Case 3402

PHOTININI LeConte, 1881 (Insecta, Coleoptera) and PHOTININAE Giglio-Tos, 1915 (Insecta, Mantodea): proposed resolution of homonymy between family-group names

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Abstract. The purpose of this application, under Articles 23.9.5, 29, 33.2.3.1, 55.3.1 and 70.2 of the Code, is to remove the homonymy between the beetle family-group name photinini LeConte, 1881 (type genus Photinus Laporte, 1833) and the mantis family-group name photininae Giglio-Tos, 1915 (type genus Photina Burmeister, 1838). It is proposed that the stem of Photina Burmeister, 1838 be changed from photi- to photina- so that the tribe name will be emended to PHOTINAI Ni Giglio-Tos, 1915 and the subfamily name to PHOTININAe Giglio-Tos, 1915. The family-group names photinini and photininae have a complex nomenclatural history due to a misspelled name of the type species, overlooked type species designation, homonymy and synonymy. The name Lampyris pollens Fabricius, 1798, has been used for the type species of the genus Photinus Laporte, 1833 in most modern taxonomic treatments of LAMPYRIDAE. However this is an incorrect subsequent spelling of Lampyris pullens Fabricius, 1798, which has never been used since it was established. There was an earlier and overlooked designation of Lampyris diaphana Germar, 1824 (currently Cratomorphus diaphanus) as the type species of Photinus Laporte, 1833, which renders Cratomorphus Motschulsky, 1853 a subjective junior synonym of Photinus Laporte, 1833. It is proposed that the spelling Lampyris pullens be deemed correct and all previous type fixations for Photinus Laporte, 1833 before that of Lampyris pullens Fabricius, 1798 by Fleutiaux et al. (1947) be set aside. Mantis vitrea Burmeister, 1838 (currently Photina vitrea Burmeister) has been designated as the type species of the genus Photina Burmeister, 1838. However it is a junior primary homonym of Mantis vitrea Stoll, 1813 (a junior subjective synonym of Hierodula venosa Olivier, 1792). It is proposed to rule that the name Mantis vitrea Burmeister. 1838 is not invalid by reason of its being a junior primary homonym of Mantis vitrea Stoll, 1813.

Keywords. Nomenclature; taxonomy; Insecta; Coleoptera; Mantodea; LAMPYRIDAE; PHOTININI; PHOTINAI Ni; PHOTININAe; PHOTININAe; Photinus; Photina; Photinus pullens; Photina vitrea; fireflies; lightning bugs; praying mantises.
Photinus Laporte, 1833

1. The genus Photinus was established by Laporte, 1833 (p. 140) as a subgenus of Lampyris Linnaeus, 1758 to include 53 species of fireflies. Some of these species have subsequently been moved to several other genera.

2. Blanchard (1845a, p. 114) designated Lampyris diaphana Germar, 1824 (p. 64) as the type species of Photinus Laporte, 1833 (see Sherborn & Griffin, 1934 for the publication date of Blanchard’s work). Upon subdividing the genus Photinus, Motschulsky (1853, p. 35) transferred L. diaphana Germar to the genus Cratomorphus Motschulsky, 1853, which is currently a well known and widely used generic name (see para. 7 below). While designation of L. diaphana Germar, 1824 as the type species of Photinus is valid, its acceptance makes Cratomorphus Motschulsky, 1853 a junior subjective synonym of Photinus Laporte, 1833, and Photinus Laporte, 1833 would replace Cratomorphus Motschulsky, 1853 for a group of insects to which Photinus has not been applied since 1853.

3. Motschulsky (1853, p. 40) designated Lampyris vittigera Gyllenhal in Schönherr, 1817 (p. 21) as the type species of Photinus Laporte, 1833. However, Blanchard’s (1845a) valid designation of Lampyris diaphana as the type species pre-dates Motschulsky’s designation.

4. Subsequently, Gorham (1880, p. 22) designated Lampyris corrusca Linnaeus, 1767 (p. 644) as the type species of Photinus Laporte, 1833, without reference to Blanchard’s (1845a) paper. This designation was also invalid. In addition, Lampyris corrusca Linnaeus, 1767 had already been assigned to Ellychnia Blanchard, 1845 (see Blanchard, 1845b, p. 54) and had been designated as the type species of that genus by Motschulsky (1853, p. 27).

