

Case 3402**PHOTININI LeConte, 1881 (Insecta, Coleoptera) and PHOTININAE Giglio-Tos, 1915 (Insecta, Mantodea): proposed resolution of homonymy between family-group names**

Gavin J. Svenson

Laboratory for Conservation and Evolutionary Genetics, New York State Museum, Albany, NY, U.S.A. (e-mail: gavin.svenson@gmail.com)

Marc A. Branham

Department of Entomology and Nematology, University of Florida, Gainesville, Florida, U.S.A. (e-mail: MABranham@ifas.ufl.edu)

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 PHOTIN- to PHOTINA- so that the tribe name will be emended to PHOTINAINI Giglio-Tos, 1915 and the subfamily name to PHOTINAINAE 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 pallens* 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 pallens* 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; PHOTINAINI; PHOTININAE; PHOTINAINAE; *Photinus*; *Photina*; *Photinus pallens*; *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 *Lampyrus* 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 *Lampyrus 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 *Lampyrus vittigera* Gyllenhal in Schönherr, 1817 (p. 21) as the type species of *Photinus* Laporte, 1833. However, Blanchard's (1845a) valid designation of *Lampyrus diaphana* as the type species pre-dates Motschulsky's designation.

4. Subsequently, Gorham (1880, p. 22) designated *Lampyrus 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, *Lampyrus 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 *Lampyrus 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 pallens* (Fabricius, 1798), which has since become the universally accepted spelling of the species name. To our knowledge, the original spelling, as published in the binomen *Lampyrus 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 & Mutchler, 1922; Mutchler, 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 *Lampyrus pallens* 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 *Lampyrus pullens* Fabricius, 1798 (spelled as *Lampyrus 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 rendered *Cratomorphus* 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 vittigera* 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 vittigera* 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 amplipennis* 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 LAMPYRINAE 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 COPTOPTERIGES, 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 (excluding IRIDES) 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 PHOTINAE 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 (Cerdá, 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 PHOTINAINI and the subfamily name PHOTINAINAE.

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

(1) to use its plenary power:

- (a) to rule that *pallens* Fabricius, 1798 is a justified emendation of the original spelling *pullens* Fabricius, 1798, as published in the binomen *Lampyris pullens*;
- (b) to set aside all previous type fixations for the genus *Photinus* Laporte prior to that of *Lampyris 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 *Lampyris pallens* 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) *pallens* 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 *Lampyris 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) PHOTINAINAE 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 *pullens* Fabricius, 1798, as published in the binomen *Lampyrus pullens* (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 PHOTININAE Giglio-Tos, 1915 (junior homonym of PHOTININI LeConte, 1881 (spelling emended to PHOTINAINAE by the ruling in (1d) above) (Mantodea)).

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