński, 2002: Szwedo and Stroiński 2002: 175, Figs. 1–7, 19–21.

Eocene; Baltic amber, Baltic Coast.

Eocene; Baltic amber, Baltic Coast.

sudoviorum Szwedo et Stroiński, 2002: Szwedo and Stroiński 2002: 178, Figs. 8–18, 22–23.

Eocene; Baltic amber, Baltic Coast.

Delphacidae Leach, 1815

= Araeopidae Metcalf, 1938

= Araeopidae Metcalf, 1938: Metcalf and Wade 1966a: 111

= Araeopidae Metcalf, 1938: Carpenter 1992: 240

Amagua Cockerell, 1924

Type species. *Amagua fortis* Cockerell, 1924: Cockerell 1924: 3; by original designation.

fortis Cockerell, 1924: Cockerell 1924: 3, Pl. 1, Fig. 2.

Lower Miocene; Kuznetsov on the Amagu River, Maritime Territory: Russia.

Chloriona Fieber, 1866

Type species. *Delphax unicolor* Herrich–Schäffer, 1835: Herrich–Schäffer 1835: 66, 107; by subsequent designation by Kirkaldy 1907: 149.

stavropolitana Becker-Migdisova, 1964: Becker-Migdisova 1964: 5, Fig. 1.

= *Liburnia stavropolitana* Becker-Migdisova 1962b: 188, Fig. 534 — *nomen nudum.*

Miocene, Messinian; Stavropol', Vishnevaya balka: Northern Caucasus Mountains: Russia.

Delphax Fabricius, 1798

Type species. *Cicada crassicornis* Panzer, 1796: Panzer 1796: 19; by subsequent designation under the Plenary powers of the International Commission of Zoological Nomenclature.

= *Araeopus* Spinola, 1839: Spinola 1839a: 336.

Type species: *Cicada crassicornis* Panzer, 1796: Panzer 1796: 19; by monotypy.

sp.: Scudder 1867: 117.

NOTE. Original statement (Scudder 1867) is: "The Homoptera are represented by genera allied to *Issus*, *Gypona* and *Delphax*." These data probably refers to the specimen described as *Delphax senilis* Scudd.

Eocene, Ypresian/Lutetian; Green River Formation, White River,

Eocene, Ypresian/Lutetian; Green River Formation, White River, Colorado/Utah: U.S.A.

rhenana Statz, 1950: Statz 1950: 5, Pl. III, Fig. 31.

Oligocene, Chattian; Rott: Germany.

senilis Scudder, 1877: Scudder 1877: 760.

NOTE. In original description placed in Fulgoridae. In Piton (1940), on page 241, listed as belonging to Cixiidae.

Eocene, Ypresian/Lutetian; Green River Formation, Chagrin Valley, White River, Valley of Douglas Creek, Colorado, Utah [?]: U.S.A.

Serafinana Gębicki et Szwedo, 2000

Type species. *Serafinana perperunae* Gębicki et Szwedo, 2000: Gębicki and Szwedo 2000b: 390; by original designation.

perperunae Gębicki et Szwedo, 2000: Gębicki and Szwedo 2000b: 390, Figs. 1–4, 6–8.

Eocene; Baltic amber: Poland.

Derbidae Spinola, 1839

Cedusa Fowler, 1904

Type species. *Cedusa funesta* Fowler, 1904: Fowler 1904: 112, 103; by subsequent designation by Muir 1913: 35.

credula Emeljanov et Shcherbakov, 2000: Emeljanov and Shcherbakov 2000: 445, Figs. 10, 12, 13.

Oligocene/Miocene; Dominican amber, Haiti Island: Dominican Republic.

Dysimia Muir, 1924

Type species. *Dysimia maculata* Muir, 1924: Muir 1924: 462; by monotypy.

imprudens Emeljanov et Shcherbakov, 2000: Emeljanov and Shcherbakov 2000: 447, Figs. 11, 14, 15.

Oligocene/Miocene (Priabonian/Aquitanian); Dominican amber, Haiti Island: Dominican Republic.

Positrona Emeljanov, 1994

Type species. *Positrona shcherbakovi* Emeljanov 1994: Emeljanov 1994a: 80; by original designation.

1994a: 80; by original designation.

shcherbakovi Emeljanov, 1994: Emeljanov 1994a: 81, Figs. 3, 4, Pl. VII, Fig. 2.

Eocene; Baltic amber: Poland.

Zoraida Kirkaldy, 1900

Type species. *Derbe sinuosa* Boheman, 1838: 225, Pl. VII, Figs. 1–2, 226; by subsequent designation by Kirkaldy 1903: 216.

angolensis Synave, 1973: Stroiński and Szwedo 2002: 62, Figs. 4–12.

Pleistocene (Pliocene to Holocene?); East African copal.

Dictyopharidae Spinola, 1839

Dictyophara Germar, 1833

Type species. *Fulgora europaea* Linnaeus, 1767: Linnaeus 1767: 704; by subsequent designation by Desmarest 1849: 2.

= *Pseudophana* Burmeister, 1835: Burmeister 1835: 159; Type species: *Fulgora europaea* Linnaeus, 1767: Linnaeus 1767: 704; by subsequent designation by Westwood 1840: 115.

= *Chanithus* Kolenati, 1857: Kolenati 1857: 427; Type species: *Flata pannonica* Germar, 1830: Germar 1830: 47; by monotypy.

sp.: Becker-Migdisova 1962b: 188, Fig. 538.

Note. Becker-Migdisova probably listed and figured a specimen (hind wing) of *Dictyophara* sp., mentioned in her later (Becker-Migdisova 1964) report and probably conspecific with *D. vishneviensis* Becker-Migdisova.

Miocene; Northern Caucasus Mountains: Russia.

sp.: Becker-Migdisova 1964: 7, Fig. 3.

Note. Becker-Migdisova probably listed and figured another specimen (hind wing) of *D. vishneviensis* Becker-Migdisova she described in the same paper (Becker-Migdisova 1964).

Miocene, Messinian; Stavropol', Vishnevaya balka: Northern Caucasus Mountains: Russia.

Note. Both previous items belongs probaly to the same species (Shcherbakov, personal communication).

vishneviensis (Becker-Migdisova, 1964)

= *Thanatodictya vishneviensis*: Becker-Migdisova 1962b: 188, Fig. 537.

= *Chanithus vishneviensis*: Becker-Migdisova 1964: Becker-Migdisova

= *Chanithus vishneviensis*: Becker-Migdisova 1964: Becker-Migdisova 1964a: 6, Fig. 2.

= *Chanithus vishneviensis* Becker-Migdisova, 1964: Emeljanov 1983a: 79.

Miocene, Messinian; Stavropol', Vishnevaya balka: Northern Caucasus Mountains: Russia.

Florissantia Scudder, 1890

Type species. *Florissantia elegans* Scudder, 1890: Scudder 1890b: 293; by monotypy.

elegans Scudder, 1890: Scudder 1890b: 294, Pl. XIX, Fig. 12.

NOTE. Listed in Cixiidae by Metcalf and Wade (1966a). Transferred to Dictyopharidae by Emeljanov (1983a).

Oligocene, Chattian; Florissant, Station # 13 B, Teller County, Colorado: U.S.A.

Netutela Emeljanov, 1983

Type species. *Netutela annunciator* Emeljanov, 1983: Emeljanov 1983a: 84; by original designation.

annunciator Emeljanov, 1983: Emeljanov 1983a: 84, Fig. 1; 79.

Upper Cretaceous, Santonian; Eastern part of Taimyr Peninsula, Yantardakh, Taimyrian amber (retinite): Russia.

Flatidae Spinola, 1839

= Flattidae [sic!]: Piton 1940: 235, 240.

Ficarasites Scudder, 1890

Type species. *Ficarasites stigmaticum* Scudder, 1890: Scudder 1890b: 301; by monotypy.

stigmaticum Scudder, 1890: Scudder 1890b: 301, Pl. VI, Fig. 20.

= *Ficarasites stigmaticus* [sic!] Scudder, 1890: Handlirsch 1906–1908: 1069.

Eocene, Ypresian/Lutetian; Green River Formation, Green River, Wyoming: U.S.A.

Giselia Haupt, 1956

Type species. *Giselia multifurcata* Haupt, 1956: Haupt 1956: 14; by monotypy.

monotypy.

multifurcata Haupt, 1956: Haupt 1956: 14: Fig. 6.

Middle Eocene, Lutetian; Geiseltal, Sachsen–Anhalt: Germany.

scalaris Haupt, 1956: Haupt 1956: 15, Fig. 7.

Middle Eocene, Lutetian; Geiseltal, Sachsen–Anhalt: Germany.

Lechaea Stål, 1866

Type species. *Poeciloptera dentifrons* Guérin–Méneville, 1844: Guérin–Méneville 1844: 360; by subsequent designation by Stål 1866b: 393.

primigenia Henriksen, 1922: Henriksen 1922: 27, Fig. 15.

Latest Palaeocene/Early Eocene; Skærbæk: Denmark.

Ormenis Stål, 1862

Type species. *Poeciloptera perfecta* Walker, 1851: 449; by subsequent designation by Distant 1910: 313.

devincta Cockerell, 1926: Cockerell 1926: 502, Fig. 2.

Eocene (?); Sunchal, Jujuy Province: Argentina.

furcata Henriksen, 1922: Henriksen 1922: 26, Fig. 14; 27.

Latest Palaeocene/Early Eocene; Denmark.

Thaumastocladius Cockerell et Sandhouse, 1921.

Type species. *Thaumastocladius simplex* Cockerell et Sandhouse, 1921: Cockerell and Sandhouse 1921: 456.

simplex Cockerell et Sandhouse, 1921: Cockerell and Sandhouse 1921: 457, Pl. 98, Fig. 2.

Eocene, Ypresian/Lutetian; Green River Formation, Wyoming: U.S.A.

Fulgoridae Latreille, 1807

Aphaena Guérin–Méneville, 1834.

Type species. *Aphaena discolor* Guérin–Méneville, 1834: Guérin–Méneville 1834: 452, Pl. 3, Fig. 2; by subsequent designation by Duponchel 1840: 201.

= *Aphana* Burmeister 1835: 166.

= *Aphana* [sic!]: Scudder *in* von Zittel 1855: 781.

= *Aphana* Guérin, 1834 [sic!]: Zhang 1989.

atava Scudder, 1877; Scudder 1877: 759.

atava Scudder, 1877: Scudder 1877: 759.

= *Aphana* [sic!] *atava* Scudder, 1877: 759.

= *Aphana* [sic!] *atava* Scudder, 1877: Scudder 1890b: 281, Pl. V, Figs. 96, 97.

= *Aphana* [sic!] *atava* Scudder, 1877: Handlirsch 1906–1908: 1070.

= *Aphana* [sic!] *atava* Scudder, 1877: Piton 1940: 241.

= *Aphana* [sic!] *atava* Scudder, 1877: Lewis and Heikes 1991: 114.

Eocene, Ypresian/Lutetian; Green River Formation, Chagrin Valley, White River, Valley of Douglas Creek, Colorado: U.S.A.

lithoecia Zhang, 1989: Zhang 1989: 67, Pl. 14, Figs. 3, 4, Text–fig. 49.

Middle Miocene, Helvetian (?); Shanwang Formation, Linqu, Shandong: China.

rotundipennis Scudder, 1878: Scudder 1878b: 772.

= *Aphana* [sic] *rotundipennis* Scudder, 1878: Scudder 1890b: 282, Pl. VI, Fig. 27.

= *Aphana* [sic] *rotundipennis* Scudder, 1878: Handlirsch 1906–1908.

= *Aphana* [sic] *rotundipennis* Scudder, 1878: Cockerell 1920a: 242.

= *Aphana* [sic] *rotundipennis* Scudder, 1878: Piton 1940: 240.

= *Aphana rotundipennis* Scudder, 1890 [sic]: Metcalf and Wade 1966a: 127.

= *Aphana* [sic] *rotundipennis* Scudder, 1878: Lewis and Heikes 1991: 444.

Eocene; Green River Formation, Petrified Fish Cut, 6 miles west of Green River, near Green River Station, Sweetwater County, Wyoming: U.S.A.

Callospilopteron Cockerell, 1920.

Type species. *Callospilopteron ocellatum* Cockerell, 1920: Cockerell 1920c: 245; by monotypy.

ocellatum Cockerell, 1920: Cockerell 1920c: 245, Pl. 33, Fig. 7.

Eocene; Green River Formation, Green River, Wyoming: U.S.A.

Enchophora Spinola, 1839

Type species. *Fulgora recurva* Olivier, 1791: Olivier 1791: 569; by subsequent designation by Duponchel 1840: 200.

sp.: Scudder 1895: 10, Pl. I, Fig. 5.

Middle Eocene; North Fork of Similkameen River, British Columbia: Canada.

Fulgora Linnaeus, 1767

Type species. *Cicada laternaria* Linnaeus, 1758: Linnaeus 1758: 434; by subsequent designation by de Lamarck 1801: 291.

granulosa Scudder, 1878: Scudder 1878: 771.

Eocene, Ypresian/Lutetian; Green River Formation, Petrified Fish Cut, 6 miles west of Green River, near Green River Station, Sweetwater County, Wyoming: U.S.A.

obticescens Scudder, 1890: Scudder 1890b: 285, Pl. XIX, Fig. 1.

Oligocene, Chattian; Florissant, Colorado: U.S.A.

populata Scudder, 1890: Scudder 1890b: 284, Pl. VII, Fig. 16.

Eocene, Ypresian/Lutetian; Green River Formation, Green River, Wyoming: U.S.A.

Limois Stål, 1863

Type species. *Lystra westwoodi* Hope, 1843: 133, Pl. XII, Fig. 3; by original designation by Stål 1863: 230.

= *Oxycephala* Hong, 1979; Type species: *Oxycephala shanwangensis* Hong, 1979: Hong 1979: 302, Pl. I, Figs. 1, 2, Text–figs. 2–4; by original designation.

= *Hylophylax* Lin, 1982; Type species: *Hylophylax erromena* Lin, 1982: Lin 1982b: 153, Pl. 4, text–fig. 64; by original designation.

= *Fulgoropsis* Hong, 1983 nec *Fulgoropsis* Martynov, 1939; Type species: *Fulgoropsis fusca* Hong, 1983: Hong 1983b: 2–3, Pl. 1, Fig. 6; by original designation.

shanwangensis (Hong, 1979)

= *Oxycephala shanwangensis* Hong, 1979: Hong 1979: 302, Pl. I, Figs. 1, 2, Text–figs. 2–4.

Note. Originally, the species *Oxycephala shanwangensis* Hong was described in the new genus *Oxycephala* Hong, 1979, within the family Fulgoridiidae [sic!] and compared with the genus *Fulgoridium* Handlirsch. Family assignation is mistakenly given in the original paper. Considering the drawings, it clearly represents a Fulgoridae and not a Fulgoridiidae. It is listed as belonging to Fulgoridae in *Zoological Record*, Vol. 116.

= *Hylophylax erromena* Lin, 1982: Lin 1982b: 153, Pl. 4, Text–fig. 64.

Note. This species is synonymized with *Oxycephala shanwangensis*

Note. This species is synonymized with *Oxycephala shanwangensis* Hong, *O. xiejiaheensis* and *Fulgoropsis fusca* Hong by Zhang (1989).

= *Oxycephala xiejiaheensis* Hong, 1983: Hong 1983b: 3, Pl. 1, Fig. 4.

Note. In original description of *Oxycephala xiejiaheensis* Hong (1983) this species was wrongly placed in Fulgoridiidae [sic!]. This species was synonymized with *Oxycephala shanwangensis* Hong and *Fulgoropsis fusca* Hong by Zhang (1989).

= *Fulgoropsis fusca* Hong, 1983: Hong 1983b: 2–3, Pl. 1, Fig. 6.

= *Oxycephala xiejiaheensis* Hong, 1983: Hong 1985: 21–22, Pl. 5, Fig. 1.

= *Oxycephala shanwangensis* Hong, 1983: Hong 1985: 22–23, Pl. 8, Figs. 1, 2.
= *Fulgoropsis fusca* Hong, 1983: Hong 1985: 23–24, Pl. 5, Fig. 2.
= *Limois shanwangensis* (Hong, 1979) *emend. nov. transl. nov.* [sic!]: Zhang 1989: 61.
= *Hylophylax erromena* Lin, 1982: Zhang, Sun and Zhang 1994: 58.

Middle Miocene, Helvetian (?); Shanwang Formation, Linqu, Shandong: China.

pardalis Zhang, 1989: Zhang 1989: 66, Pl. 14, Fig. 1, Text–fig. 48.

Middle Miocene, Helvetian (?); Shanwang Formation, Linqu, Shandong: China.

Lystra Fabricius, 1803

Type species. *Cicada lanata* Fabricius 1803: Fabricius 1803: 56; by subsequent designation by Burmeister 1838: [1].

leei Scudder, 1890: Scudder 1890b: 283, Pl. 7, Fig. 2; 282.

Eocene, Ypresian/Lutetian; Green River Formation, Green River, Wyoming: U.S.A.

richardsoni Scudder, 1878: Scudder 1878b: 772.

Eocene, Ypresian/Lutetian; Green River Formation, Petrified Fish Cut, 6 miles west of Green River, near Green River Station, Sweetwater County, Wyoming: U.S.A.

Nyktalos Metcalf, 1952

= *Nyctophylax* Scudder, 1890 nec *Nyctophylax* Fitzinger, 1860: Metcalf 1952: 230.

Type species. *Nyctophylax uhleri* Scudder, 1890: Scudder 1890b: 279; by original designation.

uhleri (Scudder, 1890): Scudder 1890b: 279, Pl. XIX, Fig. 11.
= *Nyctophylax* [sic!] *uhleri* Scudder, 1890.
= *Nyctophylax* [sic!] *uhleri* Scudder, 1890: Handlirsch 1906–1908: 1071.
= *Nyctophylax* [sic!] *uhleri* Scudder, 1890: Lewis and Heikes 1991: 220.

Oligocene, Chattian; Florissant, Teller County, Colorado: U.S.A.

vigil Scudder, 1890
= *Nyctophylax* [sic!] *vigil* Scudder, 1890: Scudder 1890b: 280, Pl. XIX, Fig. 8.

= *Nyctophylax* [sic!] *vigil* Scudder, 1890: Handlirsch 1906–1908: 1071.
= *Nyctophylax* [sic!] *vigil* Scudder, 1890: Lewis and Heikes 1991: 220.
Oligocene, Chattian; Florissant, Teller County, Colorado: U.S.A.

Poiocera de Laporte, 1832

Type species. *Poiocera luczoti* de Laporte, 1832: de Laporte 1832: 221; by original designation.

NOTE. Germar and Berendt (1856) described two species within this genus. The first named '*Poeocera nassata*' belongs to Issidae rather than to Fulgoridae.

pristina Germar et Berendt, 1856

= *Poeocera* [sic!] *pristina* Germar et Berendt, 1856: Germar and Berendt 1856: 18, Pl. II, Fig. 6.
= *Poeocer* [sic!] *pristina* Germar et Berendt, 1856: Handlirsch 1906–1908: 1071.
Eocene; Baltic amber; 'East Prussia'.

Ptomatosaiva Zhang, Sun et Zhang, 1994

Type species. *Ptomatosaiva endea* Zhang, Sun et Zhang, 1994: Zhang, Sun and Zhang 1994: 59; by original designation.

endea Zhang, Sun et Zhang, 1994: Zhang, Sun and Zhang 1994: 59, 275, Pl. IV, Fig. 3, Text–figs. 31, 32.
Oligocene (Miocene), Chattian; Shanwang Formation, Shanwang, Linqu County, Shandong Province: China.

Fulgoridiidae Handlirsch, 1939

NOTE. Emeljanov (1987) rejected the placement of Fulgoridiidae

NOTE. Emeljanov (1987) rejected the placement of Fulgoridiidae
within the Hemiptera, and suggested that the group represents caddisflies Trichoptera or butterflies Lepidoptera. Later the group was treated as a subfamily of Cixiidae by Shcherbakov (1996), but without formal substantiation. Hamilton (1992, 1996) postulated a superfamily Fulgoridioidea to comprise this family. Sorensen et al. (1995) consider the fossil Fulgoridioidea to be an extinct grade to the modern Fulgoroidea.

Cixiites Handlirsch, 1908

Type species. *Cixiites liassinus* Handlirsch, 1906: Handlirsch 1906–1908: 498; by monotypy

NOTE. Hamilton (1992) ascribed this genus to Fulgoridiidae, Carpenter (1992) placed it in *incertae sedis*, but related it to Fulgoridiidae.

liasinus Handlirsch, 1906: Handlirsch 1906–1908: 499, Pl. XLIII, Fig. 34.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin in Mecklenburg: Germany.

Compactofulgoridium Bode, 1953

Type species. *Fulgoridium (Compactofulgoridium) spoliatum* Bode, 1953: Bode 1953: 149, Pl. 7, Fig. 134; by original designation.

aries Bode, 1953: Bode 1953: 154, Tab. 7, Fig. 140.

= *Fulgoridium (Compactofulgoridium) aries* Bode, 1953

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Boreale*–Zone des Lias ε», Lower Toarcian; Hondelage bei Braunschweig: Germany.

concameratum Bode, 1953: Bode 1953: 151, Pl. 7, Fig. 136.

= *Fulgoridium (Compactofulgoridium) concameratum* Bode, 1953

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

decapitatum Bode, 1953: Bode 1953: 152, Pl. 7, Fig. 138.

= *Fulgoridium (Compactofulgoridium) decapitatum* Bode, 1953

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hon-

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

fronterotundum Bode, 1953: Bode 1953: 151, Pl. 7, Fig. 137.

= *Fulgoridium (Compactofulgoridium) fronterotundum* Bode, 1953

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

obesum Bode, 1953: Bode 1953: 150, Pl. 7, Fig. 135.

= *Fulgoridium (Compactofulgoridium) obesum* Bode, 1953

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Grassel bei Braunschweig: Germany.

paenintegrum Bode, 1953: Bode 1953: 152, Pl. 7, Fig. 139.

= *Fulgoridium (Compactofulgoridium) paenintegrum* Bode, 1953

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

spoliatum Bode, 1953: Bode 1953: 149, Pl. 7, Fig. 134.

= *Fulgoridium (Compactofulgoridium) spoliatum* Bode, 1953

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Schlewecke am Harz: Germany.

Conofulgoridium Bode, 1953

Type species. *Fulgoridium (Conofulgoridium) antennatum* Bode, 1953: Bode 1953: 160, Tab. 7, Fig. 148; by original designation.

antennatum Bode, 1953: Bode 1953: 160, Tab. 7, Fig. 148.

= *Fulgoridium (Conofulgoridium) antennatum* Bode, 1953

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

Eofulgoridium Martynov, 1939

Type species. *Eofulgoridium kisylkiense* Martynov, 1939: Martynov 1939a(1937a): 95, 164; by subsequent designation by Becker-Migdisova 1962b: 184.

NOTE. Metcalf and Wade (1966a) listed it in Fulgoridae; Hamilton (1992) placed it in Fulgoridiidae; Becker-Migdisova (1962b) and Carpenter (1992) listed it in Lophopidae. Martynov in the original paper did not designate the type species, Becker-Migdisova (1962b) mentioned *Eofulgoridium kisylkiense* Martynov as the type species.

kisylkiense Martynov, 1939: Martynov 1939a(1937a): 95, 164, Pl. V, Fig. 6, Text–fig. 50.

= *kisylkinense* [sic!] Martynov, 1937 [sic!]: Evans 1956: 242, Fig. 27B.

= *kizylkiense* Martynov, 1937 [sic!]: Hong 1982: 89.

Lower Jurassic; Kyzyl–Kiya, Uch–kurgan, Fergana Valley: Kyrgyzstan.

NOTE. Metcalf and Wade (1966a) listed the locality as 'Osh'.

proximum Martynov, 1939: Martynov 1939a(1937a): 96, 165, Pl. V, Fig. 7, Text–fig. 51.

Lower Jurassic; Kyzyl–Kiya, Uch–kurgan, Fergana Valley: Kyrgyzstan.

NOTE. Metcalf and Wade (1966a) listed the locality as 'Osh'.

Fulgoridiella Becker-Migdisova, 1962

Type species. *Fulgoridiella raetica* Becker-Migdisova, 1962: Becker-Migdisova 1962a: 96; by original designation.

NOTE. Becker-Migdisova (1962a) and Hamilton (1992) listed this genus in Fulgoridiidae; Carpenter (1992) placed it in 'Homoptera, Family uncertain' section, but possibly related to Fulgoridiidae.

raetica Becker-Migdisova, 1962: Becker-Migdisova 1962a: 97, Fig. 10.

Lower Jurassic; Sogyuty (= Issyk–Kul'): Kyrgyzstan.

Fulgoridium Handlirsch, 1906

= *Phryganidium* Geinitz, 1880 (pars). Type species: *Phryganidium balticum* Geinitz, 1880: Geinitz 1880: 527, Pl. 22, Fig. 13; by subsequent designation by Handlirsch 1906–1908: 496.

NOTE. Subgenera *Compactofulgoridium*, *Conofulgoridium*, *Procercofulgoridium* and *Productofulgoridium* described by Bode (1953) are listed here as genera. He also treats *Metafulgoridium* Handlirsch, 1939 as a subgenus, however the species he tentatively placed in this taxon are here listed as belonging to *Metafulgoridium* Handlirsch, 1939.

sp.: Becker-Migdisova 1949b: 36, Fig. 27.

Upper Jurassic, Malm, Oxfordian; Kara–Tau: Kazakhstan.

Upper Jurassic, Malm, Oxfordian; Kara–Tau: Kazakhstan.

sp.: Bode 1953: 161, Pl. 7, Fig. 149.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

acutum Handlirsch, 1939: Handlirsch 1939: 136, Pl. XV, Fig. 278.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

alatum Handlirsch, 1939: Handlirsch 1939: 135, Pl. XIV, Fig. 268.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

ampliatum Handlirsch, 1939: Handlirsch 1939: 129, Pl. XIII, Fig. 248.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

anale Handlirsch, 1939: Handlirsch 1939: Pl. XIII, Fig. 237.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

ancylla Handlirsch, 1939: Handlirsch 1939: 136, Pl. XV, Fig. 277.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

angulosum Handlirsch, 1939: Handlirsch 1939: 136, Pl. XV, Fig. 274.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

anomalum Handlirsch, 1939: Handlirsch 1939: 127, Pl. XIII, Fig. 240.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

balticum (Geinitz, 1880)
= *Phryganidium balticum* Geinitz, 1880: Geinitz 1880: 527, Pl. 22, Fig. 13 (pars).
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

basilaesum Bode, 1953: Bode 1953: 175, Pl. 8, Fig. 168.
NOTE. Bode (1953) described it in Fulgoridae.
Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

bifurcatum Handlirsch, 1939: Handlirsch 1939: 137, Pl. XV, Fig. 276.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

bodei Handlirsch, 1939: Handlirsch 1939: 138.
= *Phryganidium balticum* Geinitz, 1880 (pars)
= *Phryganidium balticum* Geinitz, 1880: Bode 1907: 240, Pl. 6. Fig. 14.
Lower Jurassic, Upper Liassic; Schandelah, Braunschweig [?]: Germany.

brachyptilum Handlirsch, 1939: Handlirsch 1939: 137, Pl. XV, Fig. 280.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

breve Handlirsch, 1939: Handlirsch 1939: 130, Pl. XIV, Fig. 251.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

breviradiatum Handlirsch, 1939: Handlirsch 1939: 126, Pl. XIII, Fig. 234.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

brunsvicense Handlirsch, 1939: Handlirsch 1939: 138.

= *Phryganidium balticum* Geinitz, 1880 (pars)

= *Phryganidium balticum* Geinitz, 1880: Bode 1907: 138, Pl. 6. Fig. 15.

Lower Jurassic, Upper Liassic; Schandelah, Braunschweig [?]: Germany.

clavatum Handlirsch, 1939: Handlirsch 1939: 129, Pl. XIII, Fig. 247.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

cubitofurcatum Bode, 1953: Bode 1953: 165, Pl. 8, Fig. 153.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

cubitoramosum Bode, 1953: Bode 1953: 170, Pl. 8, Fig. 162.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Boreale*–Zone des Lias ε», Lower Toarcian; Hondelage bei Braunschweig: Germany.

cuneiforme Bode, 1953: Bode 1953: 173, Pl. 8, Fig. 166.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Boreale*–Zone des Lias ε», Lower Toarcian; Hondelage bei Braunschweig: Germany.

curvipenne Handlirsch, 1939: Handlirsch 1939: 128, Pl. XIII, Fig. 245.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

dahli Handlirsch, 1939: Handlirsch 1939: 133, Pl. XIV, Fig. 270.

Germany.

debile Handlirsch, 1939: Handlirsch 1939: 133, Pl. XIV, Fig. 270.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

defunctum Handlirsch, 1939: Handlirsch 1939: 135, Pl. XV, Fig. 271.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

dilutum Handlirsch, 1939: Handlirsch 1939: 130, Pl. XIV, Fig. 250.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

dubium (Geinitz, 1884)

= *Protomyia dubia* Geinitz, 1884: Geinitz 1884: 582, Pl. 13, Fig. 26.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

elegantulum Handlirsch, 1939: Handlirsch 1939: 128, Pl. XIII, Fig. 244.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

exhumatum Handlirsch, 1939: Handlirsch 1939: 136, Pl. XV, Fig. 273.

= *Fulgoridium exhaustum* [sic!]: Handlirsch 1939: 136.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

exiguemaculatum Bode, 1953: Bode 1953: 168, Pl. 8, Fig. 159.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Boreale*–Zone des Lias ε», Lower Toarcian; Hondelage bei Braunschweig: Germany.

fabri Bode, 1953: Bode 1953: 176, Pl. 8, Fig. 170.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Boreale*–Zone des Lias ε», Lower Toarcian; Hondelage bei Braunschweig: Germany.

fallerslebense Bode, 1953: Bode 1953: 185, Pl. 9, Fig. 184.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Elegans*–Zone des Lias ε», Toarcian; Flechtorf bei Fallersleben, Braunschweig [?]: Germany.

fenestratum Handlirsch, 1939: Handlirsch 1939: 130, Pl. XIV, Fig. 252.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

[illegible] Germany.

fractum Handlirsch, 1939: Handlirsch 1939: 126, Pl. XIII, Fig. 235.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

geinitzi Handlirsch, 1939: Handlirsch 1939: 124.

= *Phryganidium balticum* Geinitz, 1880 (pars).

= *Fulgoridium balticum* (Geinitz, 1880): Handlirsch 1906–1908: 496, Pl. XLIII, Fig. 22 (pars).

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

germanicum Handlirsch, 1906: Handlirsch 1906–1908: 497, Pl. XLIII, Fig. 26.

= *Phryganidium balticum* Geinitz, 1880 (pars).

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

NOTE. Handlirsch (1939) mistakenly referred to Fig. 25 of plate 43 of his 1906–1908 book, which presents *Fulgoridium venosum* Handlirsch; this species is figured on Fig. 26.

gottingense Bode, 1953: Bode 1953: 171, Pl. 8, Fig. 163.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

graphipterum Handlirsch, 1939: Handlirsch 1939: 125, Pl. XII, Fig. 230.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

grave Handlirsch, 1939: Handlirsch 1939: 131, Pl. XIV, Fig. 253.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

hattorfense Bode, 1953: Bode 1953: 167, Pl. 8, Fig. 156.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Elegans*–Zone des Lias ε», Toarcian; Hattorf bei Fallersleben, Braunschweig: Germany.

hildesheimense Bode, 1953: Bode 1953: 166, Pl. 8, Fig. 155.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

hondelanum Bode, 1953: Bode 1953: 169, Pl. 8, Fig. 160.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

inaequale Handlirsch, 1939: Handlirsch 1939: 137, Pl. XV, Fig. 279.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

incertecoloratum Bode, 1953: Bode 1953: 171, Pl. 8, Fig. 164.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Boreale*–Zone des Lias ε», Lower Toarcian; Hondelage bei Braunschweig: Germany.

inconspicuum Handlirsch, 1939: Handlirsch 1939: 126, Pl. XII, Fig. 227.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

incurvatum Bode, 1953: Bode 1953: 180, Pl. 9, Fig. 177.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

infuscatum Bode, 1953: Bode 1953: 182, Pl. 9, Fig. 180.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Boreale*–Zone des Lias ε», Lower Toarcian; Hondelage bei Braunschweig: Germany.

intercalatum Handlirsch, 1939: Handlirsch 1939: 137, Pl. XV, Fig. 282.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

lapideum Handlirsch, 1906: Handlirsch 1906–1908: 498, Pl. XLIII, Fig. 29.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

latius Bode, 1953: Bode 1953: 177, Pl. 8, Fig. 172.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

latum Handlirsch, 1906: Handlirsch 1906–1908: 498, Pl. XLIII, Fig. 29.
= *Phryganidium balticum* Geinitz, 1880 (pars).

