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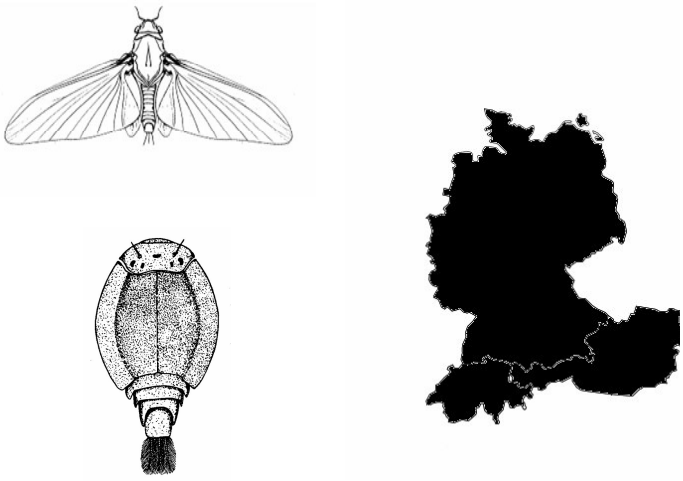
Catalogue of the Mayflies of Germany, Austria and Switzerland and their Synonyms (Insecta, Ephemeroptera)

by

Arne Haybach



Naturhistorisches Museum Mainz
Landessammlung für Naturkunde Rheinland-Pfalz

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Cover: Imago (after VAYSSIERE, 1881) and larva (after SCHOENEMUND, 1930a) of *Prosopistoma pennigerum* and pictogram of Germany, Austria and Switzerland

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Authorized translation of

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1. Introduction

The knowledge of the mayflies or Ephemeroptera increased considerably in Central Europe in the last 30 years. Beside a number of more or less current faunal lists of all countries a number of modern keys for single countries and even for the whole of Central Europe exist. However, so far a recapitulatory listing which makes at least all subjective synonyms accessible apart from the valid names and designates also relevant misinterpretations in the older literature (nomina abusa) is missing.
Such a catalogue is required by mayfly specialists as well as by curators of museum collections or it may be helpful for a wide range of entomologists which, for example, in the context of the production of so-called red data lists of endangered animals need reliable assistance when interpreting older faunistic literature.
Michael Rostock (1879: p 83) a famous German entomologist complained about the difficult nomenclatural conditions within the Neuroptera sensu Linnaeus to which the maylies also belong „Die Untergattungen und Unter-Untergattungen sind schon jetzt so zerplittert und verwirrt, … , dass sie kein Mensch mehr übersehen kann. Die Arten sind, oft der unbedeutendsten Verschiedenheiten wegen, zu ganz unnöthigen Gattungen ja zu Familien und Ordnungen erhoben, wodurch nur die Uebersicht erschwert wird und der Nachwelt die Reinigung des Augiasstalls vorbehalten bleibt“.
[The sugenera and sub-subgenera are even today so fragmentated and confused … that nobody is able to have a general overview. The species, due to insignificant differences, are frequently upgraded to totally unnecessary genera or even to families or orders with the only result that the overview is complicated and the purification of the Augean stables is reserved for posterity (authors transl.)]

We can treat nomenclatural involvements in general as kinds of formal or judicial decisions. On the other side mayflies are with respect to their taxonomy also a very sophisticated insect order and even today misidentifications, especially within the species rich genera, are the rule rather than the exception. Keeping in mind that the species composition of Central Europe was only known at a fraction in the 18th and 19th century and in addition considering that only a few species had been described sufficiently then, it becomes clear that also the synonyms would not comply with modern taxonomic criteria.

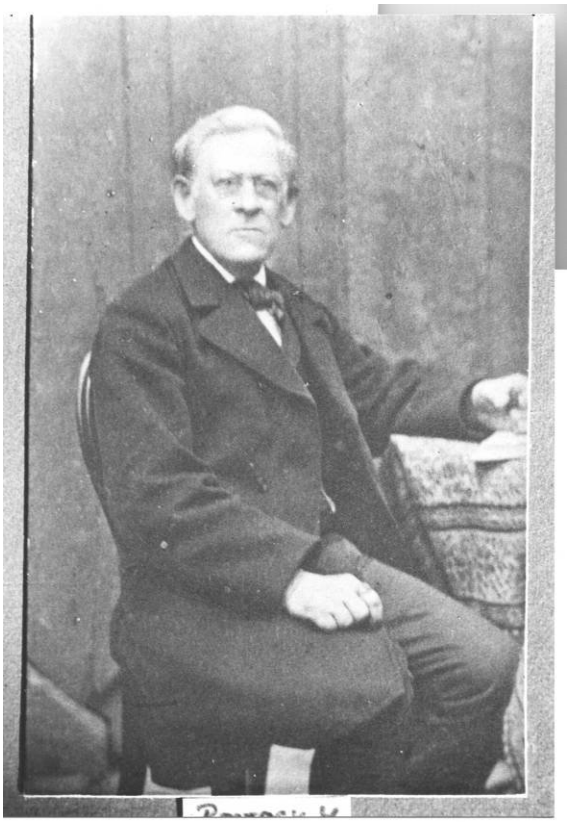


fig. 1: The teacher and significant German entomologist Michael Rostock (Dretschen) *21.Apr.1821 – †17.Sep.1893

For these reasons this catalogue should be understood as a guide through the jungle of the widespread nomenclatural literature only. There is definitely no guarantee for the correctness of the nomenclatural activities of the cited authors. But in contrast to most other catalogues the author makes the effort to name the authors required for all nomenclatural operations. If necessary the reader is able to verify the significance of the basical nomenclatural article. In the case of contradictory information adequate annotations are given. Such species are often designated as nomina dubia or “nomina inquirenda” respectively.

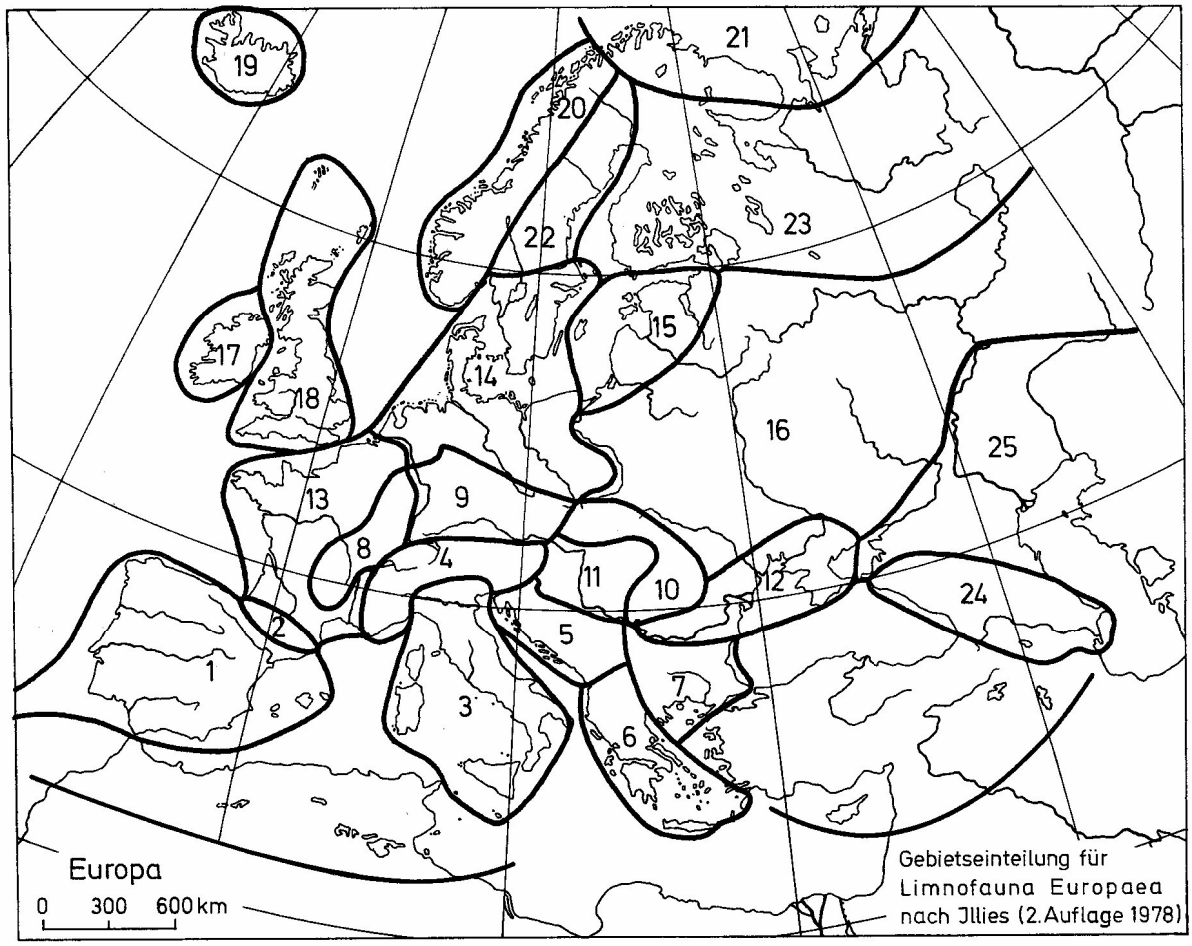


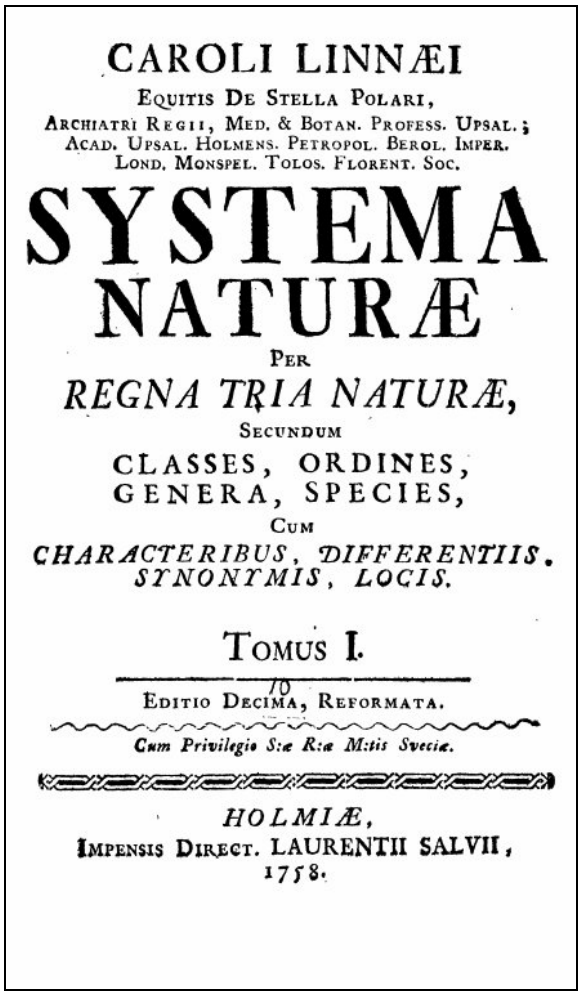
fig. 2: Limnofaunistic regions after ILLIES (1978): LF 1: Iberian Peninsula, LF 2: The Pyrenees, LF 3: Italy, LF 4: Alps, LF 5: Dinaric Western Balkan, LF 6: Hellenic Western Balkan, LF 7: Eastern Balkan, LF 8: Western Mountains, LF 9: Central Mountain, LF 10: The Carpathians, LF 11: Hungarian Plains, LF 12: Pontic Province, LF 13: Western Lowlands, LF 14: Central Lowlands, LF 15: Baltic Province, LF 16: Eastern Lowlands, LF 17: Ireland, LF 18: England, LF 19: Island, LF 20: Boreal Highlands, LF 21: Tundra, LF 22: Northern Sweden, LF 23: Taiga, LF 24 The Caukasus, LF 25 Caspian Plains.

For these reasons it must be clear that for all users that at least older faunistic records should be interpreted with extreme care. If such records are the only sources for the occurrence of a distinct species in a larger area and are therefore relevant for threat analysis the corresponding collections, as far as they exist must be reviewed.
Otherwise it is sometimes only possible to determine particular species in monotypic families or genera after figures in the basic literature.

2. Area covered

The catalogue is in the tradition of "Verzeichniss der Neuropteren Deutschlands, Österreichs und der Schweiz" of ROSTOCK (1881), whereas in this work only the mayflies are treated. The variety of the species is mainly founded on the summarizing work of BAUERNFEIND (1994, 1995) for Austria, SARTORI & LANDOLT (1999) for Switzerland and HAYBACH & MALZACHER (2003) for Germany. Moreover several updating articles which are quoted at the corresponding species texts are considered. In this context I'm very grateful to all colleagues who made their articles available for me.

To assure the account of this catalogue in the German-speaking region at least for some years without essential supplements we extend the area of incorporated species to Central-Europe in a wide sense.
It covers here Great Britain, the northern European plains, the central and western mountains and the Alps.



CAROLI LINNÆI

EQUITIS DE STELLA POLARI,

ARCHIATRI REGII, MED. & BOTAN. PROFESS. UPSAL.;
ACAD. UPSAL. HOLMENS. PETROPOL. BEROL. IMPER.
LOND. MONSPEL. TOLOS. FLORENT. SOC.

SYSTEMA NATURÆ

PER

REGNA TRIA NATURÆ,

SECUNDUM

CLASSES, ORDINES,
GENERA, SPECIES,

CUM

CHARACTERIBUS, DIFFERENTIIS,
SYNONYMIS, LOCIS.

TOMUS I.

10

EDITIO DECIMA, REFORMATA.

Cum Privilegio S:æ R:æ M:tis Sveciæ.

HOLMIÆ,

IMPENSIS DIRECT. LAURENTII SALVII,

1758.

fig. 3: The 10th edition of Systema Naturae of Carolus LINNAEUS (1758), starting point for the binominal nomenclature in zoology.

On the other side the species of the eastern European plains or Fennoscandia are only incorporated if they are at least penetrating one of the above mentioned regions.

Species, so far not recorded from Germany, Austria or Switzerland will be marked with a prefixed (*) in chapter 4. They are only included if recorded from a neighbouring region of the Limnofauna Europaea (Lf) after ILLIES (1978, cf. fig. 2) and if its occurrence in the named area cannot excluded with safety.
In these cases, as a rule only the nearest neighbouring region is mentioned.

3. Methods

Besides some of own its nomenclatural work in a marginal extent this catalogue is mainly the result of extensive bibliographic studies. For instance, all descriptions of central European species since the 10th edition of the Sytema Naturae of Linnaeus (1758) are sighted and cited if possible in their original form.
In the few cases where this was impossible for me in spite of effort over many yeasr this is marked with a prefixed (*) in the reference list.

An indispensable starting point of the bibliographic work was the monograph of mayflies of the world by Eaton (1871). This famous author indexed all mayflies orbis terrarum published up to this time as well as their corresponding literature. Moreover, in many cases he revised the collections of the older authors.

Additionally the nomenclatural catalogues of EATON (1883-88), JACOB (1972), HUBBARD (1990), KLUGE (2004), as well as many other smaller works with revisions or nomenclatural notes were considered.

The work of BAUERNFEIND & SOLDAN (in prep.): „Ephemeroptera of Europe“ with extensive synonymies and nomenclature was able to be studied in a small part in a draft stage.

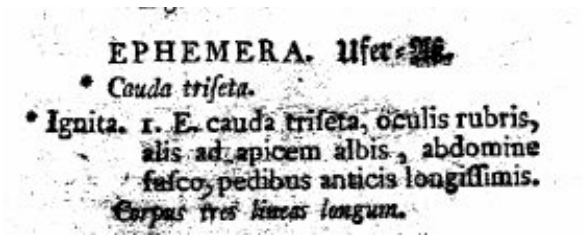
A desirable adoption of the nomenclature in both works was unfortunately not possible for reasons of time.

This catalogue should not be misunderstood as a reference for the German-speaking region or as a nomenclatural revision. The systematic concept of the lists is only mirroring my best subjective understanding and will, as everything in natural sciences, alter with new knowledge.
In general we could use any formal valid name for each Taxon, with a good reason even their subjective synonyms.
The use of genera or subgenera for higher taxa is moreover always also merely an expression of personal systematic understanding and is in general only reflecting the intention of the author to handle certain genera in a close or on a wide sense.

4. Systematic List

The systematic index lists all taxa down from the level of the families in a legal nomenclatural notation. The classification follows mainly HUBBARD (1990) and KLUGE (2004), in details also HAYBACH & MALZACHER (2002, 2003). The combination of names which is subjectively favored by the author is printed in italics, initially followed by the objective synonyms and then by the subjective synonyms. Misinterpretations and misdescriptions (mostly nomina abusa) in relevant zoological literature are then listed with a prefixed tilde (~) for "is equivalent to". Incorrect synonymies are printed in squared brackets ([ ]). The original nominal combination is listed for all taxa that have been transferred to other genera.

Synonymies on genus and family level are not included. They are treated in a worldwide scope by HUBBARD (1990).


EPHEMERA. Ufer-Aas.
* Cauda triseta.
* Ignita. I. E. cauda triseta, oculis rubris, alis ad apicem albis, abdomine fusco, pedibus anticis longissimis.
Corpus tres lineas longum.

E p h e m e r a Ufer - Aas p. 97
* Cauda triseta.
Ignita I. E. cauda triseta, oculis rubris, alis ad apicem albis, abdomine fusco, pedibus anticis longissimis.
Corpus tres lineas longum.

fig. 4: original Latin description of *Ephemerella ignita* (Poda, 1761).
There are 5 objective and 14 subjective synonyms for this variable and common mayfly, most of all European mayflies which is distributed approximately transpalearctic.

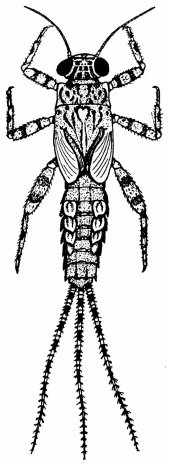


fig. 5: *Ephemerella ignita*, larva after SCHOENEMUND (1930a).

Attention should be paid to the following notes:

- Nomina nuda are only treated when relevant for the current nomenclatural situation.
- The original authors and dates are given for each taxon name following the recommendation of art. 51 in the Code (ICZN, 1999). Revising authors and other references are given in brackets for a better separation.
- LINNAEUS is consistently written in this latinized form which has been used in the Xth edition of the „Systema naturae" which is mandatory for the zoological nomenclature, even if species names of following editions have been published under the french spelling form LINNÉ (e. g. ed. XII, 1767).
- The original date of publication of the mayfly section of STEPHENS (1835-36: S. 53 ff.) is 1836, not 1835. The date of edition is April, 30th, 1836 expressly noted in a foot note on p. 57.
- Date of publication of all species of J. F. PICTET is here uniformly 1843, not 1843-45. The full text with all descriptions was published most probably in 1843 while all plates with the figures were published separately in 1845 (cf. PETERS et al. 1980). Remark.: Because personally I know no real proof that both parts have been published separately, also 1843-45 should be correct, while 1844 is simply wrong anyway.

Siphlonuridae ULMER, 1920 in ULMER (1920a)
Siphlonurus EATON, 1868 in EATON (1868b)
sg. *Siphlonurus* s. str.
Siphlonurus (*Siphlonurus*) *aestivalis* EATON, 1903[1]
Siphlurus aestivalis Eaton, 1903; (orig.)
Siphlonurus aestivalis; (nomen emend.) Ulmer (1920a)
Siphlurus spinosus Bengtsson, 1909; (syn.) Bengtsson (1917)
Siphlonurus vernalis Tshernova, 1928a; (syn.) Puthz (1977b)
Siphlonurus (*Siphlonurus*) *armatus* EATON, 1870
Siphlonurus armatus Eaton, 1870; (orig.)
Siphlurus latus Bengtsson, 1909; (syn.) Ulmer (1927)
Siphlonurus (*Siphlonurus*) *croaticus* ULMER, 1920b
Siphlonurus croaticus Ulmer, 1920b; (orig.)
Siphlonurus (*Siphlonurus*) *lacustris* EATON, 1870
Siphlonurus lacustris Eaton, 1870; (orig.)
Siphlurus zetterstedti Bengtsson, 1909; (syn.) Esben-Petersen (1916)
Siphlonurus pyrenaicus Navás, 1930; (syn.) Puthz (1977b)
Siphlonurus nuessleri Jacob, 1972b; (syn.) Puthz (1977b)
sg. *Siphlurella* BENGTSSON, 1909
Siphlonurus (*Siphlurella*) *alternatus* (SAY, 1824)
Baetes [sic] alternata Say, 1824; (orig.)
Siphlurus alternatus; comb. Eaton (1871)
Siphlonurus alternatus; (nomen emend.) Ulmer (1920a)
Siphlurella alternata; (comb.) Bengtsson (1930a)
Baetis annulata Walker, 1853; (syn.) Eaton (1885)
Siphlurus alternans; (lapsus) Provancher (1878); (syn.) Eaton (1871)
Siphlurus linnaeanus Eaton, 1871; (syn.), Jacob (1972a), Puthz (1977b[2])
Siphlurella thomsoni Bengtsson, 1909; (syn.) Lestage (1924a); Puthz (1977b)
Siphlurella oblita Bengtsson, 1909; (syn.?) Bengtsson (1930: via linnaeanus; Puthz (1977b)
~ Baetis femorata : Provancher (1876), nec Say; t. Provancher (1878: via alternans)

Ameletidae MCCAFFERTY, 1991
Ameletus EATON, 1885
Ameletus inopinatus EATON, 1887
Ameletus alpinus Bengtsson, 1913; (syn.) Brekke (1965)
Ameletus eugenii Sinitshenkova & Varychanova, 1989; (syn.) Kluge (1995)
Parameletus affinis Bengtsson, 1904; (nomem nudum) t. Bengtsson (1930a)
Metreletus DEMOULIN, 1951
Metreletus balcanicus (ULMER, 1920)
Metretopus balcanicus Ulmer, 1920 in Ulmer (1920b); (orig.) (typ. gen.)
Metreletus balcanicus; (comb.) Demoulin (1951)
Ameletus hessei Fizaine, 1931; (syn.) Puthz (1977a)
Metretopus goetghebueri Lestage, 1938; (syn.) Puthz (1977a)
Metreletus hungaricus Ujhelyi, 1960; (syn.) Puthz (1977a)

Ametropodidae BENGTSSON, 1913
Ametropus ALBARDA, 1878
Ametropus fragilis ALBARDA, 1878 (typ. gen.)
Ametropus eatoni Brodsky, 1930 in Brodsky (1930a); (syn.) Landa (1969)
Ametropus albrighti Traver, 1935 *In*: Needham et al. (1935); (syn.) Jacob (2006)

[1] The generic names *Siphlurus* and *Ecdyurus* are, after ULMER (1920a) et auct., representing injustified emendations of the older generic names *Siphlonurus* and *Ecdyonurus.* Following art. 51.3.1 of the Code (ICZN, 1999), names of authors are not written in parantheses when first published with the incorrect spelling.
[2] It is not understandable why PUTHZ who knows the thesis of JACOB (1972a) very well published this species and some others as „new synonyms“ although they had been detected by JACOB before.

*Metretopodidae LESTAGE, 1938
*Metretopus EATON, 1901
*Metretopus borealis (EATON, 1871) (LF 14 tr.)
Heptagenia borealis EATON, 1871 (orig.)
Rhithrogena borealis; (comb.) Eaton (1885)
Metretopus norvegicus Eaton, 1901; (typ. gen.) (syn.) Brekke (1940); cf. Kimmins (1960)

Baetidae LEACH, 1815
Baetis LEACH, 1815
sg. *Baetis* s. str.
Baetis (*Baetis*) *alpinus* (PICTET, 1843)
Cloë alpina Pictet, 1843; (orig.)
Cloeon alpina; (comb.) Walker (1853)
Baetis amnicus Eaton, 1871; (syn.) Eaton (1885)
Baetis carpathica Morton, 1910; (syn.) Müller-Liebenau (1969)
Baetis Dorieri Degrange, 1957a; (syn.) Müller-Liebenau (1969)
Baetis (*Baetis*) *buceratus* EATON, 1870
Baetis buceratus Eaton, 1870; (orig.)
Baetis scanicus Bengtsson, 1917; (syn.) Müller-Liebenau (1964)
Baetis Grandii Grandi, 1948b; (syn.) Müller-Liebenau (1969)
Baetis (*Baetis*) *fuscatus* (LINNAEUS, 1761)
Ephemera fuscata Linnaeus, 1761; (orig.) (typ. gen.)
Baetis fuscata; (comb.) Stephens (1836)
Cloeon fuscata; (comb.) Walker (1853)
Baetis fuscatus; (comb.) Eaton (1870)
Ephemera bioculata Linnaeus, 1758; (syn.) Kimmins (1964), Brinck & Müller-Liebenau (1965)
Ephemera binoculata auct. = common inaccurate spelling of bioculata
Ephemera flava von Paula Schrank, 1776; (syn.) Eaton (1871: via binoculata)
Ephemera diaphana O.F. Müller, 1776; (syn.) Eaton (1871: via binoculata)
? Ephemera lutea Fourcroy, 1785 (nomen praeoccupatum) nec Linnaeus; (syn.) Olivier (1791) (via bioculata)
Ephemera notata Gmélin, 1789; (syn.) Eaton (1871: via binoculatus)
Baetis flavescens Curtis, 1834; (syn. ?) Eaton (1871: via binoculatus)
Baetis autumnalis Curtis, 1834; (syn. ?) Eaton (1871: via binoculatus)
Baetis venustulus Eaton, 1885; (syn.) Müller-Liebenau (1967)
Baetis andalusicus Navás, 1911; (syn.) Alba-Tercedor (1984)
Baetis (*Baetis*) *liebenauae* KEFFERMÜLLER, 1974
Baetis liebenauae Keffermüller, 1974 (orig.)
Baetis (*Baetis*) *lutheri* MÜLLER-LIEBENAU, 1967
Baetis lutheri Müller-Liebenau, 1967; (orig.)
~ Baetis subalpinus : Müller-Liebenau (1960) nec Bengtsson; t. Müller-Liebenau (1967)
Baetis (*Baetis*) *melanonyx* (PICTET, 1843)
Cloë melanonyx Pictet, 1843; (orig.)
Cloeon melanonyx; (comb.) Walker (1853)
Baetis melanonyx; (comb.) Eaton (1871)
Baetis kulindrophtalmus Bogoescu, 1933; (syn.) Müller-Liebenau (1969)
Baetis principii Grandi, 1949; (syn.) Müller-Liebenau (1969)
Baetis bengtssoni Müller-Liebenau, 1966; (syn.) Müller-Liebenau (1969)
[= Baetis finitimus Eaton, 1871; (syn.) Eaton (1885), falsus = vernus; t. Müller-Liebenau (1969)]
Baetis (*Baetis*) *nexus* NAVÁS, 1918
Baetis pentaphlebodes Ujhelyi, 1966; (syn.) Alba-Tercedor (2002)
Baetis (*Baetis*) *nubecularis* EATON, 1898
Baetis nubecularis Eaton, 1898; (orig.)
**Baetis* (*Baetis*) *pavidus* GRANDI, 1951 in Grandi (1951b) (LF 13)
Baetis parva Grandi, 1949 (orig.) (nomen praeoccupatum) [nec Baetis parvus Dodds, 1923]
Baetis pavidus; (nomen novum) Grandi (1951b)
Baetis pavidus Grandi, 1949 sensu Grandi, 1953 et auct.

