Fossil Planthoppers
(Hemiptera: Fulgoromorpha) of the World

An annotated catalogue with notes on Hemiptera classification
Fossil Planthoppers
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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 Myerslopiiidae (Cicadomorpha) is raised to superfamily level — Myerslopioidea stat. nov.

Key words.—Insecta, Hemiptera, Fulgoromorpha, Coleoscytoidea†, Fulgoroidea, 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 Clypcorrhyncha and Archacorrhyncha (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
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
- Procercopidae† Handlirsch, 1906

Cicadoidea Latreille, 1802

- Cicadidae Latreille, 1802
- Tettigarcctidae Distant, 1906
NOTE. Becker-Migdisova (1962a, b), Shcherbakov (1996) and Dietrich (2002) suggested Cicadoprosbolidae† to be synonymized under Tettigarcitidae. 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 Magnacjadiidae†. 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 Prosbroloidea†, together with Prosbolidae†, Prosbolopsideae† 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†.

- **Magnacjadiidae†** Hong et Chen, 1981

  NOTE. It is possible that these Middle Triassic fossils should be placed within Prosbroloidea†. 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

- Karajassidae† Shcherbakov, 1992

Note. Ansorge (1996) considers Karajassidae† as a junior synonym of Archijassidae† which he placed in Membracoidea.
- Melizoderidae Deitz et Dietrich, 1993
- Membracoidea Rafinesque, 1815
- Ulopiidae 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 Ulopiidae, together with some taxa regarded now as belonging 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 'Pereboriidae' to be an ancestral group for Dictyopharidae. This family as 'Pereboriidae' 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 *Perissovenia†* 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 *Pereoria†* Zalessky, 1930, *Neuropibrocha†* Becker-Migdisova, 1961, *Kaltanopibrocha†* Becker-Migdisova, 1961. *Gondwanapentent†* Pinto et Ornellas, 1981, from Brazil originally described in 'Fulgoroidea: Pereboriidae' 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 Ivaiinaet† Becker-Migdisova, 1960 and Prosbolopseinae† Becker-Migdisova, 1946. Mundidae† Becker-Migdisova, 1958 has been synonymized under Ivaiinaet† by Shcherbakov (1984). See also comments on Mundidae† Becker-Migdisova in incertae sedis section.

Prosboioidea† 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., Perebrioidea†, 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†.

**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
- 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

Surijokocixioidae† 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
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

Reduvioida 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
- Schizopteridae Reuter, 1891
- Stemmocryptidae Štys, 1983

Enicocephalomorpha
- Aenictopecheidae Usinger, 1932
- Enicocephalidae Stål, 1858
- Enicochoridae† 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

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

Leptopodomorpha

Leptopoidea Brullé, 1863
- Leotichiidae China, 1933
- Leptopodidae Brullé, 1836
- Omangiidae Cobben, 1970

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

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
- 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; Pricecorididae† Pinto et Ornellas, 1974; and Lattiscutellidae† Pinto et Ornellas, 1974 (Shcherbakov and Popov 2002).
  □ Lestoniidae China, 1955
  □ Megarididae McAtee et Malloch, 1928
  □ Mesopentacorididae† Popov, 1968
  □ Pentatomidae sensu lato Leach, 1815

  NOTE. Including Dinidoridae Stål, 1864; Scutelleridae Leach, 1815; and Tessaratomidae Stål, 1865.
  □ Phloeidae Amyot et Serville, 1843
  □ Platarepidae Dallas, 1851
  □ Probascionitidae† Handlirsch, 1939
- Protocoridae† Handlirsch, 1906
- Thaumastellidae Seidenstucker, 1960
- Urostylidae Dallas, 1851

**Scytinopteroidea†** Handlirsch, 1906

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

- Paraknighttiidae† 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 Prosboloidae† 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): Lithoscynidae† 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 (= Aleyromorpha + 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, Aleyromorpha, 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 Aleyromorpha, Aphidomorpha probably not.

Aleyromorpha

Aleyrodoidea Westwood, 1840
   Aleyrodididae 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 Wiegerek, 1991
- Genaphididae† Handlirsch, 1907
- Palaeoaphididae† Richards, 1966
- Shaposhnikoviidae† Kononova, 1976
- Tajmyraphididae† Kononova, 1975
- Triassoaphididae† Heie, 1999

Phylloxeroidea Steffan, 1968

- Elektraphididae† Steffan, 1968
Mesozicaphididae† 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 sherichini (found in Sakhalinian amber of probable Palaeocene age but not formally described!) in Coccomorpha: Naibioidae†, a superfamily defined as aphid–like four–winged precocids 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 Orthezioidae Amyot et Sérville, 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; Coelostomiidiidae Morrison, 1927; Keridiidae Lindinger, 1937; Kuwaniidae MacGillivray, 1921; Monophlebididae Signoret, 1875; Phenacoleachiidae Cockerell, 1902; Porphyrophoridae Signoret, 1875; Stictococcidae Lindinger, 1913; Xylococcidae Pergande in Hubbard and Pergande, 1898.