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

liadis Handlirsch, 1906: Handlirsch 1906–1908: 498, Pl. XLIII, Fig. 32.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

NOTE. Handlirsch (1906–1908) denoted that type is labelled as "*Protomyia dubia*".

litorale Handlirsch, 1939: Handlirsch 1939: 127, Pl. XVI, Fig. 265.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

mancomarginatum Bode, 1953: Bode 1953: 168, Pl. 8, Fig. 158.

mancomarginatum Bode, 1953: Bode 1953: 168, Pl. 8, Fig. 158.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Boreale*–Zone des Lias ε», Lower Toarcian; Hondelage bei Braunschweig: Germany.

marginepunctatum Handlirsch, 1939: Handlirsch 1939: 127, Pl. XIII, Fig. 238.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

megapolitanum Handlirsch, 1939: Handlirsch 1939: 134, Pl. XIV, Fig. 265.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

modestum Handlirsch, 1939: Handlirsch 1939: 127, Pl. XIII, Fig. 236.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

mortuum Handlirsch, 1939: Handlirsch 1939: 135, Pl. XIV, Fig. 269.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany

multipunctatum Handlirsch, 1939: Handlirsch 1939: 130, Pl. XIII, Fig. 249.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

multivenosum Handlirsch, 1939: Handlirsch 1939: 133, Pl. XIV, Fig. 261.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany

nebulosum Handlirsch, 1939: Handlirsch 1939: 129, Pl. XIII, Fig. 246.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

nodosum Handlirsch, 1939: Handlirsch 1939: 134, Pl. XIV, Fig. 267.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

nubeculum Handlirsch, 1939: Handlirsch 1939: 131, Pl. XIV, Fig. 255.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

obtusum Handlirsch, 1939: Handlirsch 1939: 131, Pl. XIV, Fig. 254.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

oligoneurum Handlirsch, 1939: Handlirsch 1939: 125, Pl. XII, Fig. 226.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

oligospilum Handlirsch, 1939: Handlirsch 1939: 131, Pl. XIV, Fig. 256.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

pallidum Handlirsch, 1906: Handlirsch 1906–1908: 497, Pl. XLIII, Fig. 24.
= *Phryganidium balticum* Geinitz, 1880 (pars).
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

parvispilum Handlirsch, 1939: Handlirsch 1939: 132, Pl. XIV, Fig. 259.
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

paulodilatatum Bode, 1953: Bode 1953: 178, Pl. 8, Fig. 173.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Boreale*–Zone des Lias ε», Lower Toarcian; Hondelage bei Braunschweig: Germany.

picturatum Handlirsch, 1939: Handlirsch 1939: 127, Pl. XIII, Fig. 239.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

plicatum Handlirsch, 1939: Handlirsch 1939: 135, Pl. XV, Fig. 272.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

polyneurum Handlirsch, 1939: Handlirsch 1939: 132, Pl. XIV, Fig. 257

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany

posidonicum Bode, 1953: Bode 1953: 169, Pl. 8, Fig. 161.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

praeobtusum Bode, 1953: Bode 1953: 179, Pl. 8, Fig. 176.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

pulchrum Handlirsch, 1939: Handlirsch 1939: 134, Pl. XIV, Fig. 257.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

punctatum Handlirsch, 1939: Handlirsch 1939: 128, Pl. XIII, Fig. 242.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

quadrisignatum Handlirsch, 1939: Handlirsch 1939: 126, Pl. XIII, Fig. 233.

quadrisignatum Handlirsch, 1939: Handlirsch 1939: 126, Pl. XIII, Fig. 233.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

radioramosum Bode, 1953: Bode 1953: 167, Pl. 8, Fig. 157.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

raromaculatum Bode, 1953: Bode 1953: 172, Pl. 8, Fig. 165.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

reduncum Bode, 1953: Bode 1953: 183, Pl. 9, Fig. 181.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Elegans*–Zone des Lias ε», Toarcian; Flechtorf bei Fallersleben, Braunschweig [?]: Germany.

regulare Handlirsch, 1939: Handlirsch 1939: 125, Pl. XII, Fig. 228.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

remotum Handlirsch, 1939: Handlirsch 1939: 133, Pl. XIV, Fig. 263.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

retractum Handlirsch, 1939: Handlirsch 1939: 132, Pl. XIV, Fig. 258.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

rotundatum Handlirsch, 1939: Handlirsch 1939: 136, Pl. XV, Fig. 275.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

schandelahensis Szwedo, Bourgoin et Lefebvre — ***nomen novum***.

= *rotundatum* Bode, 1953: Bode 1953: 176, Pl. 8, Fig. 171 — nec *rotundatum* Handlirsch, 1939: Handlirsch 1939: 136, Pl. XV, Fig. 275.

NOTE. The new species name is derived from the name of locality — Schandelah, in which the specimen was found. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε; Schandelah bei Braunschweig: Germany.

semiperspicuum Bode, 1953: Bode 1953: 178, Pl. 8, Fig. 174.

NOTE. Bode (1953) described it in Fulgoridae.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Boreale*–Zone des Lias ε», Lower Toarcian; Hondelage bei Braunschweig: Germany.

silvaticum Bode, 1953: Bode 1953: 181, Pl. 9, Fig. 179.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

spilographum Handlirsch, 1921: Handlirsch 1920–1921(1925): 212, Fig. 192.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

stigmaticum Handlirsch, 1939: Handlirsch 1939: 128, Pl. XIII, Fig. 241.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

symmetricum Bode, 1953: Bode 1953: 175, Pl. 8, Fig. 169.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

tenuimaculatum Bode, 1953: Bode 1953: 165, Pl. 8, Fig. 154.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

trifurcatum Handlirsch, 1939: Handlirsch 1939: 133, Pl. XIV, Fig. 262.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

venosum Handlirsch, 1906: Handlirsch 1906–1908: 497, Pl. XLIII, Fig. 25.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

vicinum Handlirsch, 1939: Handlirsch 1939: 129, Pl. XIII, Fig. 243.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

violatum Bode, 1953: Bode 1953: 179, Pl. 8, Fig. 175.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

Fulgoridulum Handlirsch, 1939

Fulgoridulum Handlirsch, 1939

Type species. *Fulgoridulum egens* Handlirsch, 1939: Handlirsch 1939: 140, Pl. 116, Fig. 292; by monotypy.

egens Handlirsch, 1939: Handlirsch 1939: 140, Pl. 116, Fig. 292.

= *Fulgoridium rudimentum* Handlirsch, 1939: Handlirsch 1939: 138, Pl. 15, Fig. 284.

= *Fulgoridium postredditum* Bode, 1953: Bode 1953: 173, Pl. 8, Fig. 167.

= *Fulgoridium beienrodense* Bode, 1953: Bode 1953: 184, Pl. 9, Fig. 183.

NOTE. Synonymy after Ansorge (1996); Bode (1953) described synonymized species in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Elegans*–Zone des Lias ε», Lower Toarcian; Beienrode bei Flechtorf, Dobbertin, Grimmen (Vorpommern): Germany.

Fulgoropsis Martynov, 1939

Type species. *Fulgoropsis dubiosa* Martynov, 1939: Martynov 1939a(1937a): 97, 165; by monotypy.

NOTE. Becker-Migdisova (1962a) listed this genus in Fulgoridiidae, Metcalf and Wade (1966a) placed it in Fulgoridae, Hamilton (1992) in Fulgoridiidae. Carpenter (1992) listed it in the 'Homoptera, Family uncertain, section. Ansorge (1996) did not list this genus in Fulgoridiidae.

dubiosa Martynov, 1937: Martynov 1939a(1937a): 97, 165, Text–fig. 52.

Lower Jurassic; Kyzyl–Kiya, Uch–kurgan, Fergana Valley: Kyrgyzstan.

NOTE. Metcalf and Wade (1966a) listed the locality as 'Osh'.

Margaroptilon Handlirsch, 1906

Type species. *Margaroptilon woodwardi* Handlirsch, 1906: Handlirsch 1906–1908: 499, Pl. XLIII, Fig. 35; by subsequent designation by Carpenter 1992: 257.

NOTE. Handlirsch (1939) listed it as Fulgoridiidae; Haupt (1929) compared this genus with members of Eurybrachidae; Becker-Migdisova (1962a) listed it is as member of Fulgoridiidae, Metcalf and Wade (1966a) placed it in Paleorrhyncha, outside of Fulgoroidea. Shcherbakov (1985) placed this taxon in Fulgoridiidae. Carpenter (1992) listed it in 'Homoptera, Family uncertain' section. Ansorge (1996) placed it in Fulgoridiidae.

sp. in Fulgoridae? Figs. 3, 6

sp.: Ansorge 1991: 9, Figs. 3, 6.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

sp.: Shcherbakov 1985: 27.

NOTE. Specimen not diagnosed nor figured, only tentatively placed in this genus (Shcherbakov 1985).

Jurassic; Oshin–Boro–Udzyur–Ula, Western Mongolia: Mongolia.

sp.: Bode 1953: 185, Pl. 9, Fig. 198.

NOTE. Bode (1953) described it in Fulgoridae.

Locality not mentioned.

sp. 1: Bode 1953: 187, Pl. 9, Fig. 188.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Toarcian; Braunschweig: Germany.

sp. 2: Bode 1953: 187, Pl. 9, Fig. 189.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Toarcian; Braunschweig: Germany.

sp. 4: Bode 1953: 187, Pl. 9, Fig. 192.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Toarcian; Braunschweig: Germany.

brodiei Handlirsch, 1906: Handlirsch 1906–1908: 499.

Jurassic, Upper Liassic, Toarcian; Alderton, Gloucestershire, England: United Kingdom.

bulleni Handlirsch, 1906: Handlirsch 1906–1908: 499, Pl. XLIII, Fig. 36.

NOTE. Evans (1956) listed it as Homoptera of uncertain position.

Jurassic, Upper Liassic, Toarcian; Alderton, Gloucestershire, England: United Kingdom.

cuneatum Bode, 1953: Bode 1953: 189, Pl. 9, Fig. 195.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Elegans*–Zone des Lias ε», Toarcian; Hattorf bei Fallersleben: Germany.

detruncatum Bode, 1953: Bode 1953: 188, Pl. 9, Fig. 194.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

formosum Bode, 1953: Bode 1953: 190, Pl. 9, Fig. 196.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Grassel

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Grassel

bei Braunschweig: Germany.

germanicum Handlirsch, 1939: Handlirsch 1939: 141, Pl. XVI, Fig. 293.

NOTE. Evans (1956) listed it as Homoptera of uncertain position.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

paucisinuatum Bode, 1953: Bode 1953: 188, Pl. 9, Fig. 193.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

procerum Bode, 1953: Bode 1953: 190, Pl. 9, Fig. 197.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

woodwardi Handlirsch, 1906: Handlirsch 1906–1908: 499, Pl. XLIII, Fig. 35.

NOTE. Evans (1956) listed it as Homoptera of uncertain position.

Jurassic, Upper Liassic, Toarcian; Alderton, Gloucestershire, England: United Kingdom.

Metafulgoridium Handlirsch, 1939

Type species. *Metafulgoridium spilotum* Handlirsch, 1939: Handlirsch 1939: 139, Pl. XV, Fig. 286; by subsequent designation by Carpenter 1992: 235.

NOTE. Carpenter (1992) treats *Metafulgoridium* Handlirsch, 1939 as *nomen nudum*, and proposes *Metafulgoridium* Carpenter, 1992 as a valid name. This treatment does not seem substantiated, though, as the genus was described and compared with *Fulgoridium* Handlirsch by Handlirsch (1939). Ansorge (1996) proposed *Metafulgoridium* Handlirsch as a synonym of *Fulgoridium* Handlirsch.

ampliatum Handlirsch, 1939: Handlirsch 1939: 139, Pl. XV, Fig. 281.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

graptum Handlirsch, 1939: Handlirsch 1939: 139, Pl. XV, Fig. 287.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

praetruncatum Bode, 1953: Bode 1953: 181, Pl. 9, Fig. 178.

= *Fulgoridium (Metafulgoridium?) praetruncatum* Bode, 1953.

NOTE. Bode (1953) described it in Fulgoridae.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Elegans*–Zone des Lias ε», Toarcian; Flechtorf bei Fallersleben: Germany.

singulare Handlirsch, 1939: Handlirsch 1939: 140, Pl. XV, Fig. 288.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

spatulaeforme Bode, 1953: Bode 1953: 183, Pl. 9, Fig. 182.

= *Fulgoridium (Metafulgoridium?) spatulaeforme* Bode, 1953

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Boreale*–Zone des Lias ε», Lower Toarcian; Hondelage bei Braunschweig: Germany.

spilotum Handlirsch, 1939: Handlirsch 1939: 139, Pl. XV, Fig. 286.

Lower Jurassic; Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

Parafulgoridium Handlirsch, 1939

Type species. *Phryganidium balticum* var. *simplex* Geinitz, 1880; by original designation by Handlirsch 1939: 138.

NOTE. Metcalf and Wade (1966a) listed it under Fulgoridiidae; Becker-Migdisova (1962b) listed in Fulgoridiidae; Carpenter (1992) placed this genus as *incertae sedis*. Ansorge (1996) proposed *Parafulgoridium* Handlirsch as a synonym of *Fulgoridium* Handlirsch.

simplex (Geinitz, 1880)

Phryganidium balticum var. *simplex* Geinitz, 1880: Geinitz 1880: 528, Pl. 22, Fig. 14.

Fulgoridium simplex (Geinitz, 1880): Handlirsch 1906–1908: 497, Pl. 43, Figs. 27, 28.

Jurassic; Dobbertin, Mecklenburg: Germany.

Procercofulgoridium Bode, 1953

Type species. *Fulgoridium (Procercofulgoridium) verticillatum* Bode, 1953: Bode 1953: 157, Pl. 7, Fig. 144; by original designation.

planedorsatum Bode, 1953: Bode 1953: 159, Pl. 7, Fig. 146.

= *Fulgoridium (Procercofulgoridium) planedorsatum* Bode, 1953

NOTE. Bode (1953) described it in Fulgoridae.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Lower Liassic, Schwarzjura ε, Lower Toarcian; Schandelah bei Braunschweig: Germany.

praefastigatum Bode, 1953: Bode 1953: 159, Pl. 7, Fig. 147.

= *Fulgoridium (Procercofulgoridium) praefastigatum* Bode, 1953

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Boreale*–Zone des Lias ε», Lower Toarcian; Hondelage bei Braunschweig: Germany.

verticillatum Bode, 1953: Bode 1953: 157, 158, Pl. 7, Fig. 144, Fig. 145.

= *Fulgoridium (Procercofulgoridium) verticillatum* Bode, 1953

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig, Grassel bei Braunschweig: Germany.

Productofulgoridium Bode, 1953

Type species. *Fulgoridium (Productofulgoridium) incisum* Bode, 1953: Bode 1953: 154, Pl. 7, Fig. 141; by original designation.

filiferum Bode, 1953: Bode 1953: 156, Pl. 7, Fig. 143.

= *Fulgoridium (Productofulgoridium) filiferum* Bode, 1953

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Grassel bei Braunschweig: Germany.

incisum Bode, 1953: Bode 1953: 154, Pl. 7, Fig. 141.

= *Fulgoridium (Productofulgoridium) incisum* Bode, 1953

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

praeacutum Bode, 1953: Bode 1953: 155, Pl. 7, Fig. 142.

= *Fulgoridium (Productofulgoridium) praeacutum* Bode, 1953

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «*Boreale*–Zone des Lias ε», Lower Toarcian; Hondelage bei Braunschweig: Germany.

Tetragonidium Bode, 1953

Type species. *Tetragonidium parallelogramma* Bode, 1953: Bode 1953:

Type species. *Tetragonidium parallelogramma* Bode, 1953: Bode 1953:

195; by original designation.

paeneparalletum Bode, 1953: Bode 1953: 195, Pl. 9, Fig. 203.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

parallelogramma Bode, 1953: Bode 1953: 195, Pl. 9, Fig. 204.

NOTE. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Grassel bei Braunschweig: Germany.

Valvifulgoria Lin, 1986

Type species. *Valvifulgoria tiantungensis* Lin, 1986: Lin 1986: 63; by original designation.

pingkuiensis Lin, 1986: Lin 1986: 63, Pl. XIII, Fig. 6, Text–fig. 57.

Lower Jurassic; Guangxi, South China.

tiantungensis Lin, 1986: Lin 1986: 63, Pl. X, Fig. 4, Pl. XII, Fig. 5, Text–fig. 56.

= *Valvifulgoria tiantangensis* [sic!]: Lin 1986: 63, 65, 102.

Lower Jurassic; Guangxi, South China.

Issidae Spinola, 1839

Issites Haupt, 1956

Type species. *Issites glaber* Haupt, 1956: Haupt 1956: 16; by original designation.

glaber Haupt, 1956: Haupt 1956: 16, Fig. 8.

Middle Eocene, Lutetian; Geiseltal, Sachsen–Anhalt: Germany.

Issus Fabricius, 1803

Type species. *Cercopis coleoptrata* Fabricius, 1781: Fabricius 1781: 330; by subsequent designation by Duméril 1822: 34.

sp.: Scudder 1867: 117.

NOTE. Original statement (Scudder 1867) is: "The Homoptera are represented by genera allied to *Issus*, *Gypona* and *Delphax*".

Eocene, Ypresian/Lutetian; Green River Formation, White River, Colorado/Utah: U.S.A.

reticulatus Bervoets, 1910: Bervoets 1910: 125, Pl. I, Fig. 1.

Eocene; Baltic amber, Baltic coast, 'Prussia' [?].

NOTE. Only tentatively placed in this genus.

Kinnaridae

Oeclidius Van Duzee, 1914

Type species. *Oeclidius nanus* Van Duzee, 1914: Van Duzee 1914: 40; by original designation.

browni Bourgoin et Lefebvre, 2002: Bourgoin and Lefebvre 2002: 583, Figs. 1–9.

NOTE. The description refers to 8 figures, in fact the paper comprise 9 figures.

Oligocene/Miocene, Priabonian/Aquitanian; Dominican amber, La Toca mine, Haiti Island: Dominican Republic.

salaco Emeljanov et Shcherbakov, 2000: Emeljanov and Shcherbakov 2000: 439, Figs. 1, 3–6.

Oligocene/Miocene, Priabonian/Aquitanian; Dominican amber, Haiti Island: Dominican Republic.

Quilessa Fennah, 1942

Type species. *Quilessa lutea* Fennah, 1942: Fennah 1942: 103; by original designation.

stolida Emeljanov et Shcherbakov, 2000: Emeljanov and Shcherbakov 2000: 442, Figs. 2, 7–9.

Oligocene/Miocene, Priabonian/Aquitanian; Dominican amber, Haiti Island: Dominican Republic.

Lalacidae Hamilton, 1990

NOTE. Hamilton (1990) divided this family into various subfamilies: Lalacinae with tribes Lalacini and Carpopodini, Ancoralinae with tribes Ancoralini and Kinnarocixiini and Protodelphacinae, with Protodelphacini. Shcherbakov (1996) proposed to treat this family as a subfamily of Cixiidae.

Ancorale Hamilton, 1990

Type species. *Ancorale flaccidum* Hamilton, 1990: Hamilton 1990: 101; by original designation.

NOTE. Type genus of the tribe Ancoralini, subfamily Ancoralinae according to Hamilton (1990).

sp.: Hamilton 1990: 103, Figs. 50, 118.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

aschemon Hamilton, 1990: Hamilton 1990: 103, Fig. 51.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

flaccidum Hamilton, 1990: Hamilton 1990: 101, Figs. 48, 49, 115–117.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

Carpopodus Hamilton, 1990

Type species. *Carpopodus difficilis* Hamilton, 1990: Hamilton 1990: 108; by original designation.

NOTE. Type genus of the tribe Carpopodini, subfamily Lalacinae according to Hamilton (1990).

sp. A: Hamilton 1990: 110, Fig. 121.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

sp. B: Hamilton 1990: 111, Fig. 68, 122.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

difficilis Hamilton, 1990: Hamilton 1990: 108, Figs. 67, 69, 70.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

Cretocixius Zhang, 2002

Type species. *Cretocixius stigmatosus* Zhang, 2002: Zhang 2002: 21; by original designation

NOTE. Tribal and subfamilial assignation not given in Zhang (2002) paper, who compared it with Lalcidae genera: *Kinnarocixius* Hamilton, *Carpopodus* Hamilton, *Psestocixius* Hamilton, *Lapicixius* Ren, Yin et Dou (unclear position) and *Oliarus* Stål [sic!] (Cixiidae).

stigmatosus Zhang, 2002: Zhang 2002: 21, Figs. 1–2.

Lower Cretaceous, Barremian; Lushangfen Formation (K_1^4l), Fangshan District, Beijing: China.

Kinnarocixius Hamilton, 1990

Type species. *Kinnarocixius quassus* Hamilton, 1990: Hamilton 1990:

Type species. *Kinnarocixius quassus* Hamilton, 1990: Hamilton 1990: 103; by original designation.

NOTE. Type genus of the tribe Kinnarocixiini, subfamily Ancoralinae according to Hamilton (1990).

sp.: Hamilton 1990: 103, Figs. 56, 57, 120.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

quassus Hamilton, 1990: Hamilton 1990: 103, Figs. 52–55, 119, 133.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

Lalax Hamilton, 1990

Type species. *Lalax mutabilis* Hamilton, 1990: Hamilton 1990: 106; by original designation

NOTE. Type genus of the tribe Lalacini, subfamily Lalacinae according to Hamilton (1990).

sp.: Hamilton 1990: 106.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

mutabilis Hamilton, 1990: Hamilton 1990: 106, Figs. 58–62, 127, 128.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

Patulopes Hamilton, 1990

Type species. *Patulopes setosa* Hamilton, 1990: Hamilton 1990: 106; by original designation

NOTE. Placed in the tribe Lalacini, subfamily Lalacinae according to Hamilton (1990).

sp.: Hamilton 1990: 108.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil

myndoides Hamilton, 1990: Hamilton 1990: 108, Figs. 63, 65, 131, 132.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

setosa Hamilton, 1990: Hamilton 1990: 108, Figs. 64, 66.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

Protodelphax Hamilton, 1990

Type species. *Protodelphax miles* Hamilton, 1990: Hamilton 1990: 99; by original designation.

NOTE. Type genus of the tribe Protodelphacini, subfamily Protodelphacinae according to Hamilton (1990).

sp.: Hamilton 1990: 101, Figs. 46, 114.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

chamus Hamilton, 1990: Hamilton 1990: 101, Figs. 111, 112.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

macroceps Hamilton, 1990: Hamilton 1990: 99, Figs. 44, 110.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

miles Hamilton, 1990: Hamilton 1990: 99, Figs. 43, 47.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

rhinion Hamilton, 1990: Hamilton 1990: 100, Figs. 45, 110.
Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

Psestocixius Hamilton, 1990

Type species. *Psestocixius fuscus* Hamilton, 1990: Hamilton 1990: 111; by original designation.

NOTE. Placed in the Lalacinae Carpopodini according to Hamilton (1990).

delphax Hamilton, 1990: Hamilton 1990: 111, Figs. 72, 73, 125.
Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

fuscus Hamilton, 1990: Hamilton 1990: 111, Figs. 71, 74, 123.
Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

Vulcanoia Martins–Neto, 1988

Type species. *Vulcanoia membranosa* Martins–Neto, 1988: Martins–Neto 1988a: 313; by original designation.

NOTE. Originally described in Cixiidae, placed in Lalacidae by Hamilton (1990).

acuceps Hamilton, 1990: Hamilton 1990: 113, Figs. 79, 129, 130.
Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

apicalis Hamilton, 1990: Hamilton 1990: 113, Figs. 76–78, 126.
Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

membranosa Martins–Neto, 1988: Martins–Neto 1988a: 315, Figs. 1C, 2.
Vulcanoia membrosa [sic!]: Martins–Neto 1988a: 315.
Lower Cretaceous, Upper Aptian; near Santana do Cariri, Ceará State: Brazil.

Lophopidae Stål, 1866

Scoparidea Cockerell, 1920

Type species. *Scoparidea nebulosa* Cockerell, 1920: Cockerell 1920c: 243; by original designation.

nebulosa Cockerell, 1920: Cockerell 1920c: 244, Pl. 33, Fig. 6.
Eocene, Ypresian/Lutetian; Green River Formation, Roan Mountains, Colorado: U.S.A.

Nogodinidae Melichar, 1898

Detyopsis Cockerell, 1920

Type species. *Detyopsis scudderi* Cockerell, 1920: Cockerell 1920c: 242; by original designation.

= *Deteyopsis* [sic!] Cockerell, 1920: Lewis and Heikes 1991: 107.

packardi Cockerell, 1920: Cockerell 1920c: 242, Pl. 33, Fig. 3.

= *Deteyopsis* [sic!] *packardi* Cockerell, 1920: Lewis and Heikes 1991: 107.

Eocene, Ypresian/Lutetian; Florissant, Roan Mountains, Colorado: U.S.A.

scudderi Cockerell, 1920: Cockerell 1920c: 242, Pl. 33, Fig. 4.

= *Deteyopsis* [sic!] *scudderi* Cockerell, 1920: Lewis and Heikes 1991: 107.

Eocene, Ypresian/Lutetian; Florissant, Roan Mountains, Colorado: U.S.A.

Tainosia Szwedo et Stroiński, 2001

Type species. *Tainosia quisqueyae* Szwedo et Stroiński, 2001: Szwedo and Stroiński 2001a: 31; by original designation.

quisqueyae Szwedo et Stroiński, 2001: Szwedo and Stroiński 2001a: 31, Figs. 1–6.

NOTE. Szwedo (2002a) mistakenly labelled Fig. 18 as presenting this species, the photograph presents *Tonacatecutlius gibsoni* Stroiński et Szwedo.

Oligocene/Miocene, Priabonian/Aquitanian; Dominican amber, Haiti Island: Dominican Republic.

Tonacatecutlius Stroiński et Szwedo, 2000

Tonacatecutlius Stroiński et Szwedo, 2000

Type species. *Tonacatecutlius gibsoni* Stroiński et Szwedo, 2000: Stroiński and Szwedo 2000: 342; by original designation.

gibsoni Stroiński et Szwedo, 2000: Stroiński and Szwedo 2000: 344, Figs. 1–13.

NOTE. Szwedo (2002a) mistakenly labelled Fig. 18 as presenting species *Tainosa quisqeyae* Szwedo et Stroiński, the photograph present *Tonacatecutlius gibsoni* Stroiński et Szwedo.

Oligocene/Miocene, Priabonian/Aquitanian; Mexican amber, Chiapas: Mexico.

Tritophania Jacobi, 1938

Type species. *Tritophania patruelis* Jacobi, 1938: Jacobi 1938: 188; by monotypy.

Note. Originally placed in Ricaniidae, transferred to Nogodinidae by Carpenter (1992). Recently redescribed, its taxonomic position discussed in Szwedo and Stroiński (1999).

patruelis Jacobi, 1938: Jacobi 1938: 189, Figs. a–c.

Eocene; Baltic amber, Baltic coast, 'East Prussia'.

Ricaniidae Amyot et Serville, 1843

Acroprivesa Schmidt, 1912

Type species. *Acroprivesa suturalis* Schmidt, 1912: Schmidt 1912: 77; by original designation.

msandarusi Stroiński et Szwedo, 2002: Stroiński and Szwedo 2002: 60, Fig. 1.

Pleistocene (Pliocene to Holocene?); East African copal.

Cotradechites Fennah, 1968

Type species. *Cotradechites lithinus* Fennah, 1968: Fennah 1968: 144; by original designation

lithinus Fennah, 1968: Fennah 1968: 144, Figs. 1, 2.

Upper Palaeocene; Golden Valley Formation, Telephone Tower Hill, 5 km east of Dickinson, Stark County (N.W. 1/4, N.E. 1/4, Sec. 4 T 139 N. R. 95 W.), North Dakota: U.S.A.

Dilaropsis Cockerell, 1920

Type species. *Dilaropsis ornatus* Cockerell, 1920: Cockerell 1920c:

Type species. *Dilaropsis ornatus* Cockerell, 1920: Cockerell 1920c: 244; by original designation.

ornatus Cockerell, 1920: Cockerell 1920c: 244, Pl. 34, Fig. 1.

Eocene, Ypresian/Lutetian; Green River Formation, Smith's Ranch, near Cathedral Bluffs, Winchester Station 17–3, Rio Blanco County, Colorado: U.S.A.

Eobladina Haupt, 1956

Type species. Eobladina antiqua Haupt, 1956: Haupt 1956: 13; by original designation.

antiqua Haupt, 1956: Haupt 1956: 13, Fig. 5.

Middle Eocene, Lutetian; Geiseltal, Sachsen–Anhalt: Germany.

Eoricania Henriksen, 1922

Type species. *Eoricania danica* Henriksen 1922: Henriksen 1922: 24; by monotypy.

danica Henriksen, 1922: Henriksen 1922: 24, Fig. 13.

Upper Palaeocene/Lower Eocene; Fur Formation, Fuur, Jutland: Denmark.

Hammapteryx Scudder, 1890

Type species. *Hammapteryx reticulata* Scudder 1890: Scudder 1890b: 298; by monotypy.

anglica Cockerell, 1920: Cockerell 1920a: 276.

Eocene; Bagshot Beds, Bournemouth, England: United Kingdom.

ceryniiformis Cockerell, 1920: Cockerell 1920c: 240, Pl. 32, Fig. 8.

= *Hammapteryx ceryniformis* [sic!] Cockerell, 1920: Henriksen 1922: 23.

Eocene, Ypresian/Lutetian; Green River Formation, Smith's Ranch, near Cathedral Bluffs, Winchester Station 17–3, Rio Blanco County, Colorado: U.S.A.

eocenicus Piton, 1940: Piton 1940: 167, Fig. 37.

Upper Palaeocene, Sparnacian (Eocene, Ypresian); Puy–de–Dôme, Menat: France.

lepidoides Cockerell, 1920: Cockerell 1920c: 239, Pl. 32, Fig. 7; 240.

= *Hammapteryx lapidoides* [sic!] Cockerell, 1920: Cockerell and Sandhouse 1921: 455.

Eocene, Ypresian; Green River Formation, Smith's Ranch, near Cathedral Bluffs, Winchester Station 17–3, Rio Blanco County, Colorado: U.S.A.

paucistriata Henriksen, 1922: Henriksen 1922: 23, Fig. 12.

Upper Palaeocene/Lower Eocene; Struer, Jutland: Denmark.

reticulata Scudder, 1890: Scudder 1890b: 298, Pl. VI, Fig. 34.

= *Hammapteryx reticulata* Scudder 1890: Handlirsch 1906–1908: 1071.

Eocene, Ypresian/Lutetian; Green River Formation, Green River, Wyoming: U.S.A.

tripunctata Cockerell et Sandhouse, 1921: Cockerell and Sandhouse 1921: 455, Pl. 98, Fig. 3.

Eocene, Ypresian/Lutetian; Green River Formation, Roan Mountains, Colorado: U.S.A.

Neoricania Carpenter, 1990

Type species. *Eoricania reticulata* Haupt, 1956: Haupt 1956: 12; by original designation.

reticulata (Haupt, 1956)

= *Eoricania reticulata* Haupt, 1956: Haupt 1956: 12, Figs. 3, 4.

Note. The new genus name was proposed by Carpenter (1990) to avoid homonymy. Genus *Eoricania* was established by Henriksen (1922) with a unique species *Eoricania danica*. In 1956, Haupt described a fossil planthopper he named *Eoricania* with *Eoricania reticulata* as type species. Both are valid Ricaniidae genera.

Middle Eocene, Lutetian; Geiseltal, Sachsen–Anhalt: Germany.

Osaka Distant, 1909

Type species. *Osaka hyalina* Distant, 1909: Distant 1909: 44, Pl. 4, Figs. 15, 15a; by original designation.

sp.; Stroiński and Szwedo 2002: 61, Figs. 2–3.

Pleistocene (Pliocene to Holocene?); East African copal.

Pocharica Signoret, 1860

Type species. *Pocharica ocellata* Signoret, 1860: Signoret 1860: 192, Pl. 5, Figs. 5, 5a–b; by original designation.

sp.: Stroiński and Szwedo 2002: 61.

Pleistocene (Pliocene to Holocene?); East African copal.

Ricania Germar, 1818

Type species. *Cicada hyalina* Fabricius, 1775: Fabricius 1775a: 832; by subsequent designation by Stål 1866a: 221.

equestris Dalman, 1825: Dalman 1825: 405, Pl. V, Fig. 10.

NOTE. No information about origin of the copal with inclusion is given in the original paper (Dalman 1825). Metcalf and Wade (1966a) listed it as Oligocene, Spahr (1988) listed it as 'irrtümlich: Oligocene' — mistakenly: Oligocene, so the stratigraphic placement of this species remains uncertain. According to Schlüter and von Gnielinski (1987) the copal mentioned by Dalman (1825) originates from India. Stratigraphic placement and locality uncertain.

multinervis Giebel, 1862: Giebel 1862: 313.

NOTE. Giebel (1862) gave no information about the stratigraphic position or the geographic origin of the inclusion. Metcalf and Wade (1966a) mistakenly listed it as Oligocene, Bavaria, Hennig (1966) mentioned Giebel's specimen "Nr. 4178: Fulgoroidea: Ricaniidae" and observes that "... according to Mr. Fr. Heller, Stuttgart it could represent recent genus *Pochazoides* from Madagascar and East Africa". He also listed the stratigraphic placement and locality as mistakenly given. Spahr (1988) argued that this is an amber inclusion and listed it as '1.2. Kopal–Auchenorrhyncha'. Stratigraphic placement and locality uncertain.

Scolypopites Tillyard, 1923

Type species. *Scolypopites bryani* Tillyard, 1923: Tillyard 1923a: 17; by original designation.

bryani Tillyard, 1923: Tillyard 1923a: 19, Pl. I, Fig. 1.

Upper Miocene; Goodna, Queensland: Australia.

Tropiduchidae Stål, 1854

= Trophiduchidae [sic!]: Evans 1956: 189.

= Trophiduchidae [sic!]: Evans 1956: 189.

Jantaritambia Szwedo, 2000

Type species. *Jantaritambia serafini* Szwedo, 2000b: Szwedo 2000b: 280.

serafini Szwedo, 2000b: Szwedo 2000b: 283, Figs. 1–12.

