

Case 3227

***Geophilus brevilabiatus* Newport, 1845 (currently *Orphnaeus brevilabiatus*) and *Chomatobius brasilianus* Humbert & Saussure, 1870 (currently *O. brasilianus*) (Chilopoda): proposed conservation of the specific names**

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Abstract. The purpose of this application is the conservation of the specific names of *Geophilus brevilabiatus* Newport, 1845 (currently *Orphnaeus brevilabiatus*) and *Chomatobius brasilianus* Humbert & Saussure, 1870 (currently *O. brasilianus*) for two widely distributed species of geophilomorph centipedes (family ORYIDAE). Although senior subjective synonyms for these two nominal species have been used only infrequently, the junior names do not fully meet the criteria for protection under Article 23.9 of the Code. *Scolopendra phosphorea* Linnaeus, 1758, a senior synonym of *G. brevilabiatus*, has been used once as a valid name in 1901. There are two senior synonyms of the nominal species *G. brasilianus*—*G. lineatus* and *G. whitei*, both of Newport (1845), but neither has been used as the valid name of the taxon.

Keywords. Nomenclature; taxonomy; Chilopoda; Geophilomorpha; ORYIDAE; *Scolopendra phosphorea*; *Orphnaeus brevilabiatus*; *Orphnaeus brasilianus*; *Orphnaeus lineatus*; *Orphnaeus whitei*; geophilomorph centipedes; pantropical.

1. Linnaeus (1758, p. 638) introduced the name *Scolopendra phosphorea* for a geophilomorph centipede species from 'Asia'. The specific name refers to the animal's ability to glow by putative bioluminescence, which Linnaeus compared to that of fireflies. This light-producing mechanism is known to occur in several geophilomorphs (see Minelli, 1978). The short description provided by Linnaeus indicates that this centipede is clearly a member of the Geophilomorpha as it has 14 antennal articles and 72–76 pairs of legs. These centipedes are now known to possess 27 to 191 pairs of legs (see Minelli, Foddai, Pereira & Lewis, 2000). The number of pairs of legs is always odd but Linnaeus may have omitted to count the last pair, which is usually

quite modified and not obviously leg-like. *Scolopendra phosphorea* was listed by Fabricius (1781, p. 534) and Gmelin (1790, p. 3017). Newport (1845, p. 438) referred to *Geophilus phosphorea* [sic] as 'Geophilidae which I have been unable to identify from imperfect description'. Lucas (1846) listed the species as 'exotique et peu connue' (exotic and little known) and Gervais (1847, p. 328) also regarded Linnaeus's species as 'incomplètement connu'. Indeed, its identity remains difficult to determine.

2. Haase (1887, pp. 111–112) listed *S. phosphorea* Linnaeus, 1770 [sic] as a possible (?) synonym of *Geophilus brevilabiatus* Newport, 1845 (currently *Orphnaeus brevilabiatus*) on the basis of the original description of *S. phosphorea*, its geographical distribution and the number of pairs of legs of *G. brevilabiatus* known at that time. The very few descriptive details provided by Linnaeus (1758) are not enough to support this synonymy but are at least compatible with it. In particular, the distribution of *Orphnaeus brevilabiatus* (Newport, 1845) is pantropical and includes Borneo, Java, Sumatra, Celebes, Formosa and Madagascar (see Foddai, Pereira & Minelli, 2000). The number of pairs of legs ranges between 67–81 (Attems, 1929, p. 122) including both numbers given by Linnaeus. One of us (D.F.) checked for specimens of *S. phosphorea* in the series of dried centipedes in Linnaeus's collection at the Linnean Society, London, but this species was not present there.

3. Meinert (1870, p. 17) introduced the generic name *Orphnaeus* and included two species: *O. lividus* Meinert, 1870 (p. 19) from Oahu and Nicobar and *O. brasiliensis* Meinert, 1870 (p. 20) from Rio de Janeiro. The generic diagnosis is clear as are the descriptions and illustrations provided for the two species. No type species was fixed for *Orphnaeus* by Meinert (1870).