Baetis (*Baetis*) *scambus* EATON, 1870
Baetis scambus Eaton, 1870; (orig.)
Baetis hispanus Navás, 1915; (syn.) Alba-Tercedor (1984)
Baetis (*Baetis*) *tracheatus* KEFFERMÜLLER & MACHEL, 1967
Baetis tracheatus Keffermüller & Machel, 1967; (orig.)
Baetis (*Baetis*) *vardarensis* IKONOMOV, 1962
Baetis vardarensis Ikonomov, 1962a; (orig.)
Baetis (*Baetis*) *vernus* CURTIS, 1834
Baetis vernus Curtis, 1834; (orig.)
Ephemera testacea Gmélin, 1789; (syn.?) Eaton (1871: via phaeops)
Ephemera dubia Stephens, 1836; (syn.) Eaton (1871: via phaeops)
Baetis phaeops Eaton, 1870; (syn.) Eaton (1885)
Baetis tenax Eaton 1870; (syn.) Müller-Liebenau (1969)
Baetis finitimus Eaton 1871; (syn.) Müller-Liebenau (1969)
sg. *Rhodobaetis* JACOB, 2003
Baetis (*Rhodobaetis*) *gemellus* EATON, 1885
Baetis gemellus Eaton, 1885; (orig.)
[= Baetis rhodani; (syn.) Kimmins (1960); (species propria ?) t. Müller-Liebenau (1969)]
Baetis (*Rhodobaetis*) *rhodani* (PICTET, 1843)
Cloë rhodani Pictet, 1843; (orig.)
Cloeon rhodani; (comb.) Walker (1853)
Baetis rhodani; (comb.) Eaton (1871)
Baetis (Rhodobaetis) rhodani; (comb.) Jacob, 2003
Baetis bocagii Eaton, 1885; (syn.) Kimmins (1960)
Baetis gemellus Eaton, 1885; (syn. ?) Kimmins (1960). t. Thomas (1999)
Baetis pusillus Bengtsson, 1912a; (syn.) Müller-Liebenau (1969)
Baetis wallengreni Bengtsson, 1912a; (syn.) Müller-Liebenau (1964)
Baetis iberi Navás, 1913; (syn.) Alba-Tercedor (1984)
sg. *Nigrobaetis* NOVIKOVA & KLUGE, 1987
Baetis (*Nigrobaetis*) *muticus* (LINNAEUS, 1758)
Ephemera mutica Linnaeus, 1758; (orig.)
Baetis muticus; (comb.) Eaton (1871: via pumila)
Baetis (Nigrobaetis) muticus; (comb.) Novikova & Kluge (1987)
Alainites muticus; (comb.) Waltz & McCafferty (1994) *In*: Waltz et al. (1994)
Ephemera striata Linnaeus, 1767; (syn.) Linnaeus, 1767
Ephemera ciliata Ström, 1783; (syn.) Wallengren (1882)
Cloe pumila Burmeister, 1839; (syn.?) Eaton (1871); (syn.) Bengtsson (1912b[3])
Baetis muticus intermedius Alba-Tercedor, 1982a; (syn.) Sartori & Thomas (1991)
Baetis furcatus Navás, 1933; (syn.) Alba-Tercedor (1984)
Baetis (*Nigrobaetis*) *digitatus* BENGTSSON, 1912
Baetis digitatus Bengtsson, 1912 in Bengtsson (1912a) (orig.)
Baetis (Nigrobaetis) digitatus; (comb.) Novikova & Kluge (1987)
? Baetis rhithralis Soldán & Thomas, 1983; (syn.) Novikova & Kluge (1994)
Baetis digigracilis Novikova (nomen nudum) *In*: Novikova & Kluge (1987); (syn.) Novikova & Kluge (1994)
Baetis (*Nigrobaetis*) *niger* (LINNAEUS, 1761)
Ephemera nigra Linnaeus, 1761; (orig.)[4] (typ. subgen.)
Baëtis niger; (comb.) Eaton (1870)
Baetis (Nigrobaetis) niger; (comb.) Novikova & Kluge (1987)
Nigrobaetis niger; (comb.) Waltz, McCafferty & Thomas (1994)
Baëtis incurvus Bengtsson, 1912a; (syn.) Müller-Liebenau (1969)

[3] The synonymy of *pumila* BURMEISTER with *mutica* LINNAEUS is well-established, e.g. MÜLLER-LIEBENAU (1969), LANDA (1969), but remains unproved. From the 2 ♂♂ and 1 subimago mentioned in the original description, according to JACOB (1972a) only 1 Subimago (hand written label "*pumila* Br., Halae") is located in the collection of Burmeister. This specimen has been designated as the lectotype by Jacob but is in fact *Choroterpes picteti*. This species name is protected by reasons of nomenclatural stability and because the original description was founded on an imago, we don't apply the specific name *pumilus* Burmeister, following the recommendation of Jacob.
[4] Acoording to EATON (1871: p. 4) in the collection of LINNAEUS' were located "1 ♀ sub. spurious und 1 ♀ sub. ticketted "*nigra*" in LINNÉS MS. of *L. marginata.*"

[= Ephemera cincta Retzius, 1783; (syn.) Bengtsson (1912b: via incurvus), species propria t. Haybach & Jacob (2006)]

sg. *Labiobaetis* NOVIKOVA & KLUGE, 1987

**Baetis* (*Labiobaetis*) *atrebatinus* EATON, 1870 (LF 4, 8, 13, 17, 18)

Baetis atrebatinus Eaton, 1870 (orig.) (typ. subgen.)
Baetis (Labiobaetis) atrebatinus; (comb.) Novikova & Kluge (1987)
Labiobaetis atrebatinus; (comb.) McCafferty & Waltz (1995)
[=Baetis atrebatinus orientalis Kluge, 1983; (syn.) Kluge (1995)]; subspecies propria Fujitami et al. (2005)

Baetis (*Labiobaetis*) *calcaratus* KEFFERMÜLLER, 1972 (species inquirenda)

Baetis calcaratus Keffermüller, 1972 in Keffermüller (1972a); (orig.)
Baetis (Labiobaetis) calcaratus; (comb.) Novikova & Kluge (1987)
Labiobaetis calcaratus; (comb.) McCafferty & Waltz (1995)

Baetis (*Labiobaetis*) *tricolor* TSHERNOVA, 1928

Baetis tricolor Tshernova, 1928b (orig.)
Baetis (Labiobaetis) tricolor; (comb.) Novikova & Kluge (1987)
Labiobaetis tricolor; (comb.) McCafferty & Waltz (1995)
[= Cloe propinqua Walsh, 1863; (syn.) Novikova & Kluge (1987); species propria; McCafferty & Waltz (1995)]

sg. *Acentrella* BENGTSSON, 1912 in BENGTSSON (1912a)

Baetis (*Acentrella*) *inexpectatus* (TSHERNOVA, 1928)

Pseudocloeon inexpectatum Tshernova, 1928; (orig.)
Baetis inexpectatus; (comb.) Keffermüller (1980)
Baetis (Acentrella) inexpectatus; (comb.) Novikova & Kluge (1987)
Acentrella inexpectata; (comb.) Jacob (1991)
Pseudocloeon hyalopterum Bogoescu, 1951; (syn.) Jacob (1972a)

Baetis (*Acentrella*) *sinaica* (BOGOESCU, 1931)

Acentrella sinaica BOGOESCU, 1931; (orig.)
Baetis subatrebatinus Grandi, 1957; (syn.) Müller-Liebenau (1969)
Baetis pseudatrebatinus Grandi, 1960; (syn.) Müller-Liebenau (1969) (via subatrebatinus)
~ Baetis atrebatinus : Grandi (1948a); nec Eaton, t. Müller-Liebenau (1969)

**Baetopus* KEFFERMÜLLER, 1960

sg. *Baetopus* s. str.

**Baetopus wartensis* KEFFERMÜLLER, 1960 (LF 14) (typ. gen.)

sg. *Raptobaetopus* MÜLLER-LIEBENAU, 1978

Baetopus (*Raptobaetopus*) *tenellus* (ALBARDA, 1878*)*

Centroptilum tenellum Albarda, 1878; (orig.)
Baetopus tenellus; (comb.) Tshernova (1964)
Raptobaetopus tenellus; (comb.) Müller-Liebenau (1978)
Baetopus (Raptobaetopus) tenellus; (comb.) Tshernova et al. (1986)
Baetopus balticus Kazlauskas & Sanwajtite, 1962; (syn.) Müller-Liebenau (1978)
~ Baetis (?) niger : Lestage (1919: Larve); t. Müller-Liebenau (1978)

Centroptilum EATON, 1869

Centroptilum luteolum (O.F. MÜLLER, 1776)

Ephemera luteola O.F. Müller, 1776 (orig.) (typ. gen.)
Baetis luteolus; (comb.) Eaton (1868b)
Centroptilum luteolum; (comb.) Eaton (1869)
Cloëon ochraceum Stephens, 1836; (syn.) Eaton (1871)
Cloëon hyalinatum Stephens, 1836; (syn.) Eaton (1871)
Cloe translucida Pictet, 1843; (syn.) Eaton (1871)
Ephemera caudata Ström, 1783; (syn.) Eaton (1885)
? Ephemera albipes Scopoli, 1763, (syn.) Eaton (1871)
~ Cloëon albipennis : Stephens, 1836 nec Fabricius; t. Eaton (1871)
~ Cloë halterata : Burmeister, 1839 nec Fabricius; t. Eaton (1871)

**Centroptilum lituratum* (PICTET, 1843) (species inquirenda) (LF4)

Cloe litura Pictet, 1843 (orig.)
Cloeon litura; (comb.) Walker (1853)

Centroptilum ? lituratum; (comb.) Eaton (1871)

Cloeon LEACH, 1815

sg. *Cloeon* s. str.

Cloeon (*Cloeon*) *cognatum* STEPHENS, 1836 (species dubium)

Cloeon cognatum Stephens, 1836 (orig.)
Cloeon dimidiatum Curtis, 1834; (syn.?) Hagen (1857), Sowa (1975b)
Cloë affinis Rambur, 1842; (syn.); Sowa (1975b)
Cloë apicalis Costa, 1882; (syn.) Eaton (1885)
~ Cloeon virgo *:* Stephens (1836) nec Olivier; t. Sowa (1975b)
~ Cloeon dipterum: Eaton (1871) p.p. (1885) p.p. var 1; Sowa (1975b)
[= Ephemera diptera Linnaeus, 1761; (syn.) Eaton (1871), species propria t. Sowa (1975b)]
[= Ephemera diptera Linnaeus, 1761; (syn.) Randolph et al. (2003), contra Sowa (1975b)]

Cloeon (*Cloeon*) *dipterum* (LINNAEUS, 1761)

Ephemera diptera Linnaeus, 1761 (orig.)
Cloeon dipterum (comb.) Stephens (1836)
Cloeon diptera; (comb.) Walker (1853)
Cloëopsis diptera (comb.) Eaton (1866)
Ephemera annulata O.F. Müller, 1776; (syn.) Müller (1776)
Ephemera rufula O.F. Müller, 1776; (syn.) Sowa (1975b)
Ephemera russula, (lapsus) auct.; t. Eaton (1871: via rufula)
Cloeon russulum, (lapsus) auct.; t. Eaton (1871: via rufula)
Cloeon marmoratum Curtis, 1834 (nomen nudum); (syn.) Eaton (1871)
Cloeon obscurum Curtis, 1834; (syn.) Curtis (1834), Pictet (1843)
Caenis sinensis Walker, 1853; (syn.?) Eaton (1871: via russulum), Kimmins (1960)
Cloeon zimini Tshernova, 1930; (syn.) Kluge (1995)
Cloeon szegedi Jacob, 1969; (syn. ?) Sowa (1975b), Puthz (1978)
? Cloeon pallida Leach, 1815; (syn.) Eaton (1885); cf. aber Sowa (1975b) = cognatum
~ Cloe halterata : Rambur (1842) nec Fabricius; t. Eaton (1871)
~ Cloe pumila : Rambur (1842) nec Burmeister; t. Eaton (1871)

Cloeon (*Cloeon*) *inscriptum* BENGTSSON, 1914

Cloeon inscriptum Bengtsson, 1914 (orig.)
~ Cloeon dipterum : Eaton (1871) p.p.; Eaton (1885) p.p. : Landa (1969) p.p.; t. Sowa (1975b)
~ Cloeon inscriptum : Ulmer (1929) : Schoenemund (1930a) : Mikulski (1936): Tschernova (1964); t. Sowa (1975b)
[= Ephemera diptera; (syn.) Landa (1969), species propria: Jacob (1972a), Sowa (1975b)]

sg. *Similecloeon* KLUGE & NOVIKOVA, 1992

Cloeon (*Similecloeon*) *simile* EATON, 1870

Cloeon simile Eaton, 1870; (orig.)
Cloeon (Similecloeon) simile; (comb.) Kluge & Novikova (1992)
Procloeon hovassei Verrier, 1949 in Verrier (1949a); (syn.) Illies (1967), cf. Sowa (1980)
? Cloeon degrangei Sowa, 1980; (syn.) Brulin & Masselot (2001)
? Cloeon viride Schneider, 1885; (syn.) Keffermüller (1972b); cf. Ulmer (1927)
? Cloëon praetextum Bengtsson, 1914; (syn.) Kimmins (1957a); contra Engblom (1996): bona species
incl. Cloëon Schoenemundi Bengtsson, 1936; contra Engblom (1996): bona species
incl. Procloeon rabaudi Verrier, 1949 in Verrier (1949b); p.p. Larve, t. Sowa (1980)

Procloeon BENGTSSON, 1915[5]

sg. *Procloeon* s. str.

Procloeon (*Procloeon*) *bifidum* (BENGTSSON, 1912)

Cloëon bifidum Bengtsson, 1912 in Bengtsson (1912a); (orig.) (typ. gen.)
Pseudocloëon bifidum; (comb.) Bengtsson (1914)
Procloëon bifidum; (comb.) Bengtsson (1915)
Cloeon (Procloeon) bifidum; (comb.) Kluge & Novikova (1992)
Procloeon ornatum Tshernova, 1928 in Tshernova (1928b); (syn.) Illies (1967: via pseudo-rufulum)

[5] Definition of *Procloeon* and *Pseudocentroptiloides* after KLUGE & NOVIKOVA (1992)

Procloëon pseudorufulum Kimmins, 1957 in Kimmins (1957b); (syn.) Jacob (1972a), Sowa (1975a)
Procloeon lychnidense Ikonomov, 1962 in Ikonomov (1962a); (syn.) Jacob (1972a), Sowa (1975a)
~ Cloëon rufulum : Eaton (1885) p.p. (var. 2) nec Müller; t. Kimmins (1957b)
~ Clöeon rufulum : Ulmer (1929) nec Müller; t. Jacob (1972a)
~ Cloeon rufulum : Schoenemund (1930a) nec Müller; t. Jacob (1972a)

**Procloeon* (*Procloeon*) *macronyx* KLUGE & NOVIKOVA, 1992 (LF 14)
Cloeon (Procloeon) macronyx Kluge & Novikova, 1992; (orig.)
~ Centroptilum nana : Kazlauskas (1964) (partim larva) nec Bogoescu; t. Kluge & Novikova (1992)
~ Centroptilum nanum : Keffermüller & Sowa (1984) (partim larva) nec Bogoescu; t. Kluge & Novikova (1992)
~ Cloeoptilum nanum : Kazlauskas (1977) nec Bogoescu; t. Kluge & Novikova (1992)
~ Centroptilum potamonensis : Jacob (1973) (partim larva, non imago = *pulchrum*), t. Kluge & Novikova (1992)

Procloeon (*Procloeon*) *pennulatum* (EATON, 1870)
Centroptilum pennulatum Eaton, 1870; (orig.)
Procloeon pennulatum; (comb.) McCafferty & Waltz (1990)
Pseudocentroptilum pennulatum; (comb.) Belfiore & d'Antonio (1989)
Cloeon (Procloeon) pennulatum; (comb.) Kluge & Novikova (1992)
? Centroptilum infrequens McDunnough, 1924; (syn.) Lowen & Flannagan (1990)

Procloeon (*Procloeon*) *pulchrum* (EATON, 1885)
Centroptilum pulchrum Eaton, 1885; (orig.)
Pseudocentroptilum pulchrum; (comb.) Belfiore & d'Antonio (1989)
Cloeon (Procloeon) pulchrum; (comb.) Kluge & Novikova (1992)
Centroptilum dacicum Bogoescu & Tabacaru, 1966; (syn.) Keffermüller & Sowa (1975)
Centroptilum potamonensis Jacob, 1973, (syn.) Keffermüller & Sowa (1975[6])
Centroptilum forlivense Grandi, 1964; (syn.?) Keffermüller & Sowa (1984)
incl. Centroptilum parapulchrum Keffermüller & Sowa, 1975 (species inquirenda)
nec Centroptilum pulchrum Crass, 1947 = Centroptilum crassi Demoulin, 1970

sg. *Pseudocentroptilum* BOGOESCU, 1948[7]

**Procloeon* (*Pseudocentroptilum*) *lacustre* (EATON, 1885) (LF 4) (species inquirenda)
Centroptilum lacustre Eaton, 1885 (orig.)
Pseudocentroptilum lacustre; (comb.) Belfiore & d'Antonio (1989)

Procloeon (*Pseudocentroptilum*) *stenopteryx* (EATON, 1871) (species inquirenda)
Centroptilum stenopteryx EATON, 1871 (orig.)
Pseudocentroptilum stenopteryx; (comb.) Belfiore & d'Antonio (1989)

**Pseudocentroptiloides* JACOB, 1986 *In*: JACOB & GLAZACZOW (1986)[8]

**Pseudocentroptiloides nana* (BOGOESCU, 1951) (LF 14)
Centroptilum nana Bogoescu, 1951 (orig.)
Pseudocentroptilum nanum; (comb.) Belfiore & d'Antonio (1989)
Cloeon (Pseudocentroptiloides) nana; (comb.) Kluge & Novikova (1992)
Pseudocentroptilum shadini Kazlauskas, 1964 (typ. gen.); (syn.) Kluge & Novikova (1992)
Pseudocentroptiloides shadini; (comb.) Jacob & Glazaczow, 1986
~ Centroptilum nana *:* Kazlauskas (1964) (partim: imago); t. Kluge & Novikova, (1992)
~ Centroptilum nanum *:* Keffermüller & Sowa (1984) (partim: imago, non larva); t. Kluge & Novikova (1992)

[6] The holotype of *potamonensis* is a male. Therefore this taxon is a younger subjective synonym of *pulchrum* not of *macronyx*.
[7] The classification of all species within this subgenus is questionable.
[8] A subgeneric placement of *Pseudocentroptiloides* within *Procloeon* would probably also be a good alternative.

Oligoneuriidae ULMER, 1914
Oligoneuriella ULMER, 1924
Oligoneuriella rhenana (IMHOFF, 1852)
Oligoneuria rhenana Imhoff, 1852; (orig.) (typ. gen.)
Oligoneuriella rhenana; (comb.) Ulmer (1924)
Oligoneuria Garumnica Joly, 1873; (syn.) Eaton (1883)
~ Oligoneuria anomala : Pictet (1845: pl. 46) nec Pictet (1843); t. Eaton (1871)
**Oligoneuriella keffermuellerae* SOWA, 1973 in SOWA (1973c) (LF 11, 14)
~ Oligoneuriella mikulskii : Keffermüller (1964) nec Sowa (1961), t. Sowa (1973c)
**Oligoneuriella pallida* (HAGEN, 1855) (LF 11, 13, 14)
Oligoneuria rhenana var. pallida Hagen, 1855; (orig.)
Oligoneuria pallida; (comb.) Eaton (1871)
Oligoneuriella pallida; (comb.) Sowa (1973c)
Oligoneuriella mikulskii Sowa, 1961; (syn.) Sowa (1973c)
Oligoneuriella poecile Ikonomov, 1962b; (syn.) Jacob (1972a: via mikulskii), Sowa (1973c: via mikulskii)
? Oligoneuriella mongolica Soldán & Landa, 1977; (syn.) Kluge (2004)
[= Oligoneuriella rhenana; (syn.) Eaton (1871); species propria t. Sowa (1973c)]
**Oligoneuriella polonica* MOL, 1984 (LF 14)
~ Oligoneuriella pallida : Sowa (1973c) nec Hagen; t. Mol (1984)
**Oligoneurisca* LESTAGE, 1938
**Oligoneurisca borysthenica* (TSHERNOVA, 1937) (LF 14t, 16) (typ. gen.)
Oligoneuriella borysthenica Tshernova, 1937 (orig.) (typ. gen.)
Oligoneurisca borysthenica; (comb.) Lestage (1938)

Isonychiidae BURKS, 1953
Isonychia EATON, 1871
Isonychia ignota (WALKER, 1853)
Baetis ignota Walker, 1853; (orig.)
Isonychia ignota; (comb.) Eaton (1871)
Chirotonetes ignotus; (comb.) Eaton (1885)
Palingenia Roeselii Joly, 1872; (syn.) Lestage (1917, 1924a)
Jolia roeselii; (comb) Eaton (1881)
Isonychia ferruginea Albarda, 1878; (syn.) Eaton (1879)
Isonychia hainanensis She & You, 1988; (syn.) Tiunova et al. (2004)

Arthropleidae BALTHASAR, 1937[9]
Arthroplea BENGTSSON, 1908
Arthroplea congener BENGTSSON, 1908; (typ. gen.)
Eatonia borealis Bengtsson, 1904; (nomen nudum) (syn.) Bengtsson (1908: via R. elegans)
Remipalpus elegans Bengtsson, 1908; (syn.) Bengtsson (1930a)
Cinygma mirabilis Aro, 1910; (syn.) Bengtsson (1930a)
Haplogenia southi Blair, 1929; (syn.) Bengtsson (1930a)
Arthroplea frankenbergeri Balthasar, 1937; (syn.) Landa (1954)

Heptageniidae NEEDHAM, 1901
Epeorus EATON, 1881 in EATON (1881b)
sg. *Epeorus* s. str.
Epeorus (*Epeorus*) *assimilis* EATON, 1885
~ Baetis venosa : Pictet, 1843 (S. 167-168); t. Ulmer (1921: S. 241)
[= Baetis sylvicola Pictet, 1865; (syn.) Puthz (1973c); species propria: Thomas et al. (2000a)][10]
**Epeorus* (*Epeorus*) *torrentium* EATON, 1881 in EATON (1881b) (typ. gen.) (LF 8, 13)
[= Baetis sylvicola; (syn.) Jacob (1972a); (species propria)]

sg. *Alpiron* BRAASCH, 2006

[9] The status of this family is under discussion. Many characters give good arguments for a placement within family Heptageniidae.
[10] *Epeorus sylvicola* is an endemic species of the Iberian Peninsula and the Pyrenees.

Epeorus (*Alpiron*) *alpicola* (EATON, 1871)[11]
Heptagenia alpicola Eaton, 1871; (orig.)
Epeorus alpicola; (comb.) Eaton (1885)
Epeorus (Ironopsis) alpicola; (comb.) Tomka & Zurwerra (1985)
Iron (Alpiron) alpicola; (comb.) (typ. subgen.) Braasch (2006)
Epeorus alpicolus Thomas, Marie & Brulin, 2000a; (syn.) Thomas & Brulin (2001)
Iron steinmanni Leger, 1926; (syn.) Ulmer (1929)
Iron alpinus Hubault, 1927; (syn.) Ulmer (1929)

Gattung *Rhithrogena* EATON, 1881 in EATON (1881b)
Rhithrogena allobrogica SOWA & DEGRANGE, 1987 in SOWA & DEGRANGE (1987a)
Rhithrogena intermedia "Metzler, Tomka & Zurwerra, 1987"; (nomen nudum); (syn.) Bauernfeind & Weichselbaumer (1994)
Rhithrogena alpestris EATON, 1885
Rhithrogena alpicola Navás, 1935; (syn.) Jacob (1972a), Puthz (1975)
Rhitrogena (sic) brenneriana Klapálek, 1905 in Klapálek (1905b); (syn.) Puthz (1975)
Rhithrogena austriaca SOWA & WEICHSELBAUMER, 1988
Rhithrogena beskidensis ALBA-TERCEDOR & SOWA, 1987
~ Rhithrogena aurantiaca : Eaton (1885) partim
~ Baetis aurantiaca : Rostock (1875), t. Haybach (1998)
~ Rhithrogena aurantiaca : Schoenemund (1930a, Fig 42.), t. Haybach (1998)
~ Rhithrogena diaphana : Puthz (1973b) nec Navás partim
Rhithrogena carpatoalpina KLONOWSKA, OLECHOWSKA, SARTORI & WEICHSELBAUMER, 1987
~ Rhithrogena ferruginea : Sowa (1971d) nec Navás partim; t. Klonowska et al., (1987)
Rhithrogena circumtatrica SOWA & SOLDÁN, 1986
Rhithrogena hybrida : Sowa (1975c) nec Eaton; t. Sowa & Soldán (1986)
**Rhithrogena corcontica* SOWA & SOLDÁN, 1986 (LF 9)
Rhithrogena degrangei SOWA, 1969
~ Rhithrogena hybrida : Ulmer (1927); t. Puthz (1975)
~ Rhithrogena hybrida : Ulmer (1929) : Schoenemund (1930a ?); t. Sowa (1969)
Rhithrogena delphinensis SOWA & DEGRANGE, 1987 (LF 4)
Rhithrogena dorieri SOWA, 1971 in SOWA (1971d)
incl. Rhithrogena colmarsensis Sowa, 1984 (species inquirenda)
Rhithrogena germanica EATON, 1885
Rhithrogena haarupi Esben-Petersen, 1909; (syn.) Sowa (1971b)
Rhithrogena ussingi Esben-Petersen, 1910; (syn.) Mosely (1932: via haarupi)
Rhithrogena fradgleyi Blair, 1929; (syn.) Mosely (1932: via haarupi)
nec Rhithrogena germanica : Klapálek (1909): Ulmer (1929): Schoenemund (1930a) = *R. sowai*; teste Puthz (1972)
Rhithrogena gratianopolitana SOWA, DEGRANGE & SARTORI, 1986
Rhithrogena grischuna SARTORI & OSWALD, 1988
Rhithrogena hercynia LANDA, 1969
Rhithrogena hybrida EATON, 1885
Rhithrogena iridina (KOLENATI, 1859)
Baetis iridina Kolenati, 1859 (orig.)
Heptagenia iridana (sic); (comb.) Eaton (1871)
Heptagenia iridana (sic); genus incertis Eaton (1887: p. 302)
Heptagenia iridina; (emend.) Ulmer (1920)
Rhithrogena iridina; (comb.) Puthz (1975)
Rhithrogena picteti carpathica Sowa, 1971 in Sowa (1971d); (syn.) Puthz (1975)
Rhithrogena landai SOWA & SOLDÁN, 1984
~ Rhithrogena alpestris : Landa (1969, p. p. Imago); t. Sowa & Soldán (1984)

[11] The generic treatment of the *Epeorus*/*Iron* complex or the subgeneric treatment of *Ironopsis*/*Alpiron* species complex is still under controversal discussion. This combination is therefore somewhat tentative. Because *Iron* is regarded as a synononym of *Epeorus* by many authors worldwide, we integrated *Alpiron* in *Epeorus* instead of *Iron*.

Rhithrogena loyolaea NAVÁS, 1922
Rhithrogena loyolae (lapsus); Illies (1967), Thomas, (1968b); t. Thomas (1970)
Rhithrogena tatrica Zelinka, 1953; (syn.) Thomas (1970)
incl. Rhithrogena zelinkai Sowa & Soldán, 1984 (species inquirenda)
~ Rhithrogena nivata : Grandi (1960) nec Eaton; t. Thomas (1970)
Rhithrogena nivata (EATON, 1871)
Heptagenia nivata Eaton, 1871; (orig.)
Rhithrogena nivata; (comb.) Eaton (1885)
Rhithrogena picteti SOWA, 1971
Rhithrogena picteti picteti Sowa, 1971 in Sowa (1971d); (orig.)
Rhithrogena iridina picteti; (comb.) Puthz (1975)
Rhithrogena semicolorata picteti; (comb.) Zurwerra, Metzler & Tomka (1987)
Rhithrogena picteti; (status novus) Sowa & Degrange (1987b)
~ Baetis semicolorata : Pictet (1843), nec Curtis; t. Sowa (1971d)
~ Rhithrogena semitincta : Kimmins (1936), nec Pictet; t. Sowa (1971d)
Rhithrogena puthzi SOWA, 1984
incl. Rhithrogena endenensis Metzler, Tomka & Zurwerra, 1985 (species inquirenda), t. Weichselbaumer (1997)
Rhithrogena puytoraci SOWA & DEGRANGE, 1987b
~ Rhithrogena ferruginea : Sowa (1971d) p.p. nec Navás, 1905; t. Sowa & Degrange (1987b)
Rhithrogena rolandi WEICHSELBAUMER, 1995[12]
Rhithrogena savoiensis ALBA-TERCEDOR & SOWA, 1987
~ Rhithrogena aurantiaca : Eaton (1885) p.p.; probably some central European records
Rhithrogena semicolorata (CURTIS, 1834)
Baetis semicoloratus Curtis, 1834: (orig.); (typ. gen.)
Heptagenia semicolorata; (comb.) Eaton (1871)
Rhithrogena semicolorata; (comb.) Eaton (1881b)
Ephemera fuscula von Paula Schrank, 1802; (syn.?) Eaton (1871) (nomen dubium)
Baetis semitincta Pictet, 1843; (syn.) Eaton (1871), Sowa (1971d)
Rhithrogena vulpecula Klapálek, 1905 in Klapálek (1905b); (syn.) Sowa (1971d)
Rhithrogena grisoculata Bogoescu, 1958; (syn.) Sowa (1971d)
~ Rhithrogena semicolorata var. grisoculata : Bogoescu (1933); t. Sowa (1971d)
Rhithrogena taurisca BAUERNFEIND, 1992
Rhithrogena vaillanti SOWA & DEGRANGE, 1987 in SOWA & DEGRANGE (1987a)

Kageronia MATSUMURA, 1931
Kageronia fuscogrisea (RETZIUS, 1783)
Ephemere grise en dessous de Geer, 1771; (nomen invalidum)
Ephemera fusco-grisea Retzius, 1783; (orig.)[13]
[= Ephemera venosa Fabricius, 1775; (syn.) Eaton (1871); species propria, t. Haybach & Jacob (2006)]
Ecdyurus fusco-griseus; (comb.) Bengtsson (1912b)
Ecdyonurus fuscogriseus; (comb.) Ulmer (1920a)
Heptagenia fuscogrisea; (comb.) Schoenemund (1930b)
Heptagenia (Kageronia) fuscogrisea; (comb.) Kluge (1988)
Kageronia fuscogrisea; (comb.) Jacob et al. (1996), Wang & McCafferty (2004)
Ephemera nervosa de Villers, 1789; (syn.) de Villers (1789) (nomen abortivum)
Heptagenia volitans Eaton, 1870; (syn.) Bengtsson (1912b)
Echdyurus [sic] convergens Aro, 1910; (syn.) Tiensuu (1939)
Ecdyonurus confinis Tshernova, 1928 in Tshernova (1928b); (syn.) Tshernova (1936)
Ecdyonurus rossicus Tshernova, 1928 in Tshernova (1928b); (syn.) Jacob (1972a)

[12] BAUERNFEIND & HUMPESCH (2002) regard this species as a supposed synonym „species inquirenda" of *R. puytoraci*. This seems to be questionable after own taxonomic investigations of locotypical material of all stages of *R. rolandi* - species propria.
[13] After publication of the latinized binominal nomenclature by LINNAEUS (1758) several "Nomenclators"were published. Here RETZIUS translated a former work of DE GEER naming all species binominal after the method of LINNAEUS. In consequence RETZIUS and not DE GEER got authorship of all species.