Eocene; Baltic amber, Baltic Coast: Poland.

List of other valid Fulgoromorpha taxa with obvious taxonomic problems

Coleoscytoidea

Kaltanoscyta Becker-Migdisova, 1960

Type species. *Kaltanoscyta reticulata* Becker-Migdisova, 1960: Becker-Migdisova 1960b(1959): 108; by original designation.

Note. Shcherbakov (personal communication) states that this genus show prominent tegminal sculpture not characteristic of Coleoscytoidea and Fulgoromorpha as a whole, and belong to primitive Cicadomorpha *incertae sedis*.

reticulata Becker-Migdisova, 1960: Becker-Migdisova 1960b(1959): 109, Fig. 5.

Note. Originally described in 'Cicadopsyllidoidea: Coleoscytidae'. Carpenter (1992) transferred it to Homoptera *incertae sedis*, but noted that it was probably related to Coleoscytidae.

Upper Permian, Uffimian; Kuznetsk Horizon, right bank of Kondoma river, Kaltan, Kuznetsk Basin: West Siberia: Russia.

Reticulocicada Becker-Migdisova, 1961

Type species. *Reticulocicada brachyptera* Becker-Migdisova, 1961: Becker-Migdisova 1961: 362; by original designation.

Note. Originally described in Fulgoroidea (Becker-Migdisova 1961). Listed in Fulgoromorpha *incertae sedis* by Becker-Migdisova (1962b). Placed in section 'Homoptera, Family uncertain' section by Carpenter Placed in section 'Homoptera, Family uncertain' section by Carpenter (1992). This genus may be related to Coleoscytidae. Shcherbakov (personal communication) reported that the genus show prominent tegminal sculpture not characteristic of Coleoscytoidea and Fulgoromorpha as a whole, and belong to primitive Cicadomorpha *incertae sedis*.

brachyptera Becker-Migdisova, 1961: Becker-Migdisova 1961: 362, Fig. 295a, Pl. XXVI, Fig. 177.

Upper Permian (Kazanian); Suriyokova (Suriekova), Kuznetsk Basin: West Siberia: Russia.

Fulgoroidea

Asiraca Latreille, 1796

Type species. *Cicada clavicornis* Fabricius, 1796: Fabricius 1796: 41; by subsequent designation by Latreille 1810: 434.

albipuncta Dalman, 1825: Dalman 1825: 406.

= Asira *albipunctata* [sic!] Dalman, 1825: Handlirsch 1906–1908: 1139.

Stratigraphic position not mentioned; locality not mentioned.

NOTE. Taxonomic and stratigraphic position uncertain. Original information as follows: 'Specimen Copalo inclusum, unicum, masculum ?'. Metcalf and Wade (1966a) listed it in Delphacidae from Oligocene (after Handlirsch 1906–1908), the species is not listed by Keilbach (1982), but Spahr (1988) placed it in 'Kopal–Auchenorrhyncha' section, with a note about its wrong placement as Oligocene in Metcalf and Wade (1966a). The species is also not mentioned in Carpenter (1992).

tertiaria Giebel, 1856: Giebel 1856: 377.

= *Asiraca tertiaria*: Curtis 1829: 296; Pl. VI, Fig. 5.

= *Cicadellites obscurus* Heer, 1856: Heer 1856b: 39.

= *Typhlocyba obscurus* Heer, 1856: Walker 1858a: 274.

= *Asira tertiaria*: Giebel, 1856: Handlirsch 1906–1908: 1069.

= *Cicadellites obscurus*: Heer, 1856: Handlirsch 1906–1908: 1069.

= *Asiraca tertiaria*: Scudder 1890: Handlirsch 1906–1908: 1069.

= *Asira tertiaria* [sic!] Giebel, 1856: Théobald 1937: 379.

NOTE. Taxonomic position uncertain. It is probably representative of Fulgoroidea, but the type specimen needs to be more detailed examined to solve the problem of the placement of this taxon.

to solve the problem of the placement of this taxon.

Oligocene, Chattian; Aix–en–Provence: France.

Cixidia Fieber, 1866

Type species. *Cicada confinis* Zetterstedt, 1828: Zetterstedt 1828: 527; by original designation by Fieber 1866: 499, Pl. VII, Fig. 55.

reticulata Germar et Berendt, 1856: Germar and Berendt 1856: 16, Pl. II, Fig. 4.

= *Pseudophana reticulata* Germar et Berendt, 1856 (pars)

= *Pseudophana reticulata* Germar et Berendt, 1856: Handlirsch 1906–1908: 1070.

= *Dictyophara reticulata* (Germar et Berendt, 1856): Metcalf and Wade 1966a: 126.

= *Cixidia reticulata* (Germar et Berendt, 1856): Emeljanov 1983a: 79.

NOTE. Only tentatively placed in this genus. On the basis of the original figures, Emeljanov (1983a) argues that the "nymph" of *Pseudophana reticulata* Germar et Berendt resembles representatives of Tropiduchidae, while the "pupa" is similar to the species of the genus *Cixidia* Fieber. The type material was probably lost during World War II, as it was sent to Königsberg in 1937. In the collection of Paläontologisches Institut Humboldt–Universität in Berlin there is a single specimen labeled as '*Pseudophana reticulata*'.

Eocene; Baltic amber, 'East Prussia' [?], Baltic Coast.

Cixioides Handlirsch, 1906

Type species. *Cixius (?) maculatus* Brodie, 1845: Brodie 1845: 33, 128, Pl. II, Fig. 8; by original designation by Handlirsch 1906–1908: 640.

NOTE. Originally described in Fulgoridae (Handlirsch 1906–1908). Becker-Migdisova (1962b) tentatively suggested its placement in Cixiidae. Placed in Cicadomorpha: Dysmorphoptiloidea: Eoscarterellidae by Hamilton (1992). Carpenter (1992) placed it in Homoptera *incertae sedis*, but related it to Cixiidae.

maculatus (Brodie, 1845)

= *Cixius maculatus* Brodie, 1845: Brodie 1845: 33, 128, Pl. II, Fig. 8.

= *Cixius maculatus* Brodie, 1845: Morris 1854: 118.

= *Cixia* [sic!] *maculata* Brodie, 1845: Giebel 1856: 377.

Lower Creatceous, Berriasian; Purbecks, Vale of Wardour, England: United Kingdom.

Lower Creatceous, Berriasian; Purbecks, Vale of Wardour, England: United Kingdom.

Cixius Latreille, 1804

Type species. *Cicada nervosa* Linnaeus, 1758, by subsequent designation by Curtis 1837: Pl. 673.

NOTE. Fossils ascribed to this genus (but without formal descriptions) have been quite frequently reported, usually mistakenly. For example Scudder in a few papers (1885, 1886, 1887) mentioned fossils ascribed to this genus and questioned the placement of some fossils listed by

Brodie (1845: 33 — *Cixius maculatus* Brodie) from Purbeck Strata, Vale of Wardour (Lower Cretaceous, Berriasian) strata of England. At the same time, he included fossils from Baltic amber and from rock imprints of Wyoming and Colorado, both Eocene.

fraternus Germar et Berendt, 1856: Germar and Berendt 1856: 14.

NOTE. Type material of all the species from Gustav Carl Berendt collection, ascribed to the genus *Cixius* Latreille by Germar and Berendt (1856), was probably lost during World War II, as it was sent to Königsberg in 1937. The original description is not detailed enough and not illustrated, so the placement of this species in the recent genus *Cixius* Latreille seems to be doubtful.

Eocene; Baltic amber, Baltic coast, 'East Prussia'.

gracilis Germar et Berendt, 1856: Germar and Berendt 1856: 16, Pl. I, Fig. 25.

NOTE. Type material of the species, ascribed to the genus *Cixius* Latreille by Germar and Berendt (1856), was probably lost during World War II, as it was sent to Königsberg in 1937. Regarding the original drawing in Germar and Berendt's 1856 paper it should be rather placed in Achilidae, but its generic placement remains uncertain.

Eocene; Baltic amber, Baltic coast, 'East Prussia'.

insignis Germar et Berendt, 1856: Germar and Berendt 1856: 13, Pl. I. Fig. 20.

NOTE. Type material of the species, ascribed to the genus *Cixius* Latreille by Germar and Berendt (1856), was probably lost during World War II, as it was sent to Königsberg in 1937. Regarding the original drawing, pattern of venation of tegmina and wings it could be classified as Achilidae.

Eocene; Baltic amber, Baltic coast, 'East Prussia'.

loculatus Germar et Berendt, 1856: Germar and Berendt 1856: 15, Pl. I, Fig. 24.

loculatus Germar et Berendt, 1856: Germar and Berendt 1856: 15, Pl. I, Fig. 24.

NOTE. Type material of the species, ascribed to the genus *Cixius* Latreille by Germar and Berendt (1856), was probably lost during World War II, as it was sent to Königsberg in 1937. Regarding the description and tegmen venation presented in the original figure it could be a representative of Tropiduchidae, related to genus *Tambinia*, rather than a member of Cixiidae.

Eocene; Baltic amber, Baltic coast, 'East Prussia'.

longirostris Germar et Berendt, 1856: Germar and Berendt 1856: 15, Pl. I, Fig. 22.

= *longorostris* [sic!] Germar, 1856: Keilbach 1982: 230.

NOTE. Type material of the species, ascribed to the genus *Cixius* Latreille by Germar and Berendt (1856), was probably lost during World War II, as it was sent to Königsberg in 1937. According to the original drawings, structure of the anterior part of body and tegmen venation it is attributable to family Achilidae.

Eocene; Baltic amber, Baltic coast, 'East Prussia'.

proavus Scudder, 1890: Scudder, 1890b: 287, Pl. XIX, Fig. 14.

NOTE. In the original description based on a single specimen only tentatively placed in the genus *Cixius* Latreille, and near *Florissantia* Scudder. The latter genus was subsequently transferred to Dictyopharidae by Emeljanov (1983a). The features mentioned in the original description and figured in the plate are not clear enough to place it in Cixiidae, but this fossil probably belongs to Fulgoroidea.

Oligocene, Chattian; Florissant, Teller County, Colorado: U.S.A.

sieboldtii Germar et Berendt, 1856: Germar and Berendt 1856: 14, Pl. I, Fig. 21.

= *Cixius sieboldii* [sic!] Germar et Berendt, 1856: Germar and Berendt 1856: Pl. I, Fig. 21.

= *Cixius sieboldii* [sic!] Germar et Berendt, 1856: Usinger 1939: 66.

NOTE. Type material of the species, ascribed to the genus *Cixius* Latreille by Germar and Berendt (1856), was probably lost during World War II, as it was sent to Königsberg in 1937. Regarding the features of the anterior part of body and tegmen venation in the original drawings it could be placed among Achilidae.

Eocene; Baltic amber, Baltic coast, 'East Prussia'.

succineus Germar et Berendt, 1856: Germar and Berendt 1856: 15, Pl. I, Fig. 23.

NOTE. Type material of the species, ascribed to the genus *Cixius* Latreille by Germar and Berendt (1856), was probably lost during World War II, as it was sent to Königsberg in 1937. Taxonomic placement of this species is doubtful, it could represent Achilidae or Cixiidae, but no characters presented in the original description or drawings could help justify the placement in either of the groups.

Eocene; Baltic amber, Baltic coast, 'East Prussia'.

testudinarius Germar et Berendt, 1856: Germar and Berendt 1856: 13, Pl. I, Fig. 19.

NOTE. Type material of the species, ascribed to genus *Cixius* Latreille by Germar and Berendt (1856), was probably lost during World War II,

as it was sent to Königsberg in 1937. Probably belongs to Fulgoroidea: Achilidae according to the original drawings. This placement was firstly suggested by Usinger (1939).

Eocene; Baltic amber, 'East Prussia'.

Dictyophara Germar, 1833

Type species. *Fulgora europaea* Linnaeus, 1767: Linnaeus 1767: 704; by subsequent designation by Desmarest 1849: 2.

reticulata (Germar and Berendt, 1856)

= *Pseudophana reticulata* Germar et Berendt, 1856: Germar and Berendt 1856: 16, Pl. II, Fig. 4a, b (pars).

= *Dictyophara reticulata* (Germar et Berendt, 1856): Weitschat and Wichard 1998: 132.

= *Dictyophara reticulata* (Germar et Berendt, 1856): Weitschat and Wichard 2002: 132.

Note. Emeljanov (1983) corrected the placement of this taxon on the basis of the original figures, arguing that the "nymph" resembles representatives of Fulgoromorpha: Fulgoroidea: Tropiduchidae, while the "pupa" is similar to the species of the genus *Cixidia* Fieber (Fulgoromorpha: Fulgoroidea: Achilidae). In the collection of Paläontologisches Institut Humboldt–Universität in Berlin there are two specimens of nymphs with handwritten (by Germar?) label [*Pseudophana* (species name illegible, probably '*reticulata*') / = *Dictyophara* / (Dictyopharidae)]. These specimens are quite well preserved, but familial assignation is yet to be formally established.

Eocene; Baltic amber, Baltic coast, 'East Prussia'.

Eocene; Baltic amber, Baltic coast, 'East Prussia'.

Elasmoscelidium Martynov, 1927

= *Elasmoscellidium* [sic!] Martynov, 1926: Becker-Migdisova 1949b: 62.

= *Elasmocelidium* [sic!] Martynov, 1926: Bode 1953: 17, 30, 191.

= *Elasmocoelidium* [sic!] Martynov, 1926: Evans 1956: 241.

= *Elasmocelidium* [sic!] Martynov, 1926: Carpenter 1992: 240.

= *Elasmocelidium* [sic!] Martynov, 1926: Ansorge 1996: 46, 111.

Type species. *Elasmoscelidium rotundatum* Martynov, 1927: Martynov 1927(1926): 1355; by monotypy.

NOTE. Listed in Cicadomorpha: Dysmorphoptiloidea: Eoscartellidae by Hamilton (1992). Bode (1953) placed this genus in Fulgoridae, but did not stated its subfamilial position, Becker-Migdisova (1962b) and Carpenter (1992) placed this genus in Issidae; Metcalf and Wade (1966a) listed this genus in Fulgoromorpha: Fulgoroidea: Lophopidae, but did not account for the species described by Bode (1953). Ansorge (1996) listed this genus in Fulgoridiidae.

boreale (Bode, 1907)

= *Phryganidium boreale* Bode, 1907: Bode 1907: 241, Pl. 6, Fig. 16.

= *Metafulgoridium boreale* Bode, 1907: Handlirsch 1939: 140.

= *Phryganidium boreale* Bode, 1905 [sic!]: Bode 1953: 192.

= *Metafulgoridium boreale* Bode, 1905 [sic!]: Bode 1953: 192.

= *Elasmocelidium* [sic!] *boreale* Bode, 1905: Bode 1953: 25, 192.

= *Metafulgoridium boreale* Bode, 1907: Metcalf and Wade 1966a: 93.

Lower Jurassic, Upper Liassic, «*Boreale*–Zone des Lias ε», Lower Toarcian; Grassel bei Braunschweig: Germany.

NOTE. Metcalf and Wade (1966a) reported mistakenly information that Handlirsch (1939) listed this species from Jurassic of Switzerland.

promotum Bode, 1953: Bode 1953: 192, Pl. 9, Figs. 199, 200.

= *Elasmocelidium* [sic!] *promotum* Bode, 1953: Bode 1953: 192.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Grassel bei Braunschweig: Germany.

rectemarginatum Bode, 1953: Bode 1953: 194, Pl. 9, Figs. 202.

= *Elasmocelidium* [sic!] *rectemarginatum* Bode, 1953: Bode 1953: 194.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

delage bei Braunschweig: Germany.

rotundatum Martynov, 1927: Martynov 1927(1926): 1355.

= *Elasmocoelidium* [sic!] *rotundatum* Martynov 1926: Evans 1956: 241: Fig. 27D.

NOTE. Evans (1956) mentioned it as "... no doubt ..." Fulgoroidea.

Upper Jurassic, Malm, Oxfordian; Chimkentsk District, Karatau: Kazakhstan.

NOTE. Metcalf and Wade (1966a) listed the localities as 'Turkestan' and 'Middle Asia'.

venulosum Bode, 1953: Bode 1953: 193, Pl. 9, Figs. 201.

= *Elasmocelidium* [sic!] *venulosum* Bode, 1953: Bode 1953: 193.

Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondelage bei Braunschweig: Germany.

Eofulgorella Cockerell, 1909

Type species. *Eofulgorella bradburyi* Cockerell, 1909: Cockerell 1909c: 172; by monotypy.

NOTE. Metcalf and Wade (1966a) catalogued this genus in Fulgoroidea, Carpenter (1992) placed it in Cixiidae. Lewis and Heikes (1991) placed it in 'Homoptera *incertae sedis*'. According to the original drawing it could belong to Fulgoroidea but familial assignment is not to be resolved without revision of the original material.

bradburyi Cockerell, 1909: Cockerell 1909c: 172, 1 Fig.

Eocene, Ypresian/Lutetian; Green River Formation, 6 miles north of Rifle, Garfield County, Colorado: U.S.A.

Eoliarus Cockerell, 1925

Type species. *Eoliarus quadristictus* Cockerell, 1925: Cockerell 1925a: 10; by original designation.

NOTE. Placement of this genus in Cixiidae is doubtful regarding the original description, but it seems to represent Fulgoroidea.

lutensis (Scudder, 1890): Cockerell 1925a: 11.

= *Oliarus lutensis* Scudder, 1890: Scudder 1890b: 288, Pl. VII, Fig. 18.

= *Oliarus lutensis* Scudder, 1890: Piton 1940: 240.

Eocene, Ypresian/Lutetian; Green River Formation, Green River, Wyoming: U.S.A.

oming: U.S.A.

quadristictus Cockerell, 1925: Cockerell 1925a: 10.

Eocene, Ypresian/Lutetian; Green River Formation, Trail Gulch, north side of Roan Creek, Garfield County, Colorado: U.S.A.

NOTE. Cockerell (1925a) noted that both forms placed by him in genus *Eoliarus* Cockerell could belong to the same species.

Flata Fabricius, 1798

Type species. *Cicada ocellata* Fabricius, 1775: Fabricius 1775a: 682; by subsequent designation by Spinola 1839b: 421.

NOTE. All fossil species ascribed to this genus are excluded from Flatidae.

sp.: Gravenhorst 1853: 93.

NOTE. Stratigraphic position and locality uncertain, probably refers to Baltic amber inclusion.

sp.: Geinitz 1845: 189.

NOTE. Stratigraphic position and locality uncertain, probably refers to Baltic amber inclusion.

sp.: Giebel 1846: 269.

NOTE. Stratigraphic position and locality uncertain, probably refers to Baltic amber inclusion.

sp.: Giebel 1856: 375.

NOTE. Stratigraphic position and locality uncertain, probably refers to Baltic amber inclusion.

sp.: Scudder in von Zittel 1885a: 781.

= sp.: von Zittel 1885 [sic!]: Metcalf and Wade 1966a: 131.

NOTE. Stratigraphic position and locality uncertain, probably refers to Baltic amber inclusion.

cf. *cunicularia* Linnaeus, 1758: Weitschat and Wichard 1998: 132.

= *Flata* cf. *cunicularia* Linnaeus, 1758: Weitschat and Wichard 2002: 132.

NOTE. Listed in Flatidae by Weitschat and Wichard (1998, 2002), but its assignation is doubtful as it is one of the synonyms of extant *Cixius cunicularius* Linnaeus.

Eocene; Baltic amber [?].

cf. *nervosa* (Linnaeus, 1758): Weitschat and Wichard 1998: 132.

= *Flata* cf. *nervosa* (Linnaeus, 1758): Weitschat and Wichard 2002: 132.

NOTE. Listed in Flatidae by Weitschat and Wichard (1998, 2002),

NOTE. Listed in Flatidae by Weitschat and Wichard (1998, 2002), but its assignation is doubtful as it is one of the synonyms of extant *Cixius nervosus* Linnaeus.

Eocene; Baltic amber [?], 'East Prussia'.

cunicularia Linnaeus, 1758: Gravenhorst 1835: 93.

NOTE. Listed in Flatidae by Weitschat and Wichard (1998, 2002), but its assignation is doubtful as it is one of the synonyms of extant *Cixius cunicularius* Linnaeus. Listed in Cixiidae by Handlirsch (1906–1908) and Metcalf and Wade (1966a), but in the original paper it was only men-

tioned without any description. Probably refers to inclusion in Eocene Baltic amber.

cunicularia Linnaeus, 1758: Burmeister 1835: 638.

NOTE. Listed in Flatidae by Weitschat and Wichard (1998, 2002), but its assignation is doubtful as it is one of the synonyms of extant *Cixius cunicularius* Linnaeus. Listed in Cixiidae by Handlirsch (1906–1908) and Metcalf and Wade (1966a), but in the original paper it was only mentioned without any description. Probably refers to inclusion in Eocene Baltic amber.

cunicularia Linnaeus, 1758: Burmeister 1837: 93.

NOTE. Listed in Flatidae by Weitschat and Wichard (1998, 2002), but its assignation is doubtful as it is one of the synonyms of extant *Cixius cunicularius* Linnaeus. Listed in Cixiidae by Handlirsch (1906–1908) and Metcalf and Wade (1966a), but in the original paper it was only mentioned without any description. Probably refers to inclusion in Eocene Baltic amber.

cunicularia Linnaeus, 1758: Giebel 1856: 375.

NOTE. Listed in Flatidae by Weitschtat and Wichard (1998, 2002), but its assignation is doubtful as it is one of the synonyms of extant *Cixius cunicularius* Linnaeus. Listed in Cixiidae by Handlirsch (1906–1908) and Metcalf and Wade (1966a), but in the original paper it was only mentioned without any description. Probably refers to inclusion in Eocene Baltic amber.

nervosa (Linnaeus, 1758): Gravenhorst 1835: 93.

NOTE. Listed in Flatidae by Weitschat and Wichard (1998, 2002), but its assignation is doubtful as it is one of the synonyms of extant *Cixius nervosus* Linnaeus. Listed in Cixiidae by Handlirsch (1906–1908) and Metcalf and Wade (1966a), but in the original paper it was only mentioned without any description. Probably refers to inclusion in Eocene Baltic amber.

nervosa (Linnaeus, 1758): Burmeister 1837: 93.

NOTE. Listed in Flatidae by Weitschat and Wichard (1998, 2002), but its assignation is doubtful as it is one of the synonyms of extant *Cixius nervosus* Linnaeus. Listed in Cixiidae by Handlirsch (1906–1908) and Metcalf and Wade (1966a), but in the original paper it was only men-

tioned without any description. Probably refers to inclusion in Eocene Baltic amber.

nervosa (Linnaeus, 1758): Giebel 1856: 375.

NOTE. Listed in Flatidae by Weitschat and Wichard (1998, 2002), but its assignation is doubtful as it is one of the synonyms of extant *Cixius nervosus* Linnaeus. Listed in Cixiidae by Handlirsch (1908) and Metcalf and Wade (1966), but in the original paper it was only mentioned without any description. Probably refers to inclusion in Eocene Baltic amber.

Hastites Cockerell, 1922

Type species. *Hastites muiri* Cockerell, 1922: Cockerell 1922: 161; by monotypy.

NOTE. According to Muir's opinion cited in Cockerell (1922), this genus could be placed in Dictyopharidae. Missing in Metcalf and Wade (1966a) catalogue. Carpenter (1992) listed it in 'Homoptera, Family uncertain' section.

muiri Cockerell, 1922: Cockerell 1922: 161, Fig. 3.

Eocene/Oligocene, Priabonian/Rupelian; Gurnet Bay, Isle of Wight: United Kingdom.

Heseneuma Brauckmann et Schlüter, 1993

Type species. *Heseneuma* Brauckmann et Schlüter, 1993: Brauckmann and Schlüter 1993: 185; by original designation.

hammelburgensis Brauckmann et Schlüter, 1993: Brauckmann and Schlüter 1993: 185, Fig. 4, Pl. 1, Fig. 6

NOTE. Originally placed in 'Fulgoroidea, fam. indet.' (Brauckmann and Schlüter 1993). Familial assignation yet to be solved.

Middle Triassic; Herlods–Berg N'Hemmelburg, »Strohgelbe Kalke«, Lower Franconia: Germany.

Lapicixius Ren, Yin et Dou, 1998

Type species. *Lapicixius decorus* Ren, Yin et Dou, 1998: Ren, Yin and Dou 1998: 281, by original designation.

decorus Ren, Yin et Dou, 1998: Ren, Yin and Dou 1998: 282, Figs. 1–10, Pl. I: 2–5, Pl. II: 5.

NOTE. Regarding hind tibia, tarsal pectens and wing venation with rather long r–m veinlet, it probably belongs to Lalacidae Hamilton. According to the drawings, there may be shallow pits on the vertex. It seems to be similar to some Carpopodini Hamilton, but may represent a distinct group.

Late Jurassic, Second Member of Yixian Formation; Chaomidian Village, Beipiao City, Liaoning Province: China.

Liburnia Stål, 1866

Type species. *Embolophora monoceros* Stål, 1853(1855): Stål 1853: 265, Stål 1855: 92; by original designation by Stål 1866: 179.

burmitina Cockerell, 1917: Cockerell 1917: 329; Figs. 8, 9.

NOTE. Originally placed in family Delphacidae (*Liburnia* Stål, 1866 is an extant delphacid genus), transferred to Achilidae by Shcherbakov (2000a), but without generic statement.

Lower Cretaceous, Albian; Burmese amber: Myanmar.

Limfjordia Willmann, 1977

Limfjordia Willmann, 1977: Wilmann 1984: 244.

Type species. *Limfjordia breineri* Willmann, 1977: Wilmann 1977: 740, Figs. 8–10, by original designation.

breineri Willmann, 1977: Willmann 1977: 740, Figs. 8–10.

NOTE. Originally described in Mecoptera: Limfjordiidae (Wilmann 1977). Later (Wilmann 1984), placed it in 'Auchenorrhyncha, Fulgoriformes' and compared to *Laternaria candelaria* (Linnaeus, 1758) of the family Fulgoridae. Regarding the original drawings, as well as the drawings in Willmann (1984), it probably belongs to Dictyopharidae.

Upper Palaeocene/Lowermost Eocene; Moler, Horizon E, Sundby, Mors Island: Denmark.

Lithopsis Scudder, 1878

Type species. *Lithopsis fimbriata* Scudder, 1878b: Scudder 1878: 774, 773; by monotypy.

NOTE. Originally placed in Tropiduchidae (Scudder 1878b: 773). The genus was placed in section 'Homoptera, family uncertain' in Car-

penter (1992) According to the original plates with drawings of *Lithopsis fimbriata* and *Lithopsis elongata* presented in Scudder *in* von Zittel (1885, 1887) and Scudder (1890b) it is attributable to Fulgoroidea. The others call for re–examination and redescription.

delicata Cockerell, 1920: Cockerell 1920c: 241, Pl. 33, Fig. 1.

Eocene, Ypresian; Green River Formation, Smith's Ranch, near Cathedral Bluffs, Winchester Station 17–3, Rio Blanco County. Colorado: U.S.A.

dubiosa Cockerell et Sandhouse, 1921: Cockerell and Sandhouse 1921: 456, Pl. 98, Figs. 4, 5.

Eocene, Ypresian/Lutetian; Green River Formation, Roan Mountains, Colorado: U.S.A.

elongata Scudder, 1890: Scudder 1890b: 301, Pl. VI, Fig. 28.

NOTE. Lewis and Heikes (1991) placed this species in "Fulgoridae (Flatidae)" [sic!].

Eocene, Ypresian/Lutetian; Green River Formation, Green River, Wyoming: U.S.A.

fimbriata Scudder, 1878

= *fimbriata* Scudder, 1878: Scudder *in* von Zittel 1885: 781, Fig. 989.

NOTE. Lewis and Heikes (1991) placed this species in 'Fulgoridae (Flatidae)' [sic!], in another place they proposed that it belongs to Tropiduchidae and established it as a new genus and new species described by Scudder in 1879 [sic!]. Metcalf and Wade (1966a) did not quote the paper with the original description of the species and listed it as firstly mentioned by von Zittel in 1885, then described in Scudder's 1890 paper (Scudder 1890b).

Eocene, Ypresian/Lutetian; Petrified Fish Cut, 6 miles west of Green River, near Green River Station, Sweetwater Count, Wyoming: U.S.A.

River, near Green River Station, Sweetwater Count, Wyoming: U.S.A.

simillima Cockerell, 1920: Cockerell 1920c: 241, Pl. 33, Fig. 2.

Eocene, Ypresian/Lutetian; Green River Formation, Roan Mountains, Colorado: U.S.A.

Megaleurodes Hamilton, 1990

Type species. *Magaleurodes megocellata* Hamilton 1990: Hamilton 1990: 96; by original designation.

megocellata Hamilton, 1990: Hamilton 1990: 96, Figs. 34–36.

NOTE. Described as Aleyrodoidea: Boreoscytidae? by Hamilton (1990), Shcherbakov (2000a) stated that: 'the genus is possibly based on a poorly preserved planthopper, and has nothing in common with boreoscytids (primitive group of Aphidinea)'. Sorensen et al. (1995) placed it in superfamily Fulgoridioidea, but with uncertain family assignment.

Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.

Mesocixiella Martynov, 1939

Type species. *Mesocixiella asiatica* Martynov, 1939: Martynov 1939a(1937a): 87, 160, by monotypy.

NOTE. According to Shcherbakov (1988a), *Mesocixiella* Martynov is a synonym of *Cycloscytina* Martynov, the author placed this genus in Hylicellidae. See also note on genus *Cycloscytina* Martynov, this paper.

fennahi Whalley, 1985: Whalley 1985: 143, Fig. 38.

NOTE. Hamilton (1996) transferred *Mesocixiella fennahi*, which was only provisionally placed within the genus, to Fulgoridiidae.

Lower Jurassic, Lower Liassic [Flatstones], Sinemurian; Stonebarrow, Charmouth, Dorset, England: United Kingdom.

Mesotubilustrium Becker-Migdisova, 1949

= *Mesolubilustrium*: Becker–Midgisova 1949b: 62.

Type species. *Mesotubilustrium asiaticum* Becker-Migdisova, 1949: Becker-Migdisova 1949b: 34, 35; by original designation.

NOTE. Becker-Migdisova (1962b), Metcalf and Wade (1966a) and Carpenter (1992) listed this genus in Issidae; Hamilton (1992) placed it in Sternorrhyncha: Aphidomorpha: Pincombeoidea.

it in Sternorrhyncha: Aphidomorpha: Pincombeoidea.

asiaticum Becker-Migdisova, 1949: Becker-Migdisova 1949b: 35.

Upper Jurassic, Malm, Oxfordian; Chimkentsk District, Karatau: Kazakhstan.

NOTE. Metcalf and Wade (1966a) listed the locality as 'Turkestan'.

Mundopoides Cockerell, 1925

Type species: *Mundopoides cisthenaria* Cockerell, 1925: Cockerell 1925a: 12, Pl. 1. Fig. 5; by monotypy.

cisthenaria Cockerell, 1925a: 12, Pl. 1. Fig. 5.

NOTE. The original description is not clear enough to place this species correctly, also the details on a photo given with the paper are not clear, anyway it could belongs to Cixiidae Borystheninae or Bothriocerinae regarding the shape of the preserved tegmen.

Oligocene/Miocene, Chattian/Aquitanian; Kudia River, Russian Far East, Maritime Territory: Russia.

Myndus Stål, 1862

Type species. *Flata musiva* Germar, 1825: Germar 1825: Pl. 21; by subsequent designation by Oshanin 1912: 117.

wilmattae Cockerell, 1926: Cockerell 1926b: 322, Fig. 12.

NOTE. According to the original drawing reasons for placing this species in genus *Myndus* Stål are not clear, also its placement in Cixiidae remains uncertain.

Oligocene; Bembridge Beds, east of Thoress Bay, Isle of Wight, England: United Kingdom.

Oliarus Stål, 1862

Type species. *Cixius walkeri* Stål, 1859: Stål 1859: 272; by original designation.

oligocenus Cockerell, 1910: Cockerell 1910: 153, 1 Fig.

= *Oliarius oligocenicus* [sic!] Cockerell, 1910: Keilbach 1982: 230.

NOTE. Based on the original drawing in Cockerell's paper (1910) there is no doubt that it should be placed in Achilidae. Lewis (1990) referred it to Fulgoridae [sic!], Fulgoridae [sic!], while *Oliarus* Stål, 1862 is an extant Cixiidae genus.

is an extant Cixiidae genus.

Eocene; Baltic amber, Baltic coast, 'East Prussia'.

Oligonila Théobald, 1937

= *Oligonila* Carpenter, 1992: Carpenter 1992: 236.

Type species. *Oligonila defectuosa* Théobald, 1937: Théobald 1937: 258; by original designation.

NOTE. Carpenter (1992) stated that the original generic name (Théobald 1937) was a *nomen nudum*. This statement is not correct as Théobald gave descriptions of the species together with a short comment

on the similarity of the new genus and its placement near extant genera *Anila* Distant and *Kuvera* Distant. The status of '*Cixius loculatus* Först. [in part.]: 271' — mentioned as a synonym of *Oligonila foersteri* Théobald, 1937 and *Oligonila defectuosa* Théobald, 1937 in Metcalf and Wade (1966a, page 124) is not recognized as page 271 does not appear in Förster (1891) paper. Taxonomic position of this genus is not clear.

defectuosa Théobald, 1937: Théobald, 1937: 259, Pl. XIX, Fig. 22b.

= *Cixius loculatus*: Förster, 1891: 550, Pl. XVI, Fig. 21: Théobald 1937: 258.