Acleridae Cockerell, 1905
Asterolecaniidae Cockerell, 1896
Beesoniidae Ferris, 1950
Carayonemidae Richard, 1986
Cerococcidae Balachowsky, 1942
Coccidae Fallén, 1814
Conchaspidae Green, 1896
Cryptococcidae Kosztarab, 1968
Dactylopidae Signoret, 1875
Diaspididae Targioni-Tozzetti, 1868
Electrococeidae† 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 Sjarda 2001, Cook et al. 2002)
Matsucoccidae Cockerell, 1927
Micrococcidae Silvestri, 1939
Ortheziidae Amyot et Serville, 1843
Phoenicococcidae Stickney, 1934
Pityococcidae McKenzie, 1942
Pseudococcidae Westwood, 1840
Putoidae Beardsley, 1969
Steingelliidae† Morrison, 1927
Tachardiidae Green, 1896

Psyllomorpha
Protopsyllidioidae† Carpenter, 1931
Protopsyllidiidae† Carpenter, 1931
Psylloidea Latreille, 1807

- Aphalaridae Löw, 1878
- 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).
- Phacopteronaidae Becker-Migdisova, 1973
- Psyllidae Latreille, 1807
  - Note. Includes Cirriacremidae Enderlein, 1910.
- Rhinopsyllidae Becker-Migdisova, 1973
- Spondylaspidae Schwarz, 1898
- Triozidae Löw, 1879

incertae sedis

- Cicadomorphidae† Evans, 1956
  - Note. Family designated by Evans (1956) who doubted that Palaeontaolina oolitica Butler, 1873 was a homoptera. Place of Palaeontinidae† will be certain after re-examination of Palaeontaolina 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 Palaeontoidea†.
- Cicadoprosbolidae† Evans, 1956
  - Note. Group of uncertain rank as a representing a family, a subfamilial taxon or just a synonym of Tettigarctidae. Transferred to Tettigartidae 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.
Note. Cicadopsyllidae†, listed by Metcalf and Wade (1966a) in Fulgoroidea, are included within Cicadomorpha: Prosboloidea†: Prosbolidae† (Shcherbakov 1984). Szelegiewicz (1971) placed this group in ‘Psylloidea’, 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†: Prosbolopsideidae†, and synonymized under Ivainae† (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).

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 Proorthoptera†: 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: Blattprosbolomorpha† with Blattprosbolidae†. Shcherbakov (1994) synonymized it under Ampelipteridae† Haupt, 1941, and placed in order Hypoperlida†.

References:


Szelegiewicz, H. 1971. Czechy autapomorficzne w budowie skrzydeł Sternorrhyncha (Hemiptera) i ich znaczenie dla oceny paleozoicznych przedstawicieli tej grupy pluskwików. [Autapomorphic characters of Sternorrhyncha hind wings (Hemiptera) and their significance for evaluation of Paleozoic member of this hemipteran group.] Annales Zoologici, 29(2): 15–81. [In Polish]


II

An annotated catalogue of fossil Fulgoromorpha

(J. Szwedo, Th. Bourgoïn 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

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 monogenic.

Coleoscyta Martynov, 1935

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


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.

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

elytrata (Martynov, 1935)


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*.

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

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


**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


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

**Scytocixius** Martynov, 1939


**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.

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

**Surijokocixius** Becker-Migdisova, 1961


**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


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

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

**Fulgoroidea** Latreille, 1807

**Achilidae** Stål, 1866

*Acixiites* Hamilton, 1990


**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; 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.
Proteiptera Usinger, 1939
Type species: Proteiptera kawecki Usinger, 1939: Usinger 1939: 66; by original designation.
= Proteiptera [sic!] Lewis 1990: 54.
Eocene; Baltic amber, Baltic coast: Poland (?)

Psychogroehnia Szwedo et Stroiński, 2001
Type species. Psychogroehnia 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).
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

Bothriobaltia Szwedo, 2002
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


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

Lower Cretaceous, Aptian; Santana Formation, Araripe Basin, Ceará State: Brazil.
**Hyalestes** Signoret, 1865


*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. Fulkorn (personal communication).

Oligocene, Chattian; Rott: Germany.

**Kulickamia** Gębicki et Szwedo, 2000


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


Lower Cretaceous, Hauetervian 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.
*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.

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

**Oligocixia** Gebicki et Wegierek, 1993


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

**Perunus** Szwedo et Stroiński, 2002


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

Eocene; Baltic amber, Baltic Coast.

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


*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, Gypna* and *Delphax.*” These data probably refers to the specimen described as *Delphax senilis* Scudd.

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

**Dysimia** Muir, 1924
Type species. *Dysimia maculata* Muir, 1924: Muir 1924: 462; by monotypy.
Oligocene/Miocene (Priabonian/Aquitanian); Dominican amber, Haiti Island: Dominican Republic.

**Positrona** Emeljanov, 1994
*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.
Pleistocene (Pliocene to Holocene?); East African copal.
Dictyopharidae Spinola, 1839

Dictyophara Germar, 1833


= *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 probably 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 1964a: 6, Fig. 2.


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

Netutela Emeljanov, 1983
annunciator Emeljanov, 1983: Emeljanov 1983a: 84, Fig. 1; 79.
Upper Cretaceous, Santonian; Eastern part of Taimyr Peninsula, Yantardakh, Taimyrian amber (reinite): 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
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

*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 Du-ponchel 1840: 201.