Heptagenia WALSH, 1863
sg. *Heptagenia* s. str.
Heptagenia (*Heptagenia*) flava ROSTOCK, 1878
Heptagenia flava Rostock, 1878; (orig.)
Ephemera citrina Hummel, 1829; (syn.) Kluge (1987) (nomen oblitum)
Heptagenia bipunctata Esben-Petersen, 1916; (syn.) Kluge (1995)
Heptagenia arsenjevi Tshernova, 1952; (syn.) Baykova (1972)
Heptagenia (*Heptagenia*) *longicauda* (STEPHENS, 1836)
Baetis longicauda Stephens, 1836; (orig.)
Heptagenia longicauda; (comb.) Eaton (1871)
Ephemera flavipennis Dufor, 1841; (syn.) Kimmins (1942a)
Baetis cerea Pictet, 1843; (syn.) Eaton (1871)
[nec Heptagenia longicauda : Eaton (1871) = Ecdyonurus dispar, t. Kimmins (1942a)]
Heptagenia (*Heptagenia*) *sulphurea* (O.F. MÜLLER, 1776)
Ephemera sulphurea O.F. Müller, 1776; (orig.)
Ephemera helvola Sulzer, 1776; (syn.?) Eaton (1871: via H. elegans)
Ephemera leucophthalma Ström, 1783; (syn.) Eaton (1885)
Ephemera ferruginea Gmélin, 1789 (syn.?) Eaton (1871: via H. elegans)
Baetis elegans Curtis, 1834; (syn.) Eaton (1885)
Baetis costalis Curtis, 1834; (syn.) Eaton (1871: via elegans)
Baetis straminea Curtis, 1834; (syn. ?) Pictet, 1843
Baetis cyanops Pictet, 1843; (syn.) Eaton (1871: via elegans)
? Heptagenia soldatovi Tshernova, 1952; (syn.) Kluge (1987)
Ephemera lutea : Stephens, 1836, nec Linnaeus; t. Eaton (1871: via H. elegans) (rev
sg. *Dacnogenia* KLUGE, 1988
Heptagenia (*Dacnogenia*) *coerulans* ROSTOCK, 1878
Heptagenia coerulans Rostock, 1878; (orig.)
Heptagenia (Dacnogenia) coerulans; (comb.) Kluge (1988)
Dacnogenia coerulans; (comb.) Wang & McCafferty (2004)
Heptagenia gallica Eaton, 1885; (syn.) Rostock (1888)

Electrogena ZURWERRA & TOMKA, 1985
Electrogena affinis (EATON, 1883)
Ecdyurus affinis Eaton, 1883; (orig.)
Ecdyonurus affinis; (emend.) Ulmer (1920a)
Heptagenia affinis; (comb.) Schoenemund (1930b)
Electrogena affinis; (comb.) Zurwerra & Tomka (1986)
Ecdyonurus fascioculatus Sowa, 1974; (syn.) Belfiore et al. (1999)
**Electrogena gridellii* (GRANDI, 1953) (LF 4)
Heptagenia gridellii Grandi, 1953, (orig.)
Ecdyonurus gridellii; (comb.) Jacob (1972a), Belfiore (1981)
Electrogena gridellii; (comb.) Zurwerra & Tomka (1985)
Electrogena lateralis (CURTIS, 1834)
Baetis lateralis Curtis, 1834; (orig.); (typ. gen.)
Heptagenia lateralis; (comb.) Eaton (1871)
Ecdyurus lateralis; (comb.) Eaton (1887)
Ecdyonurus lateralis; (emend.) Ulmer (1920a)
Heptagenia lateralis; (comb.) Schoenemund (1930b)
Electrogena lateralis; (comb.) Zurwerra & Tomka (1985)
Cloe Brunnea Rambur, 1842; (syn.) Eaton (1871)
Baetis obscura : Pictet, 1843 nec Stephens; t. Eaton (1871)
Ecdyonurus rivulorum Navás, 1928; (syn.?) Thomas (1968b)
Heptagenia concii Grandi, 1953; (syn.) Belfiore (1981)
Electrogena ujhelyii (SOWA, 1981)
Ecdyonurus ujhelyii Sowa, 1981; (orig.)
Electrogena ujhelyii; (comb.) Zurwerra & Tomka (1986)
Electrogena rivuscellana Sartori & Landolt, 1991 *In*: Landolt et. al. (1991); (syn.) Belfiore & Desio (1995)
~ Ecdyonurus subalpinus : Ujhelyii (1966) nec Klapálek; t. Sowa (1981)
~ Ecdyonurus gridellii : Jacob (1972a, 1974a) nec Grandi

~ Electrogena gridellii : Zurwerra & Tomka (1985) nec Grandi
~ Electrogena quadrilineata : Zurwerra & Tomka (1985) nec Landa
incl. Ecdyonurus samalorum Landa & Soldán, 1982 (species inquirenda)

Electrogena quadrilineata (LANDA, 1969)
Heptagenia quadrilineata Landa, 1969; (orig.)
Ecdyonurus quadrilineatus; (comb) Jacob (1972a); Belfiore (1981)
Electrogena quadrilineatus; [sic] (comb.) Zurwerra & Tomka (1985)

Ecdyonurus EATON, 1868 in EATON (1868a)
venosus-Gruppe
Ecdyonurus aurantiacus (BURMEISTER, 1839)
Baetis aurantiaca Burmeister, 1839; (orig.)
Ecdyonurus aurantiacus; (comb.) Jacob (1972a), additional Puthz (1973b)
Ecdyurus Pazsiczkyi Pongrácz, 1913; (syn.) Jacob (1972a); cf. also Puthz (1973b)
[= Ecdyonurus fluminum : Grandi (1960) nec Pictet; (syn.) Puthz (1973b); = E. belfiorei; Haybach & Thomas (2002)]
~ Ecdyonurus fluminum : Eaton (1887: "light specimens") nec Pictet, Thomas (1968a)
~ Ecdyonurus fluminum : Schoenemund (1930a: partim Imago fig. 27) nec Pictet, t. Kimmins (1942b), Haybach (1998)
~ Ecdyonurus fluminum : Landa (1969) nec Pictet; t. Puthz (1973b)

Ecdyonurus dispar (CURTIS, 1834)
Baetis dispar Curtis, 1834; (orig.)
Ecdyonurus dispar; (comb.) Kimmins (1942b)
Baetis subfusca Stephens, 1836; (syn.) Eaton (1871: via H. longicauda : Eaton nec Stephens)
Ephemera angustipennis Rambur, 1842; (syn.) Eaton (1871: via fluminum)
Baetis fluminum Pictet, 1843; (syn.) Thomas (1968a)
[= Heptagenia longicauda : Eaton (1871) nec Stephens; t. Kimmins (1942b)]
[= Ecdyonurus venosus : Eaton (1887) nec Fabricius, (partim) t. Kimmins (1942b)]

Ecdyonurus insignis (EATON, 1870)
Heptagenia insignis Eaton, 1870; (orig.)
Ecdyurus insignis; (comb.) Eaton (1887)
Ecdyonurus insignis; (emend.) Ulmer (1920a)
Ecdyurus rhenanus Neeracher, 1910; (syn.) Ulmer (1929)
~ Baetis montana : Hagen (1863) nec Pictet; t. Eaton (1870)

Ecdyonurus macani THOMAS & SOWA, 1970

Ecdyonurus ruffii GRANDI, 1953
Ecdyonurus wautieri FONTAINE, 1964; (syn.) Puthz (1975)
Ecdyonurus ruffoi Belfiore & d'Antonio, 1991; (syn.) Bauernfeind (1997)

Ecdyonurus starmachi SOWA, 1971 in SOWA (1971a)

Ecdyonurus submontanus LANDA, 1969
Ecdyonurus fluminum : Bogoescu (1958) nec Pictet; t. Sowa (1971a)
Ecdyonurus fluminum : Bogoescu & Tabacaru (1962) nec Pictet; t. Sowa (1971a)

Ecdyonurus torrentis KIMMINS, 1942 in KIMMINS (1942b)

Ecdyonurus venosus (FABRICIUS, 1775)
Ephemera venosa Fabricius, 1775; (orig.); (typ. gen.)
Baetis venosa; (comb.) Stephens (1836)
Ecdyonurus venosus; (comb.) Eaton (1868a: Fußnote)
Heptagenia venosa; (comb.) Eaton (1871)
Ecdyurus venosus; (incorr. emend.) Eaton (1887)
Ecdyonurus venosus; (emend.) Ulmer (1920a)
Ephemera berolinensis O.F. Müller, 1776; (syn. ?) Eaton (1871)
Ephemera nigrimana Dufor, 1841 (syn. ?) Eaton (1883) (nomen dubium)
Baetis purpurascens Pictet, 1843; (syn.) Eaton (1871); Kimmins (1942b)
Baetis forcipula Pictet, 1843; (syn.) Ulmer (1921)[14]
Baetis montana : Hagen, 1863 (partim); (syn.) Eaton, 1887
Ecdyurus quaesitor Eaton, 1883; (syn.) Eaton, 1887
Ecdyonurus forcipula: Schoenemund (1930a), nec Pictet, p.p. Haybach (1996)
[= Ephemera fusco-grisea Retzius, 1783; (syn.) Eaton (1871), species propria]

[14] The designation of a lectotype from the collection of KOLLAR in the natural history museum of Vienna is still in progress.

[= Baetis dispar Curtis, 1834; (syn.) Burmeister (1839) et Eaton (1871), species propria]

helveticus-Gruppe

Ecdyonurus alpinus HEFTI, TOMKA & ZURWERRA, 1987

Ecdyonurus austriacus KIMMINS, 1958

[= Ecdyonurus picteti Meyer-Dür, 1864); (syn.) Puthz (1975); species propria: Hefti & Tomka (1986)]

Ecdyonurus austriacus; (status novus) Hefti, Tomka & Zurwerra (1989)

Ecdyonurus carpathicus SOWA, 1973 in SOWA (1973a)

Ecdyonurus helveticus EATON, 1883

Ecdyurus helveticus Eaton, 1883 (orig.)[15]

Ecdyonurus helveticus; (emend.) Ulmer (1920a)

Ecdyurus italicus Eaton, 1883; (syn.) Kimmins (1942a)

Ecdyonurus bollenganus Navás, 1933; (syn.) Thomas (1968b)

Ecdyonurus parahelveticus HEFTI, TOMKA & ZURWERRA, 1986

Ecdyonurus picteti (MEYER-DÜR, 1864)

Baetis Picteti Meyer-Dür, 1864; (orig.)

Heptagenia Picteti; (comb.) Eaton (1871)

Ecdyonurus picteti; (comb. et status novus) Puthz (1975)

Heptagenia nigrescens Klapálek, 1908; (syn.) Puthz (1975)

[= Ephemera venosa; (syn.) Rostock (1878), species propria, Puthz, 1975]

[= Ecdyonurus austriacus Kimmins, 1958; (syn.) Puthz (1975), species propria, Hefti & Tomka (1986)]

**Ecdyonurus silvaegabretae* SOLDÁN & Godunko, 2006 (LF 9)

Ecdyonurus subalpinus KLAPÁLEK, 1907[16]

Ecdyurus subalpinus Klapálek, 1907; (orig.)

Ecdyonurus subalpinus; (emend.) Ulmer (1920a)

[= Ecdyonurus zelleri Eaton, 1885; (syn.) Jacob (1972a); species propria]

Ecdyonurus zelleri EATON, 1885[17]

Ecdyurus zelleri Eaton, 1885; (orig.)

Ecdyonurus zelleri; (emend.) Kimmins (1942a)

[= Ecdyurus forcipula Pictet, 1843 ex MS Kollar (syn.) Eaton (1885), species propria]

[= Ecdyurus helveticus Eaton, 1883; (syn.) Kimmins (1942a), species propria Kimmins (1958)]

[= Ecdyonurus epeorides Demoulin, 1955; (syn.) Kimmins (1958), species propria Jacob & Braasch (1984)]

Leptophlebiidae BANKS, 1900

Choroterpes EATON, 1881 in EATON (1881a)

Choroterpes picteti (EATON, 1871)

Potamanthus marginatus : Pictet, 1843 nec Linnaeus, t. Eaton (1871)

Leptophlebia Picteti Eaton, 1871; (orig.)

Habrophlebia Picteti; (comb.) Eaton (1881a)

Choroterpes Picteti; (comb.) Eaton (1884)

Choroterpes lusitanica Eaton, 1881 in Eaton (1881a); (syn.) Eaton (1883); questionable, cf. Bauernfeind (1998)

Thraulus EATON, 1881 in EATON (1881a)

Thraulus bellus EATON, 1881 in EATON (1881a); (typ. gen.)

[15] cf. foot note 1
[16] cf. foot note 1
[17] cf. foot note 1

Habroleptoides SCHOENEMUND, 1929
Habroleptoides auberti (BIANCHERI, 1954*)*
Habrophlebia (Habroleptoides) auberti Biancheri, 1954 (orig.)
Habroleptoides auberti, (comb.) Illies (1967)
Habroleptoides confusa SARTORI & JACOB, 1986
~ Leptophlebia modesta : Eaton, 1871, 1884 nec Hagen; t. Sartori & Jacob (1986)
~ Habroleptoides modesta : Schoenemund, 1929 auct. nec Hagen; t. Sartori & Jacob (1986)
~ Habrophlebia fusca : Klapálek, 1909 nec Curtis; t. Schoenemund (1929)

Habrophlebia EATON, 1881 in EATON (1881a)
Habrophlebia eldae JACOB & SARTORI, 1984
~ Habrophlebia fusca : Ikonomov (1963); t. Jacob & Sartori (1984)
Habrophlebia fusca (CURTIS, 1834)
Ephemera fusca Curtis, 1834; (orig.)
Potamanthus fuscus; (comb.) Pictet (1843)
Leptophlebia fusca (comb.) Eaton (1868b)
Habrophlebia fusca; (comb.) Eaton (1881a)
Ephemera minor Stephens, 1836; (syn.) Eaton (1871)
Baetis cingulata Stephens, 1836; (syn.) Eaton (1871)
Potamanthus brunneus Pictet, 1843 (syn.) Eaton (1871)
Habrophlebia konjarensis Ikonomov, 1963; (syn.) Jacob & Sartori (1984)
nec Habrophlebia fusca : Ikonomov (1963), = H. eldae, t. Jacob & Sartori (1984)
nec Habrophlebia fusca : Klapálek (1909), = H. confusa; t. Schoenemund (1929)
Habrophlebia lauta EATON, 1884
~ Potamanthus cinctus : Pictet (1843: p. 219, 1845 pl. 28, 1-6) : Walker (1853); nec Retzius t. Eaton (1884)
~ Leptophlebia mesoleuca : Eaton (1873) : Rostock (1878), nec Brauer; t. Ulmer (1921)
~ Habrophlebia mesoleuca : Eaton (1884) : Klapálek (1909), nec Brauer; t. Ulmer (1921)
Habrophlebia lauta McLachlan, 1884 (nomen nudum)

Leptophlebia WESTWOOD, 1840
Leptophlebia s. str.
Leptophlebia (*Leptophlebia*) *marginata* (LINNAEUS, 1767)
Ephemera marginata Linnaeus, 1767 (orig.)
[Potamanthus marginatus; (comb.) Pictet (1843) falsus = Choroterpes picteti]
Leptophlebia marginata; (comb.) Eaton (1871)
Ephemera Stigma Stephens, 1836 nec Gmelin; (syn.) Hagen (1849), Eaton (1871; rev.)
Ephemera talcosa Stephens, 1836; (syn.) Hagen (1857), Eaton (1871; rev.)
Ephemera procellaria Fueßlin, 1775; (syn.) Schwarz (1830)
Ephemera viridescens Fourcroy, 1785; (syn.) Olivier (1791)
Leptophlebia (*Leptophlebia*) *vespertina* (LINNAEUS, 1758)
Ephemera vespertina Linnaeus, 1758; (orig.); (typ. gen.)
Leptophlebia vespertina; (comb.) Westwood (1840)
(?) Blasturus vespertinus; (comb.) Eaton (1884)
Ephemera albipennis Retzius, 1783; (syn.) Retzius (1783)
Baetis fusca Burmeister, 1839; (syn.) Walker (1853)
Ephemera vitreata Zetterstedt, 1840; (syn.) Bengtsson (1912b)
Leptophlebia Meyeri Eaton, 1884; (syn.) Bengtsson (1912b)
Euphyurus albitarsis Bengtsson, 1909; (syn.) Bengtsson (1912b)
sg. *Paraleptophlebia* LESTAGE, 1917[18]
Leptophlebia (*Paraleptophlebia*) *cincta* (RETZIUS, 1783)
Ephémere à ceinture blanche De Geer, 1771; (nomen invalidum)
Ephemera cincta Retzius, 1783 (orig.); (typ. gen./subgen.)
Leptophlebia cincta; (comb.) Eaton (1871)
Paraleptophlebia cincta; (comb.) Lestage (1917)
Leptophlebia cincta; (comb.) Tshernova et al. (1986)
Leptophlebia (*Paraleptophlebia*) *cincta;* (comb.) Kluge (1997a)

[18] The subgeneric threatment seems to be neccessary in Holarctic view after KLUGE (1997), in Europe however the traditional generic placement of *Paraleptophlebia* seems also to be possible.

Ephemera nigra Fourcroy, 1785, nec Linnaeus; (nomen praeoccupatum) (syn.) Eaton (1871)
Ephemera inanis Gmelin, 1789; (syn.) Eaton (1871)
Ephemera hyalinata Zetterstedt, 1840; (syn.) Eaton (1871)
Leptophlebia placita Bengtsson, 1917; (syn.) Puthz (1978)
Cloë fuscata : Pictet (1843) nec Linnaeus; t. Eaton (1871)
Cloeon fuscata : Walker (1853) nec Linnaeus, t. Eaton (1871)
[*Potamanthus cinctus*; (comb.) Pictet (1843); nomen abusum = Habrophlebia lauta; t. Eaton (1884)]
[= *Ephemera halterata* Fabricius, 1777; (syn.?) Eaton (1871), = *Caenis* sp.; Haybach & Jacob (2006)]
[= *Ephemera albipennis* Fabricius, 1793); (syn.) Eaton (1871), = *Baetis* sp., Haybach & Jacob (2006)]
[= *Ephemera vitreata* Zetterstedt, 1840; (syn.) Eaton (1871) sub. *vitrea* (lapsus); = *vespertina* (Bengtsson, 1912b, rev.)]
[= *Baetis incurvus* Bengtsson, 1912 in Bengtsson (1912a); (syn.) Bengtsson (1912b), falsus t. Haybach & Jacob (2006)]

Leptophlebia (*Paraleptophlebia*) *submarginata* (STEPHENS, 1836)
Ephemera submarginata Stephens, 1836; (orig.)[19] (rev.)
Potamanthus submarginatus (comb.) Pictet (1843)
Leptophlebia submarginata; (comb.) Eaton (1884)
Paraleptophlebia submarginata; (comb.) Lestage (1917)
Leptophlebia (Paraleptophlebia) submarginata; (comb.) Jacob (1972a,) Kluge (1997a)
Ephemera dispar Stephens, 1836; (syn.) Eaton (1871: via Leptophlebia helvipes) (rev.)
Ephemera helvipes Stephens, 1836; (syn.) Eaton (1871, 1884) (rev.)
Baëtis reticulata Burmeister, 1839; (syn.?) Eaton (1871: via Leptophlebia helvipes)
Potamanthus castaneus Pictet, 1843; (syn.) Puthz (1978)
Potamanthus Geerii Pictet, 1843 (syn.) Eaton (1871)
Cloeon culiciformis : Walker (1853) nec Linnaeus; (syn.) Eaton (1871)
Leptophlebia helvipes; (comb.) Eaton (1871); (syn.) Eaton (1884)

Leptophlebia (*Paraleptophlebia*) *werneri* ULMER, 1920
Paraleptophlebia Werneri Ulmer, 1920b; (orig.)
Leptophlebia (Paraleptophlebia) werneri; (comb.) Jacob (1972a), Kluge (1997a)
Paraleptophlebia tumida Bengtsson, 1930 in Bengtsson (1930b); (syn.) Landa (1969)

*Behningiidae MOTAS & BAČESCO, 1938
Behningia LESTAGE, 1929
**Behningia ulmeri* LESTAGE, 1929 (LF 14); (typ. gen.)
Behningia Ulmeri LESTAGE, 1929 (orig.)
Behningia lestagei MOTAS & BAČESCO, 1938; (syn.) LANDA (1969)

Potamanthidae ALBARDA, 1888
Potamanthus PICTET, 1843
Potamanthus luteus (LINNAEUS, 1767)
Ephemera lutea Linnaeus, 1767; (orig.); (typ. gen.)
Potamanthus luteus; (comb.) Pictet (1843)
Ephemera reticulata Fourcroy, 1785; (syn.) Olivier 1791
Ephemera hyalina Panzer, 1804; (syn.) Pictet (1843: sub. hyalinata)
Baetis mellea Curtis, 1834; (syn.) Eaton (1871)
Baetis marginalis Burmeister, 1839; (syn.) Hagen (1849)
Ephemera Flavicans Rambur, 1842; (syn.) Eaton (1871: rev.)
Ephemera Chlorotica Rambur, 1842; (syn.) Eaton (1871: rev.)
Potamanthus Ferreri Pictet, 1843; (syn.) Bae & McCafferty (1991)
Eucharidis Reaumuri Joly & Joly; 1876 (syn.) Eaton (1884: rev.)
Ephemera marginata : Müller (1776) nec Linnaeus (nomen abusum); t. Eaton (1884)
[= Baetis cerea Pictet, 1843; (syn.) Hagen, 1849 (falsus) = Heptagenia longicauda]

[19] EATON (1871) classified *L. helvipes* not *L. submarginata* as the valid name, althoughl *L. submarginata* was listed before by STEPHENS. Primal 1884 EATON gave *L. submarginata* priority.

Ephemeridae LATREILLE, 1810
Ephemera LINNAEUS, 1758
Ephemera s. str.
Ephemera (*Ephemera*) *danica* O.F. MÜLLER, 1764
Ephemera Danica O.F. Müller, 1764 (orig.)
Ephemera cognata Stephens, 1836; (syn.) Pictet (1843); Hagen (1857) & Eaton (1871) rev.
Ephemera Hispanica Rambur, 1842; (syn.) Hagen (1866); Eaton (1871: rev.)
Ephemera maculata de Villers, 1789, nec Poda (nomen praeoccupatum); (syn.) Eaton (1883)
Ephemera vulgata : Pictet, 1843 nec Linnaeus; t. Eaton (1871)
[= Ephemera vulgata Linnaeus, 1758; (syn.) Šámalová & Šámal (1930); species propria]
[= Ephemera parnassiana Demoulin, 1958, (syn.) Jacob (1974a), Puthz (1978) et auct., (species propria) Thomas & Parpet (2005)]
Ephemera (*Ephemera*) *lineata* EATON, 1870
Ephemera lineata Eaton, 1870 (orig.)
Ephemera hellenica Demoulin, 1955; (syn.) Bauernfeind (2003)
Ephemera danica : Pictet (1843) nec Müller; t. Eaton (1870)
Ephemera lutea : Burmeister (1839) nec Linnaeus; t. Jacob et al., (1975)
[= Ephemera orientalis McLachlan, 1875; (syn.) Imanishi (1940), species propria t. Tshernova (1973)]
Ephemera (*Ephemera*) *vulgata* LINNAEUS, 1758; (typ. gen.)
Ephemera maculata Linnaeus, 1747; (syn.) Eaton (1871) (nomen invalidum)
Ephemera vulgata Linnaeus, 1758; (orig.)
Ephemera communis Retzius, 1783; (syn.) Retzius (1783) (nomen abortivum)
Ephemera hispanica Navás, 1903 nec Rambur; (syn.) Navás (1906), Alba-Tercedor (1982b)
[= Ephemera maculata de Villers, 1789 nec Poda ; (syn.) Olivier (1791), falsus = danica t. Eaton (1883)]
**Ephemera* (*Ephemera*) *zettana* KIMMINS, 1937 (LF 4)
Ephemera paulae Grandi, 1955; (syn.) Jacob (1972a), Jacob et al. (1975)
sg. *Sinephemera* KLUGE, 2004
Ephemera (*Sinephemera*[20]) *glaucops* PICTET, 1843
Ephemera glaucops Pictet, 1843; (orig.)
Ephemera (Sinephemera) glaucops; (comb.) Kluge (2004)
Ephemera lutea : Sulzer (1776) nec Linnaeus; t. Pictet (1843)
Ephemera Lutea : Rambur (1842) nec Linnaeus; t. Eaton (1871)
[= Ephemera lutea : Burmeister (1839) nec Linnaeus; Pictet (1843); falsus = E. lineata t. Jacob et al. (1975)]

Palingeniidae ALBARDA, 1888
Palingenia BURMEISTER, 1839
Palingenia longicauda (OLIVIER, 1791)
Hemerobius Clutius, 1634 (nomen invalidum)
Ephemerum Swammerdam, 1675 (nomen invalidum)
Ephemera longicauda Olivier, 1791; (orig.) (typ. gen.)
Palingenia longicauda; (comb.) Burmeister (1839)
Ephemera flos-aquae Illiger, 1801; (syn.) Burmeister (1839)
Ephemera swammerdiana Latreille, 1805; (syn.) Burmeister (1839); Eaton (1871, rev.)
Ephemera Swammerdamiana Shaw, 1806; (syn.) Eaton (1871)
~ Semblis marginata : Panzer (1804) nec Panzer (1799), t. Eaton (1871)
[= Ephemera fuliginosa Boeber [in Georgi], 1802; (syn.) Eaton (1871); species propria]
[= Palingenia sublongicauda Tshernova, 1949; (syn.) Jacob (1974), Puthz (1978), Kluge (2004); species propria Jacob (1977), Soldán (1978)]
**Palingenia fuliginosa* (BOEBER [in GEORGI], 1802) (LF 12)
Ephemera fuliginosa Boeber [in Georgi], 1802 (orig.)
Palingenia fuliginosa; (comb.) Hagen (1873)
Ephemera gigantea Boeber [in Illiger], 1801; (nomen nudum); (syn.) Soldán (1978)

[20] It is not clear today whether all species names in KLUGE (2004) comply with all requirements of the Code.

Polymitarcyidae BANKS, 1900

Ephoron WILLIAMSON, 1802

Ephoron virgo (OLIVIER, 1791)

Ephemera virgo Olivier, 1791; (orig.)
Palingenia virgo; (comb.) Pictet (1843)
Polymitarcys virgo; (comb.) Eaton (1868b)
Ephoron virgo; (comb.) Spieth (1940)
Ephemera maroccana Fabricius, 1793; (syn.?) Pictet (1843[21])
Palingenia horaria Burmeister, 1839; (syn.) Pictet (1843)
Ephemera lutea : Panzer (1804) nec Linnaeus; (syn.) Eaton (1871)
Ephemera Albipennis : Rambur (1842) nec Retzius; t. Pictet (1843)

Ephemerellidae KLAPÁLÉK, 1909

Ephemerella WALSH, 1863

Ephemerella ignita (PODA, 1761)[22]

Ephemera ignita Poda, 1761; (orig.)
Ephemerella ignita; (comb.) Eaton (1871)
Ephemerella (Torleya) ignita; (comb.) Kluge (1997b)
Serratella ignita; (comb.) Jacob (1993)
Ephemerella (Serratella) ignita; (comb.) Tshernova et al. (1986)
Ephemera erythrophthalma von Paula Schrank, 1802; (syn.) Eaton (1871)
Ephemera apicalis Stephens, 1836; (syn.) Eaton (1871: rev.)
Ephemera diluta Stephens, 1836; (syn.) Eaton (1871: rev.)
Ephemera rosea Stephens, 1836; (syn.) Hagen (1857 rev.: via E. fusca : Stephens), Eaton (1871 rev.)
Ephemera rufescens Stephens, 1836; (syn.) Pictet (1843), Hagen (1857 rev: via E. fusca : Stephens), Eaton (1871: rev.)
Baetis obscura Stephens, 1836; (syn.) Eaton (1871: rev.)
Potamanthus aeneus Pictet, 1843; (syn.) Eaton (1884)
Potamanthus gibbus Pictet, 1843; (syn.) Eaton (1884)
Ephemerella lactata Bengtsson, 1909; (syn.) Brekke (1965: via torrentium)
Ephemerella torrentium Bengtsson, 1917; (syn.) Ulmer (1920a); Brekke (1965)
Ephemerella sibirica Tshernova, 1952; (syn.) Baykova (1972)
Drunella karasuensis Kustareva, 1976; (syn.) Kluge (1995)
Ephemerella antuensis Su & You, 1989; (syn.) Kluge (2004)
Ephemera fusca : Stephens (1836) nec Curtis t. Eaton (1871)

Ephemerella mesoleuca (BRAUER, 1857)[23]

Potamanthus mesoleucus Brauer, 1857; (orig.)
Ephemerella mesoleuca; (comb.) Ulmer (1921)
Serratella mesoleuca: (comb.) Jacob (1993)
? Ephemerella maculocaudata Ikonomov, 1961; (syn.) Studemann & Tomka (1989), (species inquirenda)
nec Habrophlebia mesoleuca: Rostock, Eaton, Klapálek = H. lauta; t. Ulmer (1921)

Ephemerella mucronata (BENGTSSON, 1909)

Chitonophora mucronata Bengtsson, 1909; (orig.)
Chitonophora Krieghoffi Ulmer, 1920 in Ulmer (1920b); (syn.) Jacob (1972a)
Ephemerella mucronata krieghoffi; (comb.) Jacob (1972a)
Ephemerella unicolorata Ikonomov, 1961; (syn.) Jacob (1972a: via E. mucronata krieghoffi)
Ephemerella mucronata unicolorata; (comb.) Soldán (1982)
Ephemerella krieghoffi intermedia Keffermüller, 1979; (syn.) Studemann et al. (1992), Jacob (1993)
Ephemerella aronii Eaton, 1908; (syn., partim Abbildung, nec Beschreibung) t. Ulmer (1943)
Ephemerella moffatae Allen, 1977; (syn.) Jacobus & McCafferty (2003)

Ephemerella notata EATON, 1887

= Chitonophora sp. ? *sensu* Lestage (1917: p. 363); kontra Allen & Edmunds (1965)[24]
[= Ephemerella aronii Eaton, 1908; (syn.) Jacob (1972a); species propria]

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[21] Synonym is questionable after EATON (1871: p. 60): "The species from Morocco is possibly distinct from *P. virgo*".