Oligocene, Chattian; Brunnstatt, Haut–Rhin: France.

foersteri Théobald, 1937: Théobald, 1937: 258, Pl. XIX, Figs. 22, 22a

= *Cixius loculatus*: Förster, 1891: 550, Pl. XVI, Fig. 22: Théobald 1937: 259.

Oligocene, Chattian; Brunnstatt, Haut–Rhin: France.

Plecophlebus Cockerell, 1917

Type species. *Plecophlebus nebulosus* Cockerell 1917, Cockerell 1917: 327; by monotypy

NOTE. Originally placed in Trichoptera, but transferred to Homoptera, by Botosaneanu (1981). It is listed in Fulgoroidea: Cixiidae by Spahr (1988). Carpenter (1992) placed it in the 'Homoptera, Family uncertain' group. According to the original drawings, the placement in Cixiidae is possible.

nebulosus Cockerell, 1917: Cockerell 1917: 327, Fig. 7.

Lower Cretaceous, Albian; Burmese amber: Myanmar.

Poiocera de Laporte, 1832

Type species. *Poiocera luczoti* de Laporte, 1832: de Laporte 1832: 221;

Type species. *Poiocera luczoti* de Laporte, 1832: de Laporte 1832: 221;

by original designation.

NOTE. Carpenter (1992) lists fossils from Baltic amber ascribed to this genus in family Fulgoridae.

nassata Germar et Berendt, 1856

= *Poeocera nassata* [sic!] Germar et Berendt, 1856: Germar and Berendt 1856: 17, Pl. II, Fig. 5.

= *Poeocera nassata* [sic!] Germar et Berendt, 1856: Handlirsch 1906–1908: 1071.

NOTE. Regarding the original drawing it could clearly be placed in Issidae, but its generic affiliation remains enigmatic.

Eocene; Baltic amber, Baltic coast, 'East Prussia'.

pristina Germar et Berendt, 1856

= *Poeocera* [sic!] *pristina* Germar et Berendt, 1856: Germar and Berendt 1856: 18, Pl. II, Fig. 6.

= *Poeocer* [sic!] *pristina* Germar et Berendt, 1856: Handlirsch 1906–1908: 1071.

NOTE. Regarding the original drawing it may represent Achilidae, but its generic affiliation remains obscure.

Eocene; Baltic amber; 'East Prussia'.

venulosa Giebel, 1862

= *Poeocera venulosa* [sic!] Giebel, 1862: 312.

= *Poeocera venulosa* [sic!] Giebel, 1862: Handlirsch 1906–1908: 1071.

NOTE. Hennig (1966) listed the species and mentioned 'Nr. 4175: Fulgoroidea. Nicht näher untersucht'. Spahr (1988) listed it as erroneously described as amber inclusion and placed it in the group: '1.2. Kopal–Auchenorrhyncha'. Giebel (1862) did not give any information about geographic or stratigraphic origin of this inclusion. Metcalf and Wade (1966a) listed it mistakenly as 'Oligocene, Bavaria'. Hennig (1966) also listed the stratigraphic placement and locality as mistakenly given by Metcalf and Wade (1966a).

Protoliarus Cockerell, 1920

Type species. *Protoliarus humatus* Cockerell, 1920: Cockerell 1920c: 243; by original designation.

NOTE. Originally, the genus was described in Fulgoridae. Metcalf and Wade (1966a) and Carpenter (1992) listed it in Cixiidae. Judging from the original drawings and the description in Cockerell's paper (1920c), it does not belong to Cixiidae while, quite probably, to Fulgoroidea.

humatus Cockerell, 1920: Cockerell 1920c: 243, Pl. 33, Fig. 5.

= *Protoliarus hamatus* [sic!] Cockerell, 1920: Carpenter 1992: 236.

Eocene, Ypresian/Lutetian; Green River Formation, Smith's Ranch, near Cathedral Bluffs, Winchester Station 17–3, Rio Blanco County: Colorado: U.S.A.

Scolypopites Tillyard, 1923

Type species. *Scolypopites bryani* Tillyard, 1923: Tillyard 1923a: 17; by original designation.

australis Tillyard, 1924 [sic!]: Lewis 1989d: 20 — *nomen nudum.*

NOTE. Mistakenly referred by Lewis (1989d) to the fossil genus *Scolypopites* Tillyard. In fact, this is the extant Australian species *Scolypopa australis* Walker, to which Tillyard (1923a) compared the fossil. Stratigraphic position and locality are therefore also wrong.

Miocene [sic!]; Queensland: Australia.

Yanducixius Ren, Lu et Ji, 1995

Type species. *Yanducixius yihi* Ren, Lu et Ji, 1995: Ren, Lu et Ji 1995: 67, Pl. 8, Figs. 1, 2, Text–fig. 3–25; by original designation.

NOTE. Taxonomic placement not certain, it probably belongs to Lalacidae. The two species described seem to represent only one variable species.

pardalinus Ren, Lu et Ji, 1995: Ren, Lu et Ji 1995: 68, Pl. 8, Fig. 3, Text–figs. 3–26.

Lower Cretaceous, Neocomian; Lushangfen Formation, Western Beijing, Eastern China: China.

yihi Ren, Lu et Ji, 1995: Ren, Lu and Ji 1995: 67, Pl. 7, Figs. 3, 4, Text–fig. 3–32.

Lower Cretaceous, Neocomian; Lushangfen Formation, Western Beijing, Eastern China: China.

List of *incertae sedis* taxa which should probably be placed in Fulgoromorpha, taxa wrongly placed within Fulgoromorpha, but belonging to Hemiptera, and list of names regarded as synonymous with taxa placed in fossil Fulgoromorpha

Cixiidae sp.: Henriksen 1922: 28, Fig. 16.

Upper Palaeocene/Early Eocene; Nor Hanklit: Denmark.

NOTE. According to original drawing it cannot be placed among Cixiidae. Examination of the specimen proved that it is representative of Cicadomorpha: Cercopoidea.

Anaprosbole Becker-Migdisova, 1946

Type species. *Anaprosbole ivensis* Becker-Migdisova, 1946: Becker-Migdisova 1946: 761, Fig. 24a, b; by subsequent designation by Becker-Migdisova 1960c: 28.

Note. Originally (Becker-Migdisova 1946) described in Fulgoroidea: 'Prosbolopsidae'. Later (Becker-Migdisova 1960c, 1962b), placed it in Scytinopteridae: Ivaiinae. Also Evans (1956) and Carpenter (1992) placed it in Scytinopteridae. Shcherbakov (1984) placed it in Prosbolopseidae: Ivaiinae.

ivensis Becker-Migdisova, 1946: Becker-Migdisova 1946: 761, Fig. 24a, b.

Upper Permian, Kazanian; Soyana River, Arkhangelsk District: Russia.

Asiocixius Becker-Migdisova, 1962

Type species. *Asiocixius fulgoroides* Becker-Migdisova, 1962: Becker-Migdisova 1962a: 97; by original designation.

Note. Originally described in Cixiidae; Evans (1964) listed this species in unplaced Fulgoroidea. Becker-Migdisova (1962b) listed it in Cixiidae. Placed in Hylicellidae by Shcherbakov (1985), later synonymized with *Cycloscytina* Martynov, 1927 by Shcherbakov (1988b).

fulgoroides Becker-Migdisova, 1962: Becker-Migdisova 1962a: 97, Fig. 11.

Note. Shcherbakov (1988b) synonymized this species with *Vitreacixius ellipticus* Becker-Migdisova.

Triassic, Rhaetian; Issyk-Kul' District: South Kyrgyzstan: Kyrgyzstan.

Asiraca Latreille, 1796

Type species. *Cicada clavicornis* Fabricius, 1796: Fabricius 1796: 41; by subsequent designation by Latreille 1810: 434.

by subsequent designation by Latreille 1810: 434.

egertoni Brodie, 1845: Brodie 1845: 33, 120; Pl. IV, Figs. 7, 8.

= *Asira egertoni* [sic!] Brodie, 1845: Giebel 1856: 377.

= *Asira egertoni* (Brodie, 1845): Morris 1854: 118.

= *Asira egertoni* (Brodie, 1845): Giebel 1856: 377.

= *Asira kenngotti* Giebel, 1856: Giebel 1856: 377.

= *Asira kenngottie* [sic!] Giebel, 1856: Meunier 1904: 121.

= *Asira egertoni*: Scudder 1891: 168.

= *Asira kenngotti*: Scudder 1891: 168.

= *Asiraca egertoni:* Scudder 1891: 168.

NOTE. Taxonomic position uncertain. According to the label on the specimen it is a representative of Protopsyllididae, related to *Sinopsocidium*, Shcherbakov det. There are two specimens in NHM, London.

Lower Cretaceous, Berriasian; Purbecks, Dinton, Wiltshire [Vale of Wardour], England: United Kingdom.

Beaconiella Evans, 1963

Type species. *Beaconiella fennahi* Evans, 1963: Evans 1963: 21; by original designation.

NOTE. Evans (1963) listed both species: *Beaconiella fennahi* Evans and *B. multivenata* Evans in Fulgoroidea. Riek (1973) transferred this genus from Fulgoroidea to Ignotalidae. Shcherbakov (1984), placed it in Cicadomorpha: Palaeontinoidea. Hamilton (1992) ascribed it to Cicadomorpha: Palaeontinoidea, as representing probably a new family. Shcherbakov (1996, 2000b) placed it in Cicadomorpha: Pereborioidea: Curvicubitidae.

fennahi Evans, 1963: Evans 1963: 21, Fig. 5d.

Middle Triassic; Hawkesbury Sandstone, Beacon Hill, Brookvale, New South Wales: Australia.

multivenata Evans, 1963: Evans 1963: 22, Fig. Plate 1D, Text–fig. 5a.

NOTE. Evans (1964) listed this species in Fulgoroidea.

Middle Triassic; Hawkesbury Sandstone, Beacon Hill, Brookvale, New South Wales: Australia.

Cathaycixius Ren, Lu et Ji, 1995

Type species. *Cathaycixius pustulosus* Ren, Lu et Ji, 1995: Ren, Lu and Ji 1995: 66; by original designation.

Ji 1995: 66; by original designation.

NOTE. The taxonomic status yet to be solved. Probably it does not belong to Cixiidae, as basal cell is too long for any Cixiidae. It could represent a Cicadomorpha: Prosboloidea: Hylicellidae or Cercopoidea: Procercopidae.

pustulosus Ren, Lu et Ji, 1995: Ren, Lu et Ji 1995: 66, Pl. 7, Figs. 3, 4, Text–fig. 3–23.

Lower Cretaceous, Neocomian; Lushangfen Formation, Western Beijing, Eastern China.

trinervus Ren, Lu et Ji, 1995: Ren, Lu et Ji 1995: 67, Pl. 7, Fig. 2, Text–fig. 3–24.

Lower Cretaceous, Neocomian; Lushangfen Formation, Western Beijing, Eastern China.

Cicadellium Westwood, 1854

Type species. *Cicadellium dipsas* Westwood, 1854: Westwood 1854: 394; by subsequent designation by Handlirsch 1907 (1906–1908): 641.

= *Pseudodelphax* Handlirsch, 1907: Handlirsch 1906–1908: 641; Type species: *Delphax pulcher* Brodie, 1845: Brodie 1845: 33; by monotypy.

Note. There were two species described within the genus *Cicadellium* Westwood — *C. dipsas* Westwood, 1854, described on the basis of the tegmen and *C. psocus* Westwood, 1854, described on the basis of hind wing. Shcherbakov (1992) stated that *Cicadellium* Westwood should be placed in Cicadomorpha: Membracoidea, in the lineage between Karajassidae and modern Cicadellidae. Carpenter (1992) listed this genus in the section 'Homoptera, family uncertain'. Another species placed in this genus is *Cicadellium pulchrum* (Brodie, 1845), which is placed here as a synonym of *Pseudodelphax pulcher* (Brodie, 1845). See also note on this genus.

dipsas Westwood, 1854: 394, Pl. XV, Fig. 6.

= *Cicadellium dipsis* [sic!] Westwood, 1854: Buckton 1891: Plate F, Fig. 3.

Note. Listed in Fulgoridae by Handlirsch (1906–1908), later (Handlirsch 1939) in 'Auchenorrhyncha incertae sedis'. However he mentioned that it is similar to *Fulgoridium*. Metcalf and Wade (1966a) listed this species under 'Division Auchenorhyncha'.

Lower Cretaceous, Berriasian; Middle Purbecks, Durdlestone Bay, Dorset, England: United Kingdom.

Dorset, England: United Kingdom.

psocus Westwood, 1854: 394, Pl. XV, Fig. 18.

= *Cicada psocus* Westwood, 1854: Giebel 1856: 374.

Note. Handlirsch (1906–1908) listed it in Fulgoridae; Handlirsch (1939) mentioned that it represents a hind wing of a Fulgoroidea specimen. Metcalf and Wade (1966a) listed this species under 'Division Auchenorhyncha'. Becker-Migdisova (1962b) reported *Cicadellium psocus* Westwood, 1854 as a taxon of doubtful placement and placed in Fulgoromorpha *incertae sedis*.

Lower Cretaceous, Berriasian; Middle Purbecks, Durdlestone Bay, Dorset, England: United Kingdom.

Cixiella Becker-Migdisova, 1962

Type species. *Cixiella reducta* Becker-Migdisova, 1962: Becker-Migdisova 1962a: 98, Fig. 12; by original designation.

NOTE. Originally described in Cixiidae. Transferred to Hylicellidae by Shcherbakov (1985). Hamilton (1992) listed this genus in Prosboloidea: Hylicellidae. Carpenter (1992) listed this genus in Cixiidae. Ansorge (1996) treated *Cixiella* Becker-Migdisova as a synonym of *Archijassus* Handlirsch, 1906, and transferred it to Cicadomorpha: Membracoidea: Archijassidae.

reducta Becker-Migdisova, 1962: Becker-Migdisova 1962a: 98, Fig. 12.

Triassic, Rhaetian; Sogyuty (=Issyk-Kul'): Kyrgyzstan.

Cixius Latreille, 1804

Type species. *Cicada nervosa* Linnaeus, 1758; by subsequent designation by Curtis 1837: Pl. 673.

hesperidium Scudder, 1890: Scudder 1890b: 287, Pl. 6, Fig. 19.

NOTE. In the original description placed tentatively in the genus *Cixius* Latreille, and the locality given is Green River, Wyoming. The original description was based on a single specimen but, the drawing is unclear enough for the species to be placed in Cixiidae and even Fulgoromorpha.

Eocene, Ypresian/Lutetian; Green River Formation, Green River, Colorado: U.S.A.

Cycloscytina Martynov, 1927

Cycloscytina Martynov, 1927

Type species. *Cycloscytina delutinervis* Martynov, 1927: Martynov 1927 (1926): 1349; by subsequent designation of Becker-Migdisova 1949b: 36.

NOTE. Originally, the genus was described in Scytinopteridae. To this genus Becker-Migdisova (1949b) transferred a few species described by Martynov 1939a(1937a): *Mesocixiella extensa* Martynov, *Mesocixiella furcata* Martynov, *Mesocixiella major* Martynov and *Mesocixiella parvula* Martynov, and listed all of them in 'Cixiidae: Mesocixiinae'. Evans (1956) listed *Cycloscytina delutinervis* Martynov in Homoptera of uncertain position.

Becker-Migdisova (1949a, 1962b) and Metcalf and Wade (1966a) listed this genus in Cixiidae. Shcherbakov (1985) removed *Cycloscytina* Martynov from Cixiidae, and synonymized under *Cycloscytina* Martynov the following genera (1988a): *Mesocixiella* Martynov, *Asiocixius* Becker-Migdisova and *Vitreacixius* Becker-Migdisova. He left in the genus only *Cycloscytina delutinervis* Martynov, *Cycloscytina asiatica* (Martynov), and *Cycloscytina fulgoroides* (Becker-Migdisova), the second originally described in genus *Mesocixiella* Martynov and the last in genus *Asiocixius* Becker-Migdisova. Later (Shcherbakov 1988b), he transferred the group to Cicadomorpha: Prosboloidea: Hylicellidae: Vietocyclinae and suggested that *Cycloscytina reducta* Becker-Migdisova and *Cycloscytina plachutai* Becker-Migdisova should be included in Procercopidae. Hamilton (1992) listed it in Prosboloidea: Hylicellidae, Carpenter (1992) listed this genus in Cixiidae.

sp.: Becker-Migdisova 1949b: 38.

NOTE. Probably part of tegmen of *Cycloscytina liasina* Becker-Migdisova (Becker-Migdisova 1949b), which is a *nomen nudum*.

Early/Middle Jurassic; Sogul and Sulyukta Formations, Shurab III, Fergana Valley: South Kyrgyzstan: Kyrgyzstan.

delutinervis Martynov, 1927: Martynov 1927(1926) 1350, Fig. 1.

NOTE. Becker-Migdisova (1949b) listed it in 'Cixiidae, subfamily Mesocixiinae'.

Upper Jurassic; Kara–Tau, Uspenovka (formerly Galkino): Kazakhstan.

NOTE. Metcalf and Wade (1966a) listed locality as 'Turkestan'.

liasina Becker-Migdisova, 1949: Becker-Migdisova 1949b: 38 — *nomen nudum*.

Stratigraphic position and locality not mentioned.

plachutai Becker-Migdisova, 1949: Becker-Migdisova 1949b: 38, Text–fig. 29.

plachutai Becker-Migdisova, 1949: Becker-Migdisova 1949b: 38, Text–fig. 29.

NOTE. Becker-Migdisova (1949b) listed it in 'Cixiidae, subfamily Mesocixiinae'. Shcherbakov (1988b) argues that "... »*Cycloscytina*« *plachutai* Becker-Migdisova, 1949" should be placed in Procercopidae.

Early/Middle Jurassic; Shurab III, Fergana Valley: Kyrgyzstan.

NOTE. Metcalf and Wade (1966a) listed locality as 'Leninabad'.

reducta Becker-Migdisova, 1949: Becker-Migdisova 1949b: 37, Text–fig. 28.

NOTE. Becker-Migdisova (1949b) listed it in 'Cixiidae: Mesocixiinae'. Shcherbakov (1988b) argues that "... »*Cycloscytina*« *reducta* Becker-Migdisova, 1949" should be placed in Procercopidae.

Lower Jurassic; Kyzyl–Kiya, Fergana Valley: Kyrgyzstan.

NOTE. Metcalf and Wade (1966a) listed locality as 'Osh'.

Delphax Fabricius, 1798

Type species. *Cicada crassicornis* Panzer, 1796: Panzer 1796: 19; by subsequent designation under the Plenary powers of the International Commission of Zoological Nomenclature.

= *Araeopus* Spinola, 1839: Spinola 1839a: 336.

Type species: *Cicada crassicornis* Panzer, 1796: Panzer 1796: 19; by monotypy.

sp.: Scudder 1867: 117

NOTE. Original statement (Scudder 1867) is: "The Homoptera are represented by genera allied to *Issus*, *Gypona* and *Delphax*." These data probably refers to the specimen described as *Delphax senilis* Scudder.

Eocene; Green River Formation, White River, Colorado / Utah: U.S.A.

rhenana Statz, 1950: Statz 1950: 5, Pl. III, Fig. 31.

NOTE. Taxonomic placement not certain; on the basis of the original material, it probably does not represent a Fulgoroidea.

Oligocene, Chattian (or Miocene, Aquitanian); Rott: Germany.

senilis Scudder, 1877: Scudder 1877: 760.

NOTE. In the original description placed in Fulgoridae. In Piton (1940), on page 241, listed as belonging to Cixiidae. Taxonomic position cannot be established on the basis of the original description and drawing presented in Scudder (1890b). Crawford's (1914) report that drawing presented in Scudder (1890b). Crawford's (1914) report that this species was recorded from Utah seems to be doubtful.

Eocene; Green River Formation, Chagrin Valley, White River, Valley of Douglas Creek, Colorado, Utah [?]: U.S.A.

Diaplegma Scudder, 1890

Type species. *Diaplegma abductum* Scudder, 1890: Scudder 1890b: 288; by subsequent designation by Cockerell 1909b: 81.

NOTE. Originally placed in Cixiidae. Handlirsch (1906–1908) listed species ascribed to this genus in Fulgoridae. Listed in Cixiidae by Metcalf and Wade (1966a) and Carpenter (1992). The taxonomic position of this genus and species ascribed to it remains unclear. The only figured species is *D. abductum* Scudder but the figure is unclear. Characters mentioned in the original description are not clear enough to place this genus within one of the Fulgoroidea families.

abductum Scudder, 1890: Scudder 1890b: 290, 289, Pl. 15, Fig. 8.

NOTE. Taxonomic position, within Fulgoroidea or outside, is not clear. See comments on genus *Diaplegma* Scudder.

Early Oligocene, Rupelian (Oligocene, Chattian); Florissant, Teller County, Colorado: U.S.A.

haldemani Scudder, 1890: Scudder 1890b: 289.

NOTE. Taxonomic position, within Fulgoroidea or outside, is not clear. See comments on genus *Diaplegma* Scudder.

Early Oligocene, Rupelian (Oligocene, Chattian); Florissant, Teller County, Colorado: U.S.A.

obdormitum Scudder, 1890: Scudder 1890b: 292, 289.

NOTE. Taxonomic position, within Fulgoroidea or outside, is not clear. See comments on genus *Diaplegma* Scudder.

Middle Eocene; Green River Formation, Green River, Wyoming: U.S.A.

occultorum Scudder, 1890: Scudder 1890b: 291, 289.

NOTE. Taxonomic position, within Fulgoroidea or outside, is not clear. See comments on genus *Diaplegma* Scudder.

Early Oligocene, Rupelian (Oligocene, Chattian); Florissant, Colorado: U.S.A.

Early Oligocene, Rupelian (Oligocene, Chattian); Florissant, Colorado: U.S.A.

ruinosum Scudder, 1890: Scudder 1890b: 292, 289.

NOTE. Taxonomic position, within Fulgoroidea or outside, is not clear. See comments on genus *Diaplegma* Scudder.

Early Oligocene, Rupelian (Oligocene, Chattian); Florissant, Colorado: U.S.A.

venerabile Scudder, 1890: Scudder 1890b: 291, 289.

Early Oligocene, Rupelian (Oligocene, Chattian); Florissant, Colorado: U.S.A.

NOTE. Taxonomic position, within Fulgoroidea or outside, is not clear. See comments on genus *Diaplegma* Scudder.

veterascens Scudder, 1890: Scudder 1890b: 290, 289.

NOTE. Taxonomic position, within Fulgoroidea or outside, is not clear. See comments on genus *Diaplegma* Scudder

Early Oligocene, Rupelian (Oligocene, Chattian); Florissant, Colorado: U.S.A.

Dictyophara Germar, 1833

Type species. *Fulgora europaea* Linnaeus, 1767: Linnaeus 1767: 704; by subsequent designation by Desmarest 1849: 2.

amatoria (Heer, 1853): Heer 1853b: 90; Pl. XIII, Fig. 10.

= *Pseudophania* [sic!] *amatoria* Heer, 1853: Heer 1853a: 194.

= *Pseudophania* [sic!] *amatoria* Heer, 1853: Heer 1853b: 90; Pl. XIII, Fig. 10.

= *Pseudophana amatoria* Heer, 1853: Giebel 1856: 376.

= *Pseudophana amatoria* Heer, 1853: Heer 1856b: 39.

= *Dyctiophora* [sic!] *amatoria* Heer, 1853: Walker 1858b: 319.

= *Pseudophania amatora* [sic!] Heer, 1853: Heer 1865: 393.

= *Pseudophania amatora* [sic!] Heer, 1853: Handlirsch 1906–1908: 1092.

= *Dictyophara amatoria* (Heer, 1853): Metcalf and Wade 1966a: 126.

= *Pseudophana amatoria* Heer, 1853: Emeljanov 1983a: 79.

NOTE. Originally described in the genus *Pseudophana* Burmeister which is a synonym of *Dictyophara* Germar. Emeljanov (1983a) argued that this taxon does not belong to Dictyopharidae, and transfered it to Cicadomorpha.

Late Miocene, Sarmatian (Miocene, Messinian); Oeningen, Baden–Würtemberg: Germany.

bouvei Scudder, 1890: Scudder 1890b: 286; Pl. 21, Fig. 16.

bouvei Scudder, 1890: Scudder 1890b: 286; Pl. 21, Fig. 16.

NOTE. Emeljanov (1983a) transferred this taxon to Cicadomorpha: Cicadellidae.

Early Oligocene, Rupelian (Oligocene, Chattian); Florissant, Colorado: U.S.A.

Eofulgoridium Martynov, 1939

Type species. *Eofulgoridium kisylkiense* Martynov, 1939: Martynov 1939a (1937a): 95, 164; by subsequent designation by Becker-Migdisova 1962b: 184.

chanmaense Hong, 1982: Hong 1982: 90, Pl. 11, Fig. 1, Text–figs. 64–65.

NOTE. In the original description placed in family Fulgoridae [sic!]. This specimen according to the original drawings, does not correspond to *Eofulgoridium* Martynov, presented e.g. in Martynov 1939a(1937a), Carpenter (1992) and Ansorge (1996), and on the basis of the drawings, it cannot be placed in Fulgoromorpha.

Upper Jurassic/Lower Cretaceous, Tithonian/Berriasian; Jiquan Basin, Gansu Province: China.

Eojassus Handlirsch, 1939

Type species. *Eojassus indistinctus* Handlirsch, 1939: Handlirsch 1939: 145, Pl. XVI, Fig. 300; by monotypy.

NOTE. Originally described in family 'Jassidae', i.e. Cicadellidae. Evans (1956) listed *Eojassus indistinctus* Handlirsch in Homoptera of uncertain position. Becker-Migdisova (1962b) placed this genus in Archijassidae. Metcalf and Wade (1966a) ascribed genus *Eojassus* Handlirsch to Cicadomorpha: Membracoidea: Cicadellidae: Coelidiinae [sic!]. Hamilton (1992) ascribed *Eojassus* Handlirsch to Fulgoridiidae, Carpenter (1992) placed *Eojassus* Handlirsch in Cicadomorpha: Membracoidea: Archijassidae. For its placement and synonymy proposed by Ansorge (1996) see note on genus *Archijassus* Handlirsch in this paper.

indistinctus Handlirsch, 1939: Handlirsch 1939: 145, Pl. XVI, Fig. 300.

Lower Jurassic, Toarcian (?); Dobbertin, Mecklenburg: Germany.

Elliptoscarta Tillyard, 1926

Type species. *Elliptoscarta ovalis* Tillyard, 1926, Tillyard 1926c: 16, 5; by original designation.

by original designation.

NOTE. Originally described in Scytinopteridae. This genus is excluded from Scytinopteridae and listed among Fulgoridae in Beier (1938) and Handlirsch (1939).

ovalis Tillyard, 1926, Tillyard 1926c: 16, 5, Text–fig. 15.

Upper Permian; Belmont, New South Wales: Australia.

Fulgoridium Handlirsch, 1906

Type species. *Phryganidium balticum* Geinitz, 1880: Geinitz 1880: 527, Pl. 22, Fig. 13; by subsequent designation by Handlirsch 1906–1908: 496.

= *Phryganidium* Geinitz, 1880 (pars)

reductum Handlirsch, 1921: Handlirsch 1920–1921(1925): 212, Fig. 193.

= *Fulgoridium reductum* [sic!] Handlirsch, 1939: Handlirsch 1939: 138, Pl. XV, Fig. 283.

= *Mesojassus pachyneurus* Handlirsch, 1939: Handlirsch 1939: 146, Pl. XVI, Fig. 299.

NOTE. Originally the species was listed in Fulgoridae, but only a drawing was presented, with an annotation 'n. sp.'. The formal description of the species placed in Fulgoridiidae, also with an annotation 'n. sp.' was given in Handlirsch (1939). Metcalf and Wade (1966a) listed this species in Fulgoridiidae. Shcherbakov (1992) proposed the following synonymy: *Mesoledra* Evans, 1956: Evans 1956: 211, nom. nov. pro *Mesojassus* Handlirsch, 1939 nec *Mesojassus* Tillyard, 1916 = *Handlirschiana* Metcalf et Wade, 1966: Metcalf and Wade 1966a: 220. Ansorge (1996) proposed the following synonymy: *Mesoledra pachyneura* (Handlirsch, 1939) = *Fulgoridium reductum* Handlirsch, 1921 = *Fulgoridium reductum* Handlirsch, 1939 = *Mesojassus pachyneurus* Handlirsch, 1939 and placed it in Cicadomorpha, Membracoidea, Archijassidae. Hamilton (1992) placed the family Archijassidae in Cicadomorpha: Cercopoidea, while Shcherbakov (1992) believes it represents a subfamily of Hylicellidae.

Lower Jurassic, Upper Liassic; Dobbertin, Mecklenburg: Germany.

Fulgoringruo Pinto, 1990

Type species. *Fulgoringruo kukalovae* Pinto, 1990: Pinto 1990: 4; by original designation.

NOTE. Originally described in family Fulgoringruidae† Pinto, 1990, placed into Fulgoromorpha. Shcherbakov (2000b) transferred Fulgoringruidae to Cicadomorpha: Dysmorphoptiloidea: Dysmorphoptilidae, with a subfamilial rank.

kukalovae Pinto, 1990: Pinto 1990: 4, Figs. 5 and 6.

Upper Permian, Iratí/Estrada Nova Formation, Passa Dois Group, a cutting at BR–290, km 185+500 of the road Porto Alegre–Uruguaiana, Rio Grande do Sul State: Brazil.

Fulgoropsis Hong, 1983 — ***nomen praeoccupatus.***

Type species. *Fulgoropsis fusca* Hong, 1983: Hong 1983b: 2; by original designation.

NOTE. Generic name preoccupied by *Fulgoropsis* Martynov. For taxonomic placement see comments on *Limois* Stål.

fusca Hong, 1983: Hong 1983b: 2.

Middle Miocene; Shanwang Formation N_1s, Xiejiahe Village, Shanwang, Linqu, Shandong Province: China.

Gondwanaptera Pinto et Ornellas, 1981

Type species. *Gondwanaptera capsii* Pinto et Ornellas, 1981: Pinto and Pinto de Ornellas 1981: 211; by original designation.

NOTE. Originally described in 'Fulgoroidea: Pereboridae' by Pinto and Pinto de Ornellas (1981). Placed in Cicadomorpha: Pereborioidea: Pereboriidae by Shcherbakov (1984).

capsii Pinto et Ornellas, 1981: Pinto and Ornellas 1981: 211.

Upper Permian; Iratii/Estrada Nova Formation, Passa Dois group, Parana Basin, Minas do Leao, left side of a cutting in km 90 (ex 78+500) of the road BR290, Porto Alegre — Urugaiana, Rio Grande do Sul State: Brazil.

Homaloscytina Tillyard, 1926

Type species. *Homaloscytina plana* Tillyard, 1926: Tillyard 1926c: 16, 5; by original designation.

NOTE. Originally described in Scytinopteridae. This genus was excluded from Scytinopteridae and listed among Fulgoridae in Beier (1938) and Handlirsch (1939).

plana Tilyard, 1926: Tillyard 1926c: 16, 5, Text–fig. 14.

Upper Permian; Warner's Bay, New South Wales: Australia.

Homopterites Handlirsch, 1908

Type species. *Homopterites anglicus* Handlirsch, 1906: Handlirsch 1906–1908: 499; by monotypy.

anglicus Handlirsch, 1906: Handlirsch 1906–1908: 500, Pl. XLIII, Fig. 37.

NOTE. Evans (1956) listed it in Homoptera of uncertain position, Becker-Migdisova (1962b) placed it in Fulgoromorpha *incertae sedis*, Metcalf and Wade (1966a) placed it in the 'Division Paleorrhyncha'. Carpenter (1992) listed it in Homoptera of uncertain familial assignment. Hamilton (1992) ascribed this genus to Cicadomorpha: Cercopoidea: Archijassidae (sic!). It should be rather placed in Cicadomorpha.

Jurassic, Lower Liassic; Forthampton, Gloucestershire, England: United Kingdom.

Hylophylax Lin, 1982

Type species. *Hylophylax erromena* Lin, 1982: Lin 1982b: 153, Pl. 64, Fig. 4; by original designation.

NOTE. Synonym of *Oxycephala* Hong, *Fulgoropsis* Hong nec *Fulgoropsis* Martynov and *Limois* Stål by Zhang (1989). See note on genus *Limois* Stål in this paper.

erromena Lin, 1982: Lin 1982b: 153, Pl. 64, Fig. 4.

NOTE. This species was synonymized with *Oxycephala shanwangensis* Hong, *Oxycephala xiejiaheensis* Hong and *Fulgoropsis fusca* Hong.

Middle Miocene; Shanwang Formation N_1s, Xiejiahe Village, Shanwang, Linqu, Shandong Province: China.

Hypocixius Cockerell, 1926

Hypocixius Cockerell; 1920: 137

= *Hipocixius* [sic!] Cockerell: Petrulevičius 2000: 137.

Type species. *Hypocixius oblitescens* Cockerell, 1926: Cockerell 1926a: 501, Fig. 1; by monotypy.

oblitescens Cockerell, 1926a: 501, Fig. 1.

= *Hipocixius* [sic!] *oblitescens* Cockerell 1926: Petrulevičius 2000: 137.

NOTE. Metcalf and Wade (1966a) listed it in Cixiidae. Carpenter (1992) placed it in Homoptera of uncertain familial assignment, but noted that it could be related to Cixiidae. Petrulevičius (2000) wrote "This species could not be assigned to any family of Fulgoroidea because of the lack of

the apical part of CuP and AA_{3+4}, but seems not to be related to Cixiidae because the AA_{3+4} seems to finish at the same time with CuP."