= *Aphaena* Burmeister 1835: 166.
= *Aphaena* [sic!]: Scudder in von Zittel 1855: 781.
= *Aphaena* Guérin, 1834 [sic!]: Zhang 1989.

*atava* Scudder, 1877: Scudder 1877: 759.
= *Aphaena* [sic!] *atava* Scudder, 1877: 759.
= *Aphaena* [sic!] *atava* Scudder, 1877: Scudder 1890b: 281, Pl. V, Figs. 96, 97.

= *Aphaena* [sic!] *atava* Scudder, 1877: Handlirsch 1906–1908: 1070.
= *Aphaena* [sic!] *atava* Scudder, 1877: Piton 1940: 241.
= *Aphaena* [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.
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 rotundipennis Scudder, 1890 [sic]: Metcalf and Wade 1966a: 127.
   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 lateraria 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)


**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* Hanlirsch. 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.


**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.

    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.

**Nyktales** Metcalf, 1952


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.

Poioicera de Laporte, 1832

Type species. Poioicera 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 'Poecocera nassata' belongs to Issidae rather than
to Fulgoridae.

pristina Germar et Berendt, 1856

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

Ptomatosaiwa Zhang, Sun et Zhang, 1994

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

enda 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
within the Hemiptera, and suggested that the group represents caddis-
flies 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 Fulgo-
ridioidea 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. liassinus 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; 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; Hondsdelage 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; Hondsdelage bei Braunschweig: Germany.

*Eofulgoridium* Martynov, 1939


*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.

= *kisylkiense* [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


**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; Sogyutty (= 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.

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

**Note.** Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, Schwarzjura e, Lower Toarcian; Hondsalaage 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 Fulgoridace.
   Lower Jurassic, Upper Liassic, Schwarzjura e, Lower Toarcian; Hon-
   delage bei Braunschweig: Germany.

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

   = Phryganidium balticum Geinitz, 1880 (pars)
   = Phryganidium balticum Geinitz, 1880: Bode 1907: 240, Pl. 6, Fig. 14.
   Lower Jurassic, Upper Liassic; Schandelah, Braunschweig [?]: Ger-
   many.

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.

  = 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.

cubitosfurcatum Bode, 1953: Bode 1953: 165, Pl. 8, Fig. 153.
  NOTE. Bode (1953) described it in Fulgoridae.
  Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondselsage 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; Hondselsage 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; Hondselsage bei Braunschweig: Germany.

curvipenne Handlirsch, 1939: Handlirsch 1939: 128, Pl. XIII, Fig. 245.
  Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: 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.

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**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.

**fallerslebens** 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.

**fractum** Handlirsch, 1939: Handlirsch 1939: 126, Pl. XIII, Fig. 235.  
Lower Jurassic, Upper Liassic, Toarcian; Dobbertin, Mecklenburg: Germany.

= *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.

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, Schwarzzura ε, Lower Toarcian; Hondselage 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; Hondselage bei Braunschweig: Germany.

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

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

*lapidem* 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, Schwarzzura ε, Lower Toarcian; Hondselage 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.

Note. Bode (1953) described it in Fulgoridae.

Lower Jurassic, Upper Liassic, «Boreale–Zone des Lias ε», Lower Toarcian; Hondselage 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.

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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 e», 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.

polynemur 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 e, Lower Toarcian; Hondelage bei Braunschweig: Germany.

praebutrusum Bode, 1953: Bode 1953: 179, Pl. 8, Fig. 176.
   Note. Bode (1953) described it in Fulgoridae.
   Lower Jurassic, Upper Liassic, Schwarzjura e, 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.
   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 e, 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, Schwarzzjura 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, Schwarzzjura ε; Schandelah bei Braunschweig: Germany.

_se miperspicuum_ Bode, 1953: Bode 1953: 178, Pl. 8, Fig. 174.

*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, Schwarzzjura 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
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


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


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.

   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, Schwarzzura ε, Lower Toarcian; Hon-adelage bei Braunschweig: Germany.

*formosum* Bode, 1953: Bode 1953: 190, Pl. 9, Fig. 196.
   Note. Bode (1953) described it in Fulgoridae.
   Lower Jurassic, Upper Liassic, Schwarzzura ε, Lower Toarcian; Grassel bei Braunschweig: Germany.

*germanicu* 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.

*paucisimatu* Bode, 1953: Bode 1953: 188, Pl. 9, Fig. 193.
   Note. Bode (1953) described it in Fulgoridae.
   Lower Jurassic, Upper Liassic, Schwarzzura ε, Lower Toarcian; Hon-delage 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; Hombeldege 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.
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 it 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.

*plannedorsatum* Bode, 1953: Bode 1953: 159, Pl. 7, Fig. 146.

=** Fulgoridium (Procercofulgoridium) plannedorsatum* Bode, 1953

**Note.** Bode (1953) described it in Fulgoridae.
Lower Jurassic, Lower Liassic, Schwarjura 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; Hondo
delage 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; Hondo
delage bei Braunschweig: Germany.

*p 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:
195; by original designation.

*Paeneparalleltum* Bode, 1953: Bode 1953: 195, Pl. 9, Fig. 203.