5. Laporte, 1833 (p. 153) listed Lampyris pullens Fabricius, 1798 (p. 124) as a species belonging to Photinus, but misspelled the name as Photinus pallens. Gemminger & Harold (1869, p. 1643) also misspelled the specific name as Photinus pullens (Fabricius, 1798), which since become the universally accepted spelling of the species name. To our knowledge, the original spelling, as published in the binomen Lampyris pullens Fabricius, 1798, has never been used since it was established, thus satisfying the requirement of Article 23.9.1.1 of the Code. However, even though the spelling Photinus pallens (Fabricius) has been used in all pertinent publications since 1833, a total of twenty-five works have not been published on this species ‘... in the immediately preceding 50 years’, thereby not satisfying the requirement of Article 23.9.1.2 of the Code. Unfortunately, we could only uncover a total of twenty-eight works in the preceding 138 years, seventeen of which fall in the preceding 50 years (Gemminger & Harold, 1869; Gorham, 1898; Olivier, 1902, 1907; Leng & Mutcher, 1922; Mutcher, 1923; Buck, 1937, 1941, 1948; Barber, 1941; Fleutiaux et al., 1947; Smith, 1963; Seliger & McElroy, 1964; Seliger et al., 1964a, 1964b; Biggley et al., 1967; Lloyd, 1969, 1980, 1998; McDermott & Buck, 1959; McDermott, 1964, 1966; Lall & Lloyd, 1989; Waldbauer, 2000; Buck & Case, 2002; Case & Hanson, 2004; Lund, 2005; McElroy & Harvey, 2005). Therefore, in order to maintain nomenclatural stability we refer this matter to the Commission for a ruling under the plenary power to conserve the subsequent spelling Lampyris pullens Fabricius, 1798 under Article 33.2.3.1 of the Code, as it has come into prevailing use.

6. Fleutiaux et al. (1947, p. 160) designated Lampyris pullens Fabricius, 1798 (spelled as Lampyris pallens) as the type species of Photinus Laporte, 1833, though
they incorrectly attributed *Lampyris pallens* to Browne (1756, p. 431). No mention of the name *Lampyris pallens* or *Lampyris pullens* appears in Browne (1756). Although this designation is invalid, Olivier (1902, 1907) and Leng & Mutchler (1922) used *L. pullens* (spelled as *L. pallens*) as a typical example for *Photinus* previous to the action of Fleutiaux et al. (1947, p. 160). In addition, in his two important works on the taxonomy of *Lampyridae*, McDermott (1964, p. 26, 1966, p. 35) listed *Lampyris pullens* Fabricius, 1798 (spelled as *Lampyris pallens*) as the type species of *Photinus* Laporte, 1833. In both of these works, McDermott noted that ‘Application has been made to the International Commission on Zoological Nomenclature for the validation of this type fixation so that the accepted usage of the name can be conserved’. Unfortunately, it appears as though McDermott’s case was never submitted to the Commission. The name *Lampyris pullens* Fabricius, 1798 (spelled as *Lampyris pallens*) has been used for the type species of the genus *Photinus* Laporte, 1833 in all of the most recent taxonomic treatments of *Lampyridae* (see Olivier, 1902, 1907; Leng & Mutchler, 1922; McDermott, 1964, 1966).

7. It is recognized herein that Blanchard’s (1845a, p. 114) designation of *Lampyris diaphana* Germar, 1824 as the valid type species for *Photinus* Laporte has renders *Cramonomus* Motschulsky, 1853 (p. 35) a junior synonym of *Photinus* Laporte, 1833. However, these two genera have been accepted as distinct since the subdivision of *Photinus* by Motschulsky in 1853 (p. 35) and are both in current use (Motschulsky, 1853; Lacordaire, 1857; Gorham, 1880, 1884; Olivier, 1895a, 1895b, 1907, 1911; Leng & Mutchler, 1922; McDermott, 1964, 1966; Bohorquez, 1993; Viviani & Bechara, 1995; Lloyd, 2002). Therefore, the use of *L. diaphana* Germar, 1824 as the type species of *Photinus* is undesirable. Between the three subsequent invalid type designations made by Motschulsky (1853, p. 40) of *Lampyris vitreus* Gyllenhal in Schönherr, 1817, by Gorham (1880, p. 22) of *Lampyris corrusca* Linnaeus, 1767, and by Fleutiaux et al. (1947, p. 160) of *Lampyris pullens* (spelled as *Lampyris pallens*), it is preferred herein that the currently and universally accepted type species, *Lampyris pullens* Fabricius, 1798 (spelled as *Lampyris pallens*), be fixed as the type species for the genus *Photinus*. *Lampyris vitreus* Gyllenhal, 1817 in Schönherr and *Lampyris corrusca* Linnaeus, 1767 are currently classified within *Robopus* Motschulsky, 1853 and *Ellychnia* Blanchard, 1845, respectively. In the interest of nomenclatural stability it is therefore proposed that *Lampyris pullens* Fabricius, 1798 (in its emended spelling *Lampyris pallens*) be fixed now as the type species of the genus *Photinus* Laporte, 1833 in order to maintain its accustomed usage.