4. Cook (1896a, p. 34) proposed *Orphnaeus phosphoreus* (Linnaeus) as the type species of *Orphnaeus* Meinert, 1870, disregarding the fact that *phosphoreus* (i.e. *Scolopendra phosphorea* Linnaeus) had not been originally included in *Orphnaeus*. There are three further citations of *O. phosphoreus* as a valid name: Cook (1896b, p. 67; 1896c, pp. 35, 37) and Pocock (1901, p. 463). The latter formally listed *Geophilus brevilabiatus* Newport, 1845 as its junior synonym. Disregarding this synonymy, but following the likely taxonomic implications of Cook's (1896a) designation, Attems (1929, p. 112) also incorrectly listed *O. brevilabiatus* (Newport, 1845) as the type species of *Orphnaeus* and ignored the Linnaean nominal species *S. phosphoreus*.

5. Crabill (1968, p. 109) established a valid type species designation for the nominal genus *Orphnaeus* Meinert, 1870 by selecting *O. lividus* Meinert, 1870 from the two originally included nominal species (Article 67.3 of the Code; see para. 3 above). At the same time he synonymized *O. lividus* Meinert, 1870 with *O. brevilabiatus* (Newport, 1845), which became the valid name for the type species of *Orphnaeus*, thus preserving the taxonomic concept intended by Cook (1896a) and followed by Attems (1929).

6. Despite the priority of *Orphnaeus phosphoreus* (Linnaeus, 1758) over *O. brevilabiatus* (Newport, 1845), the latter name has been consistently used as the valid name for this centipede species by all authors after Pocock (1901). Twenty nine works by 21 authors, encompassing a span of not less than 10 years within the last 50 years, were cited in a comprehensive list provided by Foddai, Pereira & Minelli (2000).

Except for its use by Pocock (1901) *phosphorea* would have been considered a nomen oblitum and the widely used younger name *brevilabiatus* automatically protected under Article 23.9 of the Code. We propose that *brevilabiatus* be conserved and placed on the Official List.

7. Two of the many new species described by Newport (1845) are *Geophilus lineatus* from Honduras and *G. whitei* (both on p. 436) for which no locality was given. According to Crabill (1962, p. 507) both correspond to the species currently known as *Orphnaeus brasilianus* (Humbert & Saussure, 1870, p. 205), originally described as *Chomatobius brasilianus*. We confirm this identification following personal examination (D.F.) of the type material of both of Newport's taxa in the collection of The Natural History Museum, London (*G. lineatus*: the lectotype BM(NH) 200460 designated by Crabill (1962, p. 507); and *G. whitei*: holotype BM(NH) 200486). Crabill (1962) considered the two Newport names to be forgotten (nomina oblita) under Article 23b of the (first, 1961) edition of the Code then in force, because they apparently had not been used for more than 50 years. Mayr (1963, p. 509) supported this interpretation. However, as noted by Crabill himself, both *G. lineatus* and *G. whitei* had also been cited by Attems (1929, pp. 348–9), although as *Geophilomorpha incertae sedis*.

8. The name *Orphnaeus brasilianus* has been used for this taxon by different authors before, as well as after, Crabill's 1962 paper (e.g. by Brölemann (1919, p. 235), Attems (1929, pp. 112–113), Verhoeff (1937, p. 6), Kraus (1957, p. 368), Crabill (1960, pp. 170–171), Mayr (1963, p. 509) and Shear & Peck (1992, pp. 2270, 2272)). A total of 15 citations was given by Foddai, Pereira & Minelli (2000, pp. 112–113).

9. Replacement of the specific name of *Orphnaeus brevilabiatus* by *phosphorea*, or *O. brasilianus* with either *lineatus* or *whitei*, would cause undue confusion in the nomenclature of the ORYIDAE (a group badly affected by nomenclatural problems) without offering any advantage.