**Note.** Bode (1953) described it in Fulgoridae.

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

ingkuimens 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.
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

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

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

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


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

*Quilessa* Fennah, 1942

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


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

*Lalacidae* Hamilton, 1990

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

*Ancorale* Hamilton, 1990


**Note.** Type genus of the tribe Ancoralini, subfamily Ancorallinae 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.

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

**Carpopodus** Hamilton, 1990


**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.


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

**Cretocixius** Zhang, 2002

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


Lower Cretaceous, Barremian; Lushangfen Formation (K†l), Fangshian District, Beijing: China.

**Kinnarocixius** Hamilton, 1990


**Note.** Type genus of the tribe Kinnarocixiiini, subfamily Ancoralinae according to Hamilton (1990).

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

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


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

Protodelphax Hamilton, 1990
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.
  Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.
  Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.
  Lower Cretaceous, Aptian; Santana Formation, Céara State: Brazil.
Lower Cretaceous, Aptian; Santana Formation, Ceará State: Brazil.

**Psestocixius** Hamilton, 1990
**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, Ceará State: Brazil.

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

**Vulcanoia** Martins–Neto, 1988
**NOTE.** Originally described in Cixiidae, placed in Lalacidae by Hamilton (1990).

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

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


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 scudderii Cockerell, 1920: Cockerell 1920c: 242; by original designation.

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

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

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

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

Tainosia Szwedo et Stroński, 2001
Type species. Tainosia quisqueyae Szwedo et Stroński, 2001: Szwedo and Stroński 2001a: 31; by original designation.


Note. Szwedo (2002a) mistakenly labelled Fig. 18 as presenting this species, the photograph presents Tonacatecutlius gibsni Stroński et Szwedo.
Oligocene/Miocene, Priabonian/Aquitanian; Dominican amber, Haiti Island: Dominican Republic.

Tonacatecutlius Stroński et Szwedo, 2000

Note. Szwedo (2002a) mistakenly labelled Fig. 18 as presenting species Tainosa quisqueyae Szwedo et Stroński, the photograph present Tonacatecutlius gibsoni Stroński et Szwedo.
Oligocene/Miocene, Priabonian/Aquitanian; Mexican amber, Chiapas: Mexico.
Tritophania Jacobi, 1938
Type species. Tritophania patranielis Jacobi, 1938: Jacobi 1938: 188; by monotypy.


patranielis 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 Stroński et Szwedo, 2002: Stroński and Szwedo 2002: 60, Fig. 1.
Pleistocene (Pliocene to Holocene?); East African copal.

Cotraechites Fennah, 1968
Type species. Cotraechites lithinus Fennah, 1968: Fennah 1968: 144; by original designation

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: 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

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.

Eocene; Bshot Beds, Bournemouth, England: United Kingdom.
cernyiformis Cockerell, 1920: Cockerell 1920c: 240, Pl. 32, Fig. 8.
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.
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


*reticulata* (Haupt, 1956)


**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.; Stroinski 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.: Stroinski 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: Riciiidae” 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.

*Jantaritambia* Szwedo, 2000


Eocene; Baltic amber, Baltic Coast: Poland.
LIST OF OTHER VALID FULGOROMORPHA TAXA WITH OBVIOUS TAXONOMIC PROBLEMS

Coleoscytoidea

Kaltanoscya Becker-Migdisova, 1960
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 Coleoscytoidea.
Upper Permian, Uffimian; Kuznetsk Horizon, right bank of Kondoma river, Kaltan, Kuznetsk Basin: West Siberia: Russia.

Reticulocicada Becker-Migdisova, 1961
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 (1992). This genus may be related to Coleoscytoidea. 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


*albipuncta* Dalman, 1825: Dalman 1825: 406.


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.


= *Typhlocyba obscurus* Heer, 1856: Walker 1858a: 274.


= *Asiraca 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. 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.
= *Dictyophana 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.


**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 Cretaceous, 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.

**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.

**sieboldii** 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


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 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’.

*Elasmoscelidium* Martynov, 1927


= *Elasmocelidium* [sic!] Martynov, 1926: Ansgorge 1996: 46, 111.


boreale (Bode, 1907)

= Phryganidium boreale Bode, 1907: Bode 1907: 241, Pl. 6, Fig. 16.
= Metafulgoridium boreale Bode, 1907: Handlirsch 1939: 140.
= Metafulgoridium boreale Bode, 1907: Metcalf and Wade 1966a: 93.

Lower Jurassic, Upper Liassic, "Boreale–Zone des Liass e", Lower Toarcian; Grassel bei Braunschweig: Germany.

NOTE. Metcalf and Wade (1966a) reported mistakenly information that Handlirsch (1939) listed this species from Jurassic of Switzerland.


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


Lower Jurassic, Upper Liassic, Schwarzjura e, Lower Toarcian; Hondsdelage bei Braunschweig: Germany.


= Elasmocelidium [sic!] rotundatum Martynov 1926: Evans 1956: 241: Fig. 27D.

NOTE. Evans (1956) mentioned it as "... no doubt ..." Fulgoroidea. Upper Jurassic, Malm, Oxfordian; Chimbentsk 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.
   Lower Jurassic, Upper Liassic, Schwarzjura ε, Lower Toarcian; Hondeleage 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.
   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.


NOTE. Stratigraphic position and locality uncertain, probably refers to Baltic amber inclusion.