Late Palaeocene; Sunchal, Jujuy Province: Argentina.

Kaltanopibrocha Becker-Migdisova, 1961

Type species. *Kaltanopibrocha boreoscytinoides* Becker-Migdisova, 1961: Becker-Migdisova 1961: 357; by original designation.

NOTE. Originally described in Pereboriidae. Listed in Fulgoromorpha: Pereboriidae in Becker-Migdisova (1962b). Listed as 'Fulgoroidea: Pereboridae' by Pinto and Pinto de Ornellas (1981). Transferred to Cicadomorpha: Prosboloidea: Prosbolopseidae: Prosbolopseinae by Shcherbakov (1984).

boreoscytinoides Becker-Migdisova, 1961: Becker-Migdisova 1961: 357, Text–fig. 291, Pl. XXVI, Fig. 176.

Lower Permian, Ufimian; Kaltan, Kuznetsk Formation, Kuznetsk Bassin: West Siberia: Russia.

Karabasia Martynov, 1927

Type species. *Karabasia paucinervis* Martynov, 1927: Martynov 1926(1927): 1356; by monotypy.

NOTE. Originally described in Fulgoridae. Becker-Migdisova (1949) placed it in 'Jassidae: Bythoscopinae'. Evans (1956) listed it in Homoptera of uncertain position. Becker-Migdisova (1962b) listed in Cicadelidae. Metcalf and Wade (1966a) placed it among unplaced Fulgoroidea. Hamilton (1992) listed it in Hemiptera: Heteroptera. Popov and Shcherbakov (1991, 1996) and Shcherbakov (1992) ascribed it to Hemiptera: Coleorrhyncha: Karabasiidae and included a few additional species (Popov and Shcherbakov 1991).

cies (Popov and Shcherbakov 1991).

paucinervis Martynov, 1927: Martynov 1926(1927): 1356, Fig. 5.

Upper Jurassic, Malm, Oxfordian; Karabas–tau, former Chimkentsk District, Kara–Tau Mountains: South-West Kazakhstan: Kazakhstan.

NOTE. Metcalf and Wade (1966a) listed the locality as 'Turkestan'.

Karajassus Martynov, 1927

Type species. *Karajassus crassinervis* Martynov, 1927: Martynov 1927(1926): 1352, 1353, Fig. 2; by monotypy.

crassinervis Martynov, 1927: Martynov 1926(1927): 1352; 1353, Fig. 2.

= *Karrajassus crassinervus* [sic!] Martynov, 1927: Evans 1938: 25.

= *Karrajassus* [sic!] *crassinervis* Martynov, 1927: Evans 1956: 243.

NOTE. Originally placed in Cicadellidae. Becker-Migdisova (1949) placed it in Tettigometridae, but in a later paper (Becker-Migdisova 1966b) she transferred this group to Cicadellidae. Hamilton mentioned it (1987) as probable Hylicellidae. Placed in Cicadomorpha: Membracoidea: Karajassidae by Shcherbakov (1992). Hamilton (1992) listed this genus in 'Fulgoridioidea: new family?'.

Upper Jurassic, Malm, Oxfordian; Karabas–tau, former Chimkentsk District, Kara–Tau Mountains: South-West Kazakhstan: Kazakhstan.

NOTE. Metcalf and Wade (1966a) listed the locality as 'Turkestan'.

Knezouria Jell, 1992

Type species. *Knezouria unicus* Jell, 1992: Jell 1992: 360; by original designation.

unicus Jell, 1992: Jell 1992: 360: Fig. 1.

NOTE. The specimen is a nymph of which familial assignment is not clear. For comments on nymphs of early Hemiptera see also Shcherbakov and Popov (2002).

Upper Triassic, Carnian; Blackstone Formation, Dinmore, Ipswich Basin, Queensland: Australia.

Lithopsis Scudder, 1878

Type species. *Lithopsis fimbriata* Scudder, 1878: Scudder 1878b: 774; by monotypy.

punctinervis Piton, 1940: Piton 1940: 170, Fig. 39.

NOTE. According to the original description and drawing it can hardly be placed within Fulgoroidea. Any representative of this group has pronotum with shape and structure figured in Piton (1940).

Upper Palaeocene, Sparnacian (Eocene, Ypresian); Puy–de–Dôme, Menat, France.

Lystra Fabricius, 1803

Type species. *Cicada lanata* Fabricius, 1803: Fabricius 1803: 56; by subsequent designation by Burmeister 1838: [1].

vollenhoveni Weyenbergh, 1869: Weyenbergh 1869a: 271, Pl. XXXVI, Fig. 24.

= *Lystra vollenhoveni* Weyenbergh, 1869: Weijenbergh 1869b: 150.

Lystra vollenhoveni Weyenbergh, 1869: Weyenbergh 1874: 100.

= *Lystra vollenhoveni* Weyenbergh, 1869–1874 [sic!]: Meunier 1904: 121.

Note. The original description is based on two imprints. In original description mentioned as figured in Fig. 28, but on plates figured in Fig. 24. Meunier (1879) in his review of imprints from the collection of the Teyler Museum noted that: "imprints No. 15414 and No. 15415, named '*Lystra Vollenhoveni* Weyenbergh' are not to be determined". Handlirsch (1906–1908) listed it in the group of species of unknown position. This species is listed by Metcalf and Wade (1966a) in family Fulgoridae in the genus *Lystra*. Regarding the figure presented in the original paper it seems this species cannot be placed within Fulgoromorpha, while it represents probably the Hemiptera.

Upper Jurassic, Malm, Tithonian; Solnhofen, Bayern: Germany.

Mesoatracis Becker-Migdisova, 1949

Type species. *Mesoatracis reducta* Becker-Migdisova, 1949: Becker-Migdisova 1949b: 40; by original designation.

Note. Originally described in Flatidae. Transferred to Cicadomorpha: Prosboloidea: Dysmorphoptilidae by Shcherbakov (1984). Hamilton (1992) listed it in Cicadomorpha: Dysmorphoptiloidea: Dysmorphoptilidae and Carpenter (1992) in Dysmorphoptilidae.

reducta Becker-Migdisova, 1949: Becker-Migdisova 1949b: 40, Fig. 31.

Early/Middle Jurassic; Shurab III, South Fergana: Kyrgyzstan.

Note. Metcalf and Wade (1966a) listed locality as 'Leninabad'.

Mesocixiella Martynov, 1939

Type species. *Mesocixiella asiatica* Martynov, 1939: Martynov 1939a (1937a): 87, 160; by monotypy.

Note. Originally described in Cixiidae. Evans (1956) placed this genus in Scytinopteridae. Becker-Migdisova (1962b) listed in Cixiidae; also

Metcalf and Wade (1966a) listed in Cixiidae. Shcherbakov (1985) transferred this genus to Hylicellidae and later (Shcherbakov 1988b) synonymized it under *Cycloscytina* Martynov. Carpenter (1992) listed this genus in Cixiidae, Hamilton (1992) listed in 'Prosboloidea: Hylicellidae'.

asiatica Martynov, 1939: Martynov 1939a(1937a): 87, 160, Text–fig. 43, Pl. V, Figs. 4, 5.

NOTE. Originally described in Cixiidae; Becker-Migdisova (1949b) listed it in 'Cixiidae: Mesocixiinae'. Evans (1956) doubts its placement in Cixiidae and transferred to Scytinopteridae; Becker-Migdisova (1962b) mentioned it in Cixiidae, as Metcalf and Wade (1966a). Shcherbakov (1988a) synonymized *Mesocixiella rohdendorfi* Becker-Migdisova under *Mesocixiella asiatica* Martynov, later (Shcherbakov 1988b) transferred it to the genus *Cycloscytina* Martynov.

Lower Jurassic; Kyzyl–Kiya, Fergana Valley: Kyrgyzstan.

NOTE. Metcalf and Wade (1966a) listed locality as 'Osh'.

extensa Martynov, 1939: Martynov 1939a(1937a): 89, 162, Text–figs. 44–46.

NOTE. Originally described in Cixiidae; Becker-Migdisova (1949a) listed it in 'Cixiidae: Mesocixiinae' and placed in the genus *Cycloscytina* Martynov. Evans (1956) placed this species in Scytinopteridae; Becker-Migdisova (1962b) mentioned it in Cixiidae, as Metcalf and Wade (1966a). Shcherbakov (1988b) synonymized under *Cycloscytina extensa* (Martynov) the species: *Mesocixiella furcata* Martynov, *Mesocixiella major* Martynov and *Mesocixiella parvula* Martynov.

Lower/Middle Jurassic; Shurab II, Fergana Valley: Kyrgyzstan.

NOTE. Metcalf and Wade (1966a) listed locality as 'Leninabad'.

furcata Martynov, 1939: Martynov 1939a(1937a): 92, 162, Text–fig. 47.

furcata Martynov, 1939: Martynov 1939a(1937a): 92, 162, Text–fig. 47.

NOTE. Originally described in Cixiidae; Becker-Migdisova (1949b) listed it in 'Cixiidae: Mesocixiinae' in the genus *Cycloscytina* Martynov. Evans (1956) placed this species in Scytinopteridae; Metcalf and Wade (1966a) listed in Cixiidae. Shcherbakov (1988b) synonymized it under *Cycloscytina extensa* (Martynov).

Lower/Middle Jurassic; Shurab II, Fergana Valley: Kyrgyzstan.

NOTE. Metcalf and Wade (1966a) listed locality as 'Leninabad'.

gobiensis Shcherbakov, 1988: Shcherbakov 1988a: 62, Pl. XII, Fig. 4, Text–fig. 4.

Note. Described in Hylicellidae. Shcherbakov (1988b) transferred this species to the genus *Cycloscytina* Martynov.

Middle (or Upper) Jurassic; Bahar, Bayan-Hongor Aymag, Gov' Altayn Nuruu: Central Mongolia: Mongolia.

korlaensis Hong, 1983: Hong 1983a: 63, Pl. 6, Figs. 6, 7, Text–fig. 49.

= *Mesociziella kuerleiensis* [sic!] Hong, 1983: Hong 1983a: 167.

= *Mesocixiella kuerleiensis* [sic!] Hong, 1983: Hong 1983a: 184.

Note. Originally described in Cixiidae. Shcherbakov (1988b) transferred this species to the genus *Cycloscytina* Martynov.

Middle Jurassic; J_2k Kezheleiuner Formation, Korla Basin, Kuerlei, Xinjiang, Uygur Autonomic Region: China.

major Martynov, 1939: Martynov 1939a(1937a): 92, 163, Text–fig. 48.

Note. Originally described in Cixiidae; Becker-Migdisova (1949b) listed it in 'Cixiidae: Mesocixiinae' in *Cycloscytina* Martynov. Evans (1956) placed this species in Scytinopteridae; Metcalf and Wade (1966a) listed in Cixiidae. Shcherbakov (1988b) synonymized it under *Cycloscytina extensa* (Martynov).

Lower/Middle Jurassic; Shurab II, Fergana Valley: Kyrgyzstan.

Note. Metcalf and Wade (1966a) listed locality as 'Leninabad'.

parvula Martynov, 1939: Martynov 1939a(1937a): 93, 163, Text–fig. 49.

Note. Originally described in Cixiidae; Becker-Migdisova (1949b) listed it in 'Cixiidae: Mesocixiinae' and placed in the genus *Cycloscytina* Martynov. Evans (1956) placed this species in the 'Scytinopteridae and Prosbolidae hindwings' section; Metcalf and Wade (1966a) listed it in Cixiidae. Shcherbakov (1988b) synonymized it under *Cycloscytina extensa* (Martynov).

Lower/Middle Jurassic; Shurab II, Fergana Valley: Kyrgyzstan.

Note. Metcalf and Wade (1966a) listed locality as 'Leninabad'.

rohdendorfi Becker-Migdisova, 1949: Becker-Migdisova 1949b: 39, Fig. 30.

Note. Originally described in Cixiidae; Becker-Migdisova (1949b) listed it in 'Cixiidae: Mesocixiinae'.

Lower Jurassic; Kyzyl–Kiya, Fergana Valley: Kyrgyzstan.

Note. Metcalf and Wade (1966a) listed locality as 'Osh'.

Mesocixiodes Tillyard, 1922

Type species. *Mesocixiodes termioneura* Tillyard, 1922: Tillyard 1922b: 462; by original designation.

NOTE. Genus originally described in Cixiidae. Evans (1956) placed it in Cicadomorpha: Membracoidea: Chiliocyclidae; Metcalf and Wade (1966a) listed it in Cixiidae. Placed in Cicadomorpha: Prosboloidea: Hylicellidae by Hamilton (1992). Carpenter (1992) and Ansorge (1996) placed this genus it in Homoptera *incertae sedis*.

brachyclada Tillyard, 1922: Tillyard 1922b: 463, Text–fig. 84.

= *Mesocixoides* [sic!] *brachyclada* Tillyard, 1922: Evans 1956: 243.

NOTE. Originally described in Cixiidae. Evans (1956) listed it in Homoptera of uncertain position. Metcalf and Wade (1966a) listed it in Cixiidae.

Upper Triassic; Ipswich, Queensland: Australia.

orthoclada Tillyard, 1922: Tillyard 1922b: 463, Text–fig. 83.

= *Mesocixioides* [sic!] *orthoclada* Tillyard, 1922: Martynov 1928: 37.

= *Mesocixoides* [sic!] *orthoclada* Tillyard, 1922: Evans 1956: 210.

NOTE. Originally described in Cixiidae. Evans (1956) listed it in Chiliocyclidae. Metcalf and Wade (1966a) listed it in Cixiidae. Becker-Migdisova (1962b) noted that this species should be referred to Archijassidae.

Upper Triassic; Ipswich, Queensland: Australia.

termioneura Tillyard, 1922: Tillyard 1922b: 462.

= *Mesocixoides* [sic!] *termioneura* Tillyard, 1922: Evans 1956: 209.

NOTE. Originally described in Cixiidae. Evans (1956) listed it in Chiliocyclidae. Metcalf and Wade (1966a) listed it in Cixiidae.

Upper Triassic; Ipswich, Queensland: Australia.

Mesocixius Tillyard, 1920

Type species. *Mesocixius triassicus* Tillyard, 1920: Tillyard 1920(1919): 867, 865, 866, 868, 878; by original designation.

867, 865, 866, 868, 878; by original designation.

NOTE. Genus originally decribed in Scytinopteridae: Mesocixiinae, and together with another genus *Triassocixius* Tillyard ascribed to a new subfamily Mesocixiinae Tillyard, 1920. Listed in 'Fulgoroidea: Scytinopteridae: Mesocixiinae' in Metcalf and Wade (1966a). Transferred to Cicadomorpha: Cercopoidea: Archijassidae (Hamilton 1992). Carpenter (1992) listed this genus in Cixiidae.

triassicus Tillyard, 1920: Tillyard 1920(1919) 877, 866, Text–fig. 11.

Upper Triassic; Ipswich, Queensland: Australia.

Mesodiphthera Tillyard, 1920

Type species. *Mesodiphthera grandis* Tillyard, 1920: Tillyard 1920(1919): 866 (146), 873 (153); by original designation.

NOTE. Originally, genus described in Tropiduchidae. Becker-Migdisova (1962b) listed the genus in Cicadomorpha: Tettigarctidae. Metcalf and Wade (1966a) listed it in Tropiduchidae. Placed in Cicadomorpha: Cicadoidea: Cicadoprosbolidae (Hamilton 1990, 1992). Carpenter (1992) listed this genus in Homoptera of uncertain familial assignment.

dunstani Tillyard, 1922: Tillyard 1922b: 461, Text–fig. 81.

= *Mesodipthera* [sic!] *dunstani* Tillyard, 1922: Evans 1956: 189.

NOTE. Originally described in Tropiduchidae. Evans (1956) stated it as 'scytinopterid with specialized venation' (Scytinopteridae). Metcalf and Wade (1966a) listed it in Tropiduchidae.

Upper Triassic; Ipswich, Queensland: Australia.

grandis Tillyard, 1920: Tillyard 1920(1919): 866 (146), 873 (153).

= *Mesodipthera* [sic!] *grandis* Tillyard, 1919: Evans 1956: 243.

NOTE. Originally described in Tropiduchidae. Evans (1956) listed this species in 'Homoptera of Uncertain Position' section.

Upper Triassic; Ipswich, Queensland: Australia.

prosboloides Tillyard, 1922: Tillyard 1922b: 461, Text–fig. 80.

= *Mesodipthera* [sic!] *prosboloides* Tillyard, 1922: Evans 1956: 189.

NOTE. Originally described in Tropiduchidae. Evans (1956) after examination of the holotype stated it as 'scytinopterid with accesory veins' (Scytinopteridae).

Upper Triassic; Ipswich, Queensland: Australia.

Mesoscytina Tillyard, 1920

Type species. *Mesoscytina australis* Tillyard, 1920: Tillyard 1920(1919): 871, 866; by original designation.

NOTE. Originally described in Scytinopteridae: Scytinopterinae; Evans (1956) listed it in Chiliocyclidae; Metcalf and Wade (1966a) placed it in Fulgoroidea: Scytinopteridae: Scytinopterinae. According to Hamilton (1992) it should be placed in Cicadomorpha: Cercopoidea [sic!]: Archijassidae. Shcherbakov (1992) excluded this genus from Archijassidae, and stated that its taxonomic position was unclear. In

that he was followed by Ansorge (1996). Carpenter (1992) listed it in Homoptera of unknown familial assignment.

affinis Tillyard, 1920: Tillyard 1920(1919): 872, 871, Text–fig. 6.

= *Mesoscytina affine* [sic!] Tillyard, 1919: Evans 1956: 243.

NOTE. Evans (1956) listed this genus in Homoptera of uncertain position.

Upper Triassic; Ipswich, Queensland: Australia.

australis Tillyard, 1920: Tillyard 1920(1919): 871, 866, Text–fig. 5.

Upper Triassic; Ipswich, Queensland: Australia.

Neuropibrocha Becker-Migdisova, 1961

Type species. *Neuropibrocha ramisubcostalis* Becker-Migdisova, 1961: Becker-Migdisova 1961: 355; by original designation.

NOTE. Originally described in Fulgoroidea: Pereboriidae, the same taxonomic position is given in Becker-Migdisova (1962b). Listed as 'Fulgoroidea: Pereboridae' by Pinto and Pinto de Ornellas (1981).

paradunstanioides Becker-Migdisova, 1961: Becker-Migdisova 1961: 356, 355, Text–fig. 290, Pl. XXVI, Fig. 175.

Lower Permian, Ufimian; Kuznetsk Formation, Kaltan, Kuznetsk Bassin: West Siberia: Russia.

ramisubcostalis Becker-Migdisova, 1961: Becker-Migdisova 1961: 355, Text–fig. 289, Pl. XXVI, Fig. 174.

Lower Permian, Ufimian; Kuznetsk Formation, Kaltan, Kuznetsk Bassin: West Siberia: Russia.

Oliarites Scudder, 1890

Type species. *Mnemosyne tarrentula* Scudder, 1878: Scudder 1890b: 293, Pl. VII, Fig. 17; by original designation.

Type species. *Mnemosyne tarrentula* Scudder, 1878: Scudder 1890b: 293, Pl. VII, Fig. 17; by original designation.

terrentula (Scudder, 1878).

= *Mnemosyne terrentula* Scudder, 1878: Scuder 1878b: 773.

= *Mnemosyne tarrentula* [sic!] Scudder, 1878: Piton 1940: 240.

NOTE. Placed in Cixiidae by Piton 1940: 240. Metcalf and Wade (1966a) listed it in Cixiidae. Familial assignment doubtful according to Carpenter (1992). Its placement in Fulgoroidea is also doubtful.

Eocene, Ypresian/Lutetian; Green River Formation, Petrified Fish Cut, 6 miles west of Green River, near Green River Station, Sweetwater County, Wyoming: U.S.A.

Orthoscytina Tilyard, 1926

Type species. *Orthoscytina mitchelli* Tillyard, 1926: Tillyard 1926c: 9, 4; by original designation.

Note. Originally described in Scytinopteridae. This genus was excluded from Scytinopteridae and listed among Fulgoridae in Beier (1938) and Handlirsch (1939). Shcherbakov (1984) transferred the genus to Cicadomorpha: Prosboloidea: Prosbolidae. According to Shcherbakov (personal communication) there are 7 more species in Kuznetsk Basin strata and 1 in South African deposits.

belmontensis Tillyard, 1926: Tillyard 1926c: 13, 4; Text–fig. 13.

Upper Permian; Belmont, New South Wales: Australia.

indistincta Tillyard, 1926: Tillyard 1926c: 11, 4; Text–fig. 16.

Upper Permian; Belmont, New South Wales: Australia.

irregularis Tillyard, 1926: Tillyard 1926c: 12, 5; Text–fig. 8.

Upper Permian; Belmont, New South Wales: Australia.

mitchelli Tillyard, 1926: Tillyard 1926c: 10, 4; Text–fig. 4.

Upper Permian; Belmont, New South Wales: Australia.

obliqua Tillyard, 1926: Tillyard 1926c: 13, 5; Text–fig. 10.

Upper Permian; Belmont, New South Wales: Australia.

pincombei Tillyard, 1926: Tillyard 1926c: 14, 5; Text–fig. 11.

Upper Permian; Belmont, New South Wales: Australia.

quinquemedia Tillyard, 1926: Tillyard 1926c: 11, 4; Text–fig. 5.

Upper Permian; Warner's Bay, New South Wales: Australia.

subcostalis Tillyard, 1926: Tillyard 1926c: 11, 4; Text–fig. 7.

subcostalis Tillyard, 1926: Tillyard 1926c: 11, 4; Text–fig. 7.

Upper Permian; Belmont, New South Wales: Australia.

tetraneura Tillyard, 1926: Tillyard 1926c: 15, 5; Text–fig. 12.

Upper Permian; Belmont, New South Wales: Australia.

Parafulgoridium Handlirsch, 1939

Type species. *Parafulgoridium simplex* Handlirsch, 1939: Handlirsch 1939: 138; by monotypy.

Note. Originally described in Fulgoridiidae. Carpenter (1992) placed this genus as *incertae sedis*.

simplex (Geinitz, 1880)

= *Phryganidium balticum* var. *simplex* Geinitz, 1880: Geinitz 1880: 528, Pl. 22, Fig. 14.

= *Fulgoridium simplex* (Geinitz, 1880): Handlirsch 1906–1908: 497, Pl. 43, Figs. 27, 28.

Note. Metcalf and Wade (1966a) listed this species in Fulgoridiidae. Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

Parajassus Bode, 1953

Type species. *Parajassus hattorfensis* Bode, 1953: Bode 1953: 201, pl. 10, Fig. 211; by original designation.

Note. Originally described in 'Jassidae'. Becker-Migdisova (1962b) placed this genus in *incertae familiae*. Carpenter (1992) placed it in Homoptera of uncertain familial assignation. Hamilton (1992) listed this genus in Fulgoridiidae. Shcherbakov (1992) assigned this genus to Cicadomorpha: Cercopoidea: Hylicellidae: Archijassinae. Ansorge (1996) synonymized this genus under *Archijassus* Handlirsch placed in Cicadomorpha: Membracoidea: Archijassidae.

hattorfensis Bode, 1953: Bode 1953: 201, Pl. 10, Fig. 211.

Lower Jurassic, Upper Liassic, «*Elegans*–Zone des Lias ε», Toarcian; Hattorf bei Fallersleben, Braunschweig: Germany.

Pereboria Zalessky, 1930

Type species. *Pereboria bella* Zalessky, 1930: Zalessky 1930: 1021; by monotypy.

Note. Originally described in 'Paleohemiptera'. Metcalf and Wade (1966a) listed it in Fulgoroidea: Pereboriidae. Listed as 'Fulgoroidea: Pereboridae' by Pinto and Pinto de Ornellas (1981). Shcherbakov (1984) transferred Pereboriidae to a separate superfamily Pereborioidea.

bella Zalessky, 1930: Zalessky 1930: 1021, Text–fig. 2, Pl. I, Fig. 2.

Upper Permian, Kazanian; Tikhie Gory, near mouth of Kama River: Russia.

Perissovena Riek, 1976

Type species. *Perissovena heidiae* Riek, 1976: Riek 1976: 775; by original designation.

Note. Listed as Pereboriidae with a question mark (Riek 1976), and its placement was questioned in Pinto and Pinto de Ornellas (1981).

heidiae Riek, 1976: Riek 1976: 775, 757, Text–fig. 14, Pl. 4, Fig. 2.

Upper Permian; Middle Beaufort Series, Mooi River, Natal: South Africa.

Permocixiella Becker-Migdisova, 1961

= *Permocixiella* Becker-Migdisova, 1955: Becker-Migdisova 1955: 1100 — *nomen nudum.*

Type species. *Permocixiella venosa* Becker-Migdisova, 1961: Becker-Migdisova 1961: 361; by original designation.

Note. Originally described in Cixiidae, and here listed by Becker-Migdisova (1962b). Transferred to Cicadomorpha: Prosboloidea: Dysmorphoptilidae (Shcherbakov 1984). Carpenter (1992) listed this genus in Cixiidae.

venosa Becker-Migdisova, 1961: Becker-Migdisova 1961: 361, Fig. 294.

Upper Permian, Tatarian; Erunakovo Formation, Sokolova II, Kuznetsk Basin, South Siberia: Russia.

Permocixius Martynov, 1928

= *Permocixium* [sic!]: Martynov 1928: 104

Type species. *Permocixius kazanensis* Martynov, 1928: Martynov 1928: 35, 11; by monotypy.

Note. Originally described in Cixiidae. Metcalf and Wade (1966a)

Note. Originally described in Cixiidae. Metcalf and Wade (1966a) listed it in Cixiidae. Placed in Cicadomorpha: Scytinopteroidea: Scytinopteridae by Shcherbakov (1984), with the following synonyms proposed: *Scytinoptera* Handlirsch, 1904 = *Permocixius* Martynov, 1928 = *Scytinopterula* Handlirsch, 1939. Carpenter (1992) listed this genus in Scytinopteridae as a synonym of *Scytinoptera* Handlirsch.

kazanensis Martynov, 1928: Martynov 1928: 36, Pl. XII, Fig. 1.

= *Permocixium kasanense*: Martynov 1928: 104.

Note. Evans (1956) listed this species in the 'Scytinopterids with accesory veins' section.

Late Permian, Kazanian; Baitugan Formation, Tikhie Gory, Ural Mountains: Russia.

NOTE. Metcalf and Wade (1966a) listed locality as 'Tatar'.

Planophlebia Scudder, 1879

Type species. *Planophlebia gigantea* Scudder, 1879: Scudder 1879: 185[11]–186[10]; by monotypy.

gigantea Scudder, 1879: Scudder 1879: 186[11].

NOTE. Metcalf and Wade (1966a) listed it in Delphacidae. Regarding the original description and drawing in Scudder (1890b) taxonomic placement not certain, cannot be ascribed to any group of Fulgoromorpha.

Middle Eocene (Miocene, ?Messinian); Similkameen River, British Columbia: Canada.

Procercopis Handlirsch, 1906

Type species. *Procercopis alutacea* Handlirsch, 1906: Handlirsch 1906–1908: 500; by subsequent designation by Becker-Migdisova 1962b: 180.

alutacea Handlirsch, 1906: Handlirsch 1906–1908: 500, Pl. XLIII, Fig. 38.

Lower Jurassic, Upper Liassic, Toarcian; Dobbertin in Mecklenburg: Germany.

NOTE. Kirkaldy (1910) referred this species to Fulgoroidea: Issidae, arguing congeneric placement of the other species mentioned by Handlirsch (1906–1908).

Prosbole Handlirsch, 1904

= *Presbole* [sic!]: Handlirsch 1904: 2.

= *Presvole* [sic!]: Handlirsch 1904: 2.

Type species. *Prosbole hirsuta* Handlirsch, 1904: Handlirsch 1904: 2; by original designation.

NOTE. Handlirsch placed *Prosbole hirsuta* Handlirsch, 1904 in Palaeohemiptera: Prosbolidae. Kirkaldy (1910) argued Handlirsch opinions and placed *Prosbole* Handlirsch in Fulgoroidea, stated its possible placement in Cixiidae or Achilidae. Tillyard (1919) placed it near *Dunstania* in a separate lineage, but later (1921) to Protohemiptera: Prosbolidae. Muir (1923) placed the genus among Fulgoroidea: Tropiduchidae. Becker-Migdisova (1940), Evans (1956) and Metcalf and Wade (1966a) mentioned it in Homoptera: Prosbolidae.

Becker-Migdisova (1962b) listed it in Cicadoidea: Prosbolidae. Shcherbakov (1984) listed this genus in Cicadomorpha: Prosboloidea: Prosbolidae.

Prosbole hirsuta Handlirsch, 1904: Handlirsch 1904: 2, Pl. VIII, Figs. 1–4.

= *Presbole* [sic!] *hirsuta*: Handlirsch 1904: 2.

= *Prosbole ideliana* Zalessky, 1929: Zalessky 1929: 22, Fig. 10.

= *Prosbole tchirkovaeana* Zalessky, 1930: Zalessky 1930: 1018, Fig. 1; Pl. I, Fig. 1.

= *Prosbole tchirkovaena* [sic!] Zalessky, 1930: Zalessky 1935: 3.

= *Prosbole tchirkovaeana* Zalesski, 1929 [sic!]: Becker-Migdisova 1940: 22.

= *Prosbole ideliana* Zalesski, 1930 [sic!]: Becker-Migdisova 1940: 22.

= *Prosbole tchirkovaeana* Zalessky, 1930: Zalessky 1930: 1026, Pl. I, Fig. 1 [sic!]: Metcalf and Wade 1966a: 25.

= *Prosbole ideliana* Zalessky, 1930: Zalessky 1930: [1017] [sic!]: Metcalf and Wade 1966a: 25.

Upper Permian, Kazanian; Tikhie Gory, near mouth of Kama River: Russia.

NOTE. Metcalf and Wade (1966a) listed localities as 'Russia', 'Tatar' and 'Archangel'.

Prosbolopsis Martynov, 1935

Type species. *Prosbolopsis ovalis* Martynov, 1935: Martynov 1935: 19, 2, 33, Text-fig. 23; by subsequent designation by Becker-Migdisova 1962b: 208.

NOTE. The genus originally described in superfamily Fulgoroidea (Martynov 1935). Beier (1938) and Becker-Migdisova (1946) listed it in Fulgoroidea. According to Evans (1956) opinion this genus represents specialized Scytinopteridae. Becker-Migdisova (1962b) listed it in Homoptera *incertae sedis*. Carpenter listed it in 'Homoptera Family uncertain' section.

sedis. Carpenter listed it in 'Homoptera Family uncertain' section.

ovalis Martynov, 1935: Martynov 1935: 19, 2, 33, Text–fig. 23.

= *Prosbolopsis simplex* Martynov, 1935: Martynov 1935: 20, Figs. 24, 25.

= *Prosbolopsis ovalis* var. *angustata* Becker-Migdisova, 1946: Becker-Migdisova 1946: 761: Fig. 23a.

= *Prosbolopsis simplex* var. *novella* Becker-Migdisova, 1946: Becker-Migdisova 1946: 761: Fig. 23b.

= *Prosbolopsis simplex* var. *triplex* Becker-Migdisova, 1946: Becker-Migdisova 1946: 761: Fig. 23c.

NOTE. Synonymy after Becker-Migdisova (1960a).

Upper Permian, Kazanian; Iva Gora, Soyana River, Arkhangelsk District: Russia.

Protoliarus Cockerell, 1920

Type species. *Protoliarus humatus* Cockerell, 1920: Cockerell 1920c: 243; by original designation.

NOTE. Originally, genus described in Fulgoridae. Metcalf and Wade (1966a) listed it in Cixiidae, Carpenter (1992) listed in Cixiidae. Judging from the original drawings and description in Cockerell's paper (1920c), it does not belong to Cixiidae and probably neither to Fulgoroidea.

amabilis Cockerell et LeVeque, 1931: Cockerell and LeVeque 1931: 355, Photograph 2, Fig. 2.

= *Protoliarus amabilis* LeVegue et Cockerell [sic!]: Lewis and Heikes 1991: 458.

NOTE. Lewis and Heikes (1991) placed it in Homoptera *incertae sedis*, and gave the stratigraphic position and locality as: "Eocene, Green River Formation, Green River, Wyoming" not Colorado as originally stated.

Eocene, Ypresian/Lutetian; Green River Formation, Parachute Creet, Station 16, Colorado: U.S.A.

Pseudodelphax Handlirsch, 1908

Type species. *Delphax pulcher* Brodie, 1845: Brodie 1845: 33, 120, Pl. V, Fig. 17; by monotypy.

= *Pendodelphax* Handlirsch, 1907: Becker-Migdisova 1962b: 189.

NOTE. Becker-Migdisova (1962b) listed this genus in Fulgoromorpha *incertae sedis*. Carpenter (1992) understood the genus *Pseudodelphax* Handlirsch as a synonym of *Cicadellium* Westwood, 1854 and placed it in Homoptera of uncertain familial assignation. See also note on genus *Cicadellium* Westwood in this catalogue. *Delphax pulcher* Brodie, 1845 was placed as the type species of the genus *Pseudodelphax* Handlirsch 1907 (Handlirsch 1906–1908). Other authors (Evans 1956, Carpenter 1992) propose the following synonymy: *Pseudodelphax* Handlirsch, 1907 = *Cicadellium* Westwood, 1854 and placed all species ascribed to this genus in Cicadomorpha: Cicadellidae.

pulcher Brodie, 1845: Brodie 1845: 33, 120; Pl. V, Fig. 17.