[22] The generic concept of the family urgently needs a revision. The Palearctic taxon *Ephemera ignita* has to be placed in *Ephemerella* s. str. not in *Serratella* after the revisions of ALLEN & EDMUNDS (1963, 1965), contra JACOB 1993! Russian authors such as KLUGE or TSHERNOVA combined *E. ignita* first in *Serratella,* then in *Torleya* based on a single character of the larval gills. However, because the phylogenetic meaning of the character is unclear for me, *E. ignita* is here treated conservative in genus *Ephemeralla* again.

[23] For the generic consept see foot note 22.

[24] ALLEN & EDMUNDS applies this figure of LESTAGE wrongly to the Nordic circum tundral sibling species *E. aurivillii*, which is naturally missing in Central Europe.

**Eurylophella* TIENSUU, 1935
**Eurylophella karelica* TIENSUU, 1935 (LF 14); (typ. gen.)
Melanameletus brunnescens Tiensuu, 1935; (syn.) Jacob (1972a)
Eurylophella lithuanica Kazlauskas, 1959; (syn.?) Allen & Edmunds (1963), Illies (1967), (syn.) Jacob (1972a)
? Melanameletus brunnescens Tiensuu, 1935; (syn.) Allen & Edmunds (1963)
[= Melanameletus brunnescens Tiensuu, 1935; (syn.) Illies (1967)]
Torleya LESTAGE, 1917
Torleya major (KLAPÁLEK, 1905)
Ephemerella major Klapálek, 1905 in Klapálek (1905a); (orig.)
Torleya major; (comb.) Ulmer (1928)
Torleya belgica Lestage, 1917 (typ. gen.); (syn.) Landa (1969)
Torleya nazarita Alba-Tercedor & Derka, 2003; (syn.) Jacobus, Zhou & McCafferty (2004)

*Neoephemeridae BURKS, 1953
Neoephemera MCDUNNOUGH, 1925
*sg. *Leucorhoenanthus* LESTAGE, 1931
**Neoephemera* (*Leucorhoenanthus*) *maxima* (JOLY, 1870) (LF 13, 15)
Caenis maxima Joly, 1870; (orig.)
Neoephemera maxima; (comb.) Kazlauskas (1959)
Neoephemera (Leucorhoenanthus) maximus; (comb.) Jacob (1972a)
Leucorhoenanthus maximus; (comb.) Tshernova et al. (1986)
Rhoënanthus macedonicus Ulmer, 1920 in Ulmer (1920b), typ. gen.; (syn.) Illies (1967)
Leucorhoenanthus macedonicus; (comb.) Lestage (1931)
Neoephemera (Leucorhoenanthus) macedonica; (comb) Demoulin (1962)
Oreianthus macedonicus; (comb.) Ikonomov (1962c)

Caenidae NEWMAN, 1853
Brachycercus CURTIS, 1834[25]
**Brachycercus europaeus* KLUGE, 1991, (LF 13, 15)
Brachycercus pallidus : Kazlauskas (1965: partim larva, non imago), : Kazlauskas (1977); : Soldán (1986), nec B. pallidusTshernova (1928a) = harrisellus; t. Kluge (1991)
Brachycercus harrisellus CURTIS, 1834
"Ephemeron" Harris, 1776; (nomen invalidum), zit. nach Arvy (1980)
Brachycercus Harrisella Curtis, 1834; (orig.) (typ. gen.)
Caenis Harrisella; (comb.) Stephens (1836)
Brachycercus harrisellus; (nom. emend.) Stephens (1836)
Caenis pennata Stephens, 1836; (syn.) Eaton (1871), Kimmins (1971)
[= Oxycypha luctuosa Burmeister, 1839; (syn.) Eaton (1871, 1884); species propria]
Brachycercus pallidus Tshernova, 1928 in Tshernova (1928a); (syn.) Illies (1967), Kluge (1991) rev.
Brachycercus magnus Tshernova, 1952; (syn.) Kluge (1991)
*Brachycercus minutus Tshernova, 1952 (LF 13, 14)
Cercobrachys minutus; (comb.) Soldán (1986)
Brachycercus minutus; (comb.) Kluge (1991)

Caenis STEPHENS, 1836
Caenis beskidensis SOWA, 1973 in SOWA (1973b)
Caenis horaria (LINNAEUS, 1758)
Ephemera horaria Linnaeus, 1758; (orig.)
Caenis horaria; (comb.) Bengtsson (1912b)
Ordella horaria; (comb.) Tshernova (1952)[26]
Ephemera minima Linnaeus, 1747; (syn.?) Eaton (1871: via dimidiata); (nomen invalidum)
Ephemera minima O.F. Müller, 1776; (syn. ?) Eaton (1871: via dimidiata)

[25] This genus is treated sensu lato according to KLUGE (1991, 2004).
[26] Not accepted because *Ordella* CAMPION, 1923 is regarded in general as a younger objective synonym of *Caenis* STEPHENS, 1836.

Ephemera halterata Fabricius, 1777; (syn.) Bengtsson (1912b)
Brachycercus minima Curtis, 1834; (syn. ?) Eaton (1871: via dimidiata)
Brachycercus Chironomiformis Curtis, 1834; (syn.) Eaton (1884: via halterata)
Caenis dimidiata Stephens, 1836; (syn.?) Eaton (1871), Bengtsson (1912b)
Caenis argentata Pictet, 1843; (syn.) Ulmer (1920a, 1921: via halterata)
Caenis dimidiata var. fennica Aro, 1928; (syn.) Saaristo (1966)
Caenis lactella Eaton, 1884; (syn.) Malzacher (1986)
[= Oxycypha lactea Burmeister, 1839; (syn.) Eaton (1884: via dimidiata); species propria]
~ Caenis horaria fennica : Tiensuu (1939); t. Saaristo (1966)
~ Caenis lactea : Pictet, 1843 nec Burmeister; t. Malzacher (1986)

Caenis lactea (BURMEISTER, 1839)
Oxycypha lactea Burmeister, 1839; (orig.)
Caenis lactea; (comb.) Jacob (1974b)
Caenis nocturna Bengtsson, 1917; (syn.) Jacob (1974b)
Caenis undosa Tiensuu, 1939; (syn.) Saaristo (1966: via nocturna); cf. Jacob (1972a)
[= Brachycercus chironomiformis Curtis, 1834; (syn.) Eaton (1871), falsus Eaton (1884)]

Caenis luctuosa (BURMEISTER, 1839)
Oxycypha luctuosa Burmeister, 1839; (orig.)
Caenis luctuosa; (comb.) Pictet (1843)
Caenis moesta Bengtsson, 1917; (syn.) Jacob (1974b)
Caenis felsinea Grandi, 1951 in Grandi (1951a); (syn.) Jacob (1974b)
[=Brachycercus Harrisella Curtis, 1834; (syn.?) Eaton (1871); species propria]

Caenis macrura STEPHENS, 1836
Ephemera brevicauda Fabricius, 1793; (syn. ?) Eaton (1871)
Caenis interrupta Stephens, 1836; (syn.) Eaton (1871) rev.
Caenis grisea Pictet, 1843; (syn.) Eaton (1871)
Caenis oophora Pictet, 1843; (syn.) Ulmer (1920a, 1921)
[= Ephemera halterata Fabricius, 1777; (syn.) Eaton (1884); falsus, t. Bengtsson (1912b = horaria]
[= Brachycercus Chironomiformis Curtis, 1834; (syn.) Eaton (1884) via halterata; falsus, t. Bengtsson (1912b) = horaria]
Caenis macrura Stephens, 1836; (typ. gen.); (species propria, status nov.) Bengtsson (1917)

Caenis pseudorivulorum KEFFERMÜLLER, 1960
[= *Caenis beskidensis* Sowa, 1973; (syn.) Kluge (2004); species propria]
[= Caenis pseudorivulorum belfiorei Malzacher, 1986; (syn.) Kluge (2004); species propria]

Caenis pusilla NAVÁS, 1913
Caenis rhenicola Malzacher, 1976; (syn.) Alba-Tercedor & Malzacher (1986)

Caenis rivulorum EATON, 1884
Caenis dimidiata var. rivulorum Eaton, 1884; (orig.)
Caenis rivulorum; Eaton (1888, p. 349 Index) (status novus)
Caenis nivea Bengtsson, 1917; (syn.) Saaristo (1966)

Caenis robusta EATON, 1884
Caenis incus Bengtsson, 1912 in Bengtsson (1912a); (syn.) Degrange (1957b)
Caenis ulmeri Brodsky, 1930 in Brodsky (1930b); (syn.) Malzacher (1993)
[= Ordella miliaria Tshernova, 1952; (syn.) Braasch (1982), species propria, Kluge (1997b)]

Prosopistomatidae LAMEERE, 1917

Prosopistoma LATREILLE, 1833

Prosopistoma pennigerum (O.F. MÜLLER, 1785)
"Binocle … queque en plumet" Geoffroy, 1762; (nomen invalidum) Hubbard (1979)
Limulus pennigerus O.F. Müller, 1785; (orig.)
Binoculus foliaceus Fourcroy, 1785; (syn.) (nomen invalidum) Hubbard (1979)
Binoculus pisciforme Duméril, 1816; (syn.) Eaton (1884: via foliaceus)
Prosopistoma punctifrons Latreille, 1833; (syn.) Eaton (1884: via foliaceus)

5. Nomenclature in the species groups

- Valid species of the systematic listing are printed in *italics*, invalid species are printed normal.
- For the sake of clarity all synonymies refer to the original combination of the species.
- We give the family used in the systematic listing for all nomenclatural valid species. If the genus of the original combination is differing the genus used in the systematic list is also given.
- All species are printed in the original spelling, regardless whether they are correct after modern nomenclatural view or not, e.g. taxa with capitals in the species name or hyphens etc. so called „nomina imperfecta“. They are only corrected if there may be the possibility of a misinterpretation (nomen correctum). However the correct spelling of the generic and specific names is given in the systematic list.
- We give only the first page of the original description, not all pages! If needed or helpful, we give additional numbers of plates, figures or numbers in catalogues etc.
- All species are listed alphabetically after their species name, then after their generic names. When two taxa are identical we indicate at first the older combination because the younger combinations are often only misinterpretations (nomina abusa) of the older ones.

A

aeneus, Potamanthus PICTET, 1843 (p. 229, 1845: pl. 35)
is according to EATON (1884) a subjective junior synonym of *Ephemera ignita*, fam. Ephemerellidae, genus *Ephemerella.*

æstivalis, Siphlurus EATON, 1903 (p. 30) (nomen imperfectum)
fam. Siphlonuridae, genus *Siphlonurus.*

affinis, Cloë RAMBUR, 1842 (p. 298)
is according to PICTET (1843) and EATON (1871) a subjective junior synonym of *Ephemera diptera,* according to SOWA (1975b), a subjective junior synonym of *Ephemera cognata*, fam. Baetidae*,* genus *Cloeon.*

affinis, Ecdyurus EATON, 1883 (pl. 24, fig. 46e)
fam. Heptageniidae, genus *Electrogena*. Remark.: Textual descriptions in EATON 1883-88: p. 293-294 were not published before 1887. The nomination of the specific name with a figure on the plate in the year 1883 is however a clear indication in the sense of the article 12.2.7. of the code (ICZN, 1999), particularly because the figure was pushlished long before the due date in 1930. Accordingly already KIMMINS (1965) acts as the first revising author when he designates the lectotype.

affinis, Parameletus BENGTSSON, 1904 (p. 131)
is a nomem nudum, which has been declared by BENGTSSON (1930a) himself a synonym of *Ameletus inopinatus,* fam. Ameletidae.

albipennis, Cloëon *sensu* STEPHENS (1836: p. 69) nec FABRICIUS (nomen abusum)
is according to revision by EATON (1871) referring to *Centroptilum luteolum*, fam. Baetidae.

albipennis, Ephemera RETZIUS, 1783 (p. 57) (nomen abortivum)
is already after specifications of the same author an unnecessary replacement name for *Ephemera vespertina* LINNAEUS, fam. Leptophlebiidae, genus *Leptophlebia*.

albipennis, Ephemera FABRICIUS, 1793 (p. 70) (nomen praeoccupatum)
is according to my own opinion a primary homonym of *E. albipennis* RETZIUS, 1783. This species has been regarded as a subjective junior synonym of *Ephemera cincta* by EATON (1871). After a revision of the type by HAYBACH & JACOB (2006) it was in fact a female of genus *Baetis*, subgenus *Nigrobaetis*.

Albipennis, Ephemera *sensu* RAMBUR, (1842: p. 296) nec RETZIUS (nomen abusum)
is according to PICTET (1843) refering to *Ephemera virgo*, fam. Polymitarcyidae, genus *Ephoron.* Remark.: RAMBUR himself already treated *Palingenia horaria* BURMEISTER, 1839 correctly as synonym.

Albipes, Ephemera SCOPOLI, 1763 (p. 264) (nomen imperfectum)
is according to EATON (1871) under reserve a subjective senior synonym of *Ephemera luteola* O.F. MÜLLER, 1776, genus *Centroptilum*, fam. Baetidae.

albitarsis, Euphyurus BENGTSSON, 1909 (p. 4)
is according to BENGTSSON (1912b) a subjective junior synonym of *Ephemera vespertina*, fam. Leptophlebiidae, genus *Leptophlebia.*

albrighti, Ametropus TRAVER, 1935 (p. 431)
In: NEEDHAM, TRAVER, HSU (1935)
is according to JACOB (2006) a subjective junior synonym of *Ametropus fragilis*, fam. Ametropodidae.

allobrogica, Rhithrogena SOWA & DEGRANGE, 1987 (p. 484)
fam. Heptageniidae. Remark.: *R. allobrogica* was taken into synonymy of *R. intermedia* by mistake by TOMKA & RASCH (1993). The latter name is based on a nomen nudum and thus cannot call for priority, cf. BAUERNFEIND & WEICHSELBAUMER (1994).

alpestris, Rhithrogena EATON, 1885 (p. 255)
fam. Heptageniidae.

alpestris, Rhithrogena *sensu* LANDA (1969: p. 165, p.p. Imago) (nomen abusum)
is according to SOWA & SOLDÁN (1984) refering to *Rhithrogena landai*, fam. Heptageniidae.

alpicola, *Heptagenia* EATON, 1871 (p. 148 pl. 6, fig. 19)
fam. Heptageniidae, genus *Epeorus* (*Alpiron*). Remark.: BRAASCH (2006) gives good reasons to integrate the European *alpicola*-group to its own subgenus within *Iron* and not within the western nearctic subgenus *Ironopsis* within *Epeorus*. Because *Iron* is systematically critical itself by holarctic view, we tentatively place *Alpiron* as a separate westpalearctic taxon in *Epeorus* s. l.

alpicola, Rhithrogena NAVÁS, 1935 (p. 40)
is according to JACOB (1972a) a subjective junior synonym of *Rhithrogena alpestris,* fam. Heptageniidae, see PUTHZ (1975).

alpicolus, Epeorus THOMAS, MARIE & BRULIN 2000a (p. 86)
is according to THOMAS & BRULIN (2001) an injustified emendation and thus a younger objective synonym of *Heptagenia alpicola*, fam. Heptageniidae. Authorship according to article 33.2.3, ICZN (1999).

alpina, Cloe PICTET, 1843 (p. 257, 1845: pl. 40, fig. 5)
fam. Baetidae, genus *Baetis.*

alpinus, Ameletus BENGTSSON, 1913 (p. 303, foot note)
is according to BREKKE (1965) a subjective junior synonym of *Ameletus inopinatus,* fam. Ameletidae.

alpinus, Iron HUBAULT, 1927 (p. 111)
is according to ULMER (1929) a subjective junior synonym of *Heptagenia alpicola*, genus *Epeorus* (*Alpiron*), fam. Heptagenidae.

alpinus, Ecdyonurus HEFTI, TOMKA & ZURWERRA, 1987 (p. 172)
fam. Heptageniidae.

alternata, Baetes [sic] SAY, 1824 (p. 304)
see *alternatus,* genus *Siphlonurus* (*Siphlurella*), fam. Siphlonuridae.

amnicus, Baetis EATON, 1871 (p. 117, T. 5., figs. 24, 24a)
is according to EATON (1885) a subjective junior synonym of *Cloe alpina* PICTET; fam. Baetidae, genus *Baetis.*

andalusicus, Baetis NAVÁS, 1911 (p. 206, pl. 4, fig. 1)
is according to ALBA-TERCEDOR (1984) after revision of the type material a subjective junior synonym of *Ephemera fuscata* L.; fam. Baetidae, genus *Baetis.*

angustipennis, Ephemera RAMBUR, 1842 (p. 295) (nomen dubium)
Remark.: EATON (1871) places this species within the genus *Heptagenia,* that is the whole family Heptageniidae in terms of today. The type specimen is according to EATON a ♀-Subimago. Then EATON (1885) declares the name *angustipennis* (lat. about the "brachyurous" a "nomen ineptum", lat. about "improper name". He declares it a subjective senior Synonym of *Baetis fluminum* PICTET, 1843, although *angustipennis* has priority.

anomala, Oligoneuria *sensu* PICTET, 1845 (pl. 46!), nec PICTET, 1843
is refering to *Oligoneuria rhenana*, fam. Oligoneuriidae, genus *Oligoneuriella*.
Remark.: PICTET decribes in his Monograph on the one hand the Neotropical taxon *Oligoneuria anomala* (p. 291, pl. 47), which is after all a valid taxon and typical species of genus *Oligoneuria*, which is the typical genus of the family Oligoneuriidae. In the same book PICTET figures, according to EATON (1871), on pl. 46 the paleartcic taxon *O. rhenana*. ULMER (1924) detects the selfreliance of both taxa and erected for *rhenana* the new genus *Oligoneuriella*.

annulata, Baetis WALKER, 1853 (p. 567)
is according to EATON (1885) a subjective senior synonym of *Siphlurus linneanus;* and thus a subjective junior synonym of *Siphlonurus* (*Siphlurella*) *alternatus*, fam. Siphlonuridae.

annulata, Ephemera O.F. MÜLLER, 1776 (p. 143) (nomen abortivum)
is already according to its original description refering to *Ephemera diptera* L. and thus an unnecessary replacement name, fam. Baetidae, genus *Cloeon*.

antuensis, Ephemerella SU & YOU, 1989 (p. 181)
is according to KLUGE (2004) a subjective junior synonym of *Ephemera ignita;* genus *Ephemerella*, fam. Ephemerellidae.

apicalis, Cloë COSTA, 1882 (p. 34)
is according to EATON (1885), a subjective junior synonym of *Ephemera diptera.* According to SOWA, (1975b) it is a subjective junior synonym of *Cloeon cognatum;* fam. Baetidae.

apicalis, Ephemera STEPHENS, 1836 (p. 59)
is according to EATON (1871) after revision of the type material a subjective junior synonym of *Ephemera ignita;* genus *Ephemerella,* fam. Ephemerellidae.

armatus, Siphlonurus EATON, 1870 (p. 6)
fam. Siphlonuridae.

argentata, Caenis PICTET, 1843 (p. 279; 1845: pl. 43, fig. 6)
is according to ULMER (1921, 1920a) a subjective junior synonym of *Ephemera halterata* and thus of *Caenis macrura*, fam. Caenidae.

Aronii, Ephemerella EATON, 1908 (p. 149)
Accordding to ULMER (1943) the figures in the original description refer to

E. mucronata, fam. Ephemerellidae, but not the description = *E. aurivillii*.

arsenjevi, Heptagenia TSHERNOVA, 1952 (p. 255)
is according to BAYKOVA (1972) a subjective junior synonym of *Heptagenia flava*, fam. Heptageniidae.

assimilis, Epeorus EATON, 1885 (p. 239)
fam. Heptageniidae.
Remark.: PUTHZ (1973c) took this species into synonymy with *Epeorus sylvicola*, later considered as a species propria again by THOMAS et al. (2000a).

Atrebatinus, Baetis EATON, 1870 (p. 4) (nomen imperfectum)
is the typical species of the subgenus *Labiobaetis*, see fam. Baetidae, genus *Baetis* (*Labiobaetis*).

atrebatinus, Baetis sensu GRANDI (1948a); nec EATON (nomen abusum)
is according to MÜLLER-LIEBENAU (1969) refering to *Acentrella sinaica*, fam. Baetidae, genus *Baetis*.

Auberti, Habrophlebia (*Habroleptoides*) BIANCHERI, 1954 (p. 161) (nomen imperfectum)
fam. Leptophlebiidae.

aurantiaca, Baetis BURMEISTER, 1839 (p. 801)
is according to JACOB (1972a) not belonging to *Rhithrogena* (see notes there), but *Ecdyonurus,* fam. Heptageniidae.

aurantiaca, Baetis *sensu* ROSTOCK, 1875 nec BURMEISTER (nomen abusum)
refer with high probability to *Rhithrogena beskidensis,* fam. Heptageniidae, which is currently and historically known from the surroundings of Dresden from where Rostock got his specimens.

aurantiaca, Rhithrogena *sensu* EATON et auct. nec BURMEISTER (nomen abusum)
EATON (1885) combined *aurantiaca* of BURMEISTER by mistake in *Rhithrogena,* probably following ROSTOCKS' opinion, This interpretation was accepted by subsequent authors e.g. SCHOENEMUND (1930a). JACOB (1972a), when revising the type material of BURMEISTER, detects its affiliation to *Ecdyonurus*. He proposes for *aurantiaca* sensu ROSTOCK et auct. seq. *Rhithrogena diaphana* as the next available name. PUTHZ (1973b) follows Jacobs' interpretation and established under his own authorship *R. diaphana* as nomenclatorically mandatory. Compare the further remarks to the latter species.

austriaca, Rhithrogena SOWA & WEICHSELBAUMER, 1988 (p. 173)
fam. Heptageniidae.

austriacus, Ecdyonurus KIMMINS, 1958 (p. 226)
fam. Heptageniidae. There is one subspecies described from the Ukrainian Carpathians, *E. austriacus nataliae* GODUNKO & KLONOWSKA-OLEJNIK (2004).

autumnalis, Baetis CURTIS, 1834 (p. 121)
is according to EATON (1871) with reservation a subjective junior synonym of *Ephemera bioculata* and thus in terms of today of *Ephemera fuscata*, fam. Baetidae, genus *Baetis*.

B

balcanicus, Metretopus ULMER, 1920b (p. 68)
is the typical species of the genus *Metreletus* DEMOULIN. See *Metreletus balcanicus,* fam. Ameletidae.

balticus, Baetopus KAZLAUSKAS & SANWAJTITE, 1962 (p. 41 figs. 2-4)
is according to MÜLLER-LIEBENAU (1978) a subjective junior synonym of *Centroptilum tenellum*, fam. Baetidae, genus *Raptobaetopus.*

belgica, Torleya LESTAGE, 1917 (p. 366)
is the typical species of the genus *Torleya* LESTAGE. According to LANDA (1969) this species is a subjective junior synonym of *Ephemerella major;* fam. Ephemerellidae, genus *Torleya.*

bellus, Thraulus EATON, 1881a (p. 195)
is the typical species of the genus *Thraulus*, fam. Leptophlebiidae.

Bengtssoni, Baetis MÜLLER-LIEBENAU, 1966 (p. 65) (nomen imperfectum)
is according to MÜLLER-LIEBENAU (1969) a subjective junior synonym of *Cloë melanonyx*, fam. Baetidae, genus *Baetis.*

berolinensis, Ephemera O.F. MÜLLER, 1776 (p. 146)
is according to EATON (1871) with reservation presumably a subjective junior synonym of *Ephemera venosa* sensu EATON. See fam. Heptageniidae genus *Ecdyonurus.*

beskidensis; *Caenis* SOWA, 1973b (p. 351)
fam. Caenidae.
Remark.: KLUGE (2004) regards this species as a subjective junior synonym of *Caenis pseudorivulorum*. After my own opinion,

judging on biogegraphic and ecological reasons both taxa should be considered as self reliant.

beskidensis, Rhithrogena ALBA-TERCEDOR & SOWA, 1987 (p. 68)
fam. Heptageniidae.

bifidum, Cloëon BENGTSSON, 1912a (p. 109)
is the typical species of the genus *Procloeon* BENGTSSON, fam. Baetidae.

binoculata auctorum
= common accidental misspelling of bioculata

bioculata, Ephemera LINNAEUS, 1758 (p. 547)
is a subjective senior synonym of *Ephemera fuscata* LINNAEUS, 1761. Remark.: The specific name *bioculata* was supressed by ICZN, 1966 for reasons of priority and was transfered to the index of rejected and invalid specific names. KIMMINS (1964) and BRINCK & MÜLLER-LIEBENAU (1965) give further reasons for its synonymy with *E. fuscata*.

bipunctata, Heptagenia ESBEN-PETERSEN, 1916 (p. 7)
is according to KLUGE (1995) a subjective junior synonym of *Heptagenia flava*, fam. Heptageniidae.

Bocagii, Baetis EATON, 1885 (p. 162) (nomen imperfectum)
is according to KIMMINS (1960) a subjective junior synonym of *Cloë rhodani,* genus *Baetis (Rhodobaetis),* fam. Baetidae

bollenganus, Ecdyonurus NAVÁS, 1933 (p. 155)
is according to THOMAS (1968b) a subjective junior synonym of *Ecdyurus helveticus;* fam. Heptageniidae, genus *Ecdyonurus*.

borealis, Eatonia BENGTSSON, 1904 (p. 131)
is a nomen nudum. BENGTSSON (1908) himself took it into synonymy with *Remipalpus elegans*, and the latter species was then considered a subjective junior synonym of *Arthroplea congener*, fam. Arthropleidae by BENGTSSON (1930).

borealis, *Heptagenia* EATON, 1871 (p. 137)
fam. Metretopodidae, genus *Metretopus*.

borysthenica, Oligoneuriella TSHERNOVA, 1937 (p. 5, figs, 1-9, p. 18 German description)
is the typical species of the genus *Oligoneurisca*, fam. Oligoneuriidae.

brenneriana, Rhitrogena [sic] KLAPÁLEK, 1905 (p. 77)
is according to PUTHZ (1975) a subjective junior synonym of *Rhithrogena alpestris,* fam. Heptageniidae.

brevicauda, Ephemera FABRICIUS, 1793 (p. 69)
is according to EATON (1871) with reservation a subjective senior synonym of *Caenis macrura* and HAYBACH & JACOB (2006) couldn't find contradictions after revising the type; fam. Caenidae.

Brunnea, Cloe RAMBUR, 1842 (p. 298) (nomen imperfectum)
is according to EATON (1871) after revision of typical material a male subimago of *Baetis lateralis*, fam. Heptageniidae, genus *Electrogena.* Terra typica is according to RAMBUR Spain.

brunnescens, Melanameletus TIENSUU, 1935 (p. 15)
is according to ILLIES (1967) a subjective senior synonym of *Eurylophella karelica*, which has been described in the same article (p. 20), fam. Ephemerellidae, see also ALLEN & EDMUNDS (1963).
Remark.: After JACOB (1972a) the name *karelica* was selected as valid following a recommendation of art. 24A of the ICZN because the taxon *brunnescens* was insufficiently described and wrongly placed into the family Siphlonuridae.

brunneus, Potamanthus PICTET, 1843 (p. 217, 1845: pl. 27)
is according to EATON (1871) a subjective junior synonym of *Ephemera fusca*, fam. Leptophlebiidae, genus *Habrophlebia.*

buceratus, Baetis EATON, 1870 (p. 5)
fam. Baetidae.