**Photina Burmeister, 1838**

8. Stoll (1813, p. 15) described a new nominal species of praying mantis, which he named *Mantis vitrea*. The species was transferred to *Hierodula* Burmeister, 1838 by Saussure (1871, p. 76) where it remained until Beier (1935, p. 81) subjectively synonymized the species with *Hierodula venosa* Olivier, 1792. Therefore, *vitrea* Stoll, 1813, used as a valid name until the action of Beier (1935), is currently recognized as a junior subjective synonym of *Hierodula venosa* Olivier, which is currently classified as belonging to the tribe *Paramantini* (see Roy & Ehrmann, 2002; Otte & Spearman, 2005).

9. Burmeister (1838, p. 532) described a praying mantis from South America as *Mantis vitrea*, a junior primary homonym of *Mantis vitrea* Stoll, 1813. *Mantis vitrea*
Burmeister, 1838 was originally described within Photina Burmeister, 1838 (p. 531), a subgenus of Mantis Linnaeus, 1758 (p. 425). Saussure (1870, p. 231) later transferred Mantis vitrea Burmeister, 1838 to the genus Cardioptera Burmeister, 1838 (p. 540). However, in the same work that Stål (1877, p. 63) elevated the subgenus Photina Burmeister, 1838 to genus rank; he also synonymized Cardioptera vitrea (Burmeister, 1838) with the species Photina amphipeennis Stål (1877, p. 64). Reversing this synonymy, Kirby (1904, p. 273) resurrected Photina vitrea Burmeister, 1838 as a distinct species, while subsequently designating Mantis vitrea Burmeister, 1838 as the type species for the genus Photina Burmeister, 1838. The position of the name Photina vitrea Burmeister, 1838 subsequently remained within Photina until Otte & Spearman (2005, p. 286) transferred the species to Metriomantis Saussure & Zehntner, 1894 (p. 151). As a result of this action Metriomantis Saussure & Zehntner, 1894 would become a junior synonym of Photina, as M. vitrea Burmeister, 1838 has been validly designated as the type species of Photina. Though the synonymy of Metriomantis Saussure & Zehntner with Photina Burmeister has been suggested in the past (Terra, 1995), this assignment has not been accepted by all, and Photina vitrea Burmeister, 1838 remains widely accepted as a member of Photina (see Cerdá, 1997; Lombardo, 1999; Ehrmann, 2002; Roy & Ehrmann, 2002; Agudelo et al., in review).

10. The nominal species Mantis vitrea Stoll, 1813 (a junior synonym of Hierodula venosa Olivier) and Mantis vitrea Burmeister, 1838 (currently Photina vitrea Burmeister) have not been regarded as congeneric since the publications by Saussure (1870, 1871) and are now placed in distantly related Mantidae tribes (Paramantini and Photinini, respectively). Replacement of the junior homonym Mantis vitrea Burmeister, 1838 would cause nomenclatural confusion as it is currently used in many publications (Beier, 1935; Terra, 1995; Cerdá, 1997; Lombardo, 1999; Jantsch, 1999; Ehrmann, 2002; Lombardo & Pérez-Gelabert, 2004; Otte & Spearman, 2005; Agudelo et al., in review). In addition, according to Article 67.1.2 of the Code, M. vitrea Burmeister, 1838 remains the validly designated type species of Photina Burmeister, 1838 even though it is a junior primary homonym of M. vitrea Stoll, 1813. M. vitrea Stoll, 1813 is currently subjectively synonymized with Hierodula venosa Olivier, 1792 but could be resurrected in future works, and its suppression is undesirable. It is therefore proposed to conserve the name M. vitrea Burmeister, 1838 as not invalid by reason of its being a junior primary homonym of Mantis vitrea Stoll, 1813 in accordance with Article 23.9.5 of the Code.

Photinini LeConte, 1881 and Photininae Giglio-Tos, 1915

11. The family-group name Photini (Coleoptera) was first used by LeConte (1881, p. 30) based on the Lampyridae genus Photinus Laporte, 1833. Photini is, however, an improperly formed family-group name. Olivier (1907, p. 27) later emended Photini to the proper form Photinini LeConte (Coleoptera, Lampyridae). Originally, Olivier (1907) retained the name Photinini as a subfamily name before he corrected his use of the family-group name in 1910 (p. 21) by erecting Photininae as a subfamily and Photinini as a tribe. Green (1948, p. 67) later sunk Photininae under Lampyridae preserving the group as the currently recognized tribe Photinini.