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 [?].


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 nervous 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.


**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.

*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.


*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, »Strohgelsbe Kalke«, Lower Franconia: Germany.

**Lapicixius** Ren, Yin et Dou, 1998


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


*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


NOTE. Originally described in Mecoptera: Limfjordiidae (Willmann 1977). Later (Willmann 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 Tropicuchidae (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 County, 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. Megaleurodes megocellata Hamilton 1990: Hamilton 1990: 96; by original designation.

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, Ceará State: Brazil.

**Mesocixiella** Martynov, 1939


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.

**Mesotubulistrum** Becker-Migdisova, 1949


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 walker* Stål, 1859: Stål 1859: 272; by original designation.

*oligocenus* Cockerell, 1910: Cockerell 1910: 153, 1 Fig.


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 *Oliarius* Stål, 1862 is an extant Cixiidae genus.

Eocene; Baltic amber, Baltic coast, ‘East Prussia’.

**Oligonila** Théobald, 1937


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.

**Poioecera** de Laporte, 1832

Type species. *Poioecera 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

= Poecera [sic!] pristina Germar et Berendt, 1856: Germar and Berendt 1856: 18, Pl. II, Fig. 6.


NOTE. Regarding the original drawing it may represent Achilidae, but its generic affiliation remains obscure. Eocene; Baltic amber; ‘East Prussia’.

**venulosa** Giebel, 1862

= Poecera venuulosa [sic!] Giebel, 1862: 312.


**Protoliar B** Cockerell, 1920

Type species. **Protoliar 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.


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 yibi* 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 Lalloidae. The two species described seem to represent only one variable species.

*pardinus* 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.


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.


ivensis Becker-Migdisova, 1946: Becker-Migdisova 1946: 761, Fig. 24a, b.
Upper Permian, Kazanian; Soyana River, Arkhangelsk District: Russia.

Asiocixius Becker-Migdisova, 1962


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.

egeroni Brodie, 1845: Brodie 1845: 33, 120; Pl. IV, Figs. 7, 8.


= Asira egertonii (Brodie, 1845): Morris 1854: 118.

= Asira egertonii (Brodie, 1845): Giebel 1856: 377.


= Asira kennegottii [sic!] Giebel, 1856: Meunier 1904: 121.

= Asira egertonii: Scudder 1891: 168.

= Asira kennegottii: Scudder 1891: 168.
= *Asiraca egertoni*: Scudder 1891: 168.

**Note.** Taxonomic position uncertain. According to the label on the specimen it is a representative of Protopsyllidae, related to *Sinopsocidium*, Shcherbakov det. There are two specimens in NHM, London.

Lower Cretaceous, Berriasian; Purbecks, Dinton, Wiltshire [Vale of Wardour], England: United Kingdom.

**Beconiella** Evans, 1963


*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.

**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: Procercoptidae.


Lower Cretaceous, Neocomian; Lushangfen Formation, Western Beijing, Eastern China.

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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


**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 Auchenorrhyncha’.

Lower Cretaceous, Berriasian; Middle Purbecks, Durdlestone Bay, 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 Auchenorrhyncha’. 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.


*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


**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.


Note. Probably part of tegmen of Cyclocytilna 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’.


Stratigraphic position and locality not mentioned.


Early/Middle Jurassic; Shurab III, Fergana Valley: Kyrgyzstan.

Note. Metcalf and Wade (1966a) listed locality as ‘Leninabad’.

**Note.** Becker-Migdisova (1949b) listed it in ‘Cixiidae: Mesocixiinae’. Shcherbakov (1988b) argues that “... *Cylcoscytina* reducta Becker-Migdisova, 1949” should be placed in Proceropidae.

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 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 Met-
calf 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.

baldemani 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, Colo-
rado: 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, Colo-
rado: U.S.A.

venerabile Scudder, 1890: Scudder 1890b: 291, 289.
Early Oligocene, Rupelian (Oligocene, Chattian); Florissant, Colo-
rado: U.S.A.
NOTE. Taxonomic position, within Fulgoroidea or outside, is not clear. See comments on genus *Dialegma* Scudder.

*veterrascens* Scudder, 1890: Scudder 1890b: 290, 289.

NOTE. Taxonomic position, within Fulgoroidea or outside, is not clear. See comments on genus *Dialegma* Scudder

Early Oligocene, Rupelian (Oligocene, Chattian); Florissant, Colorado: U.S.A.

*Dictyophara* Germar, 1833


*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.


= *Dyctiophora* [sic!] *amatoria* Heer, 1853: Walker 1858b: 319.

= *Pseudophania amatora* [sic!] Heer, 1853: Heer 1865: 393.


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 transferred it to Cicadomorpha.

Late Miocene, Sarmatian (Miocene, Messinian); Oeningen, Baden–Württemberg; Germany.

*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

**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.


Lower Jurassic, Toarcian (?); Dobbertin, Mecklenburg: Germany.

**Elliptoscarta** Tillyard, 1926

Type species. *Elliptoscarta ovalis* Tillyard, 1926, Tillyard 1926c: 16, 5; by original designation.

**Note.** Originally described in Scytonopteridae. This genus is excluded from Scytonopteridae 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.