= *Delphax pulcher* Brodie, 1845: Morris 1854: 118.

= *Delphax pulcher* Brodie, 1845: Giebel 1856: 378.
= *Delphax pulcher* Brodie, 1845: Meunier 1904: 121.
= *Pseudodelphax pulcher* (Brodie, 1845): Handlirsch 1906–1908: 641.
= *Cicadellium* [sic!] *pulcher* (Brodie, 1845): Evans 1956: 212.
= *Delphax pulcher* Brodie, 1845: Carpenter 1992: 255.

NOTE. Handlirsch (1906–1908) ascribed *Delphax pulcher* Brodie, 1845 to his newly erected Fulgoridae genus *Pseudodelphax*. Evans (1956) proposed to transfer *Delphax pulcher* Brodie, 1845 to the genus *Cicadellium* Westwood, 1854, placed in Cicadellidae. Metcalf and Wade (1966a) listed this species in 'Division Paleorrhyncha'. According to Hamilton (1992) *Pseudodelphax pulcher* (Brodie, 1845) is a valid taxon and it should be placed in Aphidomorpha: Pincombeoidea.

Lower Cretaceous, Berriasian; Purbecks, Vale of Wardour, England: United Kingdom.

Qiyangiricania Lin, 1986

Type species. *Qiyangiricania cesta* Lin, 1986: Lin 1986: 65; by original designation.

cesta Lin, 1986: Lin 1986: 65, Pl. X, Fig. 1. Text–fig. 58.

Early Mesozoic, South China: China.

NOTE. Taxonomic status not certain. According to the original description, similar to *Ricaniites* Handlirsch, 1908, but its placement remains uncertain.

Ricaniites Handlirsch, 1906

Type species. *Ricania* (?) *fulgens* Brodie, 1845: Brodie 1845: 33, 120, Pl. IV, Fig. 12; by original designation by Handlirsch 1906–1908: 640.

fulgens (Brodie, 1845)

fulgens (Brodie, 1845)
= *Ricania* (?) *fulgens* Brodie, 1845: Brodie 1845: 33, 120, Pl. IV, Fig. 12.
= *Ricania fulgens* Brodie, 1845: Morris 1854: 118.
= *Ricania fulgens* Brodie, 1845: Giebel 1856: 376.
= *Ricania fulgens* Brodie, 1845: Meunier 1904: 121.
= *Ricaniites fulgens* (Brodie, 1845): Handlirsch 1906–1908: 640, Pl. LI, Fig. 30.

NOTE. Transferred to the genus *Ricaniites* Handlirsch, 1906 firstly by Handlirsch (1906–1908), later listed in this genus by Metcalf and Wade (1966a) in 'Division Paleorrhyncha', outside Fulgoroidea. Hamilton

(1992) placed the genus in Fulgoromorpha: Fulgoroidea: Fulgoridiidae. Placement of this taxon is very problematic; distal portion of tegmina has a reticulate venation and part of wings (?) is preserved. The specimen is figured in Ross and Jarzembowski 1996, and placed there in Ricaniidae.

Lower Cretaceous, Berriasian; Purbeck, Vale of Wardour, England: United Kingdom.

Scytinoptera Handlirsch, 1906

Type species: *Scytinoptera kokeni* Handlirsch, 1904: Handlirsch 1904: 3, Figs, 3, 4; by original designation.

NOTE. Handlirsch (1906–1908) placed this genus in Homoptera: Scytinopteridae. Kirkaldy (1910) arguing Handlirsch (1906–1908) paper suggested placement of this genus in Fulgoroidea, stating that it is "more likely an Asiracid". Becker-Migdisova (1948c) placed Scytinopteridae in Fulgoroidea, later (Becker-Migdisova 1961) listed it in Cicadoidea.

kokeni Handlirsch, 1904: Handlirsch 1904: 3, Figs, 3, 4.

Upper Permian, Kazanian; Tikhie Gory, near mouth of Kama River: Russia.

NOTE. Metcalf and Wade (1966a) listed localities as 'Russia' and 'Tatar'.

Scytophara Martynov, 1939

Type species. *Scytophara extensa* Martynov, 1939: Martynov 1939b(1937b): 36, Fig. 16; by original designation

NOTE. Originally described in Pereboriidae, family believed to be ancestral to Dictyopharidae [Martynov 1939b(1937b)]. Becker-Migdisova (1962b) listed it under Fulgoromorpha: Pereboriidae. Popov (1980) listed this genus in Fulgoroidea. Shcherbakov (1984) listed in Cicadolisted this genus in Fulgoroidea. Shcherbakov (1984) listed in Cicadomorpha: Pereborioidea: Pereboriidae.

extensa Martynov, 1939: Martynov 1939b(1937b): 36, Fig. 16.

Upper Permian, Lower Tatarian; Kargala mines, Orenburg District, Priural'ye: Russia.

Stenoscytina Tilyard, 1926

Type species. *Stenoscytina australiensis* Tillyard, 1926: Tillyard 1926c: 15, 5; by original designation.

NOTE. Originally described in Scytinopteridae. This genus is excluded from Scytinopteridae and listed among Fulgoridae in Beier (1938) and Handlirsch (1939).

australiensis Tillyard, 1926: Tillyard 1926c: 16, 5; Text–fig. 13.

Upper Permian; Belmont, New South Wales: Australia.

Tettigometra Latreille, 1804

Type species. *Fulgora virescens* Panzer, 1799: Panzer 1799: 12; by subsequent designation by Latreille 1810: 434.

debilis Heer, 1853: Heer 1853b: 91, Pl. XIII, Fig. 11.

Early Miocene, Burdigalian; Radoboj: Croatia.

NOTE. Metcalf and Wade (1966a) listed this species in Tettigometridae. Family assignment not certain, probably not within Tettigometridae but rather within Cicadomorpha: Cercopoidea.

Triassocixius Tillyard, 1920

= *Triadocixius* [sic!]: Handlirsch 1939: 10.

Type species. *Triassocixius australicus* Tillyard, 1920: Tillyard 1920(1919): 878; by original designation.

NOTE. Originally described in Scytinopteridae: Mesocixiinae. Becker-Migdisova (1962b) listed this genus in Cixiidae. Shcherbakov (1984) placed it in Cicadomorpha: Prosboloidea: Dysmorphoptilidae; Hamilton (1992) ascribed this genus to 'Cicadomorpha: Cercopoidea: new family?'. Carpenter (1992) listed it the genus in Cixiidae.

australicus Tillyard, 1920: Tillyard 1920(1919): 878, Text–fig. 12; 878, 866, 868.

= *Triadocixius australis* [sic!] Handlirsch 1939: 10.

= *Triassocixius australis* [sic!]: Handlirsch 1939: 17.

= *Triassocixius australis* [sic!]: Handlirsch 1939: 17.

NOTE. Evans (1956) listed this species in Fulgoroidea. Metcalf and Wade (1966a) and Carpenter (1992) listed it in Cixiidae.

Upper Triassic, Ipswich, Queensland, Australia.

Triassocotis Evans, 1956

Type species. *Triassocotis australis* Evans, 1956: Evans 1956: 194; by monotypy.

NOTE. Originally described in Scytinopteridae, then removed to unplaced Cicadelloidea (Evans 1961). Becker-Migdisova (1962b) sug-

gested that this genus should probably be placed in Cixiidae. Hamilton (1992) placed it in Prosboloidea: Hylicellidae; Carpenter (1992) in the 'Homoptera, Family uncertain' section.

amplicata Evans, 1961: Evans 1961: 16, Fig. 1, G.

Upper Triassic, Carnian; Mt. Crosby, Queensland: Australia.

australis Evans, 1956: Evans 1956: 194 Fig. 5L.

Upper Triassic, Carnian; Mt. Crosby, Queensland: Australia.

stricta Evans, 1961: Evans 1961: 16 Fig. 1, F.

Upper Triassic, Carnian; Mt. Crosby, Queensland: Australia.

Vitreacixius Becker-Migdisova, 1962.

Type species. *Vitreacixius ellipticus* Becker-Migdisova, 1962: Becker-Migdisova 1962a: 99; by original designation.

ellipticus Becker-Migdisova, 1962: Becker-Migdisova 1962a: 99.

NOTE. Originally described in Cixiidae and followed by Becker-Migdisova (1962b) and Carpenter (1992). Placed in Cicadomorpha: Prosboloidea: Hylicellidae by Shcherbakov (1985), who synonymized it later (1988b) under *Cycloscytina* Martynov, 1927 and placed in Cicadomorpha: Hylicellidae: Vietocyclinae. Hamilton (1992) listed it this genus in Prosboloidea: Hylicellidae.

Upper Triassic, Rhetian (Lower Jurassic, Hettangian); Sogyuty (=Issyk–Kul'): Kyrgyzstan.

Incertae sedis taxa which have been referred to Fulgoromorpha and taxa excluded from Hemiptera.

Dictyocicada Brongniart, 1885

Dictyocicada Brongniart, 1885

Type species. *Dictyocicada antiqua* Brogniart, 1885: Brogniart 1885: 67; by monotypy.

NOTE. Carpenter (1931) and Evans (1956) argued that the placement of Dictyocidadidae within Homoptera is very doubtful. Handlirsch (1906–1908, 1922) listed it as Insecta *incertae sedis*. Metcalf and Wade (1966a) listed this genus in Fulgoroidea: Dictyocicadidae.

antiqua Brogniart, 1885: Brongniart 1885: 67.

NOTE. No familial placement given in original description.

Late Carboniferous, Stephanian; Commentry, Commentry Basin, Allier: France.

simplex Brogniart, 1893: Brongniart 1893: 449.

NOTE. No familial placement given in original description.

Late Carboniferous, Stephanian; Commentry, Commentry Basin, Allier: France.

Dictyophara Germar, 1833

Type species. *Fulgora europaea* Linnaeus, 1767: Linnaeus 1767: 704; by subsequent designation by Desmarest 1849: 2.

scuderri Piton, 1940: Piton 1940: 162, Pl. XVIII, Fig. 6.

NOTE. On the basis of the original figure and description, the placement of this species in Fulgoromorpha as well as in Hemiptera seems to be doubtful. Taxonomic position not certain.

Upper Palaeocene, Sparnacian (Eocene, Ypresian); Puy–de–Dôme, Menat: France.

Flata Fabricius, 1798

Type species. *Cicada ocellata* Fabricius, 1775: Fabricius 1775a: 682; by subsequent designation by Spinola 1839b: 421.

haidingeri Giebel, 1856: Giebel 1856: 375.

NOTE. Mentioned and figured by Brodie (1845) as belonging to Neuroptera: Leptoceridae. Originally (Giebel 1856) described in 'Familie Fulgorina'. Listed in Neuroptera by Scudder (1891). Listed in Trichoptera: ?Leptoceridae (Handlirsch 1906–1908; Metcalf and Wade 1966a).

Lower Creatceous, Berriasian; Purbecks, Vale of Wardour, England: United Kingdom.

Lower Creatceous, Berriasian; Purbecks, Vale of Wardour, England: United Kingdom.

Fulgora Linnaeus, 1767

Type species. *Cicada laternaria* Linnaeus, 1758: Linnaeus 1758: 434; by subsequent designation by de Lamarck 1801: 291.

ebersi Dohrn, 1867: Dohrn 1867: 131–133: Pl. VIII, Fig. 2.

= *Fulgorina ebersi* Dohrn, 1867: Goldenberg 1873: 28–30, 51, Pl. I, Figs. 16–17.

= *Fulgorina ebersi* Dohrn, 1867: Scudder 1890a: 311.

= *Pseudofulgora ebersi* (Dohrn, 1867): Handlirsch 1906–1908: 347.
= *Fulgorina ebersi* Dohrn, 1867: Delétang 1923: 639, Fig. 33.
= *Blattinopsis ebersi* (Dohrn, 1867): Guthörl 1934: 104, Pl. 16, Fig. 2, Text–fig. 60; 172, 199, 202, 209.
= *Pseudofulgora ebersi* (Dohrn, 1867): Haupt 1940: 88, 92, Fig. 14.

NOTE. Scudder (1890a) placed this species in 'Hemipteroid Paleodictyoptera' which "foreshadow the homopterous insects". Handlirsch (1906–1908) transferred this species to newly erected genus *Pseudofulgora* Handlirsch placed it in Oryctoblattinidae, Protoblattoidea. Delétang (1923) mentioned this species as "Proto-Homoptera". Metcalf and Wade (1966a) listed this species in Protoblattida: Reculidae. Carpenter (1992) listed it in Protorthoptera: Blattinopsidae.

Lower Permian; Birkenfeld: Germany.

Fulgorina Goldenberg, 1873

Type species. *Fulgorina lebachensis* Goldenberg, 1873: Goldenberg 1873: 30, Pl. I, Fig. 19; by subsequent designation by Guthörl 1934: 171.

NOTE. Scudder (1890a) on page 312, stated that "*Fulg. lebachensis* Gold. and *F. Klieveri* Gold. are probably hind wings of Palaeoblattariae." and "... seem to foreshadow the homopterous rather than the heteropterous division of hemipterous insects". Taxonomic position of species described in this genus is outside of Hemiptera. These species originate from Carboniferous and Lower Permian strata of various age and probably have nothing in common with each other.

klieveri Goldenberg, 1869: Goldenberg 1869: 166, Pl. III, Fig. 13.

Upper Carboniferous; Wemmetsweiler bei Saarbrücken: Germany.

lebachensis Goldenberg, 1873: Goldenberg 1873: 30, Pl. I, Fig. 19.

Lower Permian; Lebach: Germany.

Lower Permian; Lebach: Germany.

Lithopsis Scudder, 1878

Type species. *Lithopsis fimbriata* Scudder, 1878: Scudder 1878b: 774; by monotypy.

lineatus Piton, 1940: Piton 1940: 169, Fig. 38.

NOTE. The original description and drawing are not sufficient to place it in Fulgoroidea, as only the anterior part of tegmen is preserved. Its placement in Hemiptera needs to be reconsidered.

Palaeocene, Sparnacian (Eocene, Ypresian); Puy–de–Dôme, Menat: France.

major Pongrácz, 1935: Pongrácz 1935: 533, Pl. 1, Fig. 17, Text–fig. 5.

Note. According to the original drawing this species definitely does not belong to Hemiptera.

Middle Eocene, Lutetian; Geiseltal, Sachsen–Anhalt: Germany.

Mecynostomata Metcalf, 1952

Type species. *Mecynostoma dohrni* Brongniart, 1893: Brongniart 1893: 451; by subsequent designation by Metcalf 1952: 230.

= *Mecynostoma* Brongniart, 1893 nec *Mecynostoma* Graff, 1822: Metcalf 1952: 230.

dohrni Brongniart, 1893: Brongniart 1893: 451.

Note. Species from the Carboniferous of France ascribed to this genus are listed in Fulgoroidea: Mecynostomidae in Metcalf and Wade (1966a). This family is listed in Paleodictyoptera in Carpenter (1992).

Late Carboniferous, Stephanian; Commentry, Commentry Basin, Allier: France.

Mecynostomites Handlirsch, 1919

Type species. *Mecynostomites brongniarti* Handlirsch, 1919: Handlirsch 1919: 535; by original designation.

= *Mecynostoma dohrni* Brongniart, 1894 (pars)

brongniarti Handlirsch, 1919: Handlirsch 1919: 535, Fig. 28.

Note. Listed in Fulgoroidea: Mecynostomidae in Metcalf and Wade (1966a). Listed in Paleodictyoptera family uncertain in Carpenter (1992).

Late Carboniferous, Stephanian; Commentry, Commentry Basin, Al-

Late Carboniferous, Stephanian; Commentry, Commentry Basin, Allier: France.

Palaeocixius Handlirsch, 1906

= *Palaeocixius* Brongniart, 1885: Brongniart 1885: 67 — *nomen nudum.*

Type species. *Palaeocixius antiquus* Brogniart, 1885: Brogniart 1885: 67; by subsequent designation by Handlirsch 1922: 74.

Note. Originally placed in Hemiptera and regarded as allied to Fulgoromorpha; Handlirsch (1906–1908) listed both species in *incertae sedis*. Metcalf and Wade (1966a) placed it in Fulgoroidea: Palaeo-

cixiidae Handlirsch, 1919. Carpenter (1992) listed this genus in Protorthoptera: Hadentomiidae.

antiquus Brongniart, 1885: Brogniart 1885a: 67.

= *Paleocixius* [sic!] *antiquus* Brogniart, 1885: Meunier 1904: 121.

= *Palaeocixius antiquus* Brogniart, 1885: Handlirsch 1906–1908: 326.

= *Fabrecia pygmaea* Meunier, 1911: Meunier 1911: 123, Fig. 6; 124.

Late Carboniferous, Stephanian; Commentry, Commentry Basin, Allier: France.

fayoli Brogniart, 1885: Brogniart 1885a: 67.

= *Paleocixius* [sic!] *fayoli* Brogniart, 1885: Meunier 1904: 121.

= *Palaeocixius fayoli* Brogniart, 1885: Handlirsch 1906–1908: 326.

Late Carboniferous, Stephanian; Commentry, Commentry Basin, Allier: France.

Palaemerobius Martynov, 1928

Type species. *Palaemerobius proavitus* Martynov, 1928: Martynov 1928: 87; by monotypy.

NOTE. Originally described in Neuroptera: Palaemerobiidae. Metcalf and Wade (1966a) listed it in Cixiidae. The genus is listed in Neuroptera: Palaemerobiidae by Carpenter (1992).

proavitus Martynov, 1928: Martynov 1928: 87, Text–fig. 3, Pl. VIII, Figs. 3,4, Pl. XV, Fig. 2.

= *Palaemerobius proaviatus* [sic!] Martynov, 1928: Martynov 1928: 87.

Upper Permian, Kazanian; Tikhie Gory, near mouth of Kama River: Russia.

NOTE. Metcalf and Wade (1966a) listed locality as 'Tatar'.

Paramecynostoma Handlirsch, 1919

Type species. *Paramecynostoma dohrnianum* Handlirsch, 1919: Handlirsch 1919: 535; by original designation.

dohrnianum Handlirsch, 1919: Handlirsch 1919: 535.

= *Mecynostoma dohrni* Brongniart, 1894 (pars)

NOTE. Listed in Fulgoroidea: Mecynostomidae in Metcalf and Wade (1966a). Listed in Paleodictyoptera family uncertain in Carpenter (1992).

Late Carboniferous, Stephanian; Commentry, Commentry Basin, Allier: France.

Permofulgor Tillyard, 1918

Type species. *Permofulgor belmontensis* Tillyard, 1918: Tillyard 1918: 730; by original designation.

belmontensis Tillyard, 1918: Tillyard 1918: 731, Text–fig. 3.

= *Permofulgor indistinctus* Tillyard, 1922: Tillyard 1922a: 280 synonymized by Riek 1967: 307.

NOTE. Originally described in a newly established family Permofulgoridae. Becker-Migdisova (1962b) listed it in Fulgoromorpha *incertae sedis*; Metcalf and Wade (1966a) listed it in Fulgoroidea: Permofulgoridae. This genus was placed in Protelytroptera by Riek (1967).

Upper Permian; Belmont Beds at a depth of about 600 feet below the top of the Permian Coal Measures, Belmont, New South Wales: Australia.

Petropteron Cockerell, 1912

Type species. *Petropteron mirandum* Cockerell, 1912: Cockerell 1912: 94, Fig. 4; by monotypy.

NOTE. Originally described in Fulgoridae. Listed in Fulgoromorpha *incertae sedis* by Becker-Migdisova (1962b). Metcalf and Wade (1966a) listed it in unplaced Fulgoroidea. The genus was transferred to Trichoptera by Hamilton (1992).

mirandum Cockerell, 1912: Cockerell 1912: 94, Fig. 4.

Upper Cretaceous; Pierre Formation, Lesser's brickyard, Boulder, Colorado: U.S.A.

Phthanocoris Scudder, 1885

Type species. *Phthanocoris occidentalis* Scudder, 1885: Scudder 1885b: 348; by monotypy.

NOTE. Originally described in 'Hemipteroid Paleodictyoptera', listed in this unit by Scudder (1890a). Transferred to Protorthoptera (Handlirsch 1906–1908), catalogued in Fulgoroidea by Metcalf and Wade (1966a).

occidentalis Scudder, 1885: Scudder 1885b: 348.

Upper Carboniferous; Chanute shales, Kansas City, Missouri: U.S.A.

Poekilloptera Latreille, 1796

Type species. *Cicada phalaenoides* Linnaeus, 1758: 438; by subsequent designation by Latreille 1804: 315.

melanospila Cockerell, 1921: Cockerell 1921a: 475, Fig. 42.

Eocene/Oligocene, Priabonian/Rupelian; Isle of Wight, England: United Kingdom.

NOTE. Should be placed in Insecta *incertae sedis*, as only part of forewing (?) is preserved, with no character making any placement to order or lower level possible.

Rhipidioptera Brongniart, 1885

Type species. *Rhipidioptera elegans* Brongniart, 1885: Brongniart 1885: 67; by monotypy.

NOTE. Originally placed in Hemiptera. Metcalf and Wade (1966a) placed it in 'Division Paleorrhyncha'. Transferred to Protorthoptera *incertae sedis* (Carpenter 1992).

elegans Brongniart, 1885: Brongniart 1885: 67.

Late Carboniferous, Stephanian; Commentry, Commentry Basin, Allier: France.

Ricania Germar, 1818

Type species. *Cicada hyalina* Fabricius, 1775: Fabricius 1775b: 832; by subsequent designation by Stål 1866: 221.

gigas Weyenbergh, 1869: Weyenbergh 1869a: 270, Pl. XXXV, Fig. 23.

= *Ricania gigas* Weyenbergh, 1869: Weijenbergh 1869b: 150.

= *Ricania gigas* Weyenbergh, 1869: Weyenbergh 1874: 100.

= *Brongniartella problematica* Meunier, 1898: Meunier 1898: 222.

= *Brongniartella problematica* Meunier, 1898: Meunier 1898: 222.

Jurassic; Solenhofen: Germany.

NOTE. Placed in Orthoptera (Scudder 1891). Meunier (1898) discussed this imprint. He stated "Comme Scudder et Oppenheim, je crois que le *Ricania gigas* de Germar [sic!?] appartient à un orthoptère blattide du genre *Pterinoblattina*." and proposed the following synonymy "*Brongniartella problematica* Meunier = *Ricania gigas* Weyenbergh nec Germar [sic!?]". Listed in Brongniartellidae (Metcalf and Wade 1966a; Carpenter 1992), now in Neuroptera.

hospes Germar, 1839: Germar 1839a: 220, Pl. XXIII, Fig. 18.

= *Ricania hospes* Germar, 1839: Giebel 1856: 376.

= *Ricania hospes* Germar, 1839: Weyenbergh 1869a: 270.

= *Ricania hospes* Germar, 1839: Weyenbergh 1869b: 150.

= *Ricania hospes* Germar, 1839: Weyenbergh 1874: 100.

= *Mesopsychopsis hospes* Germar, 1839: Handlirsch 1906–1908: 607.

= *Mesopsychopsis hospes* Germar, 1839: Metcalf and Wade 1966a: 144.

NOTE. Scudder (1891) listed this species in Orthoptera. Transferred to Neuroptera: Brongniartiellidae by Handlirsch (1906–1908) and listed in this group by Metcalf and Wade (1966a) and Carpenter (1992).

Late Jurassic, Tithonian; Solenhofen, Bayern: Germany.

Ricaniella Meunier, 1897

Type species. *Ricania antiquata* Scudder, 1895: Scudder 1895a: 12, Pl. I, Fig. 3; by monotypy and subsequent designation by Meunier 1897: 19.

antiquata Scudder, 1895: Scudder 1895a: 12, Pl. I, Fig. 3.

= *Ricania antiquata* Scudder, 1895: Scudder 1895a: 12, Pl. I Fig. 3

NOTE. Meunier (1897) discussed this species and established the genus *Ricaniella* to comprise it, as he stated that it could not be placed within the genus *Ricania* Germar. According to the original drawing it cannot be placed within Ricaniidae or Fulgoromorpha as well. It should be placed in Insecta *incertae sedis*.

(Miocene) Middle Eocene; North Fork of Similkameen River, British Columbia: Canada.

Sanctipaulus Pinto, 1956

Type species. *Sanctipaulus mendesi* Pinto, 1956: Pinto 1956: 80; by

Type species. *Sanctipaulus mendesi* Pinto, 1956: Pinto 1956: 80; by
original designation.

mendesi Pinto, 1956: Pinto 1956: 80, Text–fig. 2, Pl. I, Fig. 4.

NOTE. This genus probably does not belong to Derbidae. Emeljanov (1994), who strongly doubts such an assignment, objects to placing it within this group. Probably it is not a member of Hemiptera: Fulgoromorpha, as the original drawing and description cannot validate such placement.

Upper Triassic; Santa Maria Formation, Passo das Tropas, Rio Grande do Sul: Brazil.

III

Bibliographic Notes and Bibliography of Fossil Fulgoromorpha

(F. Lefebvre, J. Szwedo and Th. Bourgoin)

About papers and references ...

One of the most difficult problems we encountered during the work was to confirm the actual date of publication of some papers. In some cases, we provide a different date than the one given by Metcalf and Wade (1963, 1966a, b) in "General Catalogue ..." or in Carpenter's (1992) "Treatise on Invertebrate Palaeontology". With several papers such problems are still not solved. Dates for taxa described by Handlirsch are given according to the information about dates of publication of different parts and sheets of Handlirsch's monograph "Die Fossilien Insekten" (1906–1908). The individual parts and sheets of Handlirsch's (1906–1908) book were published as follows:

I. Part, sheets 1–10, Plates 1–9 — May 1906; pages I–IX, 1–160.
II. Part, sheets 11–20, Plates 10–18 — June 1906; pages 161–320.
III. Part, sheets 21–30, Plates 19–27 — August 1906; pages 321–480.
IV. Part, sheets 31–40, Plates 28–36 — October 1906; pages 481–640.
V. Part, sheets 41–50, Plates 37–45 — February 1907; pages 641–800.
V. Part, sheets 41–50, Plates 37–45 — February 1907; pages 641–800.
VI. Part, sheets 51–60, Plates 46–51 — June 1907; pages 801–960.
VII. Part, sheets 61–70 — November 1907; pages 961–1120.
VIII. Part, sheets 71–80 — January 1908; pages 1121–1280.
IX. Part, sheets 81–90 — July 1908; pages 1281–1430.

Another paper with some doubts about the date of publication is Handlirsch's contribution in "Handbuch der Entomologie" edited by Schröder. It should be recognized as published in 1920–1921, not 1925 as cited in some bibliographic sources. This contribution first appeared in sepa-

rate sheets in 1920–1921 only later (1925) was it published as a complete bounded book, fortunately with the same pagination as sheets. Handlirsch (1922) referred to this paper as 1920 and this so did Carpenter (1992).

Wherever possible, we tried to reach the original papers written in Russian (and other languages if necessary) to check the original dates of publication and verify them against their translations into English (if we knew that such existed).

Some papers were published several times in various languages (e.g. the original paper in French and its translations into German and English); such papers with comments are also included in the "Bibliography and References".

It is worth noting a reprint of Bachofen–Echt (1949) book, which was presented in 1996 by Jörg Wunderlich Verlag, corrected and supplemented by Jörg Wunderlich.

Also some papers presented by Becker-Migdisova call for a short comment. Her 1960b paper is cited sometimes as published in 1959, as such a date is given in the volume of "Materials to Fundamentals of Palaeontology". In another paper (Becker-Migdisova 1961) the journal "*Trudy Paleontologicheskogo Instituta Akademii Nauk SSSR*" used the number 85 to designate two different volumes.

Another paper calling for comments is one by Fletcher (1920); according to Spahr (1988) this paper was supposed to be published in the 3rd volume of "*Scientific Reports of the Research Institute Pusa*", but not published. Later it was cited in Ross and York (2000) as published in "*Report of the Proceedings of the Third Entomological Meeting*, Pusa", in volume 3, with the same page numbers as given by Spahr (1988).

Finally, some corrections of the data published in Metcalf and Wade

Finally, some corrections of the data published in Metcalf and Wade
(1966a, b) were necessary. Some taxa listed by Metcalf and Wade as described by Karl von Zittel (1855) are in fact only mentioned (not described!) by Samuel H. Scudder, who was the author of a chapter in von Zittel's "*Handbuch der Palaeontologie*". The same data were subsequently published in English by Scudder (1886) and in a French translation of Karl von Zittel's book (von Zittel 1887).

About old data ...

A major problem for us during this work was citation of old data with no awareness of taxonomic changes done since the original paper was published. In numerous older papers, the recently recognized families were considered as subunits within "Fulgoridae" (*sensu* Fulgoroidea). Without any critical review such data from a particular locality or stratum were listed for a family level instead of suborder.

A good example is the history of citation of Scudder's (1890b, 1895) papers. Scudder mentioned and/or described several species from British Columbia for taxonomic units considered as subfamilies within Fulgoridae at that time: Fulgorinae, Delphacinae, and Ricaniinae. Metcalf and Wade (1966a) correctly listed these fossils in currently recognized families. However, referring to Scudder's papers, Wilson (1977) noted that certain Fulgoridae were described there. This information was later cited by Lewis (1989a), who listed the localities and taxa under Fulgoridae. Neither of these authors referred to Metcalf and Wade's (1966a) "General Catalogue ..." to verify the data.

About some general papers ...

During the preparation of this catalogue, we attempted to locate all available data and papers dealing with fossil Fulgoromorpha, as additional information might be present in various general papers dealing with fossils, fossil sites, stratigraphic position, palaeontology, palaeoecology, etc. On one hand, several of these papers do not contain any formal descriptions (they often only provide lists of fossil Fulgoromorpha taxa), but they might (they often only provide lists of fossil Fulgoromorpha taxa), but they might present drawings, photographs, and useful palaeoecological or palaeogeographical information about fossil Fulgoromorpha. On the other hand, some of the papers in which fossil Fulgoromorpha are mentioned wrongly refer to Fulgoromorpha or, in some cases, present doubtful data. These data were sometimes cited by other authors, adding to the already existing confusion about fossils.

The most recent global compilation of fossil insect genera is Carpenter's "Treatise ..." (1992); unfortunately, the literature search for this monumen-

tal work ended in 1983. These data were updated by Ed Jarzembowski in 2000 and presented on the "Meganeura" website (http://www.ub.es/dpep/meganeura/6database.htm). General papers dealing with fossil insects (e.g. Keilbach 1982, Spahr 1988, Carpenter 1992 and series of papers presented by Lewis and co–workers) in some cases present misidentified and/or mistakenly listed taxa. Anyway, some fossils figured in various papers and ascribed to higher taxa (Fulgoroidea, 'Auchenorrhyncha', etc.) can be identified without doubts to lower levels. Therefore, although they deserve to be included in the bibliography of this catalogue, these papers cannot be placed in the taxonomic part. This kind of information is particularly frequent in papers dealing with inclusions in fossil resins and palaeogeographical or palaeoecological papers.

An annotated list of papers including general information about fossil Fulgoromorpha, together with short comments, is therefore presented below.

Andrée K. 1951

Jacobi's photograph of *Tritophania patruelis* Jac. is presented on Fig. 13, page 60.

Ansorge J. 2000

Tegmen and wing of Fulgoroidea from Lower Eocene stratum is mentioned in Table 1, p. 45.

Archibald B.S., Matthews R.W. 2000

Imprints of unidentified Cixiidae (p. 1443, Fig. 4F) and Ricaniidae (p. 1443, Figs. 4E, 16) are mentioned and figured, listed also in Table 1.

Bachofen-Echt A. 1949

The book was reprinted in 1996 by Jörg Wunderlich Verlag and pro-

The book was reprinted in 1996 by Jörg Wunderlich Verlag and pro-

vided with some corrections and index. Szwedo and Kulicka 1999b identified to family level specimens wrongly placed by Bachofen-Echt as: Fig. 166: Cixiidae; Fig. 167: Issidae; Fig. 171: Cixiidae.

Baroni Urbani C., Saunders J.B. 1983

Unidentified "Fulgoriformes" from Dominican amber are mentioned on page 216.

Buckton G.B. 1891

Buckton mentioned several genera "..., *Cixius*, *Olearus*, *Delphax*, ...", and redrew (Plate G) a number of specimens figured by Germar and

Berendt (1856), placed in genus *Cixius* — *C. testudinarius* (Plate G, Fig. 19), *C. insignis* (Plate G, Fig. 20), *C. longirostris* (Plate G, Fig. 22) and *C. gracilis* (Plate G, Fig. 25). Buckton also proposed a generic name *Palaeocixius* for the species described by Germar and Berendt, but this generic name was earlier proposed by Brongniart (1885) for a Carboniferous fossil recently placed in Protorthoptera (Carpenter 1992), so the Buckton generic name should be suppressed.

Carpenter F.M., Burnham L. 1985.

The family Cixiidae is mentioned after Becker-Migdisova (1960a), as known from Permian period.

Geinaert E. 2002

Fig. 176 presents not exuvium of a cockroach (as stated), but rather the posterior portion of a planthopper nymph, also exuvium from Madagascan copal. Fig. 200 is a photograph of Nogodinidae in copal from Madagascar.

Gomez–Pallerola J.E. 1986

Fulgoridae *incertae sedis* are mentioned on page 719 and figured in Figs. 12 and 13. Both imprints originate from Sierra del Montsec, Lerida: Spain and are aged Lower Cretaceous, Beirrasian–Barremian; Figure 12 presents a preserved part of tegmen, probably of Fulgoroidea, familial assignment is not resolved. Figure 13 presents the anterior part of the body, tegmina and some portion of wings, probably of Fulgoroidea, familial assignment is not resolved.