C

calcaratus, *Baetis* KEFFERMÜLLER, 1972 (p. 220)
fam. Baetidae, genus *Baetis (Labiobaetis*). Remark: The species status is under discussion, maybe it belongs to *B. tricolor*, species inquirenda.

carnea, Baetis CURTIS, 1834 (p. 121)
is according to Eaton (1871) "indeterminable" and thus could be regarded as a nomen dubium.

carpathica, Baetis MORTON, 1910 (p. 321, 1. pl.)

is according to MÜLLER-LIEBENAU (1969) a subjective junior synonym of *Cloë alpina;* fam. Baetidae, genus *Baetis*.

carpathicus, Ecdyonurus SOWA, 1973a (p. 285)
fam. Heptageniidae.
Remark.: The Balcan endemic species *E. carpathicus vitoshensis* JACOB & BRAASCH, 1984 (p. 54) was given generic rank by BAUERNFEIND (2003) (*E. vitoshensis*) and thus does not fall under synonymy with *carpathicus*.

carpatoalpina, Rhithrogena KLONOWSKA, OLECHOWSKA, SARTORI & WEICHSELBAUMER, 1987 (p. 446)
fam. Heptageniidae.

castaneus, Potamanthus PICTET, 1843 (p. 215, 1845: pl. 26 figs. 4-5)
is according to PUTHZ (1978) a subjective junior synonym of *Ephemera submarginata*, fam. Leptophlebiidae, genus *Leptophlebia* (*Paraleptohlebia*).
Remark.: It is peculiar that this synonymy has been detected so late because fig. 4 in PICTET (1845) is showing clearly the characteristic subimago of *submarginata* with its typical white patch in the forewing.

caudata, Ephemera STRÖM, 1783 (p. 91)
is according to EATON (1885) a subjective junior synonym of *Ephemera luteola,* fam. Baetidae, genus *Centroptilum*.

cerea, Baetis PICTET, 1843 (p. 183, 1845: pl. 23, fig. 2)
is according to EATON (1871) a subjective junior synonym of *Ephemera flavipennis* and for this reason of *Baetis longicauda;* fam. Heptageniidae, genus *Heptagenia*.
Remarks: EATON (p. 18) indicates by mistake a male imago. The description and the figures of PICTET however are indicating clearly a large female of the genus *Heptagenia.* HAGEN (1849) interprets *cerea* by mistake as a female of *Potamanthus luteus* and that's why he regards it as a synonym of *Baetis marginalis* BURMEISTER.

Chironomiformis, Brachycercus CURTIS, 1834 (p. 122) (nomen imperfectum)
is according to EATON (1884) a subjective junior synonym of *Ephemera halterata* for this reason according to BENGTSSON (1912b) of *Caenis horaria*, fam. Caenidae.

Chlorotica, Ephemera RAMBUR, 1842 (p. 296) (nomen imperfectum)
is according to EATON (1871), a subjective junior synonym of *Ephemera lutea*, fam. Potamanthidae, genus *Potamanthus.*

ciliata, Ephemera STRÖM, 1783 (p. 91)
is according to WALLENGREN (1882) a subjective junior synonym of *Ephemera mutica*, after BENGTSSON (1912b) also *Baetis wallengreni* (= *rhodani*) comes into question, fam. Baetidae.

cincta, Ephemera RETZIUS, 1783 (p. 57 Nr. 182)
fam. Leptophlebiidae, *Leptophlebia* (*Paraleptophlebia*). See HAYBACH & JACOB (2006) for nomenclatural remarks.

cingulata, Baetis STEPHENS, 1836 (p. 67)
is according to EATON (1871) after revision of typical material a subjective junior synonym of *Ephemera fusca*, fam. Leptophlebiidae, genus *Habrophlebia.*

circumtatrica, Rhithrogena SOWA & SOLDÁN, 1986 (p. 558)
fam. Heptageniidae.

citrina, Ephemera HUMMEL, 1829 (p. 71)
is according to KLUGE (1988) after a revision of the type a subjective senior synonym of *Heptagenia flava*, fam. Heptageniidae. Remark.: KLUGE declares *H. flava* a nomen protectum. After BAUERNFEIND in lit. 2006 the specification of Kluge did not fulfil all requirements of the code (ICZN, 1985). However he declares: "It is absolutely clear, however, that all conditions of ICZN (1999) art. 23.9.1. are met and *Heptagenia (H.) flava* ROSTOCK [nomen protectum] takes precedence over *Heptagenia citrina* HUMMEL [nomen oblitum] according to ICZN (1999) art. 23.9.2."

caerulans auct.
rare misspelling of *coerulans*, see there.

coerulans, Heptagenia ROSTOCK, 1878 (p. 89)
fam. Heptageniidae, *Heptagenia* (*Dacnogenia*). There is one further subspecies, *H. coerulans micracantha* KLUGE, 1989, described from trans Caucasus regions.

cognata, Ephemera STEPHENS, 1836 (p. 56)
is according to PICTET (1843) a subjective junior synonym of *Ephemera danica,* fam. Ephemeridae.

cognatum, Cloeon STEPHENS, 1836 (p. 69)
fam. Baetidae (species dubium)
Cloeon cognatum is, after several authors, starting with EATON (1871) a subjective junior synonym of *Ephemera diptera*. Sowa (1975) however revises the *Cloeon dip-*

terum species group and reinstated *cognatum* as a species propria. This reinstatement has been largely ignored by European workers, or they doubt this result and refused it. RANDOLPH et al. (2003) again took *cognatum* into synonymy with *diptera*, indicating however that the *cognatum*-form has a more southern distribution in the US.

colmarsensis, Rhithrogena SOWA, 1984 (p. 49) (species inquirenda)
falls after my own opinion, jugdging on investigations of the characteristic egg chorion structure, into the variation range of *Rhithrogena dorieri*, fam. Heptageniidae.

communis, Ephemera RETZIUS, 1783 (p. 56) (nomen abortivum)
is an unnecessary replacement name for *Ephemera vulgata* LINNAEUS, 1758, fam. Ephemeridae.

Concii, Heptagenia GRANDI, 1953 (p. 363) (nomen imperfectum)
is according to BELFIORE (1981) a subjective junior synonym of *Baetis lateralis*, fam. Heptageniidae, genus *Electrogena,* according to HAYBACH (2008) it is a subspecies propria.

confinis, Ecdyonurus TSHERNOVA, 1928b (p. 322)
is according to TSHERNOVA (1936) a subjective junior synonym of *Ephemera fuscogrisea*, fam. Heptageniidae, genus *Kageronia.*

congener, Arthroplea BENGTSSON, 1908 (p. 239; 1909 p. 18)
fam. Arthropleidae.

confusa, Habroleptoides SARTORI & JACOB, 1986 (p. 687, figs. 3-4)
fam. Leptophlebiidae. Remark.: SARTORI & JACOB (1986) introduce this name for *modesta* sensu SCHOENEMUND (1929) et auct. nec HAGEN because *modesta* of HAGEN has been proved as an endemic species of Corsika and Sardinia.

convergens, Echdyurus [sic] ARO, 1910 (p. 31, fig. 23, 24)
is according to TIENSUU (1939) a subjective junior synonym of *Ephemera fuscogrisea*, fam. Heptageniidae, genus *Kageronia*.

corcontica, Rhithrogena SOWA & SOLDÁN, 1986 (p. 563)
fam. Heptageniidae.

costalis, Baetis CURTIS, 1834 (p. 120)
is according to EATON (1871) a subjective junior synonym of *Baetis elegans* and for this reason of *Ephemera sulphurea*, fam. Heptageniidae, genus *Heptagenia.*

croaticus, Siphlonurus ULMER, 1920b (p. 64)
fam. Siphlonuridae.

culiciformis, Ephemera LINNAEUS, 1758 (p. 547)
was combined into the genus *Baetis* by STEPHENS (1836) and is already after EATON (1871) a "species dubia". This species name can thus be regarded as a nomen dubium.

culiciformis, Cloeon *sensu* WALKER, 1853 (p. 576) nec LINNAEUS (nomen abusum)
is according to EATON (1871) refering to *Leptophlebia helvipes* and for this reason to *Ephemera submarginata,* genus *Leptophlebia* (*Paraleptophlebia*), fam. Leptophlebiidae.

cyanops, Baetis PICTET, 1843 (p. 171, 1845: pl. 20, fig. 2)
is according to EATON (1871) a subjective junior synonym of *Baetis elegans* and for this reason of *Ephemera sulphurea*, fam. Heptageniidae, genus *Heptagenia.*

D

Danica, Ephemera O.F. MÜLLER, 1776 (p. 63) (nomen imperfectum)
fam. Ephemeridae.

danica, *Ephemera sensu* PICTET, 1843 (p. 130, 1845: pl. 7) nec MÜLLER (nomen abusum)
is according to EATON (1871) refering to *Ephemera vulgata*, fam. Ephemeridae.

dacicum, Centroptilum BOGOESCU & TABACARU, 1966 (p. 176, figs. 3c, 4)
is according to KEFFERMÜLLER & SOWA (1975) a subjective junior synonym of *Centroptilum pulchrum*, fam. Baetidae, genus *Procloeon.*

delphinensis, Rhithrogena SOWA & DEGRANGE, 1987 (p. 479)
fam. Heptageniidae.

degrangei, Cloeon SOWA, 1980 (p. 256)
is according to BRULIN & MASSELOT (2001) with reservation a subjective junior synonym of *Cloeon simile*, fam. Baetidae.

degrangei, Rhithrogena SOWA, 1969 (p. 63)
fam. Heptageniidae.

diaphana, Ephemera O.F. MÜLLER, 1776 (p. 143)

is according to EATON (1871) a subjective junior synonym of *Ephemera bioculata* (sub. *binoculata*) and for this reason of *E. fuscata*, fam. Baetidae, genus *Baetis.* According to BENGTSSON (1912) it is a subjective senior synonym of *Ephemera lutea*, fam. Baetidae, genus *Centroptilum.*

diaphana, Rhithrogena NAVÁS, 1916 (p. 739)
is a valid species and an endemic species of the Iberian peninsula. JACOB (1972a) and later PUTHZ (1973b) take *Baetis aurantiaca* sensu ROSTOCK (1875) and subsequent authors into synonymy with *diaphana*. ALBA-TERCEDOR & SOWA (1987) when revising the whole *diaphana* relatedness have recognized the separate status of *diaphana* as a Spanish species. These authors gave decriptions of two new Central European species, *R. beskidensis* and *R. savoiensis*. Thus it is unclear to which of them the older Central European records sub. *diaphana* or *aurantiaca* are refering to. See also the notes on *aurantiaca*.

digitatus, Baetis BENGTSSON, 1912a (p. 114)
fam. Baetidae, genus *Baetis* (*Nigrobaetis*)

digigracilis, Baetis (Nigrobaetis) NOVIKOVA *In*: NOVIKOVA & KLUGE, 1987 (p. 10) nomen nudum
is according to NOVIKOVA & KLUGE (1994) refering to *Baetis* (*Nigrobaetis*) *digitatus,* fam. Baetidae

dilectus, Potamanthus (lapsus) in PICTET (1843) is an accidental misspelling of *diluta*, *Ephemera* STEPHENS (1836: p. 58), a subjective junior synonym of *Ephemera ignita*, fam. Ephemerellidae, genus *Ephemerella*.

diluta, Ephemera STEPHENS, 1836 (p. 58)
is according to EATON (1871) after revision of typical material a subjective junior synonym of *Ephemera ignita*, fam. Ephemerellidae, genus *Ephemerella*.

dimidiata, Caenis STEPHENS, 1836 (p. 61)
is according to BENGTSSON (1912b) with high probability, types are missing, a subjective junior synonym of *Ephemera horaria*, fam. Caenidae, genus *Caenis.* Remark: EATON (1871) already knows this opinion via WALLENGREN. He explicitely forewent this synonymy because of missing material of *horaria* and left it at *dimidiata*, whereof 2 ♂ were left in the collection of STEPHENS.

dimidiata var. rivulorum, Caenis EATON, 1884 (p. 143)
was listed already by EATON (1888, p. 349) in the index with a separate distinct species name, fam. Caenidae, *Caenis rivulorum*.

dimidiata var. fennica ARO, 1928 (p. 38)
falls according to SAARISTO (1966) into the variation range of *Ephemera horaria*, fam. Caenidae, genus *Caenis*.

dimidiatum, Cloeon CURTIS, 1834 (p. 121)
is according to HAGEN (1857) a subjective senior synonym of *Cloeon cognatum* STEPHENS, 1836, fam. Baetidae.
Remarks: This opinion was indirectely shared by SOWA (1975b) who declared the nomen nudum *C. consobrinum* a synonym of *cognatum*. EATON (1871) regarded *C. dimidiatum* as synonymous with *C. russulum* (= *rufula*), which was later regarded as a synonym of *C. dipterum*. If the self reliance of the taxon *cognatum* from *dipterum* is accepted then *Cloeon dimidiatum* should be treated as a nomen oblitum, otherwise as a subjective junior synonym of *E. diptera.*

diptera, Ephemera LINNAEUS, 1761 (p. 377)
is according to HUBBARD (1990) the typical species of the genus *Cloeon* LEACH by monotypy. See *dipterum*, fam. Baetidae, genus *Cloeon* s. str. Remark: In the original reference of LEACH (1815) *Cloeon pallida* [a nomen nudum] which has been taken into synonymy with *dipterum* by Eaton later is named first.

dispar, Baetis CURTIS, 1834 (p. 120)
fam. Heptageniidae, genus *Ecdyonurus.*

dispar, Ephemera STEPHENS, 1836 (p. 58)
is according to EATON (1871) after revision, a subjective senior synonym of *Ephemera helvipes*, which represents after EATON (1884) a subjective junior synonym of *Ephemera submarginata*, fam. Leptophlebiidae, genus *Leptophlebia* (*Paraleptophlebia*).

Dorieri, Baetis DEGRANGE, 1957 (p. 17) (nomen imperfectum)
is according to MÜLLER-LIEBENAU (1969) a subjective junior synonym of *Cloë alpina*, fam. Baetidae, genus *Baetis*.

dorieri, Rhithrogena SOWA, 1971d (p. 907)
fam. Heptageniidae.

dubia, Ephemera STEPHENS, 1836 (p. 59)
is according to EATON (1871) after revision of typical material a subjective senior synonym of *Baetis phaeops* EATON and for this reason a subjective junior synonym of *Baetis vernus*, fam. Baetidae, genus *Baetis*.

E

eatoni, Ametropus BRODSKY, 1930a (p. 33)
is according to LANDA (1969) a subjective junior synonym of *Ametropus fragilis*, fam. Ametropodidae.

eldae, Habrophlebia JACOB & SARTORI, 1984 (p. 46)
fam. Leptophlebiidae.

elegans, Baetis CURTIS, 1834 (p. 120)
is according to EATON (1885) a subjective junior synonym of *Ephemera sulphurea*, fam. Heptageniidae, genus *Heptagenia*.

elegans, Remipalpus BENGTSSON, 1908 (p. 242)
is according to BENGTSSON (1930a) a subjective junior synonym of *Arthroplea congener*, fam. Arthropleidae.

endenensis, Rhithrogena METZLER, TOMKA & ZURWERRA, 1985 (p. 129) (species inquirenda)
falls according to WEICHSELBAUMER (1997) and according to my own opinion into the variation range of R*hithrogena puthzi*.

epeorides, Ecdyonurus DEMOULIN, 1955 (p. 39)
was considered to be a synonym of *Ecdyurus zelleri* by KIMMINS (1958), contra JACOB & BRAASCH (1984), species proria.

erythrophthalma, Ephemera VON PAULA SCHRANK, 1802 (p. 197)
is according to EATON (1871) a subjective junior synonym of *Ephemera ignita*, fam. Ephemerellidae, genus *Ephemerella.*

erythrocephalus, Potamanthus *sensu* PICTET (1845: pl. 29) (but not 1843!)
is an accidental misspelling of erythrophthalma; (syn.) EATON (1871).

eugenii, Ameletus SINITSHENKOVA & VARYCHANOVA, 1989 (p. 576)
is according to KLUGE (1995) a subjective junior synonym of *Ameletus inopinatus*, fam. Ameletidae.

europaeus, *Brachycercus* KLUGE, 1991 (p. 19)
fam. Caenidae.

F

familiaris, Ephemera VON PAULA SCHRANK, 1802 (p. 200) (nomen dubium)
is "indeterminable" according to EATON (1871).

fascioculatus, Ecdyonurus SOWA, 1974 (p. 316)
is according to BELFIORE et al. (1999) a subjective junior synonym of *Ecdyurus affinis,* fam. Heptageniidae, genus *Electrogena*.

felsinea, Caenis GRANDI, 1951 (p. 121)
is according to JACOB (1974b) a subjective junior synonym of *Oxycypha luctuosa*, fam. Caenidae, genus *Caenis*. Remark.: JACOB refers in his article to a footnote in GRANDI (1960 p. 266), where KIMMINS diagnosed material of *C. felsinea* as identical with *C. moesta*, based on specimens from the British Museum. JACOB follows the authority of KIMMINS, though GRANDI (l.c.) regards *C. felsinea* as a bona species and accomplished that an examination of type material would be necessary for a definitive decision. However, all subsequent authors have followed the opinion of Jacob.

femorata, Baetis sensu PROVANCHER (1876), nec SAY (nomen abusum)
is according to PROVANCHER (1878 p. 82") refering to *Siphlurus alternans* SAY, thus *Siphlonurus alternatus*, fam. Siphlonuridae. Remark: In accordance with EATON (1885: p. 219), the opinion of modern North American authors who derive from PROVANCHER'S description authorship and then in a second step declare this name a homonym of SAYS' species is not accepted.

Ferreri, Potamanthus PICTET, 1843 (p. 203, 1845: pl. 25 fig. 1) (nomen imperfectum)
is according to BAE & MCCAFFERTY (1991) a subjective junior synonym of *Ephemera lutea*, fam. Potamanthidae, genus *Potamanthus*.

ferruginea, Ephemera GMÉLIN, 1789 (p. 2630)
is according to EATON (1871) with reservation a subjective senior synonym of *Baetis elegans* and for this reason a subjective junior synonym of *Ephemera sulphurea*, fam. Heptageniidae, genus *Heptagenia.*

ferruginea, Isonychia ALBARDA, 1878 (p. 128)

is according to EATON (1879) a subjective junior synonym of *Baetis ignota,* fam. Isonychiidae, genus *Isonychia*.

ferruginea, Rhithrogena NAVÁS, 1905 (p. 17) (species inquirenda)
is an endemic species of the Iberian peninsula that urgently needs a revision. Remark.: SOWA (1971d) mixed in his assumed new description of *R. ferruginea* at least two up to then undescribed Central European species. SOWA & DEGRANGE (1987b) being aware of this mistake, described *R. puytoraci,* as a new Central European species. Later KLONOWSKA et al. (1987) recognized a second cryptic species in SOWA's „*ferruginea*" and they described *R. carpatoalpina* from material from the Alps and the Carpathian Mountains as new. Parts of the alpine material were then separated again by WEICHSELBAUMER (1995) and described as a separate species *R. rolandi*.

finitimus, Baetis Eaton, 1871 (p. 113, pl. 5, figs. 18, 18a)
is after a revision of the type by MÜLLER-LIEBENAU (1969) a subjective junior synonym of *Baetis vernus*, fam. Baetidae.

flava, Ephemera VON PAULA SCHRANK, 1776 (p. 82)
is according to EATON (1871) a subjective junior synonym of *Ephemera bioculata* and for this reason of *E. fuscata,* fam. Baetidae, genus *Baetis*.

flava, Heptagenia ROSTOCK, 1878 (p. 90) fam. Heptageniidae.

flavescens, Baetis CURTIS, 1834 (p. 121)
is according to CURTIS a subimago and according to EATON (1871) with reservation a subjective junior synonym of *Baetis binoculatus*, thus *Ephemera bioculata* and for this reason of *Ephemera fuscata*, fam. Baetidae, genus *Baetis*.

Flavicans, Ephemera RAMBUR, 1842 (p. 296) (nomen imperfectum)
is according to EATON (1871) a subjective junior synonym of *Ephemera lutea,* fam. *Potamanthidae,* genus *Potamanthus.*

flavimanus, Ecdyurus KLAPÁLEK, 1905 (p. 78)
is according to JACOB (1972a) ein nomen dubium et oblitum.

flavipennis, Ephemera DUFOR, 1841 (p. 580, T. 11, fig. 167)
is according to KIMMINS (1942a) a subjective junior synonym of *Baetis longicauda,* fam. Heptageniidae, genus *Heptagenia.*

Flos-Aquae, Ephemera ILLIGER, 1801 (p. 187) (nomen imperfectum)
is according to BURMEISTER (1839) a subjective junior synonym of *Ephemera longicauda,* fam. Palingeniidae, genus *Palingenia*.

fluminum, Baetis PICTET, 1843 (p. 164, 1845 pl. 16-19) (nomen ambiguum)
is according to THOMAS (1968a) a subjective junior synonym of *Baetis dispar*, fam. Heptageniidae, genus *Ecdyonurus*. Remarks: For further interpretations of this taxon see also the synonyms of *Ecdyonurus aurantiacus*. In addition records in older faunistic literature can represent misidentifications of several other congeneric species.

foliaceus, Binoculus FOURCROY, 1785 (p. 539)
is according to HUBBARD (1979) following art. 49 of the code (ICZN) an invalid name, because it is based on a misinterpretation of the identity of *Monoculus foliaceus* L. (Crustacea) by FOURCROY. Next available name is *Limulus pennigerus*, fam. Prosopistomatidae, genus *Prosopistoma*.

forcipula var., Baetis PICTET, 1843 (p. 169 ex. MS. Kollar, in a note on *venosa.*) (nomen ambiguum et imperfectum)
is according to ULMER (1921) a subjective junior synonym of *Ephemera venosa*, genus *Ecdyonurus*, fam. Heptageniidae.

forlivense, Centroptilum GRANDI, 1964 (p. 122, figs. 1-3)
is according to KEFFERMÜLLER & SOWA (1984) with reservation a subjective junior synonym of *Centroptilum pulchrum*, fam. Baetidae, genus *Procloeon*.

fragilis, Ametropus ALBARDA, 1878 (p. 129) fam. Ametropodidae.

fradgleyi, Rhithrogena BLAIR, 1929 (p. 253)
is according to MOSELY (1932) a subjective junior synonym of *Rhithrogena haarupi* and for this reason of *Rhithrogena germanica*, fam. Heptageniidae.

frankenbergeri Arthroplea BALTHASAR, 1937 (p. 204)

is according to LANDA (1954) a subjective junior synonym of *Arthroplea congener*, fam. Arthropleidae.

fuliginosa, Ephemera BOEBER in GEORGI, 1802 (p. 342)
Fam. Palingeniidae, genus *Palingenia*. Remark: GEORGI accomplished in his addenda (p. 331) expressly that BOEBER "alle ihm zukommenden Insecten dieser Sammlungen bestimmte, ordnete und sie mir [GEORGI] … mittheilte". (determined, ordered and commited to him [Georgi] all insects that were drawn to him). Therfore, referring to recommendation 51E of the code (ICZN, 1999), Boeber is added to the publicating author. A real original description does not exist at all but only some notes to its ecology. After terms of today this name represents maybe not more than a nomen nudum.

furcatus, Baetis NAVÁS, 1933 (p. 155)
is according to Alba-Tercedor (1984) a subjective junior synonym of *Ephemera mutica*; fam. Baetidae, genus *Baetis* (*Nigrobaetis*).

fusca, Ephemera CURTIS, 1834 (p. 120)
is the typical species of the genus *Habrophlebia,* fam. Leptohlebiidae.

fusca, Ephemera *sensu* STEPHENS (1836: p. 58) nec CURTIS (nomen abusum)
is according to EATON (1871) after revision of Stephens' specimens refering to *Ephemera ignita*, fam. Ephemerellidae, genus *Ephemerella*.

fusca, Baetis BURMEISTER, 1839 (p. 800)
is according to WALKER (1853) sub. *fusa* (lapsus) a subjective senior synonym of *Potamanthus Geeri* and for this reason a subjective junior synonym of *Ephemera vespertina*, fam. Leptophlebiidae, see genus *Leptophlebia.* Remark: Firstly HAGEN (1849) took this species into synonymy with *Potamanthus Geerii*. WALKER probably adopted Hagens' view and took both species into synonymy with *Ephemera vespertina*. At least with respect to *Baetis fusca* this synonymy was accepted at first by EATON (1871), later also by ULMER (1927). Even JACOB (1972a) who revised the BURMEISTER collection doesn't say anything contrary. *P. geerii* however was taken into synonymy with *L. submarginata* by EATON (1871: via *helvipes*).

fusca, Habrophlebia *sensu* KLAPÁLEK (1909) et auctorum, nec CURTIS (nomen abusum)
is according to SCHOENEMUND (1929) refering to *modesta* sensu SCHOENEMUND and thus in terms of today refering to *Habroleptoides confusa*, fam. Leptophlebiidae.

fusca, Habrophlebia *sensu* IKONOMOV (1963), nec CURTIS
is according to JACOB & SARTORI (1984) conspecific with *Habrophlebia eldae*, fam. Leptophlebiidae.

fuscata, Ephemera LINNAEUS, 1761 (p. 376)
is by decision of the International Comission of Zoological Nomenclature (ICZN, 1966) based on a proposal by KIMMINS (1964) and BRINK & MÜLLER-LIEBENAU (1965) the typical species of the genus *Baetis*, fam. Baetidae.

fuscata, Cloë *sensu* PICTET, 1843 (p: 251, 1845: pl. 40) nec LINNAEUS (nomen abusum)
is according to EATON (1871) refering to *Ephemera cincta*, fam. Leptophlebiidae, genus *Leptophlebia* (*Paraleptophlebia*). Remark: After my own opinion this interpretation is clearly wrong because the terminal filament is missing (= *Baetis*).

fuscata, Cloeon *sensu* WALKER, 1853 (p. 573) nec LINNAEUS (nomen abusum)
is according to Eaton (1871) a subjective junior synonym of *Ephemera cincta*, fam. Leptophlebiidae, genus *Leptophlebia* (*Paraleptophlebia*). Remark: WALKER refers apparently to PICTET, thus compare the annotations to *Cloe fuscata*.

fusco-grisea, *Ephemera* RETZIUS, 1783 (p. 57) (nomen imperfectum)
fam. Heptageniidae, genus *Kageronia*.

fuscula, Ephemera VON PAULA SCHRANK, 1802 (p. 199) (nomen dubium)
is according to EATON (1871) presumable a subjective senior synonym of *Baetis semicoloratus*, fam. Heptageniidae, genus *Rhithrogena*. Remark: After my own opinion the author describes a subimago which could represent every species of the genus with a femoral patch.

G

gallica, Heptagenia EATON, 1883 (p. 236, 272, pl. 23 fig. 45, pl. 24, fig. 45a)
is according to ROSTOCK (1888) a subjective junior synonym of *Heptagenia coerulans*, fam. Heptageniidae. Remark: The year of the description is after my own opinion and interpretation of the nomenclatural rules (ICZN, 1999) 1883 (plates) and

not 1885 (text), compare the annotations to *affinis, Ecdyurus*.

Garumnica, Oligoneuria JOLY, 1873
(p. 3656) (nomen imperfectum)
JOLY (1870) firstly listed this name without any description (nomen nudum). EATON (1883: p. 31), however, first accepted a translation of a letter of JOLY into the English language by MÜLLER in "The Zoologist 1873, Ser. 2, Vol. 8. p. 3656-3657" as species description under the authorship of JOLY and then called it a subjective junior synonym of *Oligoneuria rhenana*, fam. Oligoneuriidae, genus *Oligoneuriella*.

gemellus, Baetis EATON, 1885 (p. 163, 1888: pl. 64, fig. 14) (species inquirenda)
fam. Baetidae.
Remark: After KIMMINS (1960) this species is a subjective junior synonym of *Cloë rhodani*. After MÜLLER-LIEBENAU (1969) it is a bona species based on investigations of specimens from the Balkan Peninsula and the Pyrenean Mountains. After THOMAS (1999) the species described by MÜLLER-LIEBENAU belong to a new species (*B. gadeai)*. While in Germany e.g. HAYBACH & MALZACHER (2002) are following the point of view of THOMAS by erasing *B. gemellus* from the German Checklist JACOB (2003) published a record from the Black Forrest Mountains. In consequence *B. gemellus* should be regarded at least as a species inquirenda and a sufficient clarification is only expectable after a new revision (based on topotypical material).

Gemmata, Ephemera SCOPOLI, 1763
(p. 264) (nomen imperfectum)
exhibits after my own opinion an unclear nomenclatural status.
Remark: According to EATON (1871) this species is a female imago of genus *Heptagenia* (= fam. Heptageniidae in terms of today). Due to its defective description and its missing use in the relevant zoological literature it could be regarded as a nomen dubium et oblitum.

germanica, Rhithrogena EATON, 1885
(p. 260, 1888: pl. 24, fig. 43b)
fam. Heptageniidae.

Geerii, Potamanthus PICTET, 1843 (p. 211, 1845: pl. 26, figs. 1-3) (nomen imperfectum)
is according to EATON (1871) a subjective junior synonym of *Leptophlebia helvipes* and for this reason of *Ephemera submarginata*, fam. Leptophlebiidae, genus *Leptophlebia* (*Paraleptophlebia*).

gibbus, Potamanthus PICTET, 1843
(p. 226, 1845: pl. 31-32)
is according to EATON (1884) a subjective junior synonym of *Ephemera ignita*, fam. Ephemerellidae, genus *Ephemerella.*

gigantea, Ephemera BOEBER in ILLIGER, 1801 (p. 188)
is according to EATON (1871) a nomen nudum. SOLDÁN (1978) listed this species as a synonym of *Ephemera fuliginosa*, fam. Palingenidae, genus *Palingenia*. Remark: We can easily differ on this interpretation because the naming of *E. fuliginosa* by GEORGI was publicated not till then 1802 and represents not more than a nomen nudum, too.

glaucops, *Ephemera* PICTET, 1843 (p. 132, 1845: pl. 8, figs. 1-3)
fam. Ephemeridae, genus *Ephemera* (*Sinephemera*).

Goetghebueri, Metretopus LESTAGE, 1938 (p. 171)
is according to PUTHZ (1977a) a subjective junior synonym of *Metretopus balcanicus*, fam. Ameletidae, genus *Metreletus.*

Grandii, Baetis GRANDI, 1948b (p. 77)
is according to MÜLLER-LIEBENAU (1969) a subjective junior synonym of *Baetis buceratus*, fam. Baetidae.

gratianopolitana, *Rhithrogena* SOWA, DEGRANGE & SARTORI, 1986 (p. 216)
fam. Heptageniidae.