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

**Fulgoringruru** Pinto, 1990

Type species. *Fulgoringruru 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, Irati/Estrada Nova Formation, Passa Dois Group, a cutting at BR–290, km 185+500 of the road Porto Alegre–Urugaiana, 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.


Middle Miocene; Shanwang Formation N₁s, 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.


capsii Pinto et Ornellas, 1981: Pinto and Ornellas 1981: 211.

Upper Permian; Irati/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).

Upper Permian; Warner’s Bay, New South Wales: Australia.

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**Homopterites** Handlirsch, 1908


*anglicus* Handlirsch, 1906: Handlirsch 1906–1908: 500, Pl. XLIII, Fig. 37.


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.


*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 N₃s, Xiejiahe Village, Shanwang, Linqu, Shandong Province: China.

**Hypocixius** Cockerell, 1926

=* 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<sub>3+4</sub>, but seems not to be related to Cixiidae because the AA<sub>3+4</sub> seems to finish at the same time with CuP."
Late Palaeocene; Sunchal, Jujuy Province: Argentina.

**Kaltanopibrocha** Becker-Migdisova, 1961


*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


*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.


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


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.


**Note.** The original description is based on two imprints. In original description mentioned as figures 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


*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


**Note.** Originally described in Cixiidae. Evans (1956) placed this genus in Scytinopteridae. Becker-Migdisova (1962b) listed in Cixiidae; also


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

**Note.** Metcalf and Wade (1966a) listed locality as ‘Osh’.


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.

**Note.** Originally described in Cixiidae; Becker-Migdisova (1949b) listed it in ‘Cixiidae: Mesocixiinae’ in the genus *Cyclocytina* Martynov. Evans (1956) placed this species in Scytinopteridae; Metcalf and Wade (1966a) listed in Cixiidae. Scherbakov (1988b) synonymized it under *Cyclocytina 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 Hylicelliidae. 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.


NOTE. Originally described in Cixiidae. Shcherbakov (1988b) transferred this species to the genus *Cycloscytina* Martynov.

*Middle Jurassic; J₂k Kezheleiun Formation, Korla Basin, Kuerlei, Xinjiang, Uygur Autonomic Region: China.*


NOTE. Originally described in Cixiidae; Becker-Migdisova (1949b) listed it in ‘Cixiidae: Mesocixiinae’ in *Cycloscytina* Martynov. Evans (1956) placed this species in Scytniopteraeidae; 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 ‘Scytniopteraeidae 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


*brachyclada* Tillyard, 1922: Tillyard 1922b: 463, Text–fig. 84.


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.


NOTE. Originally described in Cixiidae. Evans (1956) listed it in Chilicocyclidae. 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.


NOTE. Originally described in Cixiidae. Evans (1956) listed it in Chilicocyclidae. Metcalf and Wade (1966a) listed it in Cixiidae.

Upper Triassic; Ipswich, Queensland: Australia.

*Mesocixius* Tillyard, 1920


*triassicus* Tillyard, 1920: Tillyard 1920(1919) 877, 866, Text–fig. 11.

Upper Triassic; Ipswich, Queensland: Australia.
Mesodipthera Tillyard, 1920

Type species. *Mesodipthera grandis* Tillyard, 1920: Tillyard 1920(1919): 866 (146), 873 (153); by original designation.


**NOTE.** Originally described in Tropiduchidae. Evans (1956) stated it as ‘scyntooperid with specialized venation’ (Scyntooperidae). Metcalf and Wade (1966a) listed it in Tropiduchidae.

Upper Triassic; Ipswich, Queensland: Australia.


**NOTE.** Originally described in Tropiduchidae. Evans (1956) listed this species in ‘Homoptera of Uncertain Position’ section.

Upper Triassic; Ipswich, Queensland: Australia.


**NOTE.** Originally described in Tropiduchidae. Evans (1956) after examination of the holotype stated it as ‘scyntooperid with accesory veins’ (Scyntooperidae).

Upper Triassic; Ipswich, Queensland: Australia.

Mesoscytina Tillyard, 1920


**NOTE.** Originally described in Scyntooperidae: Scyntooperinae; Evans (1956) listed it in Chillocyclidae; Metcalf and Wade (1966a) placed it in Fulgoroidea: Scyntooperidae: Scyntooperinae. 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.


Note. Evans (1956) listed this genus in Homoptera of uncertain position. Upper Triassic; Ipswich, Queensland: Australia.


Upper Triassic; Ipswich, Queensland: Australia.

**Neopibrocha** Becker-Migdisova, 1961


Note. Originally described in Fulgoroidea: Pereboriidae, the same taxonomic position is given in Becker-Migdisova (1962b). Listed as 'Fulgoroidea: Pereboriidae' 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.

*terrentula* (Scudder, 1878).


= *Mnemosyne tarrentula* [sic!] Scudder, 1878: Piton 1940: 240.

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** Tillyard, 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.

Upper Permian; Belmont, New South Wales: Australia.

**tetraneva** Tillyard, 1926: Tillyard 1926c: 15, 5; Text–fig. 12.

Upper Permian; Belmont, New South Wales: Australia.

**Parafulgoridium** Handlirsch, 1939

NOTE. Originally described in Fulgoridiidae. Carpenter (1992) placed this genus as *incertae sedis.*

*simples* (Geinitz, 1880)
  = *Phryganidium balticum* var. *simples* 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.