Grande L. 1984

Review of planthoppers previously described from Santana Formation is given, and families Cixiidae, Delphacidae, Fulgoridae, Ricaniidae and Flatidae are listed in Table IV.2. Several undescribed Fulgoroidea and Flatidae are listed in Table IV.2. Several undescribed Fulgoroidea are figured: figure IV.21. labelled as Fulgoridae, presents an unidentified Fulgoroidea; figure IV.35. labelled as "unidentified moth," probably presents an unidentified Fulgoroidea.

Grimaldi D. 1991

Several planthoppers described by Hamilton (1990) but not named in this book are figured. These are: page 389: second row from the top, left – holotype of *Acixiites costalis* Hamilton (Achilidae); second row from the top, right – *Psestocixius delphax* Hamilton (Lalacidae); second row from the bottom, right – *Ancorale flaccidum* Hamilton (Lalacidae); page 392: second

row from the bottom, right – *Carpopodus difficilis* Hamilton (Lalacidae); first row from the bottom, left – *Patulopes setosa* Hamilton (Lalacidae); first row from the bottom, right – *Patulopes myndoides* Hamilton (Lalacidae). Families Achilidae and Cixiidae are mentioned from Santana Formation.

Grimaldi D.A., Engel M.S., Nascimbene P.C. 2002

Figure 23 presents several planthoppers, originally identified as "Auchenorrhyncha (Hemiptera)". These are Fulgoroidea, the photographs present respectively: a – Cixiidae: Pentastirini, b – nymph (probably Achilidae), c – another nymph (also probably Achilidae), d – Cixiidae.

Handlirsch A. 1920–1921(1925)

Data on Mesozoic Fulgoromorpha "Fulgoridae auct." are given: Cixiidae and Dictyopharidae are mentioned and *Fulgoridium spilographum* Handlirsch and *F. reductum* Handlirsch are figured and established. Cenozoic taxa of "Überfamiliae Fulgorellae, Familie Fulgoridae" are also listed: *Cixius* Latreille, *Oliarus* Stål, *Oliarites* Scudder, *Florissantia* Scudder in "Cixiinae", *Pseudophana* Burmeister in Dictyopharinae, *Helicoptera* Amyot et Serville in "Achilinae", *Issus* Fabricius in "Issinae", *Hammapteryx* Scudder and *Ricania* Germar in "Ricaniinae", *Lithopsis* Scudder and *Poeciloptera* Spinola in "Flatinae", *Aphana* Burmeister, *Nyctophylax* Scudder, *Poeocera* Burmeister, *Fulgora* Linnaeus, *Lystra* Fabricius in "Fulgorinae", *Asiraca* Latreille and *Delphax* Fabricius in "Delphacinae" and *Eofulgorella* Cockerell, *Ficarasites* Scudder, *Diaplegma* Scudder are listed as "Fulgoridae *incertae sedis*". In addition, Tettigometridae are mentioned but with a remark that no fossil is known.

Hope F.W. 1836[1834]

Genera "*Cixius*" (1 species from animé identified by Westwood), "*Issus*" (2 species from animé identified by Hope), *Poeciloptera* (from animé) and *Ricania equestris* (from animé and amber, identified by Dalman) are listed in a table on page 143. Animé is a kind of copal, almost recent or recent resin.

Hurd P.D. jr, Smith R.F., Durham J.W. 1962

Families Cixiidae and Flatidae are listed from Mexican amber on page 110.

Jacobi A. 1937a, Jacobi A. 1937b

In the former paper a photo and Figs. 7 and 9, in the latter Figs. XI and XII of a specimen later described (Jacobi 1938) as *Tritophania patruelis* Jacobi are presented.

Jell P.A., Duncan P.M. 1986

In this paper a form identified as "Cixiid indet" is mentioned (Fig. 19, page 140), subsequently described by Hamilton (1992) as *Ligavena gracilipes* Hamilton and placed in Cicadomorpha: Ligavenoidea, Ligavenidae.

Klebs R. 1910

Poeocera venulosa Giebel and *Ricania multinervis* Giebel are listed as probably copal, not amber inclusions, inventory numbers given are 4175 and 4178, respectively.

Krumbiegel G., Krumbiegel B. 1996

A Cixiid from Bitterfeld amber is figured on page 50.

Larsson S.G. 1978

Representatives of Cixiidae on Plate 3. A. (Szwedo and Kulicka 1999b) and Issidae on Plate 3. B. are figured. He also listed some dubious data from old papers, page 71: 'Those genera mentioned in the older literature are *Cixius* (9 species), *Flata* (2 species), *Ricania* (1 species), *Poeocera* (3 species). Bachofen–Echt (1949, p.173) adds the genera *Oliarus*, *Pseudophana* and *Issus*.' Larsson mentions also some unidentified Tettigometridae.

Lewis S.E. 1986

Unidentified 'Fulgoridae' (*sensu* Fulgoroidea, we suppose) from Miocene deposits of Stewart Valley Fossil Beds, Hawthorn, S.W. Mineral County, Nevada: U.S.A. are mentioned. These data are also repeated in Lewis (1989d) and Lewis and Heikes (1991).

Lewis S.E. 1989c

Unidentified 'Fulgoridae' (probably *sensu* Fulgoroidea) from Oligocene Renova Formation, Passamari Member, Ruby Range Insect Collecting Site between Morman and Peterson Creeks, Montana (?): U.S.A. Sev-

Site between Morman and Peterson Creeks, Montana (?): U.S.A. Several papers by various authors are listed as a source of this information, so it was not possible for us to find the exact reference.

Lewis S.E. 1989d

Family Fulgoridae listed from Miocene Stewart Valley Fossil Beds, Hawthorn, S.W. Mineral County in Nevada, U.S.A.

Lewis S.E. 1992

Unidentified eight specimens of 'Fulgoridae' are listed in Table 1, page 16, from Eocene of Republic site.

Lewis S.E. 1994

Unidentified 'Fulgoridae' are listed in Table 1, page 3.

Lewis S.E., Heikes P.M. 1991

Unidentified 'Fulgoridae' from Miocene strata of Stewart Valley Formation, Hawthorne, Stewart Valley, Mineral County, Nevada: U.S.A. are listed on page 237.

Lewis S.E., Heikes P.M., Lewis K.L. 1990

Two specimens ascribed to family Fulgoridae (more probably Fulgoroidea) from Ruby River Basin between Peterson and Mormon Creeks near Alder in Montana, U.S.A. are listed.

Lutz H. 1988

Shcherbakov and Popov (2002) ascribed an Eocene imprint, originally ascribed to Fulgoroidea (Fig. 103, page 62), to the extant genus *Dichoptera* Spinola of Fulgoridae.

Menge A. 1856

Amber inclusions of genera "*Cixius*" and "*Pseudophana*" are mentioned. Spahr (1988), for no reasons, referred an inclusion of "*Pseudophana*" to *Dictyophara reticulata* (Germar et Berendt, 1856) but refers also to Emeljanov's (1983a) comments on specimens described and figured by Germar and Berendt (1856).

Montgomery de Merette L. 1984

A specimen of Cixiidae from Dominican amber is figured on page 37.

Müllenmeister H.J. 2001

A nymph of unidentified Fulgoroidea transported by a spider (?Lycosidae) preserved in Dominican amber and an imago of Dictyopharidae from Dominican amber, are figured.

Néraudeau D., Perrichot V., Dejax J., Masure E., Nel A., Philippe M.,
Néraudeau D., Perrichot V., Dejax J., Masure E., Nel A., Philippe M.,
Moreau P., Guillocheau F., Guyot T. 2002

Unidentified Fulgoridae (?) from Lower Cretaceous; Uppermost Albian (?) of Archingeay, Charente–Maritime: France, are mentioned on page 237.

Poinar Jr. G.O. 1992

In this book more data are presented. Fulgoroidea are listed from Cretaceous Siberian amber at Yantardakh site; fossil resin inclusions of varius Fulgoroidea described by former authors are listed; families Cixiidae, Delphacidae, Dictyopharidae, Flatidae and Issidae are given as present

among Dominican amber inclusions are listed. Some inclusions are figured: figure 66 does not present Cixiidae, as indicated, but rather Issidae, figure 67 probably presents a nymph of Fulgoridae, and figure 68 presents Membracidae, not Fulgoroidea as erroneously indicated. Figure 140 presents a Dryinidae larva in sac (thylacium) protruding from the abdomen of a Fulgoroidea nymph (Dominican amber inclusion).

Poinar Jr. G.O. 2001

Description of a mermithid nematode parasitizing Achilidae preserved in Baltic amber inclusion, Figure 1 A, B, page 754. A list of extant planthoppers parasitized by Mermithidae is also presented.

Poinar Jr. G.O., Milki R. 2001

The paper lists *Mundopoides aptianus* Fennah (Fulgoroidea: Cixiidae) in Table 3 and later on page 38.

Poinar Jr. G.O., Poinar R. 1999

Several Fulgoroidea are mentioned: Derbidae are figured on page xiv, Fulgoroidea are discussed on pages 46–50 and figured (Figs. 39–43): Delphacidae, a nymph of Issidae, Derbidae, Issidae, a nymph of Fulgoridae and a nymph of Issidae (it may be a Cixiid with wax tail). Planthoppers as hosts of parasitoids and parasites are discussed on pages 135–137 and 145, with a nymph parasitized by Dryinidae figured (Fig. 140).

Rasnitsyn A.P. 1988

Various families from the following localities, faunistic complexes and stratigraphic ranges are mentioned — Fulgoridiidae: *Mesoleuctra–Mesoneta* faunistic complex, Khoutiïn–Khotgor, Karatau (Jurassic); Cixiidae: Karatau, Baïsa, *Folindusia ponomarenkoi–Ostracindusia popovi* faunistic complex, doubtful specimens from Obeshchayushchiï (Upper Jurassic–Neogene, recent) and Kzyl–Dzhar (Upper Jurassic–Neogene, recent) and Kzyl–Dzhar (Upper Jurassic–Neogene, recent); Achilidae: Baïsa, *Folindusia ponomarenkoi–Ostracindusia popovi* faunistic complex, doubtful specimens from Obeshchayushchiï (Upper Jurassic–Neogene, recent) and Kzyl–Dzhar (Lower Cretaceous–Paleogene, recent); Fulgoroidea fam. nov. from: *Mesoleuctra–Mesoneta* faunistic complex, *Mesoleuctroides–Dinosamarura* faunistic complex, *Memptus–Dzeregia* faunistic complex, *Stackelbergisca–Siberioperla* faunistic complex, Khoutiïn–Khotgor, Karatau, Turga, Baïssa, *Folindusia ponomarenkoi–Ostracindusia popovi* faunistic complex, Semen, Khetana,

Obeshchayushchiĭ, Kzyl–Dzhar (Lower Jurassic–Upper Cretaceous); Fulgoroidea fam. nov. 2: Karatau (doubtful specimens), 11 *Folindusia ponomarenkoi–Ostracindusia popovi* faunistic complex (Upper Jurassic–Upper Cretaceous).

Rasnitsyn A.P., Ross A.J. 2000

Families Achilidae and Cixiidae, and unidentified Fulgoroidea are listed with inventory numbers and number of specimens preserved.

Ritzkowski S. 1990

Fulgoridae from the former Königsberg collection are listed, in fact familial assignation of these specimens remains doubtful, probably Fulgoroidea.

Rodeck H.G. 1938

Type specimens of *Eofulgorella bradburyi* Cockerell, *Protoliarus amabilis* Cockerell et LeVeque (page 283) and *Oliarus oligocenus* Cockerell (page 285) are listed with inventory numbers given.

Rohdendorf B.B., Zherikhin V.V. 1974

Tegmen of a representative of family Cixiidae is listed and figured from Siberian amber, Figure 2 lower left, page 85.

Ross A.J. 1998

Some Fulgoroidea are figured: Fig. 61 presents an Achilidae from Baltic amber, Fig. 25 probably Derbidae in Mexican amber, and Fig. 123 another Achilidae in Baltic amber.

Ross A.J., Jarzembowski E.A. 1993

The stratigraphic ranges of families: Achilidae, Cixiidae, Coleoscytidae, Delphacidae, Derbidae, Flatidae, Fulgoridae, Fulgoridiidae on Fig. 21.8, Issidae and Lalacidae on Fig. 21.9 and Ricaniidae, Surijokocixiidae and Tettigometridae on Fig. 21.10 are presented. Achilidae with *Acixiites immodesta* Hamilton, Cixiidae with *Cixius petrinus* Fennah and comments on *Mesocixiella* Martynov given after Shcherbakov (1988b), Coleoscytidae, Derbidae with comment on placement of *Sanctipaulus mendesi* Pinto, Flatidae, Fulgoridae with comment to Gomez–Pallerola (1986) paper, Fulgoridiidae with *Valvifulgoria tiantungensis* Lin and comments on placement of the family and on Miocene fossils transferred to genus *Limois* Stål, Issidae, Lalacidae with *Lalax mutabilis* Hamilton and comment on placement of the family, Ricaniidae, Surijokocixiidae and Tettigometridae mentioned.

Rust J., Ansorge J. 1996

Part of tegmen of Fulgoroidea (probable Nogodinidae) is figured on page 359, it originates from Moler (Fur Formation) of Upper Paleocene/Lower Eocene age.

Schlee D. 1990

Figure 7 presents Cixiidae: Bothriocerniae from Dominican amber.

Schlee D., Dommel G. 1983

Photograph of Cixiidae: Bothriocerinae from Dominican amber is presented on front cover.

Schlee D., Glöckner W. 1978

"Fulgoriformes" from Dominican amber are listed on page 27.

Szwedo J., Kulicka R. 1999a

The paper lists specimens of families: Derbidae, Dictyopharidae (based on a nymph), Achilidae, Cixiidae, Issidae and Ricaniidae, and unidentified Fulgoromorpha from the collection of the Museum of the Earth PAS in Warsaw.

Szwedo J., Kulicka R. 1999b

The paper lists and describes various families known from Baltic amber and mentions fossil species, also drawings of habitus of the families are given. In 'Remarks' some old descriptions and figures are discussed.

Wedmann S. 2000

A specimen with collection number 7225 is mentioned on page 30 and figured on Plate 2, Fig. 6. It represents a Fulgoroidea species, but familial assignement remain obscure.

Wehr W.C. 1994

Families Cixiidae, Flatidae and Fulgoridae from middle Eocene localities in the Okanongan Highlands of Washington (U.S.A.) and British ties in the Okanongan Highlands of Washington (U.S.A.) and British Columbia (Canada) are listed in Table 1, page 100. Family Fulgoridae (*sensu* Fulgoroidea we suppose) is listed after data presented by Scudder (1890b) and Lewis (1992).

Wehr W.C., Berksdale L.L. 1996

Families Flatidae and Fulgoridae are listed in Table 1, page 29.

Weitschat W., Wichard W. 1998; Weitschat W., Wichard W. 2002

In this "Atlas..." a few Fulgoromorpha are figured and known Baltic amber inclusions are listed. Fig. 60 presents Achilidae rather than Cixiidae,

as originally stated. Plate 45 presents: a – *Tritophania* Jacobi (probably *T. patruelis* Jacobi), b – unidentified Cixiidae, c– unidentified Achilidae, d – unidentified Achilidae. Plate 46 presents: a – nymph of Fulgoroidea, b – nymph of Fulgoroidea (?Dictyopharidae), c – nymph of Fulgoroidea; figure d presents a nymph of Cicadellidae, not Fulgoromorpha as originally stated. The presented list of Fulgoromorpha calls for discussion (see the main part of catalogue).

Wilson M.V.H. 1978

Cixiidae, Achilidae, Fulgoridae, Dictyopharidae from Florissant, Cixiidae, Delphacidae, Fulgoridae, Ricaniidae and Flatidae from Green River and Fulgoridae from British Columbia are listed on the basis of former descriptions.

Wu R.J.C. 1996

"Planthoppers and Kin: Order Homoptera" are figured on pages 164–169, inclusions are identified to family level, all are known from Dominican amber. A specimen of family Delphacidae is figured as F–343, specimen of Cixiidae (probably Pentastirini) is figured as F–344, inclusion of Issidae as F–345, inclusion labelled as F–346 is probably wrongly identified as Cixiidae, but seems to represent Tropiduchidae, inclusion labelled as F–347 is difficult to identify, originally reported as superfamily Fulgoroidea, specimen from family Fulgoridae is presented in F–348 (originally labelled as superfamily Fulgoroidea); nymphs of Fulgoroidea are figured in figures labelled as: F–349, F–350, F–351 and F–352, female of Cixiidae with wax–tufts is figured in figure F–353, another female, probably Cixiidae, is figured in figure F–354; another nymph identified as Dictyopharidae is figured in F–359.

Zherikhin V.V. 1978

Fossils from Yantardakh are listed: Cixiidae, Issidae, and Acanaloniidae from Lower Cretaceous strata of Baïssa.

Zherikhin V.V., Sukacheva I.D. 1973

Fulgoroidea from Yantardakh amber (Siberian amber) are listed in Table 4 (page 19) and Table 9 (page 37).

Zuidema H.P. 1948 (1950)

Unidentified "Fulgoridae" are recorded from Ruby River Basin near Alder, Montana, U.S.A.

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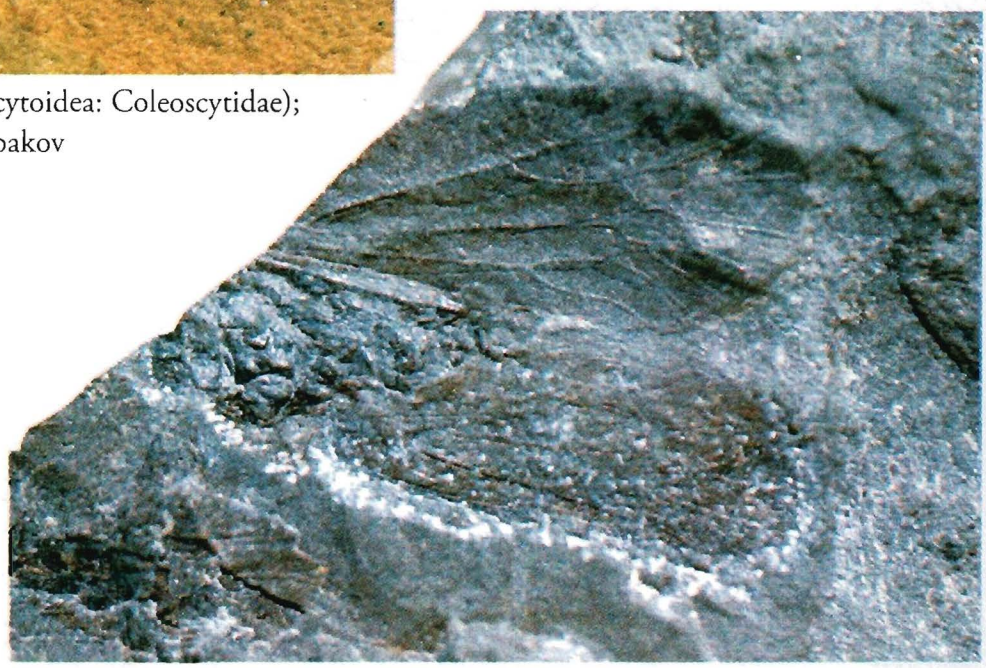
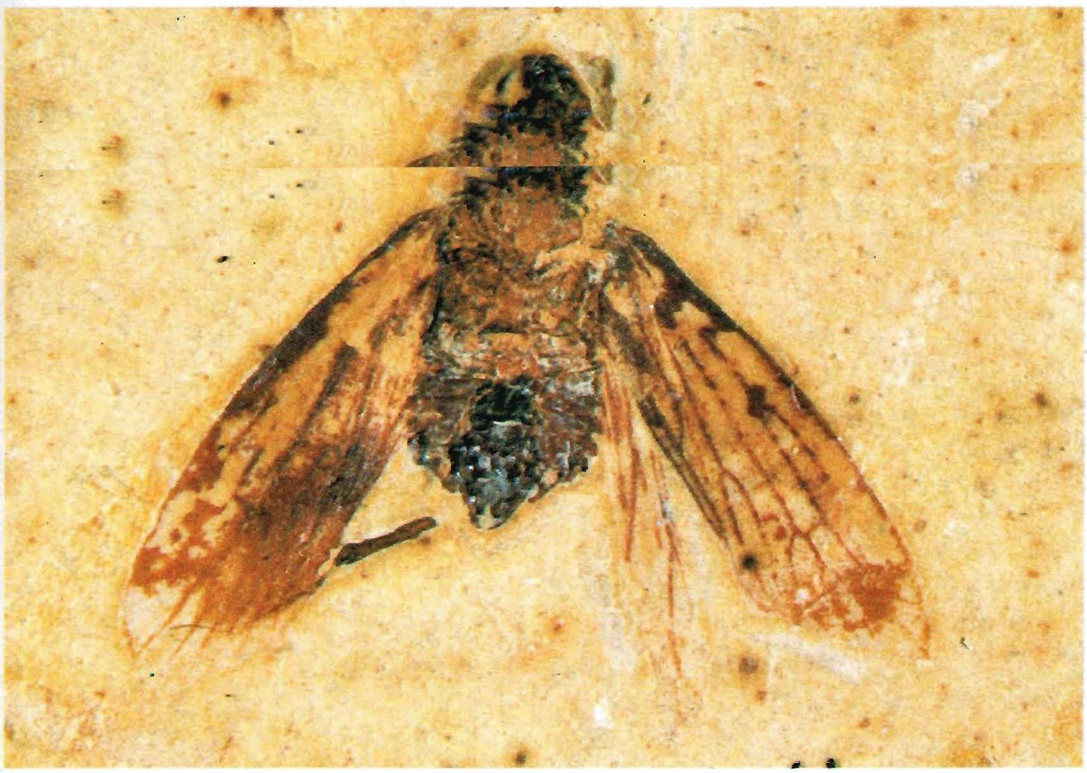
1. *Coleoscyta* sp. (Coleoscytoidea: Coleoscytidae); courtesy of D.E. Shcherbakov



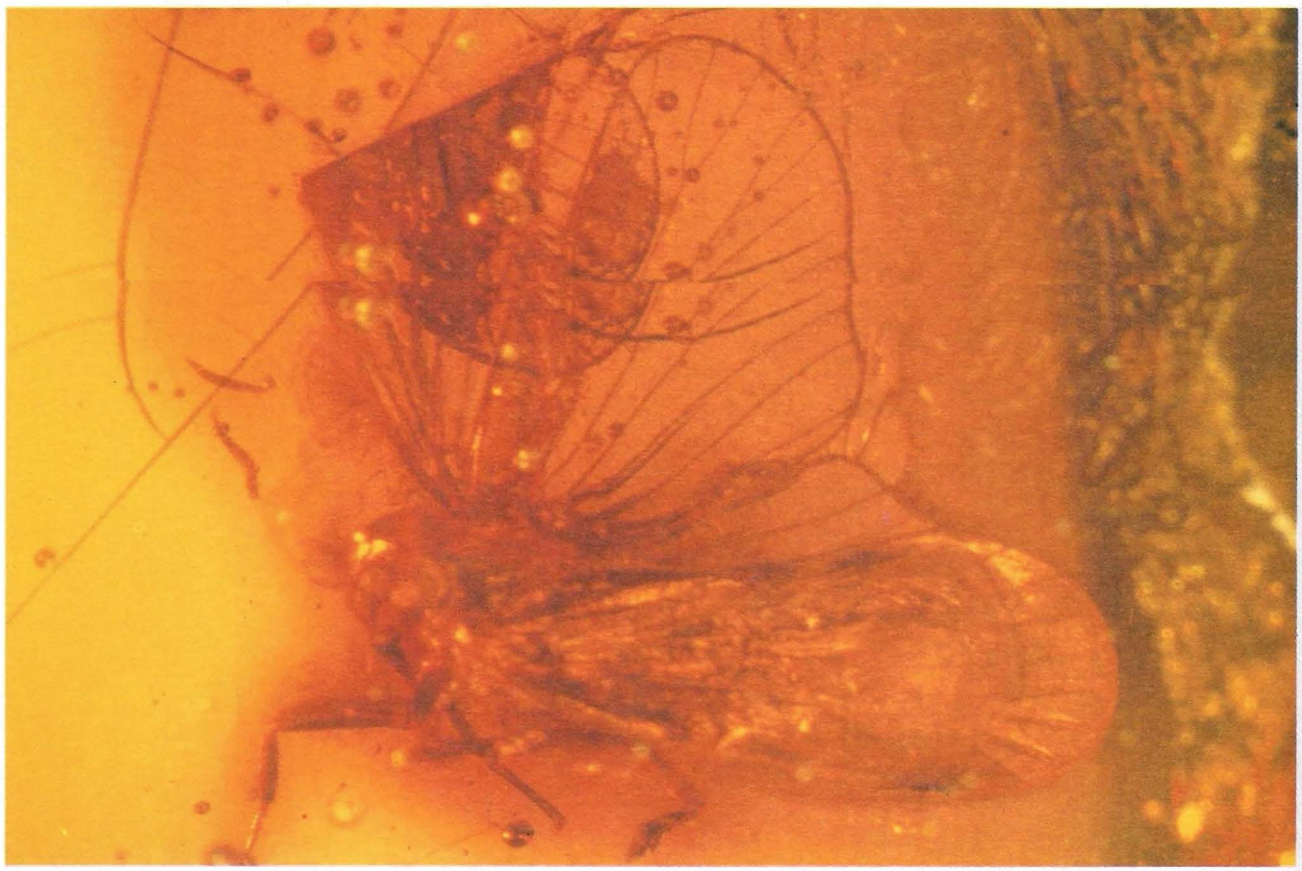
2. *Surijokocixius* sp. (Surijokocixioidea: Surijokocixiidae); courtesy of D.E. Shcherbakov



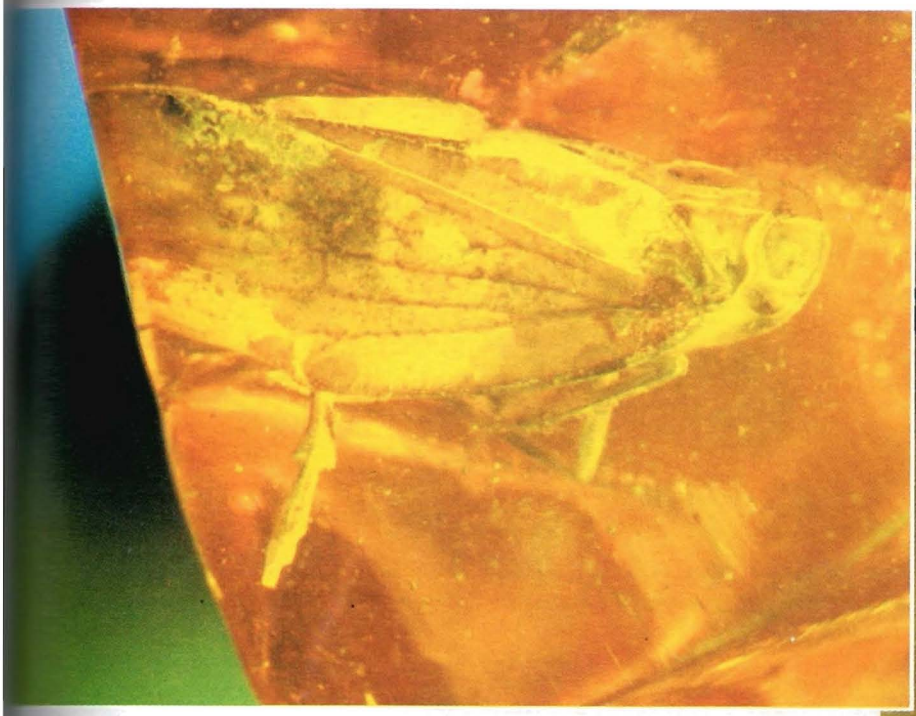
3. *Acixiites immodesta* Hamilton, 1990 (Fulgoroidea: Achilidae); courtesy of K.G.A Hamilton

4. *Ptychogroehnia reducta* Szwedo et Stroiński, 2001 (Fulgoroidea: Achilidae)

6. *Cixius* sp. (Fulgoroidea: Cixiidae)



5. *Bothriobaltia pietrzeniukae* Szwedo, 2002 (Fulgoroidea: Cixiidae)



7. *Kulickamia jantaris* Gębicki et Szwedo, 2000
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8. *Oliarus kulickae* Szwedo, 2000
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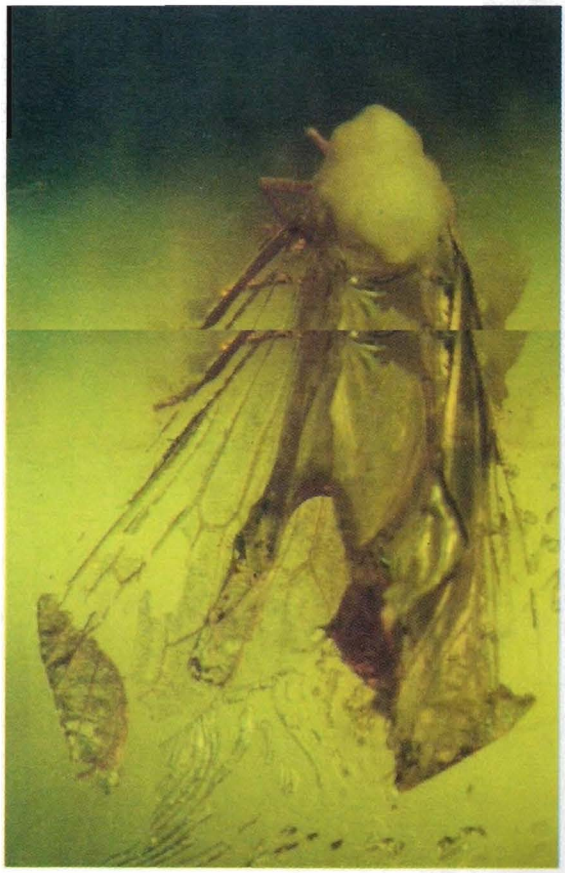
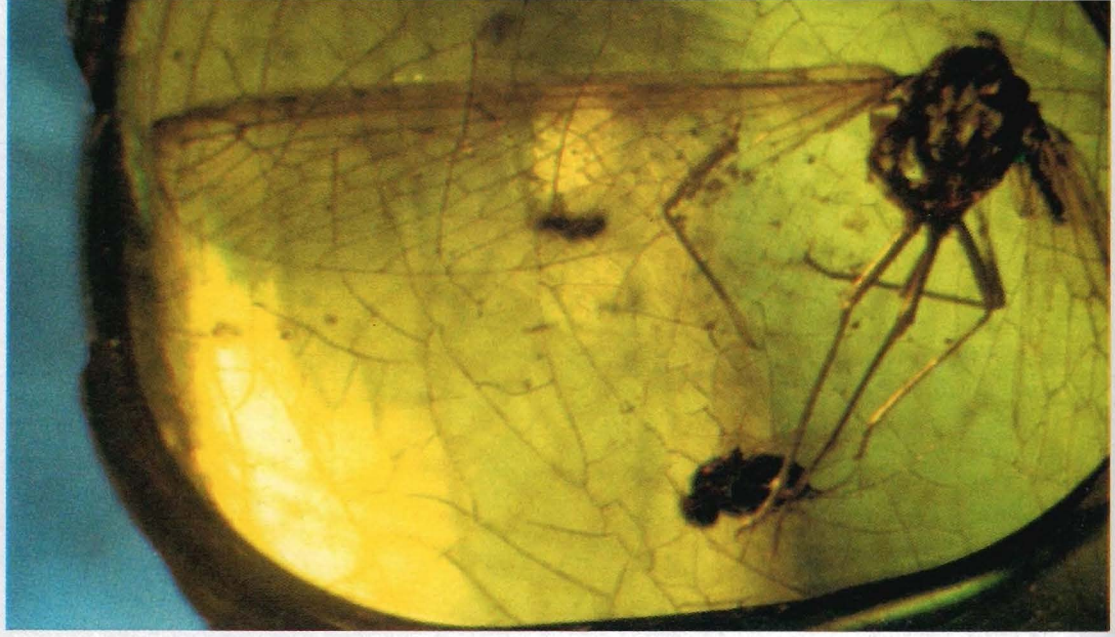
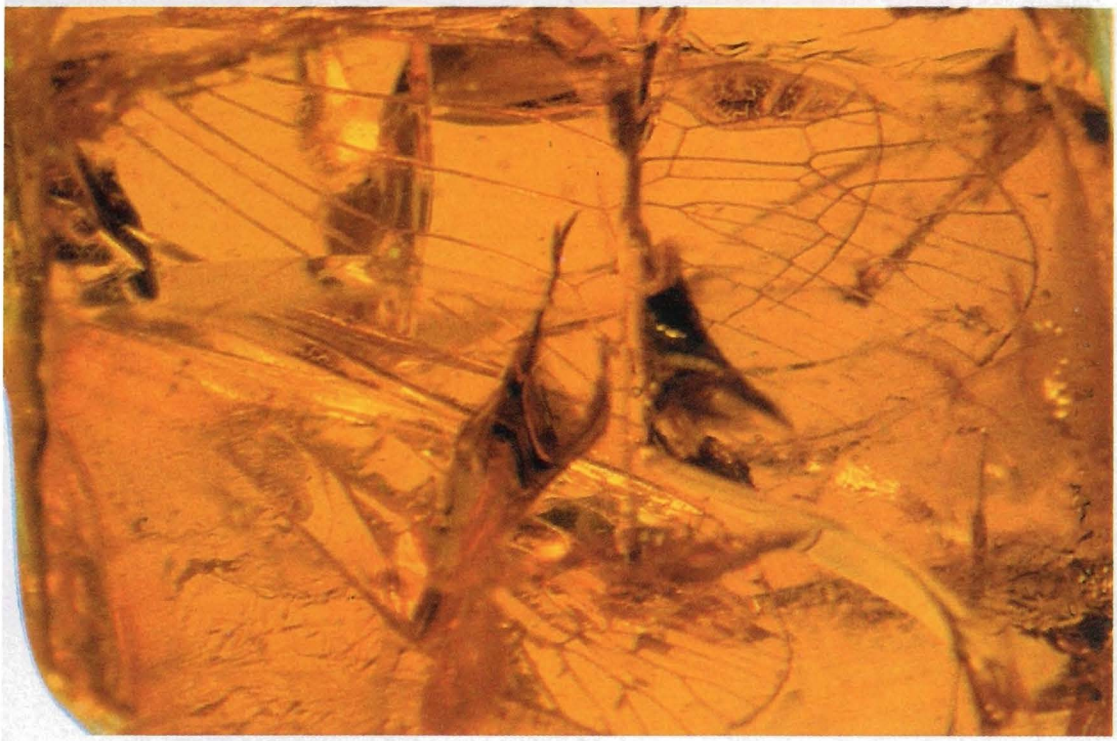
9. *Serafinana perperunae* Gębicki et Szwedo, 2000
(Fulgoroidea: Delphacidae)