Gridellii, *Heptagenia* GRANDI, 1953 (p. 348)
fam. Heptageniidae, genus *Electrogena.*

gridelii, Ecdyonurus *sensu* JACOB (1972a, 1974) nec. Grandi (nomen abusum)
is refering to *Ecdyonurus ujhelyii*, fam. Heptageniidae, genus *Electrogena*.

gridellii, Electrogena *sensu* ZURWERRA & TOMKA (1985) nec. Grandi (nomen abusum)
is based on specimens from Switzerland and is thus with a high probability refering to *Ecdyonurus ujhelyii*, fam. Heptageniidae, genus *Electrogena.*

grischuna, Rhithrogena SARTORI & OSWALD, 1985 (p. 262)
fam. Heptageniidae.

grisea, Caenis PICTET, 1843 (p. 278; 1845: pl. 45, figs. 1-2)
is according to EATON (1871) a subjective junior synonym of *Caenis macrura*, fam. Caenidae.

grisoculata, Rhithrogena BOGOESCU, 1958 (p. 179)
is according to SOWA (1971d) a subjective junior synonym of *Baetis semicoloratus*, fam. Heptageniidae, genus *Rhithrogena*. Remark: This taxon has been introduced by BOGOESCU (1933: p. 70) as *semicolorata* var. *grisoculata*.

H

Haarupi, Rhithrogena ESBEN-PETERSEN, 1909 (p. 555) (nomen imperfectum)
is according to SOWA (1971b) a subjective junior synonym of *Rhithrogena germanica*, fam. Heptageniidae.

hainanensis, Isonychia SHE & YOU, 1988 (p. 29)
is according to TIUNOVA, KLUGE & ISHIWATA (2004) a subjective junior synonym of *Baetis ignota*, fam. Isonychiidae, genus *Isonychia.*

halterata, Cloë *sensu* BURMEISTER (1839) (p. 798) nec FABRICIUS (nomen abusum)
is according to EATON (1871) refering to *Ephemera luteola* O.F. MÜLLER, 1776, fam. Baetidae, genus *Centroptilum.*

halterata, Ephemera FABRICIUS, 1777 (p. 244)
is according to BENGTSSON (1912b) a subjective junior synonym of *Ephemera horaria*, fam. Caenidae, genus *Caenis*. Remark: FABRICIUS (1793) himself recovers his species in the fig. 17 of DE GEER, 1771 (= *cincta* RETZIUS). In consequence, EATON (1871) regards it as a subjective senior synonym of *Leptophlebia cincta*, later, EATON (1884) regards it as conspecific with *Caenis macrura.* It was BENGTSSON (1917) who erected *macrura* as a species propria again.

Halterata, Ephemera *sensu* SHAW (1806) (pl. 81, p. 253), nec FABRICIUS (nomen abusum)
is after my own opinion based on the typical colouration pattern probably refering to *Ephemera cincta*, fam. Leptophlebiidae, genus *Leptophlebia,* and this pattern may have affected EATON (1871) to his opinion in the case of *E. halterata* FABRICIUS.

Harrisella, Brachycercus CURTIS, 1834 (p. 122) (nomen imperfectum)
is the typical species of the genus *Brachycercus* , fam. Caenidae.

hellenica, Ephemera DEMOULIN, 1955 (p. 42)
is according to BAUERNFEIND (2003) a subjective junior synonym of *Ephemera lineata*, fam. Ephemeridae.

helveticus, Ecdyurus EATON, 1883 (p. 282, pl. 24, fig. 46a)
fam. Heptageniidae, genus *Ecdyonurus*. Remark: See the annotations to *Ecdyurus affinis* for reasons for the choice of the year of description.

helvipes, Ephemera STEPHENS, 1836 (p. 59)
is according to EATON (1871) after revision of typical material a subjective junior synonym of *Ephemera submarginata*, fam. Leptophlebiidae, genus *Leptophlebia* (*Paraleptophlebia*).

Helvola, Ephemera SULZER, 1776 (p. 171, pl. IV, fig. 7)
is according to EATON (1871) with reservation a subjective senior synonym of *Baetis elegans*, and thus would be for this reason a subjective synonym (older/younger?) of *Ephemera sulphurea,* fam. Heptageniidae, genus *Heptagenia*.

Henschii, Rhitrogena [sic] KLAPÁLEK, 1906 (p. XVI „5“) (nomen imperfectum)
PUTHZ (1975) revised the type specimen which should originate from the vicinity of the High Tatra Mountains. He considered it as closely related to *R. loyolaea*, however he still regards *henschii* as a species propria. Larval stages are still unknown and there are, so far as I know, no younger records in the literature. After SOLDÁN & LANDA (1999: p. 28 in a footnote) this species is not a central European faunal element at all but belongs to southeast Europe.

hercynia, *Rhithrogena* LANDA, 1969 (p. 157, pl. 12 figs. 4H, 5H, p. 210 ff.)
fam. Heptageniidae.

Hessei, Ameletus FIZAINE, 1931 (p. 25) (nomen imperfectum)
is according to PUTHZ (1977) a subjective junior synonym of *Metretopus balcanicus*, fam. Ameletidae, genus *Metreletus.*

Hispanica, Ephemera RAMBUR, 1842 (p. 294) (nomen imperfectum)

is according to HAGEN (1866), a subjective junior synonym of *Ephemera danica*, fam. Ephemeridae, and this interpretation was confirmed by EATON (1871) after revision of the typical material.

hispanica, Ephemera NAVÁS, 1903, (p. 100) (nomen praeoccupatum)
is a primary junior homonym of *E. hispanica* RAMBUR and according to NAVÁS (1906) a subjective junior synonym of *Ephemera vulgata*, fam. Ephemeridae, see also ALBA-TERCEDOR (1982b).

hispanus, Baetis Navás, 1915 (p. 41)
is according to ALBA-TERCEDOR (1984) a subjective junior synonym of *Baetis scambus*, fam. Baetidae.

horaria, Ephemera LINNAEUS, 1758 (p. 547)
fam. Caenidae, genus *Caenis*.
Remark: BENGTSSON (1912b) combined this species in the genus *Caenis*. JACOB (1972a) follows the interpretation of Bengtsson only by reasons of the stability of the nomenclature. Based on its original description Jacob interprets *Ephemera horaria* L. as a subimago of the family Baetidae with an unclear generic position. MALZACHER (1986) regards this synonym as questionable, too. He refers to the lectotype fixation by KIMMINS (1971) which is nomenclatorical authoritative.

horaria, Ephemera FOURCROY, 1785 (p. 353) nec. Linnaeus (nomen abusum)
is in my own opinion refering to its original description "*E alis albis, margine crassiore, nigricantibus, cauda biseta. Loc. Habitat domos*." probably a female subimago of *Cloeon dipterum*.

horaria, Palingenia BURMEISTER, 1839 (p. 802)
is according to PICTET (1843) a subjective junior synonym of *Ephemera virgo*, fam. Polymitarcyidae, genus *Ephoron*.

horaria fennica, Caenis TIENSUU, 1939 (p. 122)
falls according to SAARISTO (1966) into the range of variation of *Ephemera horaria*, fam. Caenidae, genus *Caenis*.

Hovassei, Proclœon VERRIER, 1949a (p. 58) (nomen imperfectum)
is according to ILLIES (1967) a subjective junior synonym of *Cloeon simile*, fam. Baetidae, see SOWA (1980).

hungaricus, Metreletus UJHELYI, 1960 (p. 199)
is according to JACOB (1972a) a subjective junior synonym of *Metreletus Goetghebueri* and thus according to PUTHZ (1977) also of *Metretopus balcanicus*, fam. Ameletidae, genus *Metreletus*.

hyalina, Ephemera PANZER, 1804 (p. 60)
is according to PICTET (1843: sub. *hyalinata*) a subjective junior synonym of *Ephemera lutea*, fam. Potamanthidae, genus *Potamanthus.*

hyalinata, Ephemera ZETTERSTEDT, 1840 (p. 1044)
is according to EATON (1871) a subjective junior synonym of *Ephemera cincta*, fam. Leptophlebiidae, genus *Leptophlebia* (*Paraleptophlebia*).

hyalinatum, Cloëon STEPHENS, 1836 (p. 68)
is according to EATON (1871) after revision of typical material a subjective junior synonym of *Ephemera luteola*, fam. Baetidae, genus *Centroptilum.*

hyalopterum, Pseudocloëon BOGOESCU, 1951 (p. 783)
is according to JACOB (1972a) a subjective junior synonym of *Pseudocloeon inexpectatum*, fam. Baetidae, genus *Baetis* (*Acentrella*). Remark: PUTHZ (1978) proposes the same sysnonymy, though by reference on an annotation of SOWA in one of his biogeographical works.

hybrida, Rhithrogena EATON, 1885 (p. 256)
fam. Heptageniidae.

hybrida, Rhithrogena *sensu* Ulmer (1927) (nomen abusum)
is according to PUTHZ (1975) refering to *Rhithrogena degrangei*, fam. Heptageniidae.

hybrida, Rhithrogena *sensu* ULMER (1929) et SCHOENEMUND (1930a ?) nec EATON (nomen abusum)
is according to SOWA (1969) refering to *Rhithrogena degrangei*, fam. Heptageniidae.

hybrida, Rhithrogena *sensu* SOWA (1975c) nec EATON (nomen abusum)
refers after SOWA & SOLDÁN (1986) to *Rhithrogena circumtatrica*, fam. Heptageniidae.

I

iberi, Baetis Navás, 1913 (p. 63)
is according to ALBA-TERCEDOR (1984) after revision of the type a subjective junior synonym of *Cloë rhodani*, fam. Baetidae, genus *Baetis* (*Rhodobaetis*).

Ignita, *Ephemera* PODA, 1761 (p. 97)

fam. Ephemerellidae, genus *Ephemerella.*

ignota, Baetis Walker, 1853 (p. 571)
fam. Isonychiidae, genus *Isonychia.*

inanis, Ephemera GMÉLIN, 1789 (p. 2629)
is according to EATON (1871) a subjective junior synonym of *Ephemera cincta*, fam. Leptophlebiidae, genus *Leptophlebia* (*Paraleptophlebia*).

incurvus, Baëtis BENGTSSON, 1912a (p. 115)
is according to MÜLLER-LIEBENAU (1969) a subjective junior synonym of *Ephemera nigra*, fam. Baetidae. Some years earlier the same authoress describes it as a species propria (MÜLLER-LIEBENAU 1965).

incus, Caenis BENGTSSON, 1912a (p. 107)
is according to DEGRANGE (1957b) a subjective junior synonym of *Caenis robusta*, fam. Caenidae.

inexpectatum, Pseudocloeon TSHERNOVA, 1928b (p. 320)
fam. Baetidae, genus *Baetis* (*Acentrella*).

infrequens, Centroptilum MCDUNNOUGH, 1924 (p. 98)
is according to LOWEN & FLANNAGAN (1990) presumably a subjective junior synonym of *Centroptilum pennulatum*, fam. Baetidae, genus *Procloeon.*

inopinatus, Ameletus EATON, 1887 (p. 307, pl. 65 fig. 14)
fam. Ameletidae.

inscriptum, Cloeon BENGTSSON, 1914 (p. 215)
fam. Baetidae. Remark: *Cloeon inscriptum* is frequently treated as a subjective junior synonym of *Ephemera diptera* L.

insignis, Heptagenia EATON, 1870 (p. 6)
fam. Heptageniidae, genus *Ecdyonurus.*

intermedia, Rhithrogena METZLER TOMKA & ZURWERRA, 1987 (nomen nudum)
has never been published but is only cited in ZURWERRA et al. (1987). Compare the notes on *allobrogica* and BAUERNFEIND & WEICHSELBAUMER (1994).

interrupta, Caenis STEPHENS, 1836 (p. 62)
is according to EATON (1871) after revision of typical material a subjective junior synonym of *Caenis macrura*, fam. Caenidae.

iridana, Heptagenia (lapsus)
is a typing error of *iridina* that dates most probably from ROSTOCK (1881), and which was transfered by EATON (1885). See *Baetis iridina*, fam. Heptageniidae, genus *Rhithrogena*.

iridina, *Baetis* KOLENATI, 1859 (p. 31)
fam. Heptageniidae, genus *Rhithrogena.*

iridina picteti, Rhithrogena SOWA, 1971 (sensu PUTHZ, 1975 et auct.)
see also the notes on *Rhithrogena picteti*.

italicus, Ecdyurus EATON, 1883 (pl. 24, fig 46c)
is according to KIMMINS (1942a) a subjective junior synonym of *Ecdyurus helveticus*, fam. Heptageniidae, genus *Ecdyonurus*.

K

karasuensis, Drunella KUSTAREVA, 1976 (p. 58)
is according to KLUGE (1995) a subjective junior synonym of *Ephemera ignita*, fam. Ephemerellidae, genus *Ephemerella*.

karelica, Eurylophella TIENSUU, 1935 (p. 20)
is the typical species of the genus *Eurylophella* TIENSUU, fam. Ephemerellidae.
see also the notes on *brunescens*.

keffermuellerae, *Oligoneuriella* SOWA, 1973c (p. 657)
fam. Oligoneuriidae. Remark: SOWA describes this species based on material of KEFFERMÜLLER from the River Varta, see also *mikulskii* sensu Keffermüller.

konjarensis, Habrophlebia sp. nympha IKONOMOV, 1963 (p. 175) (nomen imperfectum)
is according to JACOB & SARTORI (1984) a subjective junior synonym of *Ephemera fusca*, fam. Leptohlebiidae, genus *Habrophlebia*.

Krieghoffi, Chitonophora ULMER, 1920 (p. 41) (nomen imperfectum)
as far as I know JACOB (1972a) firstly regarded this species as a subspecies of *Ephemerella mucronata*, fam. Ephemerellidae. Remark: However, this subspecific treatment has not been generally accepted and ULMER'S *krieghoffi* is now in general considered to be a subjective junior synonym of *mucronata*, e.g. SOWA (1990), STUDEMANN et al. (1992) or KLUGE (2004).

krieghoffi intermedia, Ephemerella KEFFERMÜLLER, 1979 (p. 67-71)
is a subjective junior synonym of *Ephemerella mucronata*, fam. Ephemerellidae. Remark: It is difficult to decide

which author pronounced the synonymy at first because even at the time of description the species *C. krieghoffi* was regarded at most as a subspecies of *mucronata* itselves. Therefore *intermedia* would have only rank of a variety. SOWA (1990) in the polish checklist considered *krieghoffi* as a synonym of *mucronata* and for this reason automatically also *krieghoffi intermedia*.

kulindrophtalmus, Baetis BOGOESCU, 1933 (p. 71)
is according to MÜLLER-LIEBENAU (1969) a subjective junior synonym of *Cloë melanonyx*, fam. Baetidae, genus *Baetis*.

L

lactata, Ephemerella BENGTSSON, 1909 (p. 6)
is according to BREKKE (1965: via *E. torrentium*) a subjective junior synonym of *Ephemera ignita*, fam. Ephemerellidae, genus *Ephemerella*. Remark: *E. lactata* was unjustifiably renamed by BENGTSSON (1917) into *E. torrentium* BENGTSSON, see ULMER (1920a).

lactea, Oxycypha BURMEISTER, 1839 (p. 796)
fam. Caenidae, genus *Caenis*. Remark: BURMEISTER based his description on *Ephemera lactea* of HOFFMANNSEGG in the Zoological Museum of Berlin.

lactea, Caenis *sensu* PICTET (1843: p. 276; 1845: pl. 43 figs. 1-4, pl. 44) nec BURMEISTER (nomen abusum)
is according to MALZACHER (1986) refering to *Ephemera horaria*, fam. Caenidae, genus *Caenis.*

lactella, Caenis EATON, 1884 (p. 144)
is according to MALZACHER (1986) a subjective junior synonym of *Ephemera horaria*, fam. Caenidae, genus *Caenis.* Remark: EATON introduces this name for *lactea* sensu PICTET, nec BURMEISTER, regarding the latter by mistake as a synonym of *Caenis dimidiata* STEPHENS (now *C. horaria*).

lacustre, Centroptilum EATON, 1885 (p. 176) (species inquirenda)
fam. Baetidae, genus *Procloeon*. Remark: Only known from its locus typi "Lago Maggiore" needing urgently a revision.

lacustris, Siphlonurus EATON, 1870 (p. 7)
fam. Siphlonuridae.

landai, Rhithrogena SOWA & SOLDÁN, 1984 (p. 76)
fam. Heptageniidae.

lateralis, Baetis CURTIS, 1834 (p. 121)
is the typical species of the genus *Electrogena* ZURWERRA & TOMKA, fam. Heptageniidae, there is one subspecies, *E. lateralis concii,* in southern Europe.

latus, Siphlurus BENGTSSON, 1909 (p. 10)
is according to ULMER (1927) a subjective junior synonym of *Siphlonurus armatus*, fam. Siphlonuridae.

lauta, *Habrophlebia* EATON, 1884 (p. 120)
genus *Habrophlebia*, fam. Leptophlebiidae.

lestagei, Behningia MOTAS & BAČESCO, 1938 (p. 26)
is according to LANDA (1969) a subjective junior synonym of *Behningia ulmeri*, fam. Behningiidae.

leucophthalma, Ephemera STRÖM, 1783 (p. 90)
is according to EATON (1885) a subjective junior synonym of *Ephemera sulphurea*, fam. Heptageniidae, genus Heptagenia.

liebenauae, Baetis KEFFERMÜLLER, 1974 (p. 183)
Fam Baetidae.

lineata, Ephemera EATON, 1870 (p. 1)
fam. Ephemeridae.

Linnaeanus, Siphlurus EATON (1871) (p. 127, pl. 6 figs. 3, 3a) (nomen imperfectum)
is according to JACOB (1972a) a subjective junior synonym of *Baetis alternata*, fam. Siphlonuridae, genus *Siphlonurus*.

lithuanica, Eurylophella KAZLAUSKAS, 1959 (p. 168, pl. 1)
is according to JACOB (1972a) a subjective junior synonym of *Eurylophella karelica*, fam. Ephemerellidae.

litura, Cloë PICTET, 1843 (p. 260, 1845: pl. 41, figs. 1-3) (species inquirenda)
is an uncertain species, which was attributed by EATON (1871) to the genus *Centroptilum,* after JACOB (1972a) a nomen dubium probably belonging to *Baetis*. As far as I know this species is known by sure only from its locus typi "Mont Salève" in France near Geneva.

longicauda, Baetis STEPHENS, 1836 (p. 63)
fam. Heptageniidae, genus *Heptagenia.*

longicauda, Ephemera OLIVIER, 1791 (p. 418)
is the typical species of the genus *Palingenia* BURMEISTER, fam. Palingeniidae.

longicauda, Heptagenia *sensu* EATON (1871) et auct. nec STEPHENS (nomen abusum)

is according to KIMMINS (1942a) refering to *Ecdyonurus dispar*, fam. Heptageniidae.

loyolaea, Rhithrogena NAVÁS, 1922 (p. 62)
fam. Heptageniidae.

luctuosa, Oxycypha BURMEISTER, 1839 (p. 797)
fam. Caenidae, genus *Caenis.*

lusitanica Choroterpes EATON, 1881 (p. 194)
is according to EATON (1883) a subjective junior synonym of *Leptophlebia picteti*, fam. Leptophlebiidae, genus *Choroterpes*. Remark: There are several new congeneric species inhabiting the Iberian Peninsula. Thus this synonymy is somewhat questionable, cf. BAUERNFEIND, 1998.

lutea, Ephemera LINNAEUS, 1767 (p. 906)
is the typical species of the genus *Potamanthus*, fam. Potamanthidae. A very similar subspecies, *Potamanthus luteus oriens* BAE & MCCAFFERTY, 1991, was described from the lower Amur river.

lutea, Ephemera *sensu* SULZER, 1776 (p. 171, pl. IV fig. 6) nec LINNAEUS (nomen abusum)
is according to PICTET (1843) refering to *Ephemera glaucops*, fam. Ephemeridae.

lutea, Ephemera FOURCROY, 1785 (p. 352) (nomen praeoccupatum)
is according to OLIVIER (1791) and subsequent authors as PICTET (1843) or EATON (1871, 1884) a subjective junior synonym of *Ephemera bioculata* LINNAEUS and for this reason of *Baetis fuscatus*, fam. Baetidae. Remark: After my own opinion, judging from the original description: "*L' Ephémère jaune à deux filets & ailes réticulées*" "*Long 4 lig.*" FOURCROY describes a large yellow species with reticulated wings and two tails, thus rather a *Heptagenia* than a *Baetis*!

lutea, Ephemera *sensu* PANZER, 1804 (p. 158) nec LINNAEUS, 1767 (nomen abusum)
is according to EATON (1871) refering to *Ephemera virgo*, fam. Polymitarcyidae, genus *Ephoron*.

lutea, Ephemera *sensu* STEPHENS, 1836 (p. 57) nec LINNAEUS (nomen abusum)
is according to EATON (1871) after revision of typical material refering to *Baetis elegans* and for this reason with *Ephemera sulphurea*, fam. Heptageniidae, genus *Heptagenia*.

Lutea, Ephemera *sensu* BURMEISTER, 1839 (p. 804) (nomen abusum)
is according to PICTET (1843) a *E. glaucops*, after revison of the collection of BURMEISTER by JACOB it represents however *Ephemera lineata*, fam. Ephemeridae, JACOB et al. (1975).

Lutea, Ephemera *sensu* RAMBUR, 1842 (p. 294) (nomen abusum)
is according to EATON (1871) after revision of typical material a female imago of *Ephemera glaucops*, fam. Ephemeridae.

luteola, Ephemera O.F. MÜLLER, 1776 (p. 143)
is the typical species of the genus *Centroptilum* EATON, fam. Baetidae.

lutheri, Baetis MÜLLER-LIEBENAU, 1967 (p. 48)
fam. Baetidae. There is a subspecies described from Georgia, *Baetis lutheri georgiensis* ZIMMERMANN, 1981.

lychnidense, Procloeon IKONOMOV, 1962a (p. 131)
is according to JACOB (1972a) and SOWA (1975a) a subjective junior synonym of *Cloeon bifidum*, fam. Baetidae, genus *Procloeon*.

M

macani, Ecdyonurus THOMAS & SOWA, 1970 (p. 75)
fam. Heptageniidae.

macedonicus, Rhoënanthus ULMER, 1920 (p. 14)
is the typical species of the genus *Leucorhoenanthus* LESTAGE, fam. Neoephemeridae. After ILLIES (1967) this taxon is insufficiently separated from *Caenis maxima* and after younger authors like KLUGE (1997) it represents a subjective junior synonym of the latter species.

macronyx, Cloeon (*Procloeon*) KLUGE & NOVIKOVA, 1992 (p. 46)
fam. Baetidae, genus *Procloeon*. Notice the frequent misinterpretations of this taxon in the systematical list!

macrura, Caenis STEPHENS, 1836 (p. 60)
is the typical species of the genus *Caenis*, fam. Caenidae.

maculata, Ephemera LINNAEUS, 1747 (p. 62) (nomen invalidum)
is according to EATON (1871) an older (objectiveobjective?) synonym of *Ephemera vulgata* LINNAEUS, 1758. Because this name was published before

1758 it is not available in terms of § 8 of the Code (ICZN, 1999).

Maculata, Ephemera PODA, 1761 (p. 97) (nomen dubium et imperfectum)
is according to EATON (1871) possibly refering to *Heptagenia* (? venosa Subim.).

maculata, Ephemera DE VILLERS, 1789 (p. 22) (nomen praeoccupatum)
is a primary homonym of *E. maculata* PODA, 1761, but not of *E. maculata* LINNAEUS, 1747, because this name is not available. According to OLIVIER (1791) it represents a subjective junior synonym of *Ephemera vulgata*, fam. Ephemeridae. PICTET (1843) however took it into synonymy with *E. danica*, confusing both species himself. EATON (1883) took it into synonymy with *E. danica* and this opinion is accepted here.

maculocaudata, Ephemerella IKONOMOV, 1961 (p. 56)
is according to STUDEMANN & TOMKA (1989) a subjective junior synonym of *Potamanthus mesoleucus*, fam. Ephemerellidae, genus *Ephemerella.* Remark: This synonymy is not generally accepted (species inquirenda).

maderensis, Cloe HAGEN, 1865 (p. 25)
is according to EATON (1871) after revision of typical material a subjective junior synonym of *Cloe rhodani*, fam. Baetidae, genus *Baetis*.

magnus, Brachycercus TSHERNOVA, 1952 (p. 284)
is according to KLUGE (1991) a subjective junior synonym of *Brachycercus harrisellus*, fam. Caenidae.

major, Ephemerella KLAPÁLEK, 1905 (p. 75)
fam. Ephemerellidae, genus *Torleya.*

marginalis, Baetis BURMEISTER, 1839 (p. 801)
is according to HAGEN (1849) a subjective junior synonym of *Ephemera lutea,* fam. Potamanthidae, genus *Potamanthus.*

marginata, Ephemera LINNAEUS, 1767 (p. 906)
fam. Leptophlebiidae, genus *Leptophlebia.*

marginata, Ephemera *sensu* Müller 1776 (nomen abusum?)
is according to EATON (1871) presumably refering to *Ephemera lutea*, fam. Potamanthidae, genus *Potamanthus.* Remark: After my own opinion the original description represents likely a Leptophlebiidae, moreover *P. luteus* is not known from Denmark at all.

marginata, Semblis *sensu* PANZER (1804: SCHÄFFER, 1766: Tabula CCIV, fig.3) nec PANZER, 1799 (nomen abusum)
is according to EATON (1871) refering to *Ephemera longicauda*, fam. Palingeniidae, genus *Palingenia*.

marginatus, Potamanthus *sensu* PICTET, 1843 (p. 208, 1845: pl. 25 figs. 4-5) nec LINNAEUS (nomen abusum)
EATON (1871) established the new name *Leptophlebia picteti*, fam. Leptophlebiidae, genus *Choroterpes* for this misinterpretation of PICTET.

marmoratum, Cloeon CURTIS, 1834 (p. 121) (nomen nudum et abortivum)
is an unnecessary replacement name for *Ephemera diptera*, fam. Baetidae, genus *Cloeon.* According to EATON (1871) it actually repesents a female of the latter species.

maroccana, Ephemera FABRICIUS, 1793 (p. 69)
is according to PICTET (1843) a subjective junior synonym of *Ephemera virgo*, fam. Polymitarcyidae, genus *Ephoron*. Remark: According to EATON (1871), p. 60 the synonymy is questionable: "The species from Morocco is possibly distinct from *P. virgo*".

maxima, Caenis JOLY, 1870 (p. 148, pl. 3)
fam. Neoephemeridae, genus *Neoephemera* (*Leucorhoenanthus*).

melanonyx, Cloë PICTET, 1843 (p. 258, 1845: pl. 40, fig. 6)
fam. Baetidae, genus *Baetis.*

mellea, Baetis CURTIS, 1834 (p. 121)
The description is based on a subimago, according to EATON (1871) it represents a subjective junior synonym of *Ephemera lutea*, fam. Potamanthidae, genus *Potamanthus.*

mesoleucus, Potamanthus BRAUER, 1857 (p. 75)
fam. Ephemerellidae, genus *Ephemerella*. Remark: BRAUER describes this taxon in the addenda of his Neuroptera austriaca without figures and placed it in relationship with *Leptophlebia cincta* (sub. *Potamanthus*). Consequently ROSTOCK, EATON and KLAPÁLEK interprete this taxon as a Leptophlebiidae and the corresponding entries in the literature sub. *Leptophlebia mesoleuca* or *Habrophlebia mesoleuca* ref-

ered indeed (erroneously) on a Leptophlebiid, namely *Habrophlebia lauta*! ULMER (1921) revised the type and identyfied firstly its relation to the family Ephemerellidae.

Meyeri, Leptophlebia EATON, 1884 (p. 95) (nomen imperfectum)
is according to BENGTSSON (1912b) a subjective junior synonym of *Ephemera vespertina*, fam. Leptophlebiidae, genus *Leptophlebia*.

mikulskii, Oligoneuriella SOWA, 1961 (p. 287)
is according to SOWA (1973c) a subjective junior synonym of *Oligoneuria pallida*, fam. Oligoneuriidae, genus *Oligoneuriella.*

mikulskii, Oligoneuriella *sensu* KEFFERMÜLLER (1964) nec SOWA
is according to SOWA (1973c) a separate species, namely *Oligoneuriella keffermuellerae*, fam. Oligoneuriidae.

miliaria, Ordella TSHERNOVA, 1952 (p. 286)
is according to BRAASCH (1982) a subjective junior synonym of *Caenis robusta*, fam. Caenidae but after KLUGE (1997b) a species propria.

minima, Ephemera LINNAEUS, 1747 (p. 62) (nomen invalidum)
is according to EATON (1871) under reserve an older synonym of *Ephemera horaria* LINNAEUS, 1758. Remark: Following art. 11.1 of the code (ICZN, 1999) all zoological names published before 1758 are in general not available.

minima, Ephemera O.F. MÜLLER, 1776 (p. 142)
is according to EATON (1871) under reserve identical with *Caenis dimidiata*, and for this reason a subjective junior synonym of *Ephemera horaria*, fam. Caenidae, genus *Caenis*. Remark: The homonymous species of LINNAEUS, 1747 is a nomen invalidum and thus cannot claim for priority.

minima, Brachycercus CURTIS, 1834 (p. 122)
is according to EATON (1871) under reserve a subjective junior synonym of *Ephemera minima* LINNAEUS (nom. invalidum) and for this reason of *E. horaria*, fam. Caenidae, genus *Caenis*.

minor, Ephemera STEPHENS, 1836 (p. 60)
is according to EATON (1871) after revision of typical material a subjective junior synonym of *Ephemera fusca*, fam. Leptophlebiidae, genus *Habrophlebia.*

minutus, Brachycercus TSHERNOVA, 1952 (p. 285)
fam. Caenidae.

mirabilis, Cinygma ARO, 1910 (p. 30, fig. 22)
is according to BENGTSSON (1930a) a subjective junior synonym of *Arthroplea congener*, fam. Arthropleidae.

modesta, Habroleptoides *sensu* SCHOENEMUND, 1929 et auct., nec HAGEN (nomen abusum)
is according to SARTORI & JACOB (1986) a separate taxon, namely *Habroleptoides confusa*, fam. Leptophlebiidae.