*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


*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


**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


— nomen nudum.


*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


*kazanensis* Martynov, 1928: Martynov 1928: 36, Pl. XII, Fig. 1.

= *Permocixium kazanense*: Martynov 1928: 104.

**Note.** Evans (1956) listed this species in the ‘Scytinopterids with accessory veins’ section.
Late Permian, Kazanian; Baitugan Formation, Tikhie Gory, Ural Mountains: Russia.

Note. Metcalf and Wade (1966a) listed locality as 'Tatar'.

**Planophlebia** Scudder, 1879


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.

**Procercopsis** Handlirsch, 1906


*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).

**Prosohole** Handlirsch, 1904

= *Presbole* [sic!]: Handlirsch 1904: 2.

Type species. *Prosohole hirsuta* Handlirsch, 1904: Handlirsch 1904: 2; by original designation.


= *Presbole* [sic!] *hirsuta*: Handlirsch 1904: 2.

= *Prosole ideliana* Zalessky, 1929: Zalessky 1929: 22, Fig. 10.

= *Prosole tchirkovaena* Zalessky, 1930: Zalessky 1930: 1018, Fig. 1; Pl. I, Fig. 1.

= *Prosole tchirkovaena* [sic!]: Zalessky, 1930: Zalessky 1935: 3.


= *Prosole tchirkovaena* Zalessky, 1930: Zalessky 1930: 1026, Pl. I, Fig. 1 [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’.

**Prosoleopsis** Martynov, 1935


**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.

**ovalis** Martynov, 1935: Martynov 1935: 19, 2, 33, Text–fig. 23.


= *Prosoleopsis ovalis* var. *angustata* Becker-Migdisova, 1946: Becker-Migdisova 1946: 761: Fig. 23a.

= *Prosoleopsis simplex* var. *novella* Becker-Migdisova, 1946: Becker-Migdisova 1946: 761: Fig. 23b.

= *Prosoleopsis simplex* var. *triplax* 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.

Protoliarius Cockerell, 1920
Type species. Protoliarius 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.


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 Creek, 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.


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.
= Cicadellium [sic!] pulcher (Brodie, 1845): Evans 1956: 212.

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.

Qiangiriania Lin, 1986


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. Ricana (?) fulgens Brodie, 1845: Brodie 1845: 33, 120, Pl. IV, Fig. 12; by original designation by Handlirsch 1906–1908: 640.

fulgens (Brodie, 1845)

= Ricana (?) fulgens Brodie, 1845: Brodie 1845: 33, 120, Pl. IV, Fig. 12.
= Ricana fulgens Brodie, 1845: Morris 1854: 118.
= Ricana fulgens Brodie, 1845: Giebel 1856: 376.
= Ricana 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 Jarzembskowki 1996, and placed there in Ricaniiidae. 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


*extensa* Martynov, 1939: Martynov 1939b(1937b): 36, Fig. 16.

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

*Stenoscytina* Tillyard, 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).


*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.


= *Triadocixius australis* [sic!] Handlirsch 1939: 10.

= *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


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.


Upper Triassic, Rhetian (Lower Jurassic, Hettangian); Sogyuty (=Issyk–Kul’): Kyrgyzstan.

**Icertae sedis** taxa which have been referred to Fulgoromorpha and taxa excluded from Hemiptera.

**Dictyocicada** Brongniart, 1885
Type species. *Dictyocicada antiqua* Brongniart, 1885: Brongniart 1885: 67; by monotypy.

**Note.** Carpenter (1931) and Evans (1956) argued that the placement of Dictyocicadidae 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* Brongniart, 1885: Brongniart 1885: 67.

**Note.** No familial placement given in original description.
Late Carboniferous, Stephanian; Commentry, Commtery Basin, Allier: France.

**Dictyophara** Germar, 1833

**scudderii** 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.

**baidingeri** Giebel, 1856: Giebel 1856: 375.

Lower Cretaceous, Berriasian; Purbeck, 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: Scudder 1890a: 311.
= *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.
= *Pseudofulgura 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 *Pseudofulgura* 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 Proorthoptera: Blattinopsidae.

Lower Permian; Birkenfeld: Germany.

**Fulgorina** Goldberg, 1873

Type species. *Fulgorina lebachensis* Goldberg, 1873: Goldberg 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* Goldberg, 1869: Goldberg 1869: 166, Pl. III, Fig. 13.

Upper Carboniferous; Wemmersweiler bei Saarbrücken: Germany.

*lebachensis* Goldberg, 1873: Goldberg 1873: 30, Pl. I, Fig. 19.

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


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.


Late Carboniferous, Stephanian; Commentry, Commentry Basin, Allier: France.

_Palaeocixius_ Handlirsch, 1906

= _Palaeocixius_ Brongniart, 1885: Brongniart 1885: 67 — nomen nudum.

Type species. _Palaeocixius antiquus_ Brongniart, 1885: Brongniart 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-

_antiquus_ Brogniart, 1885: Brogniart 1885a: 67.

  = *Paleocixius* [sic!] _antiquus_ Brogniart, 1885: Meunier 1904: 121.
  = *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.
  Late Carboniferous, Stephanian; Commentry, Commentry Basin, Allier: France.