10. *Positrona shcherbakovi* Emeljanov, 1994
(Fulgoroidea: Derbidae)



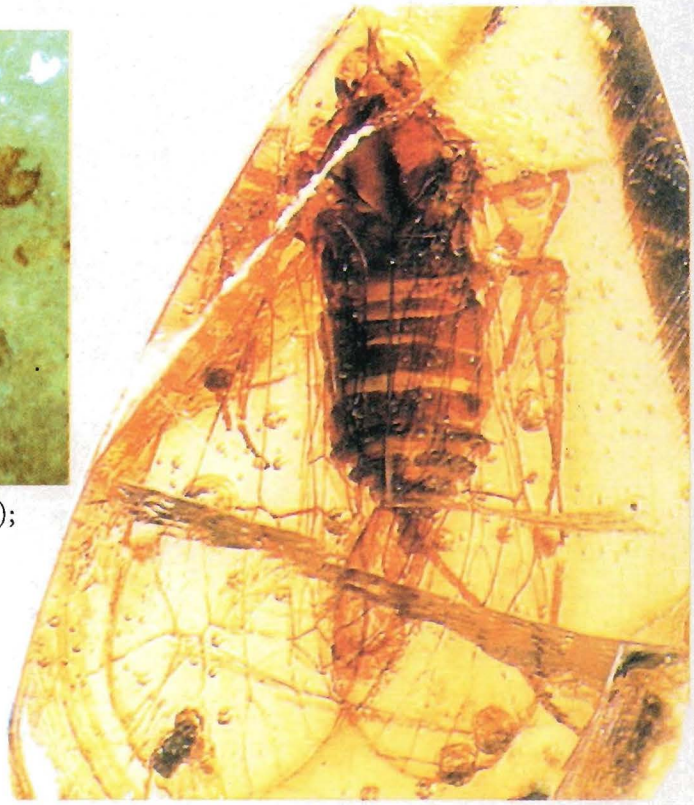
11. *Zoraida angolensis* Synave, 1973 (Fulgoroidea: Derbidae)



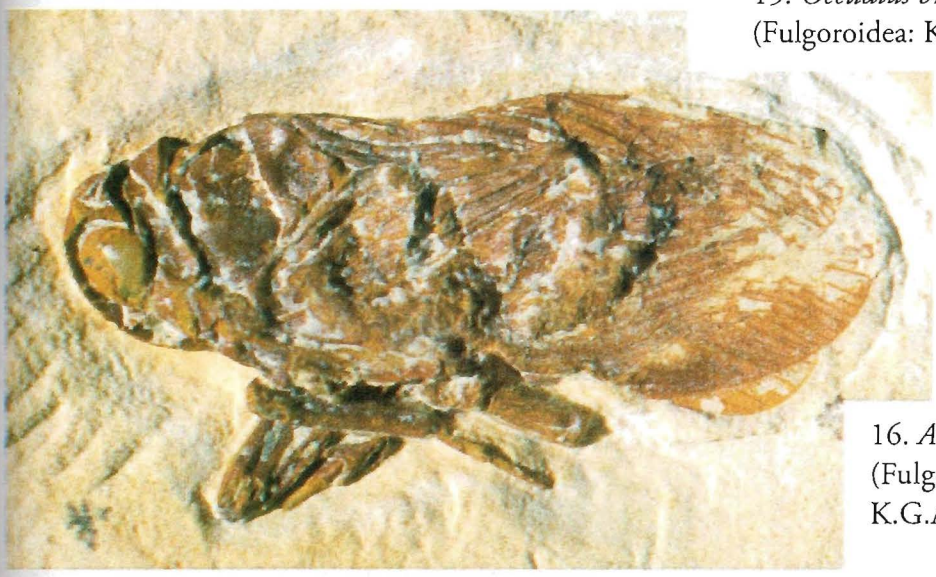
12. *Netutela annunciator* Emeljanov, 1983 (Fulgoroidea: Dictyopharidae); courtesy of D.E. Shcherbakov

13. *Ormenis furcata* Henriksen, 1922 (Fulgoroidea: Flatidae)

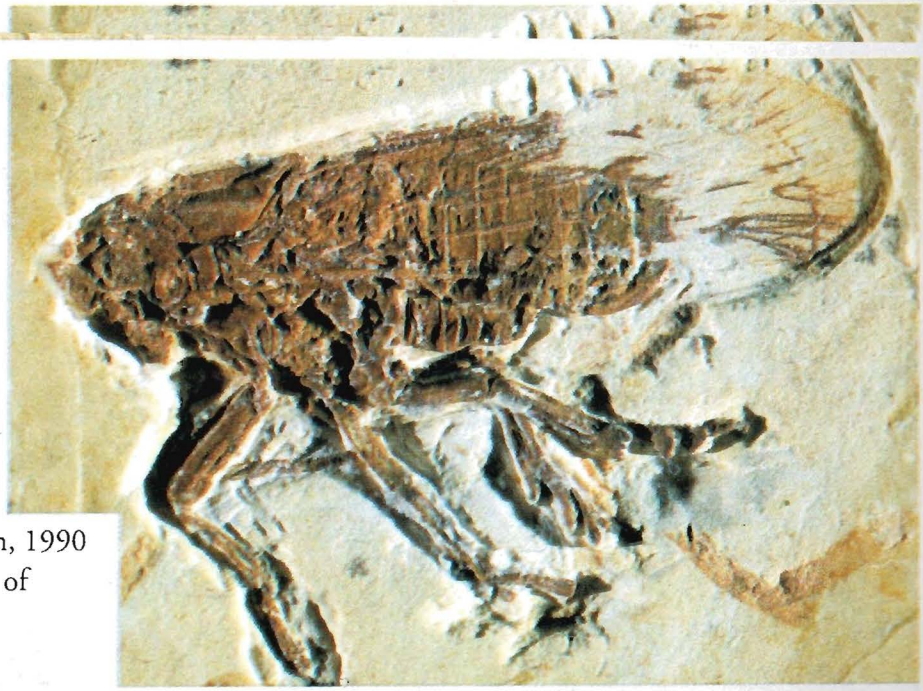
14. *Fulgoridium* sp. (Fulgoroidea: Fulgoridiidae); courtesy of D. E. Scherbakov



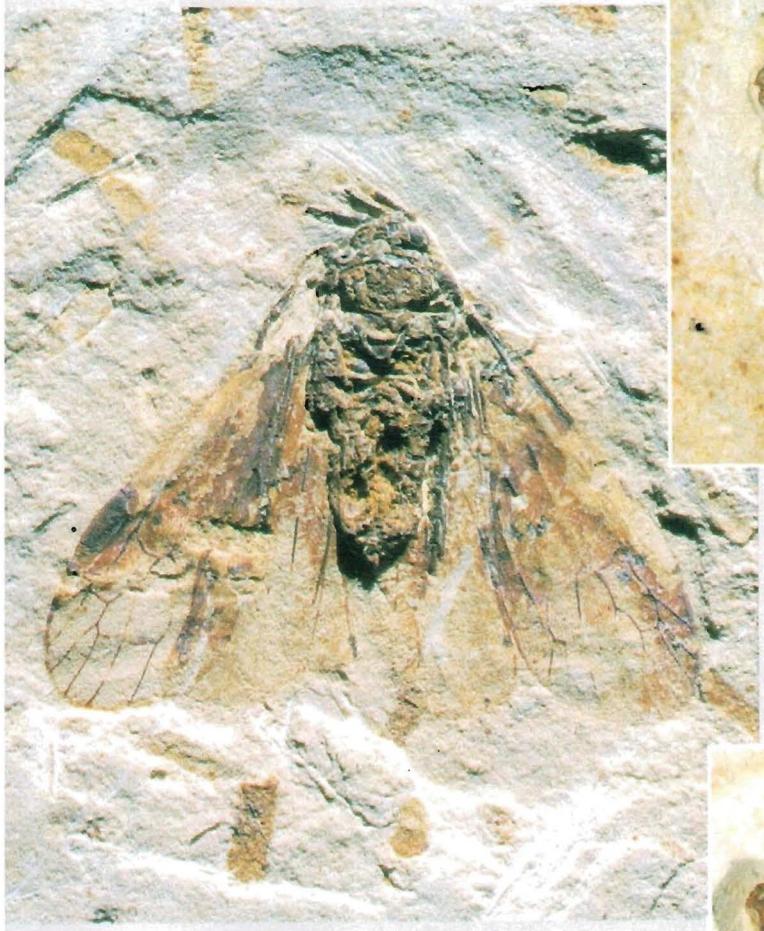
15. *Oeclidius browni* Bourgoin et Lefèbvre, 2002 (Fulgoroidea: Kinnaridae)



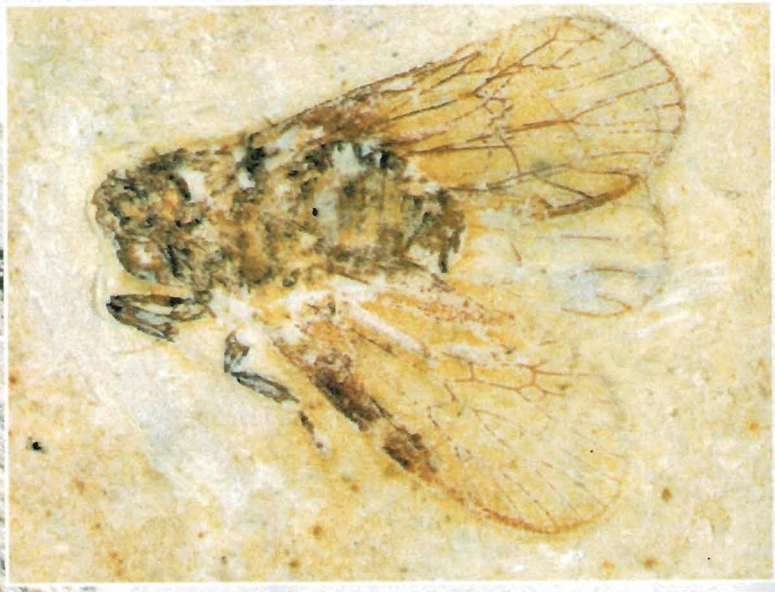
16. *Ancorale flaccidum* Hamilton, 1990 (Fulgoroidea: Lalacidae); courtesy of K.G.A. Hamilton



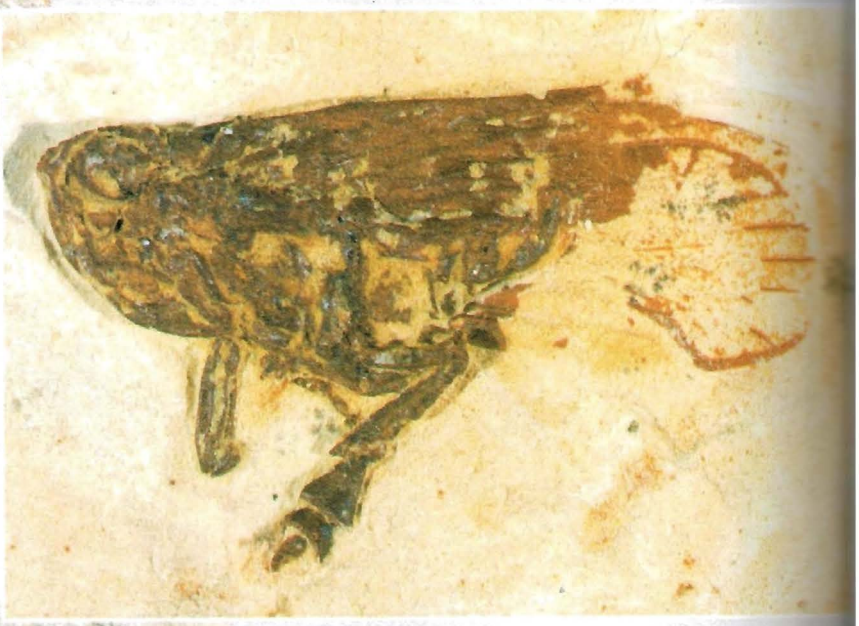
17. *Carpopodus difficilis* Hamilton, 1990 Fulgoroidea: Lalacidae); courtesy of K.G.A. Hamilton



18. *Kinnarocixius quassus* Hamilton, 1990 (Fulgoroidea: Lalacidae); courtesy of K.G.A. Hamilton

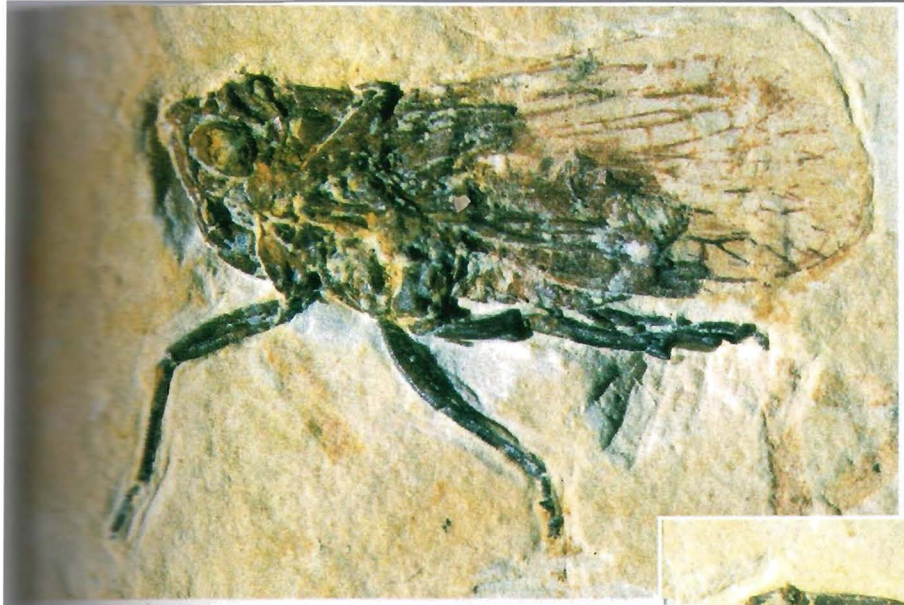


19. *Lalax mutabilis* Hamilton, 1990 (Fulgoroidea: Lalacidae); courtesy of K.G.A. Hamilton



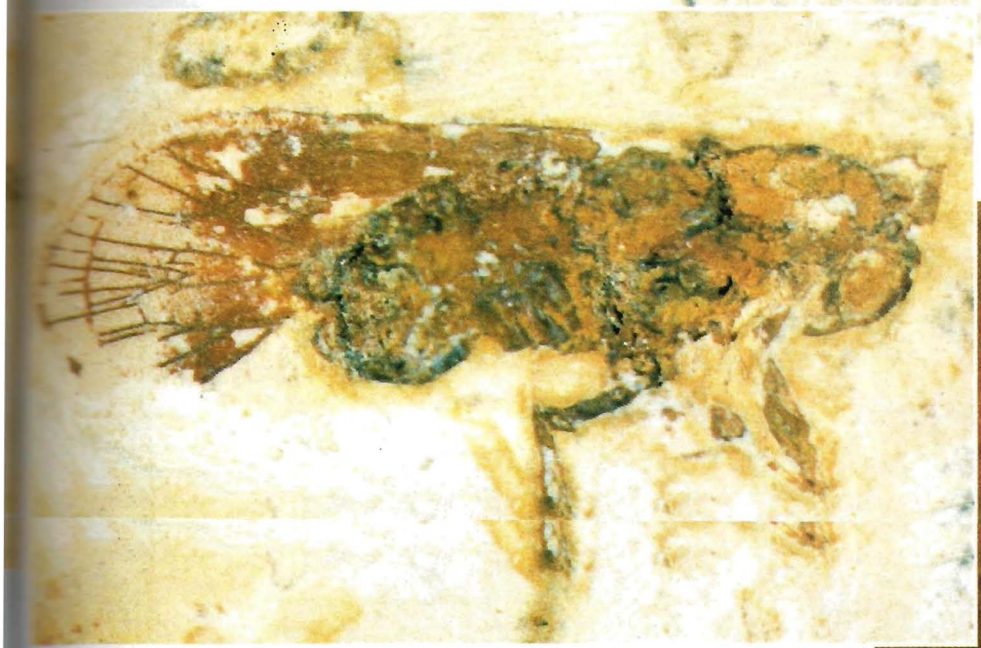
20. *Patulopes setosa* Hamilton, 1990 (Fulgoroidea: Lalacidae); courtesy of K.G.A. Hamilton

21. *Protodelphax miles* Hamilton, 1990 (Fulgoroidea: Lalacidae); courtesy of K.G.A. Hamilton



22 *Psestocixius delphax* Hamilton, 1990 (Fulgoroidea: Lalacidae); courtesy of K.G.A. Hamilton

23. *Psestocixius fuscus* Hamilton, 1990 (Fulgoroidea: Lalacidae); courtesy of K.G.A. Hamilton

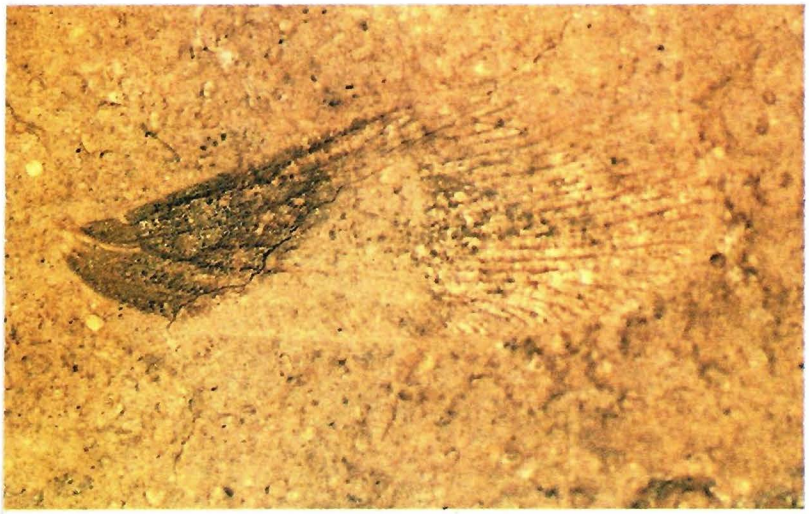


24. *Vulcanoia acuceps* Hamilton, 1990 (Fulgoroidea: Lalacidae); courtesy of K.G.A. Hamilton

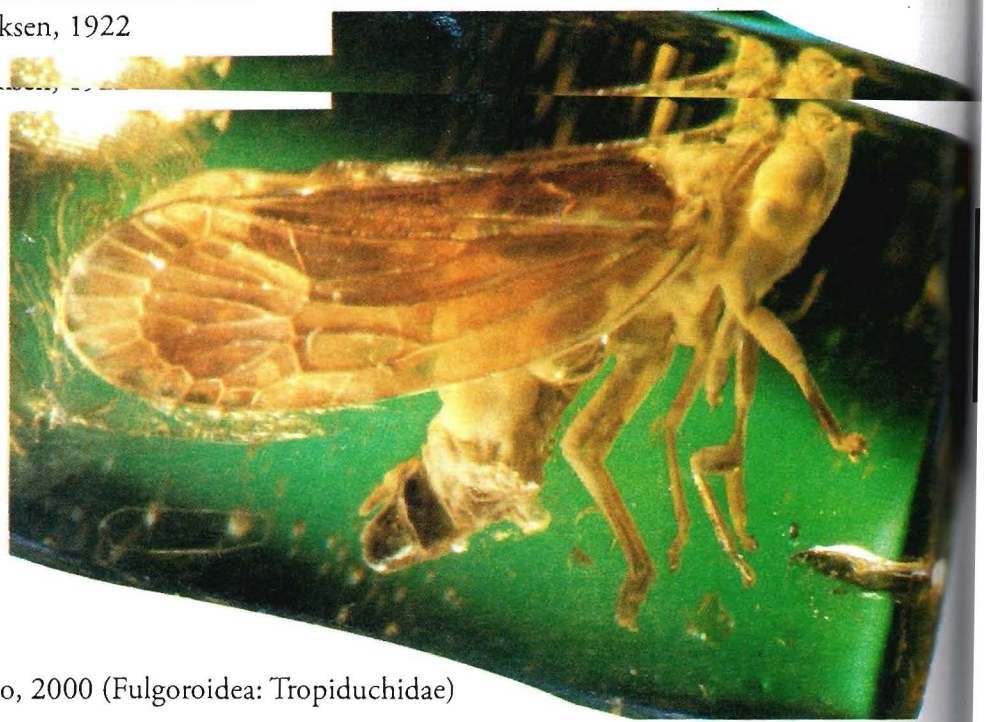
25. *Tainosia quisqueyae* Szwedo et Stroiński, 2001 (Fulgoroidea: Nogodinidae)

26. *Tritophania patruelis* jacobi, 1937
(Fulgoroidea: Nogodinidae)

27. *Eoricania danica* Henriksen, 1922
(Fulgoroidea: Ricaniidae)



28. *Hammapteryx paucistriata* Henriksen, 1922
(Fulgoroidea: Ricaniidae)



29. *Jantaritambia serafini* Szwedo, 2000 (Fulgoroidea: Tropiduchidae)

Stratigraphic table (abridged and simplified), age given in million of years (Ma)

Aeon	Era	Period	Sub-Period	Epoch		Sub-Epoch		Upper age	Lower age
Phanerozoic	Cenozoic	Quaternary		Holocene				0.0	0.01
				Pleistocene				0.01	1.64
		Tertiary	Neogene	Pliocene		Piacenzian		1.64	3.4
						Zanclian		3.4	5.2
				Late	Miocene	Messinian		5.2	6.7
						Tortonian		6.7	10.4
				Middle		Serravallian		10.4	14.2
						Langhian		14.2	16.3
				Early		Burdigalian		16.3	21.5
						Aquitanian		21.5	23.3
			Paleogene	Late	Oligocene	Chattian		23.3	29.3
				Early		Rupelian		29.3	35.4
				Late	Eocene	Priabonian		35.4	38.6
				Middle		Bartonian		38.6	42.1
						Lutetian		42.1	50.0
				Early		Ypresian		50.0	56.5
				Late	Paleocene	Thanetian		56.5	60.5
				Early		Danian		60.5	65.0
	Mesozoic	Cretaceous		Upper	Senonian	Maastrichtian		65.0	74.0
						Campanian		74.0	83.0
						Santonian		83.0	86.6
						Coniacian		86.6	88.5
				Lower	Gallic	Turonian		88.5	90.4
						Cenomanian		90.4	97.0
						Albian		97.0	112.0
						Aptian		112.0	124.5
						Barremian		124.5	131.8
					Neocomian	Hauterivian		131.8	135.0
						Valanginian		135.0	140.7
						Berriasian		140.7	145.6
		Jurassic		Malm	Weißjura ζ	Tithonian		145.6	152.1
					Weißjura γ, δ and ε	Kimmeridgian		152.1	154.7
					Weißjura α and β	Oxfordian		154.7	157.1
				Dogger	Braunjura ζ	Callovian		157.1	161.3
					Braunjura ε	Bathonian		161.3	166.1
					Braunjura γ and δ	Bajocian		166.1	173.5
					Braunjura α and β	Aalenian		173.5	178
				Lias	Schwarzjura ζ	Toarcian		178.0	187.0
					Schwarzjura ε				
					Schwarzjura δ 1 and 2	Pliensbachian		187.0	194.5
					Schwarzjura γ				
				Lias	Schwarzjura δ 1 and 2	Pliensbachian		187.0	194.5
					Schwarzjura γ				
					Schwarzjura β 1 and 2	Sinemurian		194.5	203.5
					Schwarzjura α 3				
					Schwarzjura α 1 and 2	Hettangian		203.5	208.0
		Triassic		Upper	Keuper	Rhaetian		208.0	209.5
						Norian		209.5	223.4
						Carnian		223.4	235.0
				Middle	Muschelkalk	Ladinian		235.0	239.5
						Anisian		239.5	241.1
				Lower (Scythian)	Buntsandstein	Spathian		241.1	241.9
						Nammalian		241.9	243.4
						Griesbachian		243.4	245.0
		Permian		Upper	Zechstein	Tatarian	Changxingian	245.0	247.5
							Longtanian	247.5	250.0
						Kazanian	Capitanian	250.0	252.5
							Wordian	252.2	255.0
						Ufimian		255.0	256.1

				Lower	Rotleigendes	Artinskian	259.7	268.8
						Sakmarian	268.8	281.5
						Asselian	281.5	290.0
		Carboniferous	Pennsylvanian	Silesian	Stephanian	Gzelian	Noginskian	290.0	293.6
							Klazminskian	293.6	295.1
						Kasimovian	Dorogomilovskian	295.1	298.3
							Chamovnicheskian	298.3	299.9
							Krevyakinskian	299.9	303.0
					Westphalian	Moscovian	Myachkovskian	303.0	305.0
							Podolskian	305.0	307.1
							Kashirskian	307.1	309.2
							Vereiskian	309.2	311.2
						Bashkirian	Melekesskian	311.3	313.4
							Cheremshanskian	313.4	318.3
					Namurian		Yeadonian	318.3	320.6
							Marsdenian	320.6	321.5
							Kinderscoutian	321.5	322.8
			Mississippian	Dinantian		Serpukhovian	Alportian	322.8	325.6
							Chokierian	325.6	328.3
							Arnsbergian	328.3	331.1
							Pendleian	331.1	332.9
					Visean		Brigantian	332.9	336.0
							Asbian	336.0	339.4
							Holkerian	339.4	342.8
							Arundian	342.8	345.0
							Chadian	345.0	349.5
					Tournaisian		Ivorian	349.5	353.8
							Hastarian	353.8	362.5
		Devonian			Upper		Famennian	362.5	367.0
							Frasnian	367.0	377.4
					Middle		Givetian	377.4	380.8
							Eifelian	380.8	386.0
					Lower		Emsian	386.0	390.4
							Emsian	386.0	390.4
							Pragian	390.4	396.3
							Lochkovian	396.3	408.5
		Silurian			Pridoli			408.5	410.7
					Ludlow			410.7	424.0
					Wenlock			424.0	430.4
					Llandovery			430.4	439.5
		Ordovician		Bala	Ashgill			439.5	440.6
				Dyfed	Caradoc			440.6	463.9
					Llandeilo			463.9	468.6
					Llanvirn			468.6	476.1
				Canadian	Arenig			476.1	493.0
					Tremadoc			493.0	510.0
		Cambrian						510.0	570.0
Precam-brian	Proterozoic							570.0	2500
	Archaic							2500	4150

Erratum

Szwedo J., Bourgoin Th., Lefebvre F.
FOSSIL PLANTHOPPERS

Page	Line from: top	Line from: bottom	Printed	Read
5	8		An annotated catalogue of Fulgoromorpha	An Annotated Catalogue of Fossil Fulgoromorpha
37	2		An annotated catalogue of Fulgoromorpha	An Annotated Catalogue of Fossil Fulgoromorpha
43	1		Protepitera Usinger, 1939	Protepiptera Usinger, 1939
48	13		Oligocene/Miocene;	Oligocene/Miocene, Priabonian/Aquitanian;
		12	Oligocene/Miocene (Priabonian/Aquitanian);	Oligocene/Miocene, Priabonian/Aquitanian;
52	12		Eocene;	Eocene, Ypresian/Lutetian;
		5	Scudder 1878: 771	Scudder 1878b: 771
54		7	uhleri (Scudder, 1890): Scudder 1890b: 279. Pl. XIX, Fig. 11.	uhleri (Scudder, 1890)
		6	uhleri Scudder, 1890.	uhleri Scudder, 1890: Scudder 1890b: 279, Pl. XIX, Fig. 11.
71	6 - 18		Parafulgoridium Handlirsch, 1939 Type species. Phryganidium balticum var. simplex Geinitz, 1880; by original designation by Handlirsch 1939: 138. Note. Metcalf and Wade (1966a) listed it under Fulgoridiidae; Becker-Migdisova (1962b) listed in Fulgoridiidae; Carpenter (1992) placed this genus as incertae sedis. Ansorge (1996) proposed Parafulgoridium Handlirsch as a synonym of Fulgoridium Handlirsch. simplex (Geinitz, 1880) Phryganidium balticum var. simplex Geinitz, 1880: Geinitz 1880: 528, Pl. 22, Fig. 14. Fulgoridium simplex (Geinitz, 1880): Handlirsch 1906–1908: 497, Pl. 43, Figs. 27, 28. Jurassic; Dobbertin, Mecklenburg: Germany.	Parafulgoridium Handlirsch, 1939 Type species. Phryganidium balticum var. simplex Geinitz, 1880; by original designation by Handlirsch 1939: 138, 139. Note. Originally described in Fulgoridiidae. Metcalf and Wade (1966a) listed it under Fulgoridiidae; Becker-Migdisova (1962b) listed in Fulgoridiidae; Carpenter (1992) placed this genus as incertae sedis. Ansorge (1996) proposed Parafulgoridium Handlirsch as a synonym of Fulgoridium Handlirsch. simplex (Geinitz, 1880) = Phryganidium balticum var. simplex Geinitz, 1880: Geinitz 1880: 528, Pl. 22, Fig. 14. = Fulgoridium simplex (Geinitz, 1880): Handlirsch 1906–1908: 497, Pl. 43, Figs. 27, 28. = Phryganidium balticum var. simplex Geinitz, 1880: Bode 1907: 241. Note. Metcalf and Wade (1966a) listed this species in Fulgoridiidae. Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.
75	9		Fig. 68, 122.	Figs. 68, 122.
100		9 – 6	List of incertae sedis taxa which should probably be placed in Fulgoromorpha, taxa wrongly placed within Fulgoromorpha, but belonging to Hemiptera, and list of names regarded as synonymous with taxa placed in fossil Fulgoromorpha	List of incertae sedis taxa which should probably be placed in Fulgoromorpha, taxa wrongly placed within Fulgoromorpha, but belonging to Hemiptera, and list of names regarded as synonymous with taxa placed in fossil Fulgoromorpha

Page	Line from:		Printed	Read
	top	bottom		
112		9	Petrulevičius 2000: 137.	Petrulevicius and Martins–Neto 2000: 137.
		6	oblitescens Cockerell, 1926a: 501, Fig. 1.	oblitescens Cockerell, 1926: Cockerell 1926a: 501, Fig. 1.
		2	Petrulevičius (2000)	Petrulevicius and Martins–Neto (2000)
113		16	1926(1927)	1927(1926)
		7	Martynov 1926(1927)	Martynov 1927(1926)
114	1		Martynov 1926(1927)	Martynov 1927(1926)
121		3 - 1		delete paragraph
122	1 – 9			delete paragraph
130		11 - 10	Incertae sedis taxa which have been referred to Fulgoromorpha and taxa excluded from Hemiptera.	INCERTAE SEDIS TAXA WHICH HAVE BEEN REFERRED TO FULGOROMORPHA AND TAXA EXCLUDED FROM HEMIPTERA.
164	7		evoluciya	evolutsiya
168	4		Petrulevičius, J. 2000.	Petrulevicius, J. and R.G. Martins–Neto 2000.
		10	missing reference	Popov, Yu.A. 1980. Hemipteroidea. In: Rohdendorf, B.B. and A.P. Rasnitsyn 1980. Istoricheskoe razvitie klassa nasekomykh. [Historical development of insects.] Trudy Paleontologicheskogo Instituta, tom 175: 58–69. [In Russian]
169	7 – 8		Ren, D. Guo, Z. Lu, L. Ji, S. and Y. Han.	Ren, D., Guo, Z., Lu, L., Ji, S. and Y. Han.
179	14		109, 122, 128	109, 128
185	9		Parafulgoridium Handlirsch 71, 121	Parafulgoridium Handlirsch 71
185	9		Parafulgoridium Handlirsch 71, 121	Parafulgoridium Handlirsch 71
187	3		110, 122	110
193		11	(Elasmocelidium) 89	(Elasmoscelidium) 88, 89
		10 – 9	(Elasmoscoelidium) 88, 89	(Elasmocoelidium) 89
194		18	71, 122	71
		16	121, 122	delete
Plate 8			26. Tritophania patruelis jacobi, 1937	26. Tritophania patruelis Jacobi, 1937