Modestus, Potamanthus HAGEN, 1864 (p. 39) (nomen imperfectum)
is not a Central European species at all, but an endemic species of Sardegna and Corsica. All Records in the Central European literature refer to *modesta* sensu SCHOENEMUND et auct. and for this reason to *Habroleptoides confusa*, fam. Leptophlebiidae.

moesta, Caenis BENGTSSON, 1917 (p. 181)
is according to JACOB (1974b) a subjective junior synonym of *Oxycypha luctuosa*, fam. Caenidae, genus *Caenis*.

moffatae, Ephemerella ALLEN, 1977 (p. 286)
is according to JACOBUS & MCCAFFERTY (2003) a subjective junior synonym of *Ephemerella mucronata*, fam. Ephemerellidae.

mongolica, Oligoneuriella SOLDÁN & LANDA, 1977 (p. 13)
is according to KLUGE (2004) a subjective junior synonym of *Oligoneuria pallida*, fam. Oligoneuriidae, genus *Oligoneuriella*.

montana, Baetis Pictet, 1843 (p. 172, 1845: pl. 20 fig. 3) (nomen dubium).
Locus typi is according to Pictet Chamounix (F). The figure is showing a true *Ecdyonurus*, most probably judging from the colouration a member of the so called *venosus*-group.

montana, Baetis *sensu* HAGEN (1863) nec PICTET (nomen abusum et ambiguum)
refers according to EATON (1870, 1871) in part to *Heptagenia insignis* in part to *Ephemera venosa*, fam. Heptageniiae, genus *Ecdyonurus*.

mucronata, Chitonophora BENGTSSON, 1909 (p. 8)

fam. Ephemerellidae, genus *Ephemerella.*

mutica, Ephemera LINNAEUS, 1758 (p. 547)
fam. Baetidae, genus *Baetis* (*Nigrobaetis*).

muticus intermedius, Baetis ALBA-TERCEDOR, 1982a (p. 9)
falls according to SARTORI & THOMAS (1991) into the variation range of the nominal species and is for this reason a subjective junior synonym of *Ephemera mutica*, fam. Baetidae, genus *Baetis.*

N

nana, Centroptilum BOGOESCU, 1951 (p. 781) (nomen ambiguum)
fam. Baetidae, genus *Pseudocentroptiloides*. Remark: A very often misinterpreted species. Notice to the synonym of *Cloeon macronyx* as well as to the annotation to its nomenclatrure by KLUGE & NOVIKOVA (1992).

nana, Centroptilum *sensu* KAZLAUSKAS (1964) (partim larva) nec BOGOESCU (nomen abusum)
is according to KLUGE & NOVIKOVA (1992) refering to *Cloeon* (*Procloeon*) *macronyx*, fam. Baetidae, genus *Procloeon*.

nanum, Cloeoptilum *sensu* KAZLAUSKAS (1977) nec BOGOESCU (nomen abusum)
is according to KLUGE & NOVIKOVA (1992) refering to *Cloeon* (*Procloeon*) *macronyx*, fam. Baetidae, genus *Procloeon*.

nanum, Centroptilum *sensu* KEFFERMÜLLER & SOWA (1984) (partim larva) nec BOGOESCU (nomen abusum)
is according to KLUGE & NOVIKOVA (1992) refering to *Cloeon* (*Procloeon*) *macronyx*, fam. Baetidae, genus *Procloeon*.

nazarita, Torleya ALBA-TERCEDOR & DERKA, 2003 (p. 24)
is according to JACOBUS et al. (2004) a subjective junior synonym of *Ephemerella major*, fam. Ephemerellidae, genus *Torleya*.

nervosa, Ephemera DE VILLERS, 1789 (p. 22, Nr. 14) (nomen abortivum)
is an unnecessary replacement name for the species no. 183 of RETZIUS (1783) *Ephemera fusco-grisea*, fam. Heptageniidae, genus *Kageronia*.

nexus, Baetis NAVÁS, 1918 (p. 38)
fam. Baetidae. Remark: see notes on *pentaphlebodes* for reasons why *nexus* has precedence over *pentaphlebodes*.

niger (?), Baetis *sensu* LESTAGE, 1919 (p. 151) nec LINNAEUS (nomen abusum)
is according to MÜLLER-LIEBENAU (1978) refering to *Raptobaetopus tenellus,* fam. Baetidae, genus *Baetopus*.

nigra, Ephemera LINNAEUS, 1761 (p. 377)
fam. Baetidae, genus *Baetis* (*Nigrobaetis*)
is the typical species of the subgenus or resp. genus *Nigrobaetis* NOVIKOVA & KLUGE, 1987.

nigra, Ephemera FOURCROY, 1785 (p. 352) (nomen praeoccupatum)
is according to EATON (1871) a subjective junior synonym of *Ephemera cincta*, fam. Leptophlebiidae, genus *Leptophlebia*. Remark: The original description of FOURCROY "*L'Ephémère noire à trois filtes. Long. 1 lig. Larg. 1/3 lig.*" is a description of a conspicious small but broad and black species with three tails, thus most probably a species of genus *Caenis*. *Cloeon* sp. sub. *E. horaria* has after FOURCROY "3 lig." and is apparentyl bigger. Modern true *Ephemera* have „8-9 lig". A Leptophlebiid can thus be excluded in general by its larger size.

nigrescens, Heptagenia KLAPÁLEK, 1908 (p. 24)
is according to PUTHZ (1975) a subjective junior synonym of *Baetis picteti*, fam. Heptageniidae, genus *Ecdyonurus*, compare also GODUNKO (2000).

nigrimana, Ephemera DUFOR, 1841 (p. 580) (nomen dubium)
This species has been combined into the genus Heptagenia by EATON (1871) (i.e. fam. Heptageniidae in terms of today). Its description is based on a female imago and EATON declares it a species dubia. Later EATON (1883) calls this species a doubtful synonym of *Ephemera venosa* sensu EATON, fam. Heptageniidae*,* genus *Ecdyonurus.*

nivata, Heptagenia EATON (1871) (p. 137, pl. 6, fig. 10)
fam. Heptageniidae, genus *Rhithrogena*. Remark: nec *R.* ? *nivata* sensu GRANDI (1960) = *loyolaea*, teste THOMAS (1970).

nivea, Caenis BENGTSSON, 1917 (p. 181)

is according to SAARISTO (1966) a subjective junior synonym of *Caenis rivulorum*, fam. Caenidae.

nocturna, Caenis BENGTSSON, 1917 (p. 185)
is according to JACOB (1974b) a subjective junior synonym of *Oxycypha lactea*, fam. Caenidae, genus *Caenis.*

norvegicus, Metretopus EATON, 1901 (p. 254)
is the typical species of the genus *Metretopus* EATON, 1901. According to BREKKE (1940) it is a subjective junior synonym of *Heptagenia borealis*, fam. Metretopodidae, genus *Metretopus*.

notata, Ephemera GMÉLIN, 1790 (p. 2630)
is according to EATON (1871) a subjective junior synonym of *Ephemera bioculata* (sub. *binoculatus*, lapsus*)*, and thus *Ephemera fuscata,* fam. Baetidae, genus *Baetis.*

notata, Ephemerella EATON, 1887 (p. 305, pl. 65, fig. 9)
fam. Ephemerellidae.

nubecularis, Baëtis EATON, 1898 (p. 265)
fam. Baetidae.

nuessleri, Siphlonurus JACOB, 1972b (p. 144)
is according to PUTHZ (1977b) a subjective junior synonym of *Siphlonurus lacustris*, fam. Siphlonuridae.

O

oblita, Siphlurella BENGTSSON, 1909 (p. 13)
is according to BENGTSSON (1930a) a subjective junior synonym of *Siphlurus linnaeanus* and for this reason of *Baetis alternata*, fam. Siphlonuridae, genus *Siphlonurus* (*Siphlurella*).

obscura, Baëtis STEPHENS, 1836 (p. 65)
is after revision by HAGEN (1857) and EATON (1871) a female imago of *Ephemera rosea* and for this reason a subjective junior synonym of *Ephemera ignita*, fam. Ephemerellidae, genus *Ephemerella.*

obscura, Baetis *sensu* PICTET, 1843 (p. 182, 1845: pl. 23, fig. 1) nec STEPHENS (nomen abusum)
is according to EATON (1871) under reserve refering to *Baetis lateralis*, fam. Heptageniidae, genus *Electrogena*.

obscurum, Cloeon CURTIS, 1834 (p. 121)
is already after Curtis himself probably a subimago of *Cloeon dipterum*. PICTET (1843) listed this species consequently as a subjective junior synonym of *Ephemera diptera*, fam. Baetidae, genus *Cloeon*.

obscura, Cloe RAMBUR, 1842 (p. 297) (nomen praeoccupatum)
is according to EATON (1871) a female subimago of the genus *Cloeon*, fam. Baetidae.

ochraceum, Cloëon STEPHENS, 1836 (p. 68)
is according to EATON (1871) after revision of typical material a subjective junior synonym of *Ephemera luteola*, fam. Baetidae, genus *Centroptilum*.

oophora, Caenis PICTET, 1843 (p. 284, 1845: pl. 45, fig. 4)
is according to ULMER (1921, 1920a) a subjective junior synonym of *Caenis macrura*, fam.: Caenidae. Remark: After terms of today this species could easily refer to the similar *Caenis martae* BELFIORE, 1984, described from Sardegna as *C. oophora*.

orientalis, Baetis atrebatinus ssp. KLUGE, 1983 (p. 74)
falls according to KLUGE (1995) into the variation range of the nominal species and has been subsequently treated as a subjective junior synonym of *Baetis atrebatinus*, fam. Baetidae e.g. by KLUGE (1997).

orientalis, Ephemera MCLACHLAN, 1875 (p. 168)
was erroneously taken into synonymy with *Ephemera lineata* by IMANISHI (1940: p176), see TSHERNOVA (1973), fam. Ephemeridae.

ornatum, Procloeon TSHERNOVA, 1928 (p. 319)
is according to ILLIES (1967) a subjective junior synonym of *Procloeon pseudorufulum* and for this reason of *Cloeon bifidum*, fam. Baetidae, genus *Procloeon*. Remark: SOWA (1975a) considerd *Procloeon ornatum* a separate taxon, KLUGE (1997) however calls *ornatum* a synonym of *bifidum*.

P

pallida, Cloeon LEACH, 1815 (p. 137)
is according to EATON (1885) a subjective junior synonym of *Ephemera diptera*, fam. Baetidae, genus *Cloeon.*

pallida, rhenana var., *Oligoneuria* HAGEN, 1855 (p. 268 pl. 1) (nomen imperfectum)
fam. Oligoneuriidae, genus *Oligoneuriella.*

pallida, Oligoneuriella *sensu* SOWA (1973c) nec HAGEN (nomen abusum)

is according to MOL (1984) a separate species, namely *Oligoneuriella polonica*, fam. Oligoneuriidae.

pallidus, Brachycercus TSHERNOVA, 1928a (p. 114)
is according to ILLIES (1967) and KLUGE (1991) (rev.) a subjective junior synonym of *Brachycercus harrisellus*, fam. Caenidae. Remark: Compare the synonymy of *B. europaeus* for misinterpretations of *B. pallidus*!

parahelveticus, Ecdyonurus HEFTI, TOMKA & ZURWERRA, 1986 (p. 370)
fam. Heptageniidae.

parapulchrum, Centroptilum KEFFERMÜLLER & SOWA, 1975 (p. 482) (species inquirenda)
differs from *Centroptilum pulchrum* after its original description only in details of the egg chorion structure, here the number of rows of papills. After my own opinion it is falling into the variation range of this species because this character show a high variability in *Procloeon* and related species. Compare the discussion of KLUGE & NOVIKOVA (1992: p. 51 of *P. nana*). Fam. Baetidae, genus *Procloeon*.

parnassiana, Ephemera DEMOULIN, 1958 (p. 226)
has been regarded as a presumed subjective junior synonym of *Ephemera danica*, fam. Ephemeridae by JACOB et al. (1975a) or PUTHZ (1978) and subsequent authors. According to THOMAS & PARPET (2005) however, it is representing a separate distinct species which is distributed entirely mediterranean.

parva, Baetis GRANDI, 1949 (p. 287)
(nomen praeoccupatum)
is a primary homonym of the nearctic *Baetis parvus* DODDS, 1923 and was renamed by GRANDI (1951b) as *Baetis pavidus*, fam. Baetidae.

Parvula, Ephemera SCOPOLI, 1763
(p. 264) (nomen dubium et imperfectum)
is according to PICTET (1843) with reservations a subjective senior synonym of *Cloë pumila*, according to EATON (1871) however also under reserve a subjective junior synonym of *Centroptilum luteolum*.

Paulae, Ephemera GRANDI, 1955 (p. 202)
(nomen imperfectum)
is according to JACOB (1972a) and JACOB et al. (1975) a subjective junior synonym of *Ephemera zettana*, fam. Ephemeridae.

pavidus, Baetis GRANDI, 1951b (p. 181)
is an objective replacement name for the primary homonym *Baetis parva* GRANDI, 1949, nec DODDS, 1923, fam. Baetidae. Remark: Following art. 60.3 of the code (ICZN, 1999) GRANDI, 1951 obtained authorship replacing GRANDI, 1949.

Pazsiczkyi, Ecdyurus PONGRÁCZ, 1913
(p. 179) (nomen imperfectum)
is according to JACOB (1972a) a subjective junior synonym of *Baetis aurantiaca*, fam. Heptageniidae, genus *Ecdyonurus*, see also PUTHZ (1973b).

pennata, Caenis STEPHENS, 1836 (p. 61)
is according to EATON (1871) after revision of typical material a subjective junior synonym of *Brachycercus harrisellus*, fam. Caenidae.

pennigerus, Limulus O.F. MÜLLER, 1785
(p. 127)
fam. Prosopistomatidae, genus *Prosopistoma*.

pennulatum, Centroptilum EATON, 1870 (p. 2)
fam. Baetidae, genus *Procloeon.*

pentaphlebodes, Baetis UJHELYI, 1966
(p. 206)
is according to ALBA-TERCEDOR (2002) a subjective junior synonym of *Baetis nexus*, fam. Baetidae. Remark: The formal objection of SARTORI & SOLDÁN (2004: Case 3322) against this synonymy has been rejected by the International Commission of Zoological Nomenclature (ICZN, 2007).

phaeopa, Baetis STEPHENS Cat. 306., No. 3394
is only a catalogue species without description and for this reasion a nomen nudum. Remark: STEPHENS (1836) took *Baetis lateralis* CURTIS, 1834 by mistake into synonymy with his species and gives Curtis' descrition of *Baetis lateralis.* EATON (1870) gives a new own description after revision of Stephens' material emending the spelling to *Baetis phaeops*.

phaeops, Baetis EATON, 1870 (p. 4.)
is according to EATON (1885, 1871) a subjective junior synonym of *Baetis vernus*, fam. Baetidae.

Picteti, Baetis MEYER-DÜR, 1864 (p. 221)
(nomen imperfectum)
fam. Heptageniidae, genus *Ecdyonurus.* Remark: ROSTOCK (1878) regards this species as a subjective junior synonym of *Ephemera venosa* by mistake and in

consequence *Baetis picteti* disappeared for nearly a century in this synonymy until PUTHZ (1975) reerected it after reexamination of the type specimen.

Picteti, Leptophlebia EATON (1871) (p. 87) (nomen imperfectum)
formal new name for *Potamanthus marginatus* PICTET, 1843. fam. Leptophlebiidae, genus *Choroterpes*. Remark: EATON considered PICTET's name as preoccupied (by *Ephemera marginata* LINNAEUS). After terms of today PICTET's name was availalble.

picteti, Rhithrogena SOWA, 1971d (p. 903)
fam. Heptageniidae. Remark: SOWA described this species at first as a subspecies, *R. picteti picteti,* with the sibling species *R. picteti carpatica.* A few years later PUTHZ (1975) discovers the synonymy of *R. carpatica* and *R. iridina,* consequenty *R. picteti picteti became R. iridina picteti.* However the subspecific concept did not prove itselves and since SOWA & DEGRANGE (1987) both taxa are generally considered as valid separate species, namely *R. picteti* and *R. iridina*.

picteti carpathica, Rhithrogena SOWA, 1971d (p. 905)
is according to PUTHZ (1975) a subjective junior synonym of *Baetis iridina*, fam. Heptageniidae, genus *Rhithrogena.*

pisciforme, Binoculus DUMERIL, 1816 (p. 106)
is according to EATON (1884) a subjective junior synonym of *Binoculus foliaceus* and for this reason of *Limulus pennigerus*, fam. Prosopistomatidae, genus *Prosopistoma*.

placita, Leptophlebia BENGTSSON, 1917 (p. 176)
is according to PUTHZ (1978) a subjective junior synonym of *Ephemera cincta*, fam. Leptophlebiidae, genus *Leptophlebia*, see also HAYBACH & JACOB (2006).

plumosa, Ephemera O.F. MÜLLER, 1776 (p. 142) (nomen dubium)
is according to EATON (1871) under reserve a not further identified representative of the genus *Caenis*.

podhalensis, Rhithrogena SOWA & SOLDÁN, 1986 (p. 565)
fam. Heptageniidae.

poecile, Oligoneuriella IKONOMOV, 1962b (p. 69)
is according to JACOB (1972a) and SOWA (1973c) a subjective junior synonym of *Oligoneuriella mikulskii* and for this reason of *Oligoneuria pallida*, fam. Oligoneuriidae, genus *Oligoneuriella.*

polonica, Oligoneuriella MOL, 1984 (p. 127)
fam. Oligoneuriidae.

potamonensis, Centroptilum JACOB, 1973 (p. 169, figs. 1-4)
is according to KEFFERMÜLLER & SOWA (1975) a subjective junior synonym of *Centroptilum pulchrum*, fam. Baetidae, genus *Procloeon*, see also KLUGE & NOVIKOVA (1992).

prætextum, Cloeon BENGTSSON, 1914 (p. 217) (nomen imperfectum)
is according to KIMMINS (1957b) and ILLIES (1967) a subjective junior synonym of *Cloeon simile*, fam. Baetidae. Remark: SOWA (1980) gives some diagnostic features to distinguish both species. They are falling after my own opinion into the range of variation of *C. simile*, see also GLAZACZOW (1994); but contra ENGBLOM (1996).

Principii, Baetis GRANDI, 1949 (p. 295) (nomen imperfectum)
is according to MÜLLER-LIEBENAU (1969) a subjective junior synonym of *Cloë melanonyx*, fam. Baetidae, genus *Baetis.*

procellaria, Ephemera FUEßLIN, 1775 (p. 45)
is according to SCHWARZ (1830) a subjective junior synonym of *Ephemera marginata*, fam. Leptophlebiidae, genus *Leptophlebia* s. str. Rem: After Fueßlin this species has its flightperiod in august and it occurs in masses in the evening after sunset. So it cannot be identical with the spring species *E. marginata*, probably it belongs to the genus *Caenis* or *Ephoron*.

propinqua, Cloe WALSH, 1863 (p. 207)
is a Nearctic taxon that has been suggested to be a subjective senior synonym of *B. tricolor* by NOVIKOVA & KLUGE (1987), see notes to the latter species.

pseudatrebatinus, Baetis GRANDI, 1960 (p. 155, 353) (nomen abortivum).
is according to MÜLLER-LIEBENAU (1969) an erroneously introduced name by GRANDI (1960) for *Baetis subatrebatinus*, fam. Baetidae.

pseudorivulorum, Caenis KEFFERMÜLLER, 1960 (p. 42, pl. 9)
fam. Caenidae. There is one subspecies of MALZACHER (1986: p. 24) from Italy *C. pseudorivulorum belfiorei* which represents after BUFFAGNI (1999) a species propria (*C. belfiorei*). KLUGE

(2004) however calls this species a subjective junior synonym of Caenis *pseudorivulorum*.

pseudorufulum, Procloëon KIMMINS, 1957b (p. 29)
is according to JACOB (1972a) and SOWA (1975a) a subjective junior synonym of *Cloeon bifidum*, fam. Baetidae, genus *Procloeon*.

pulchrum, Centroptilum EATON, 1885 (p. 177)
fam. Baetidae, genus *Procloeon.*

pulchrum, Centroptilum CRASS, 1947 (p. 84) (nomen praeoccupatum)
DEMOULIN (1970) assigned the formal new name *Centroptilum crassi* for this African taxon.

pumila, Cloe BURMEISTER, 1839 (p. 799)
was considered firstly by EATON (1871) under reserve and later by BENGTSSON (1912b) mandatory a subjective junior synonym of *Ephemera mutica*, fam. Baetidae, genus *Baetis* (*Nigrobaetis*). Rem.: This assesment was widely accepted by subsequent revising authors like MÜLLER-LIEBENAU (1969) or LANDA (1969). However the synonymy remains unproven. According to JACOB (1972a) only 1 subimago of the original material (2 ♂. and 1 Subimago), persists the centuries in the collection of Burmeister (museum Halle/ Germany). This specimen bears a label in the authors own writing "`pumila Br., Halae`", and was consequently designated as the lectotype by JACOB. This lectotype was in fact a *Choroterpes picteti*. For reasons of nomenclatural stability this name is protected (~nomen conservandum), and because the original description by BURMEISTERS was founded on the imaginal stages, we follow the recommendation of JACOB to avoid to use the name *pumila* Burmeister.

pumila, Cloe *sensu* RAMBUR, 1842 (p. 298) nec BURMEISTER (nomen abusum)
is accordind to EATON (1871) after revision of the collection of Rambur a *Cloeon russulum*, and thus *Ephemera diptera*, fam. Baetidae, genus *Cloeon.*

punctifrons, Prosopistoma LATREILLE, M., 1833 (p. 34)
is according to EATON (1884) a subjective junior synonym of *Binoculus foliaceus* and thus of *Limulus pennigerus*, fam. Prosopistomatidae, genus *Prosopistoma.*

purpurascens, Baetis PICTET, 1843 (p. 174, 1845: pl. 20 fig. 4
is according to EATON (1871) and KIMMINS (1942) a subjective junior synonym of *Ephemera venosa*, fam. Heptageniidae, genus *Ecdyonurus*.

pusilla, Caenis NAVÁS, 1913 (p. 63, pl. 5)
fam. Caenidae.

pusillus, Baetis BENGTSSON, 1912a (p. 113)
is according to MÜLLER-LIEBENAU (1969) a subjective junior synonym of *Cloë rhodani*, fam. Baetidae, genus *Baetis* (*Rhodobaetis*).

puthzi, Rhithrogena SOWA, 1984 (p. 47)
fam. Heptageniidae.

puytoraci, Rhithrogena SOWA & DEGRANGE, 1987 (p. 524)
fam. Heptageniidae.

pyrenaicus, Siphlonurus NAVÁS, 1930 (p. 53)
is according to PUTHZ (1977b) a subjective junior synonym of *Siphlonurus lacustris*, fam. Siphlonuridae.

Q

quadrilineata, Heptagenia LANDA, 1969 (p. 179, pl. 15 fig. 4Q, p. 194ff.)
fam. Heptageniidae, genus *Electrogena*. Remark: German records refer as a rule to *E. ujhelyii.* Attend to the revision of KLONOWSKA-OLEJNIK (2004).

quadrilineata, Electrogena *sensu* ZURWERRA & TOMKA (1985) not Landa
is by reason of the personally checked collection point „Bohnenbach bei Sipplingen" in southern Baden-Württemberg refering to *Ecdyonurus ujhelyii*, fam. Heptageniidae, genus *Electrogena*.

quaesitor, Ecdyurus EATON, 1883 (pl. 24, fig. 46b)
is according to EATON (1887, p. 286) only a variation and thus a subjective junior synonym of *Ephemera venosa*, fam. Heptageniidae, genus *Ecdyonurus*.

R

Rabaudi, Procloeon VERRIER, 1949b (p. 184) (nomen imperfectum)
is according to SOWA (1980) under reserve a subjective junior synonym of *Cloeon simile*, fam. Baetidae.

Reaumuri, Eucharides JOLY & JOLY, 1876 (p. 314) (nomen imperfectum)
is according to EATON (1884) a subjective junior synonym of *Ephemera lutea* LINNAEUS, fam. Potamanthidae, genus *Potamanthus*.

reticulata, Baetis BURMEISTER, 1839 (p. 801)
is according to EATON (1871) a subjective junior synonym of *Leptophlebia helvipes* and thus of *Ephemera submarginata*, fam. Leptophlebiidae, genus *Leptophlebia* (*Paraleptophlebia*).

reticulata, Ephemera FOURCROY, 1785 (p. 350)
is according to OLIVIER (1791) a subjective junior synonym of *Ephemera lutea*, fam. Potamanthidae, genus *Potamanthus.*

rhenana var. pallida HAGEN, 1855 (p. 268, pl. 3, figs. 1-3)
see *pallida, Oligoneuria.*

rhenana, Oligoneuria IMHOFF, 1852 (p. 180)
is the typical species of the genus *Oligoneuriella*, fam. Oligoneuriidae.

rhenanus, Ecdyurus NEERACHER, 1910 (p. 566)
is according to ULMER (1929) a subjective junior synonym of *Heptagenia insignis,* fam. Heptageniidae, genus *Ecdyonurus.*

rhenicola, Caenis MALZACHER, 1976 (p. 130)
is according to ALBA-TERCEDOR & MALZACHER (1986) a subjective junior synonym of *Caenis pusilla*, fam. Caenidae.

rhithralis, Baetis SOLDÁN & THOMAS, 1983 (p. 356)
is according to NOVIKOVA & KLUGE (1994) a subjective junior synonym of *Baetis digitatus*, fam. Baetidae, genus *Baetis* (*Nigrobaetis*). Remark: This synoynymy is not generally accepted.

rhodani, Cloë PICTET, 1843 (p. 248; 1845: pl. 36-39)
fam. Baetidae, genus *Baetis* (*Rhodobaetis*). There are two subspecies *Baetis rhodani sinespinosus* SOLDÁN & THOMAS, 1983 from Algeria and *Baetis rhodani tauricus* GODUNKO & PROKOPOV, 2003 from the Crim peninsula.

rivulorum, Caenis EATON, 1884 (p. 143)
original as *dimidiata* var. *rivulorum*, fam. Caenidae.

rivulorum, Ecdyonurus NAVÁS, 1928 (p. 46)
is according to THOMAS (1968b) with reservations a subjective junior synonym of *Baetis lateralis*, fam. Heptageniidae, genus *Electrogena*.

rivuscellana, Electrogena SARTORI & LANDOLT, 1991 (p. 460) *In*: LANDOLT et al. (1991)
is according to BELFIORE & DESIO (1995) a subjective junior synonym of *Ecdyonurus ujhelyii*, fam. Heptageniidae, genus *Electrogena*.

robusta, Caenis EATON, 1884 (p. 145)
fam. Caenidae.

robustum, Cloeon BOGOESCU, 1933 (p. 75)
is according to BOGOESCU (1958) a subjective junior synonym of *Ephemera diptera*, fam. Baetidae, genus *Cloeon.*

Rœselii, Palingenia JOLY, 1872 (p. 67, T. 16, pl. 1) (nomen imperfectum)
is according to LESTAGE (1917, 1924a) a subjective junior synonym of *Baetis ignota*, fam. Isonychiidae, genus *Isonychia.*

rolandi, Rhithrogena WEICHSELBAUMER, 1995 (p. 158)
fam. Heptageniidae. Remark: This species is in my own opinion neither conspecific with *R. puytoraci* nor with *R. taurisca*. Egg chorion structures of these three species differ significantly. Differences of penis structure in ♂-imagoes however are inconspicous, nevertheless it is a bona species. Attend to the notes on *R. ferruginea.*

rosea, Ephemera STEPHENS, 1836 (p. 59)
is after revision of typical material by HAGEN (1857) and EATON (1871) a subjective junior synonym of *Ephemera ignita*, fam. Ephemerellidae, genus *Ephemerella*.

rossicus, Ecdyonurus TSHERNOVA, 1928b (p. 321)
is according to JACOB (1972a) a subjective junior synonym of *Ephemera fuscogrisea*, fam. Heptageniidae, genus *Kageronia*, see also PUTHZ (1977b).

Rufa, Ephemera RAMBUR, 1842 (p. 296) (nomen dubium et imperfectum)
Rem.: After its original description this species possesses 3 tails and is about as large as *Ephemera Flavicans* RAMBUR (= *Potamanthus luteus*). Despite this information PICTET (1843) considered it conspecific with his considerable smaller *Potamanthus erythrophtalmus* (= *Ephemerella ignita*), while EATON (1871) considered it after revision in spite of its 3 tails a *Heptagenia* (*venosa*?) ♀-Imago (= *Kageronia fuscogrisea*?).

rufescens, Ephemera STEPHENS, 1836 (p. 59)
is according to PICTET (1843) and after revision of typical material also accordimng to HAGEN (1857) and EATON

(1871) a subjective junior synonym of *Ephemera ignita*, fam. Ephemerellidae, genus *Ephemerella.*

ruffoi, Ecdyonurus BELFIORE & D'ANTONIO, 1991 (p. 255)
is according to BAUERNFEIND (1997) an injustified emendation and therefore an objective younger synonym of *Ecdyonurus ruffii*, fam. Heptageniidae. Authorship according to article 33.2.3, ICZN (1999).