**Palaemerobius** Martynov, 1928


_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


  = *Mecynostoma dohrni* Brogniart, 1894 (pars)

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.


*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.

**Petropteront** Cockerell, 1912

Type species. *Petropteront 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.

**Phthanoecoris** Scudder, 1885

Type species. *Phthanoecoris 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


*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.


*elegans* Brongniart, 1885: Brongniart 1885: 67.

Late Carboniferous, Stephanian; Commentry, Commentry Basin, Allier: France.

Ricani Germain, 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.


= *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 *Ricani gigas* de Germain [sic!] appartient à un orthoptère blattide du genre *Pterinoblattina*.” and proposed the following synonymy “*Brongniartella problematica* Meunier = *Ricani gigas* Weyenbergh nec Germain [sic!]”. Listed in Brongniartellidae (Metcalf and Wade 1966a; Carpenter 1992), now in Neuroptera.
Hospes Germar, 1839: Germar 1839a: 220, Pl. XXIII, Fig. 18.
  = Riciania hospes Germar, 1839: Giebel 1856: 376.
  = Riciania hospes Germar, 1839: Weyenbergh 1869a: 270.
  = Riciania hospes Germar, 1839: Weyenbergh 1869b: 150.
  = Riciania hospes Germar, 1839: Weyenbergh 1874: 100.

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.

Ricianella Meunier, 1897

Type species. Riciania 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.
  = Riciania antiquata Scudder, 1895: Scudder 1895a: 12, Pl. I Fig. 3

Note. Meunier (1897) discussed this species and established the genus Ricianella to comprise it, as he stated that it could not be placed within the genus Riciania Germar. According to the original drawing it cannot be placed within Riciadiidae 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 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:

VII. Part, sheets 61–70 — November 1907; pages 961–1120.
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 (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 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 Jarzembsowski in 2000 and presented on the “Meganeura” website (http://www.ub.es/ddep/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 patruei*is 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 provided 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, Rricaniidae 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 Acticiites costalis Hamilton (Achilidae); second row from the top, right – Pseudocixius delphax Hamilton (Lalacidae); second row from the bottom, right – Ancorale flaccidum Hamilton (Lalacidae); page 392: second
row from the bottom, right – *Carpododis 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, *Oliarius* 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 “Ricaniniinae”, *Lithopsis* Scudder and *Poeciloptera* Spinola in “Flatinae”, *Aphana* Burmeister, *Nyctophylax* Scudder, *Poeacera* 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.


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 *Ricana 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. (Szwed 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), *Ricana* (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 Mormon 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 Forma-
tion, 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 Fulgo-
roidea) 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 Dichop-
tera 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 (?Lycosi-
dae) preserved in Dominican amber and an imago of Dictyopharidae
from Dominican amber, are figured.
Néraudeau D., Perrichot V., Dejaz J., Masure E., Nel A., Philippe M.,
Moreau P., Guillocheau F., Guyot T. 2002
Unidentified Fulgoridae (?) from Lower Cretaceous; Uppermost Albian (?)
of Archingney, Charente–Maritime: France, are mentioned on page 237.
Poinar Jr. G.O. 1992
In this book more data are presented. Fulgoroidea are listed from Creta-
ceous 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

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among Dominican amber inclusions are listed. Some inclusions are
figured: figure 66 does not present Cixiidae, as indicated, but rather Is-
sidae, figure 67 probably presents a nymph of Fulgoridae, and figure 68
presents Membracidae, not Fulgoroidea as erroneously indicated. Fig-
ure 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 plan-
thoppers 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): Del-
phacidae, 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–Mes-
oneta faunistic complex, Khoutiin–Khotgor, Karatau (Jurassic); Cixi-
idae: Karatau, Baïsa, Folindusia ponomenkoi–Ostracindusia popovi
faunistic complex, doubtful specimens from Obeshchayushchii (Up-
per Jurassic–Neogene, recent) and Kzyl–Dzhar (Upper Jurassic–Neo-
gene, recent); Achilidae: Baïsa, Folindusia ponomenkoi–Ostracindusia
popovi faunistic complex, doubtful specimens from Obeshchayushchii
(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 fau-
nistic complex, Khoutiin–Khotgor, Karatau, Turga, Baïssa, Folindusia
ponomenkoi–Ostracindusia popovi faunistic complex, Semen, Khetana,
Obeshchayushchii, 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.

Ritzkowsk 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, Coleocystidae, Delphacidae, Derbidae, Flatidae, Fulgoridae, Fulgoridiidae on Fig. 21.8, Issidae and Lalacidae on Fig. 21.9 and Riciidae, Surijokociixidae 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), Coleocystidae, 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, Riciidae, Surijokociixidae and Tettigometridae mentioned.
Rust J., Ansorge J. 1996
Part of tegmen of Fulgoidea (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: Bothriocerinae 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 Fulgoidea species, but familial assignement remain obscure.

Wehr W.C. 1994
Families Cixiidae, Flatidae and Fulgoridae from middle Eocene localities in the Okanogan Highlands of Washington (U.S.A.) and British Columbia (Canada) are listed in Table 1, page 100. Family Fulgoridae (sensu Fulgoidea 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.

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 Pentastirinini) 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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