12. Giglio-Tos (1915, p. 65) erected the subfamily name Photininae (Mantodea) based on the genus Photina Burmeister, 1838. Giglio-Tos (1915, p. 65) also proposed the subgroup Photinae along with Coiptopteriges, Orthoderellae and Irides to be
included within photininae, and later formalized these groups while outlining their generic composition in his ordinal classification (Giglio-Tos, 1919, pp. 66-67). Beier (1935, p. 119) altered this arrangement by sinking photininae Giglio-Tos, 1915 (excludingrides) to tribal status under the subfamily mantinae. Subsequently, Beier (1964, p. 950; 1968, p. 11) resurrected photininae Giglio-Tos, 1915 as a subfamily under mantidae to include both photininae sensu lato Giglio-Tos, 1919 (photinae now including the genera from orthoderellae) and coptopteriges sensu Giglio-Tos, 1919 as tribes by emending the improperly formed family-group names to photinini Giglio-Tos, 1915 and coptopterygini Giglio-Tos, 1915. This arrangement has remained unchanged in recent classifications (Roy & Ehrmann, 2002, p. 378; Otte & Spearman, 2005, pp. 79-89; Agudelo et al., in review) and its generic composition has been rather stable.

13. Therefore, photinini LeConte, 1881 is a senior homonym of photininae Giglio-Tos, 1915. Both names are in current use (Cerdà, 1997; Terra, 1995; Lombardo, 1999; Archangelsky & Branham, 2001; Roy & Ehrmann, 2002; Lloyd, 2002; Svenson & Whiting, 2004; Otte & Spearman, 2005; Kazantsev, 2006: Agudelo et al., in review).

14. The name photinini LeConte, 1881 (name of a tribe of lampyridae) has priority and it is suggested that the name photininae Giglio-Tos, 1915 (name of a subfamily of mantidae according to Roy & Ehrmann (2002) or vatidae according to Terra (1995)) be altered to remove homonymy. It is proposed that the stem of photina Burmeister, 1838 be changed from photin- to photina-, thereby making the tribe name photinini and the subfamily name photininae.

15. The International Commission on Zoological Nomenclature is accordingly asked:

1. to use its plenary power:
   a. to rule that pullens Fabricius, 1798 is a justified emendation of the original spelling pullens Fabricius, 1798, as published in the binomen Lampyrisc pullens;
   b. to set aside all previous type fixations for the genus Photinus Laporte prior to that of Lampyrisc pullens Fabricius, 1798 by Fleutiaux et al. (1947);
   c. to rule that the species-group name vitrea Burmeister, 1838, as published in the binomen Mantis vitrea, is not invalid by reason of its being a junior primary homonym of vitrea Stoll, 1813, as published in the binomen Mantis vitrea;
   d. to rule that for the purposes of Article 29 of the Code the stem of the generic name Photina Burmeister, 1838 is photina-;

2. to place on the Official List of Generic Names in Zoology the following names:
   a. Photinus Laporte, 1833 (gender: masculine), type species Lampyrisc pullens Fabricius, 1798, as ruled in (1b) above;
   b. Photina Burmeister, 1838 (gender: feminine), type species by subsequent designation by Kirby, 1904 Mantis vitrea Burmeister, 1838;

3. to place on the Official List of Specific Names in Zoology the following names:
   a. pullens Fabricius 1798. with the endorsement that, as ruled in (1a) above, it is a justified emendation of pullens Fabricius 1798, as published in the binomen Lampyrisc pullens (type species of Photinus Laporte, 1833, as ruled in (1b) above);
(b) *vitrea* Burmeister, 1838, as published in the binomen *Mantis vitrea* (type species of *Photina* Burmeister, 1838), with the endorsement that it is not invalid by reason of its being a junior primary homonym of *Mantis vitrea* Stoll, 1813;

(4) to place on the Official List of Family-Group Names in Zoology the following names:

(a) *Photinini* LeConte, 1881 (type genus *Photinus* Laporte, 1833) (Coleoptera);

(b) *photinae* Giglio-Tos, 1915 (type genus *Photina* Burmeister, 1838) (spelling emended by the ruling in (1d) above) (Mantodea);

(5) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the name *pallens* Fabricius, 1798, as published in the binomen *Lampyris pallens* (spelling emended to *pallens* as ruled in (1a) above);

(6) to place on the Official Index of Rejected and Invalid Family-Group Names in Zoology the name *photinae* Giglio-Tos, 1915 (junior homonym of *photinini* LeConte, 1881 (spelling emended to *photinae* by the ruling in (1d) above) (Mantodea)).

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References


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Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).