Ruffii, Ecdyonurus GRANDI, 1953 (p. 335) (nomen imperfectum)
fam. Heptageniidae.

rufula, Ephemera O.F. MÜLLER, 1776 (p. 143)
is according to SOWA, (1975b) a subjective junior synonym of *Ephemera diptera*, fam. Baetidae, genus *Cloeon*. Remark: KIMMINS (1957b) and JACOB (1972a) regard *rufula* a synonym of *Cloeon inscriptum* synonym. Attend to the notes on *Cloeon rufulum*.

rufulum, Cloeon sensu EATON, ULMER, SCHOENEMUND et auct. (nomen abusum)
is according to KIMMINS (1957b) and JACOB (1972a) refering to *Cloeon bifidum*, fam. Baetidae, genus *Procloeon.*

russula, Ephemera auct.
is according to EATON (1871) an accidental misspelling of *Ephemera rufula*, see there.

russulum, Cloeon auct.
is according to EATON (1871) an accidental misspelling of *Cloeon rufulum*, see there.

S

samalorum, Ecdyonurus LANDA & SOLDÁN, 1982 (p. 31) (species inquirenda)
fam. Heptageniidae, genus *Electrogena.* Remark: This species needs a revision. It falls probably into the variation range of *Ecdyonurus ujhelyii*.

savoiensis, Rhithrogena ALBA-TERCEDOR & SOWA, 1987 (p. 76)
fam. Heptageniidae.

scambus, Baetis EATON, 1870 (p. 3)
fam. Baetidae.

scanicus, Baëtis BENGTSSON, 1917 (p. 188)
is according to MÜLLER-LIEBENAU (1964) a subjective junior synonym of *Baetis buceratus*, fam. Baetidae.

Schoenemundi, Cloëon BENGTSSON, 1936 (p. 3) (nomen dubium et imperfectum)
falls after my own opinion into the variation range of *Cloeon simile*, fam. Baetidae. Remark: I'm following here the opinion of ILLIES (1967). SOWA (1980) gives some distinguishing characters based on french specimens (locus typi: Denmark!) but they are not really convincing me as do the characters introduced by ENGBLOM (1996).

semicolorata, Baetis *sensu* PICTET, 1843 nec CURTIS (nomen abusum)
is according to SOWA (1971d) refering to *Rhithrogena picteti*, fam. Heptageniidae.

semicolorata picteti, Rhithrogena SOWA, 1971 (sensu ZURWERRA et al. 1987)
is an inmotivated and generally not accepted downgrading of *Rhithrogena picteti*, fam. Heptageniidae ZURWERRA, METZLER & TOMKA (1987) to a subspecies of *B. semicoloratus*, fam. Heptageniidae.

semicoloratus, Baetis CURTIS, 1834 (p. 121)
is the typical species of the genus *Rhithrogena*, fam. Heptageniidae.
Remark: Records in old literature may represent any species of the genus.

semitincta, Baetis PICTET, 1843 (p. 180, 1845: pl. 22, figs. 1-3)
is according to EATON (1871) and SOWA (1971d) a subjective junior synonym of *Baetis semicoloratus*, fam. Heptageniidae, genus *Rhithrogena*.

semitincta, Rhithrogena sensu KIMMINS (1936), nec PICTET (nomen abusum)
is according to SOWA (1971d) refering to *Rhithrogena picteti*, fam. Heptageniidae.

shadini, Pseudocentroptilum ? KAZLAUSKAS, 1964 (p. 170) (nomen imperfectum)
is according to KLUGE & NOVIKOVA (1992) a subjective junior synonym of *Centroptilum nana*, fam. Baetidae, genus *Pseudocentroptiloides*.

sibirica, Ephemerella TSHERNOVA, 1952 (p. 278)
is according to BAYKOVA (1972) a subjective junior synonym of *Ephemera ignita*, fam. Ephemerellidae, genus *Ephemerella.*

silvaegabretae, Ecdyonurus SOLDÁN & GODUNKO, 2006 (p. 161)
fam. Heptageniidae.

simile, Cloeon EATON, 1870 (p. 2)
is the typical species of the subgenus *Similecloeon*. fam. Baetidae.

sinaïca, Acentrella BOGOESCU, 1931 (p. 197) (nomen imperfectum)
fam. Baetidae, genus *Baetis* (*Acentrella*).

sinensis, Caenis WALKER, 1853 (p. 584)
is after a revision of typical specimens by EATON (1871) with reservations a subjective junior synonym of *Cloeon russulum* and for this reason of *Ephemera diptera*, fam. Baetidae, genus *Cloeon*, and this diagnosis was confirmed by KIMMINS (1960) after re-examination of the type.

soldatovi, Heptagenia TSHERNOVA, 1952 (p. 253)
is according to KLUGE (1987) a subjective junior synonym of *Ephemera sulphurea*, fam. Heptageniidae, genus *Heptagenia*. Remark: When accepting *Heptagenia dalecarlica* BENGTSSON, 1912, as a species propria, this synonym is refering to *dalecarlica* and not to *sulphurea*.

southi, Haplogenia BLAIR, 1929 (p. 255)
is according to BENGTSSON (1930a) a subjective junior synonym of *Arthroplea congener*, fam. Arthropleidae.

Speciosa, Ephemera PODA, 1761 (p. 98)
(nomen dubium et imperfectum)
was transferred by EATON (1871) into the genus *Baetis* and declared as *species incerta.*

spinosus, Siphlurus BENGTSSON, 1904 (p. 131)
is a nomen nudum.

spinosus, Siphlurus BENGTSSON, 1909 (p. 10)
is according to BENGTSSON (1917) a subjective junior synonym of *Siphlurus aestivalis*, fam. Siphlonuridae.

starmachi, Ecdyonurus SOWA, 1971a (p. 407)
fam. Heptageniidae.

Steinmanni, Iron LEGER, 1926 (p. 339)
(nomen imperfectum)
is according to ULMER (1929) a subjective junior synonym of *Heptagenia alpicola*, fam. Heptageniidae, genus *Iron* (*Alpiron*).

stenopteryx, Centroptilum EATON (1871) (p. 110, pl. 5. figs. 15, 15a, Kärnten)
(species inquirenda)
fam. Baetidae, genus *Procloeon*. Remark: JACOB (1973) considered this species as close related to the *pennulatum*-species group of *Centroptilum* so that this species falls after the extended genus definition of KLUGE & NOVIKOVA (1992) in *Procloeon* but I don't know exactely which author first combined it into this genus.

stigma, Ephemera GMÉLIN, 1789 (p. 2630)
(nomen dubium)
is according to EATON (1871) a subimago presumably of *Heptagenia lateralis* or *H. semicolorata.*

stigma, Ephemera STEPHENS, 1836 (p. 56)
(nomen praeoccupatum)
is according to EATON (1871) a subjective junior synonym of *Ephemera marginata*, fam. Leptophlebiidae, genus *Leptophlebia.*

straminea, Baetis CURTIS, 1834 (p. 121)
is a subimago and is according to PICTET (1843) under reserve a subjective junior synonym of *Ephemera sulphurea*, fam. Heptageniidae, genus *Heptagenia.*

striata, Ephemera LINNAEUS, 1767 (p. 907)
(nomen abortivum)
is already after Linnaeus (1767) himself an unnecessary replacement name and probably also an objective younger synonym of *Ephemera mutica*, fam. Baetidae, genus *Baetis* (*Nigrobaetis*).

striata, Baetis *sensu* STEPHENS, 1836 nec LINNAEUS (nomen abusum)
is according to EATON (1871) after revision of Stephens' collection refering to *Baetis phaeops* and thus in terms of today to *Baetis vernus*, fam. Baetidae.

striatum, Centroptilum BENGTSSON, 1904 (p. 131)
ist ein nomen nudum.

subalpinus, Baetis *sensu* MÜLLER-LIEBENAU, 1960 nec BENGTSSON (nomen abusum)
is according to MÜLLER-LIEBENAU (1967) refering to *Baetis lutheri*, fam. Baetidae.

subalpinus, Ecdyurus KLAPÁLEK, 1907 (p. 33)
fam. Heptageniidae, genus *Ecdyonurus.*

subatrebatinus, Baetis GRANDI, 1957 (p. 119)
is according to MÜLLER-LIEBENAU (1969) a subjective junior synonym of *Acentrella sinaica*, fam. Baetidae, genus *Baetis* (*Acentrella*). A further accidental introduced name for this species is *pseudatrebatinus*.

subfusca, Baetis STEPHENS, 1836 (p. 64)
is according to EATON (1871) refering to *H. longicauda sensu* EATON nec STEPHENS, and is thus a subjective junior synonym of *Baetis dispar*, fam. Heptageniidae, genus *Ecdyonurus*, cf. KIMMINS (1942a).

subinfuscata, Cloë RAMBUR, 1842 (p. 298) (nomen dubium)
is according to EATON (1871) a female subimago of the genus *Cloeon*, fam. Baetidae.

sublongicauda, Palingenia TSHERNOVA, 1949 (p. 303)
is the eastern sibling species of *Ephemera longicauda.* This species is frequently regarded as a subjective junior synonym of *Ephemera longicauda*, the latter showing a Centraleuropean and Danubian distribution.

submarginata, Ephemera STEPHENS, 1836 (p. 58)
fam. Leptophlebiidae, genus *Leptophlebia* (*Paraleptophlebia*).

submontanus, Ecdyonurus LANDA, 1969 (p. 199 pl. 17 fig. 3 SM, p. 210 ff.)
fam. Heptageniidae.

sulphurea, Ephemera O.F. MÜLLER, 1776 (p. 142)
fam. Heptageniidae, genus *Heptagenia.*

swammerdiana, Ephemera LATREILLE, P. A., 1805 (p. 96)
is according to BURMEISTER (1839), based on an indication to SWAMMERDAM' Biblia natura 2: pl. 13, a subjective junior synonym of *Ephemera longicauda*, fam. Palingeniidae, genus *Palingenia*.

Swammerdamiana, Ephemera SHAW, 1806 (p. 82) (nomen imperfectum)
Is again based on the figures of SWAMMERDAM and his descriptions in the Biblia natura (l. c.) and is thus according to EATON (1871) a subjective junior synonym of *Ephemera longicauda*, fam. Palingeniidae, genus *Palingenia*.

sylvicola, Baetis PICTET, 1865 (p. 24, pl. 3 figs. 7-12)
is a valid but endemic species of the Iberian peninsula. Meanwhile it was erroneously taken into synonymy with *Epeorus assimilis* by PUTHZ (1973c), see THOMAS et al. (2000a).

sylvicolus, Epeorus THOMAS, MARIE & BRULIN, 2000a (p. 86)
is according to THOMAS & BRULIN (2001) an injustified emendation and for this reason an objective younger synonym of *Baetis sylvicola*, fam. Heptageniidae. Authorship according to article 33.2.3 of the code (ICZN, 1999).

szegedi, Cloeon JACOB, 1969 (p. 167)
is according to SOWA (1975b) under reserve and after PUTHZ (1978) authorative a subjective junior synonym of *Ephemera diptera*, fam. Baetidae, genus *Cloeon*. Remark: JACOB (1972a) calls it a well separable "Kleinart" (minor species) within the *Cloeon dipterum* relatedness.

T

talcosa, Ephemera STEPHENS, 1836 (p. 57)
is according to EATON (1871) a subjective junior synonym of *Ephemera marginata*, fam. Leptophlebiidae, genus *Leptophlebia.*

tatrica, Rhithrogena ZELINKA, 1953 (p. 157)
is according to THOMAS (1970) a subjective junior synonym of *Rhithrogena loyolaea*, fam. Heptageniidae. Remark: See KLONOWSKA-OLEJNIK & GODUNKO (2003) for a second opinion.

taurisca, Rhithrogena BAUERNFEIND, 1992 (p. 140)
fam. Heptageniidae.

tenax, Baetis EATON, 1870 (p. 5)
is according to MÜLLER-LIEBENAU (1969) a subjective junior synonym of *Baetis vernus*, fam. Baetidae.

tenellum, Centroptilum ALBARDA, 1878 (p. 128)
fam. Baetidae, genus *Raptobaetopus.*

testacea, Ephemera GMÉLIN, 1789 (p. 2630)
is according to EATON (1871) under reserve a subjective senior synonym of *Baetis phaeops* and for this reason of *Baetis vernus*, fam. Baetidae.

Thomsoni, Siphlurella BENGTSSON, 1909 (p. 11) (nomen imperfectum)
is according to LESTAGE (1924) and ULMER (1927) a subjective junior synonym of *Siphlurus linnaeanus* and for this reason of *Baetis alternata*, fam. Siphlonuridae, genus *Siphlonurus (Siphlurella)*.

torrentis, Ecdyonurus KIMMINS, 1942 (p. 492)
fam. Heptageniidae.

torrentium, Epeorus EATON, 1881 (p. 26) is an endemic species of the Iberian peninsula and the Pyrenean mountains and is the typical species of the genus *Epeorus*, fam. Heptageniidae.

torrentium, Ephemerella BENGTSSON, 1917 (p. 178)

is according to ULMER (1920a) an injustified emendation of *Ephemerella lactata* BENGTSSON, 1909 and for this reason an objective younger synonym of *E. lactata* according to article 33.2.3, of the code (ICZN, 1999). It represents in addition according to BREKKE (1965) a subjective junior synonym of *Ephemera ignita*, fam. Ephemerellidae, genus *Ephemerella*. This species includes 2 forms with 4 varieties which are all synonyms: *torrentium* var. *typica* BENGTSSON, 1917 (p. 179), *torrentium* var. *obscura* BENGTSSON, 1917 (p. 179), *torrentium* var. *rufescens* BENGTSSON, 1917 (p. 179), *torrentium* var. *variegata* BENGTSSON, 1917 (p. 180) and *torrentium* forma *lactata* BENGTSSON, 1917 (p. 180).

tracheatus, Baetis KEFFERMÜLLER & MACHEL, 1967 (p. 7)
fam. Baetidae.

translucida, Cloë PICTET, 1843 (p. 255, 1845: pl. 40, figs. 3-4)
is according to EATON (1871) a subjective junior synonym of *Ephemera luteola*, fam. Baetidae, genus *Centroptilum.*

tricolor, Baetis TSHERNOVA, 1928b (p. 320)
fam. Baetidae, genus *Baetis* (*Labiobaetis*). Remark: *B. tricolor* has been taken meanwhile into synonymy with the nearctic species *Cloe propinqua* WALSH, 1863 by NOVIKOVA & KLUGE (1987). This opinion was however not accepted by MCCAFFERTY & WALTZ (1995) and auct. seq.

tumida, Cænis BENGTSSSON, 1912a (p. 108)
is according to KLUGE (1997) a subjective junior synonym of *Oxycypha lactea*, fam. Caenidae, genus *Caenis*. Remark: SAARISTO (1966) already stresses its probable synonymy with *Caenis nocturna*, whereas JACOB (1974b) and MALZACHER (1986) didn't mention this species at all.

tumida, Paraleptophlebia BENGTSSON, 1930b (p. 8)
is according to LANDA (1969), a subjective junior synonym of *Paraleptophlebia werneri*, fam. Leptophlebiidae, genus *Leptophlebia* (*Paraleptophlebia*).

U

ujhelyii, Ecdyonurus SOWA, 1981 (p. 376)
fam. Heptageniidae, genus *Electrogena.*

Ulmeri, Behningia LESTAGE, 1929 (p. 436) (nomen imperfectum)
is the typical species of the genus *Behningia*, fam. Behningiidae.

ulmeri, Caenis BRODSKY, 1930b (p. 686)
is according to MALZACHER (1993) a subjective junior synonym of *Caenis robusta*, fam. Caenidae.

undosa, Caenis TIENSUU, 1939 (p. 122)
is according to SAARISTO (1966) a subjective junior synonym of *Oxycypha lactea*, fam. Caenidae, genus *Caenis*.

unicolorata, nympha sp., Chitonophora IKONOMOV, 1961 (p. 67) (nomen imperfectum)
was, so far as I could see, firstly considered by JACOB (1972a) to be a subjective junior synonym of *Chitonophora krieghoffi* and for this reason it was considered only as subspecific diverse from *Chitonophora mucronata.* SOLDÁN (1982), in his revison of the Balcan species of the Ephemerellidae lists *unicolorata* likewise as a subspecies of *C. mucronata.* However, the subspecies concept within *C. mucronata* has not been widely accepted because of high variability of many features so that all subspecies are listed at the latest since STUDEMANN et al. (1992) as synonyms of *C. mucronata*, e.g. currently by KLUGE (2004).

unicolore, Cloeon CURTIS, 1834 (p. 121) (nomen dubium)
is according to EATON (1871: p. 24) a species dubia.

Ussingi, Rhithrogena ESBEN-PETERSEN, 1910 (p. 313) (nomen imperfectum)
is according to MOSELY (1932) a subjective junior synonym of *Rhithrogena haarupi* and for this reason of *Rhithrogena germanica,* fam. Heptageniidae.

V

vaillanti, Rhithrogena SOWA & DEGRANGE, 1987a (p. 487)
fam. Heptageniidae.

vardarensis, Baetis sp. nympha IKONOMOV, 1962a (p. 108) (nomen imperfectum)
fam. Baetidae.

venosa, Ephemera FABRICIUS, 1775 (p. 243)
is the typical species of the genus *Ecdyonurus* EATON, fam. Heptageniidae.
Remark: Note that older records in the literature may also represent several other congeneric species. See HAYBACH & JACOB (2006) for the identy of the type.

venosus, Ecdyonurus EATON, 1887, nec FABRICIUS (nomen abusum)

is, according to Kimmins (1942), at least in part refering to *Baetis dispar*, fam. Heptageniidae, genus *Ecdyonurus.*

venustulus, Baetis EATON, 1885 (p. 160)
is according to MÜLLER-LIEBENAU (1967) a subjective junior synonym of *Ephemera fuscata*, fam. Baetidae, genus *Baetis*.

verna, Baetis STEPHENS, 1836 (p. 66)
could be interpreted as an erroneously misspelling of Baetis vernus or as an injustified emendation and for this reason a younger objective synonym of *Baetis vernus*, fam. Baetidae, according to article 33.2.3 of the code (ICZN 1999).

vernalis, Siphlonurus TSHERNOVA, 1928a (p. 115)
is according to PUTHZ (1977b) a subjective junior synonym of *Siphlurus aestivalis*, fam. Siphlonuridae, genus *Siphlonurus*; cf. JACOB (1972a: p. 33).

vernus, Baetis CURTIS, 1834 (p. 121)
fam. Baetidae.

vespertina, Ephemera LINNAEUS, 1758 (p. 547)
is the typical species of the genus *Leptophlebia*, fam. Leptophlebiidae.

virgo, Ephemera OLIVIER, 1791 (p. 419)
is the typical species of the genus *Polymitarcys* EATON, which represents a younger subjective Synonym of *Ephoron* WILLIAMSON, fam. Polymitarcyidae.

Virgo, Cloeon *sensu* STEPHENS, 1836 (p. 70) nec OLIVIER (nomen abusum)
is according to EATON (1871) refering to *Ephemera diptera*, after SOWA (1975b) however it is refering to *Cloeon cognatum*, fam. Baetidae.

viride, Cloëon SCHNEIDER, 1885 (p. 29)
is according to KEFFERMÜLLER (1972b) probably a colour variety of *Cloeon simile*, fam. Baetidae. After ULMER (1927) this species is doubious, and its type has been lost.

viridescens, Ephemera FOURCROY, 1785 (p. 351)
is according to OLIVIER (1791) a subjective junior synonym of *Ephemera marginata*, fam. Leptophlebiidae, genus *Leptophlebia.*

vitreata, Ephemera ZETTERSTEDT, 1840 (p. 1045)
is according to EATON (1871) a subjective junior synonym of *Ephemera cincta*, but after BENGTSSON (1912b) after revision of Zetterstedt' collection a subjective junior synonym of *Ephemera vespertina*, fam. Leptophlebiidae, genus *Leptophlebia*.

volitans, Heptagenia EATON, 1870 (p. 7)
is according to BENGTSSON (1912b) a subjective junior synonym of *Ephemera fuscogrisea*, fam. Heptageniidae, genus *Kageronia*.

vulgata, Ephemera LINNAEUS, 1758 (p. 906)
is the typical species of the genus *Ephemera*, fam. Ephemeridae.

vulpecula, Rhitrogena [sic] KLAPÁLEK, 1905b (p. 76)
is according to SOWA (1971d) a subjective junior synonym of *Baetis semicoloratus*, fam. Heptageniidae, genus *Rhithrogena*.

W

Wallengreni, Baetis BENGTSSON, 1912a (p. 112) (nomen imperfectum)
is according to MÜLLER-LIEBENAU (1964) a subjective junior synonym of *Cloe rhodani*, fam. Baetidae, genus *Baetis* (*Rhodobaetis*).

wartensis, Baëtopus KEFFERMÜLLER, 1960 (p. 425)
is the typical species of the genus *Baetopus*, fam. Baetidae.

wautieri, Ecdyonurus FONTAINE, 1964 (p. 84)
is according to PUTHZ (1975) a subjective junior synonym of *Ecdyonurus ruffii*, fam. Heptageniidae.

Werneri, Paraleptophlebia ULMER, 1920b (p. 25) (nomen imperfectum)
fam. Leptophlebiidae, genus *Leptophlebia* (*Paraleptophlebia*).

Z

zelinkai, Rhithrogena SOWA & SOLDÁN, 1984 (p. 81) (species inquirenda)
is after my own opinion falling in the range of variety of the expansive high mountain species *Rhithrogena loyolaea*, fam. Heptageniidae. Imaginal stages are unknown. See KLONOWSKA-OLEJNIK & GODUNKO (2003) for a differing opinion (bona species).

zelleri, Ecdyurus EATON, 1885 (p. 239)
The original „description" is more than poor. It consists only of an indication to a figure of a male genital that has been wrongly misapplied to "*alpicola*" in EATON (1871) (pl. 6, fig. 19). In the same script, EATON (1885: p. 286),

zelleri was taken into synonymy with *forcipula*. Firstly the careful revision by KIMMINS (1958) gives *zelleri* a separate status of a valid species again. Fam. Heptageniidae, genus *Ecdyonurus*.

zettana, Ephemera KIMMINS, 1937 (p. 431)
fam. Ephemeridae.

Zetterstedti, Siphlurus BENGTSSON, 1904 (p. 131) (nomen imperfectum)
is a nomen nudum.

Zetterstedti, Siphlurus BENGTSSON, 1909 (p. 9) (nomen imperfectum)
is according to ESBEN-PETERSEN (1916) a subjective junior synonym of *Siphlonurus lacustris*, fam. Siphlonuridae.

zimini, Cloeon TSHERNOVA, 1931 (p. 214)
is according to KLUGE (1995) a subjective junior synonym of *Ephemera diptera*, fam. Baetidae, genus *Cloeon.*

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* = not seen in original

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8. Terms and Abbrevations

♀ female
♂ male

auct. auctorum [lat.]: Of (subsequent) authors, often given to indicate that a name is used in the sense of a number of subsequent authors and not in its (different) sense as established by the original author.
cf. conferre [lat.] compare!
comb. Short for nov. comb. nova combinatio [lat.]: A new combination of genus and species validly published for the first time.
falsus [lat.]: False. Often used if a synonymy took place falsely after modern view.
incl.: Short for inclusive. A species is interpretd in a wide sense, including another younger species, which represents presumable a younger subjective ((⇨) synonym.
junior synonym: The later published of two or more different names applied to one and the same taxon. ⇨ Synonym.
LF Limnofaunistic region after ILLIES (1978): LF 4: Alps, LF 8: Western Mountains, LF 9: Central Mountains, LF 10: The Carpathians, LF 11: Hungarian Plains, LF 12: Pontic Province, LF 13: Western Lowlands, LF 14: Central Lowlands, LF 15: Baltic Province, LF 16: Eastern Lowlands, LF 17: Ireland, LF 18: England.
locus typi [lat.] 'place of the type'; the geographical place from where the type specimen of a taxon of a species group is from. Often, but not totally correct named 'locus typicus'.
nec [lat.]: And not (of), nor (of).not; e.g. in combination with a species name between two authornames: *lutea* Fourcroy nec Linnaeus, supposed is the species 'lutea' described from F., and not from L..
nomen abortivum [lat.]: unauthorized newly introduced name, here including unnecessary replacement also.
nomen abusum [lat.]: Misinterpretation. An author describes or figures a species under an already existing species name. These misinterpretations are not relevant for nomenclatural reasons. However, their knowlege facilitates the interpretation of older faunistic or taxonomic literature much.
nomen ambiguum [lat.]: Ambiguous name, one which has been used so long by different authors in different senses that it has become a persistent cause of error and confusion.
nomen dubium [lat.]: Doubtful or dubious names, names which are not certainly applicable to any known taxon or for which the evidence is insufficient to permit recognition of the taxon to which they belong. May possess availability conducive to uncertainty and instability.
nomen imperfectum [lat.]: Imperfect names, available names which when originally published met all mandatory requirements of the Code (i.e. met all criteria of availability - Articles 10-20 (ICodeZN)) but which contained some defect needing correction after Art. 32.5, such as names incorporating hyphens, diacritical marks (e. g. ë), double letters (e.g. œ or æ) or apostrophes, higher taxon names using an incorrectly formed stem or species names with a capital first letter.
nomen invalidum [lat.]: Invalid name. As a rule species names published before 1758, the year of the 10th edition of the 'Systema Natura" of LINNAEUS, or, when published after 1758 not consistent with the binominal nomenclature.
nomen novum [lat.]: New name which is expressly proposed as a replacement name for a preoccupied name, automatically takes the same type and type locality.
nomen nudum [lat.]: 'Naked name', always an invalid name, e.g. a species name which was published without a description, A name that, if published before 1931, fails to conform to Article 12 (ICodeZN); or, if published after 1930, fails to conform to Article 13 (ICodeZN). A nomen nudum is not an available name, and therefore the same name may be made available later for the same or a different concept; in such a case it would take authorship and date [Articles 50, 21 (ICodeZN)] from that act of establishment, not from any earlier publication as a nomen nudum.
nomen oblitum [lat.]: Forgotten names, senior synonyms which have remained unused in the literature for many years (more than 50). Have been treated differently by different editions of the Code, and remain unavailable names.
nomen praeoccupatum [lat.]: Preoccupied name of the genus or species group. A preoccupied name must be replaced by a formal new name (⇨ nomen novum).
nomen protectum [lat.]: 'Protected name' applied to a name which has been given precedence over it unused senior synonym or senior homonym relegated to the status of nomen oblitum (see Article 23.9.2 (ICodeZN)).
objective synonym: Each of two or more different names applied to one and the same taxon based on the same type. ⇨ Synonym.

orig. originalis [lat.] original, pristine. Designates the original combination of a genus and species name. Only mentioned if the species name was transferred to another genus later or if the spelling of species name was changed.

rev. reviso [lat.]: revise. It is used in the text to designate the authors who revised the original material. This author may be therefore more reliable than another (maybe older) author who decides after the descriptions only.

senior synonym: The earlier published of two or more different names applied to one and the same taxon. ⇨ Synonym.

sensu [lat.]: in the sense of. Often used to refer to the usage of a name by a (cited) author in a sense different from that of the original author or some other previous author.

sequus [lat.] subsequent; the subsequent (authors).

sg. [lat.]: Short for subgenus

Si. Subimago. The subimago is the stage of development in an insect in which the insect is winged and capable of flight but (usually) not yet sexually mature. With sexual maturity, after another moulting, the insect reaches its full adult (imago) stage. This stage is restricted to extatnt mayflies.

species dubium [lat.]: doubious species.

species inquirenda [lat.]: A species to be queried, a doubtfully identified species requiring further investigation.

species propria [lat.]: about ‚discrete species'. Often used to label an injustified synonym.

s. str. sensu stricto or sensu strictiore [lat.]: in the narrow or in the narrower sense.

subjektives Synonym: Each of two or more different names applied to one and the same taxon based on different types, but regarded as referring to the same taxon by those who hold them to be synonyms. See ⇨ Synonym.

syn. Synonym [gr.]: synónymos. Each of two or more different names applied to one and the same taxon. ⇨ Younger synonym, ⇨ Older synonym, ⇨ Objective synonym and ⇨ Subjective synonym.

syn. ?: A ⇨ synonym that is designated as probable but not certain by the revising author, the synonym is under reserve.

tr. transgrediens [lat.] to transgress.

via [lat.] Way, Street. Used only in context with a synonym. One species was regarded as a synonym of another, what was then treated as a synonym of a third species itself, quasi making a detour, e.g. JACOB (1972a) proprosed the synonym of *Oligoneuriella poecile* and *O. mikulskii,* which was regarded as a synonym of *O. pallida* by SOWA (1973c). In consequence *O. poecile* becomes a synonym of *O. pallida* via *O. mikulskii*.

t., teste [lat.]: "investigated by ...", mostly in combination with an authorname.

typ. subgen. [lat.] typus subgeneris: Type of the subgenus.

typ. gen. [lat.] typus generis: Type of the genus.

* in chapter 4. This Taxon has not been recorded in Germany, Austria or Switzerland yet, but in a neighbouring limnofaunistic region and so may have been overlooked or could be expectetd.

* in chapter 7. This reference has not been studied in original form.

: in combination with an authorname, in the sense of (= sensu).

? prefixing a synonymy means that the synonym is questionable after current knowledge.

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