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

- (1) to use its plenary power to suppress the following specific names for the purposes of the Principle of Priority but not for those of the Principle of Homonymy:
 - (a) *phosphorea* Linnaeus, 1758, as published in the binomen *Scolopendra phosphorea*;
 - (b) *lineatus* Newport, 1845, as published in the binomen *Geophilus lineatus*;
 - (c) *whitei* Newport, 1845, as published in the binomen *Geophilus whitei*;
- (2) to place on the Official List of Generic Names in Zoology the name *Orphnaeus* Meinert, 1870 (gender: masculine), type species by subsequent designation by Crabill (1968) *Orphnaeus lividus* Meinert, 1870 (a junior subjective synonym of *Geophilus brevilabiatus* Newport, 1845);
- (3) to place on the Official List of Specific Names in Zoology, the following names:
 - (a) *brevilabiatus* Newport, 1845, as published in the binomen *Geophilus brevilabiatus* (senior subjective synonym of *Orphnaeus lividus* Meinert, 1870, the type species of *Orphnaeus* Meinert, 1870);
 - (b) *brasilianus* Humbert & Saussure, 1870, as published in the binomen *Chomatobius brasilianus*;

- (4) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the following names:
- (a) *phosphorea* Linnaeus, 1758, as published in the binomen *Scolopendra phosphorea* and as suppressed in (1)(a) above;
 - (b) *lineatus* Newport, 1845, as published in the binomen *Geophilus lineatus* and as suppressed in (1)(b) above;
 - (c) *whitei* Newport, 1845, as published in the binomen *Geophilus whitei* and as suppressed in (1)(c) above.

Acknowledgements

We are grateful to Janet Beccaloni, Curator of the collection of Arachnida and Myriapoda, and to Mike G. Fitton, Curator of Insects of the Linnean collection, for their assistance to D.F. during a research visit to The Natural History Museum, London supported by the IHP programme to D.F. (SYS-RESOURCE MRI).

References

- Attems, C. 1929. *Myriapoda I. Geophilomorpha. Das Tierreich*, **52**: 1–388.
- Brölemann, H.W. 1919. Myriapodes-Chilopodes. Pp. 235–275 in: *Mission du service géographique de l'armée pour la mesure d'un Arc de Méridien équatorial en Amérique du Sud sous le contrôle scientifique de l'Académie des Sciences 1899–1906*, vol. 10. Paris.
- Cook, O.F. 1896a. The genera of Oryidae. *Brandtia*, **7**: 33–34.
- Cook, O.F. 1896b. An arrangement of the Geophilidae, a family of Chilopoda. *Proceedings of the United States National Museum*, **18**(1895): 63–75.
- Cook, O.F. 1896c. Geophiloidea from Liberia and Togo. *Brandtia*, **8**: 35–40.
- Crabill, R.E., Jr. 1960. Centipedes of the Smithsonian-Bredin Expeditions to the West Indies. *Proceedings of the United States National Museum*, **111**(3427): 167–195.
- Crabill, R.E., Jr. 1962. Concerning chilopod types in the British Museum (Natural History). Part 1. *Annals and Magazine of Natural History*, (13)**5**: 505–510.
- Crabill, R.E., Jr. 1968. Concerning the true identities of *Gosiphilus* and *Chomatobius* with redescription of the latter's type species (Chilopoda: Geophilomorpha: Himantariidae). *Entomological News*, **79**: 108–112.
- Fabricius, J.C. 1781. *Species Insectorum*, vol. 1. Bohnii, Hamburgi et Kilonii.
- Foddai, D., Pereira, L.A. & Minelli, A. 2000. A catalogue of the geophilomorph centipedes (Chilopoda) from Central and South America including Mexico. *Amazoniana*, **16**(1–2): 59–185.
- Gervais, P. 1847. Classe II. Chilopodes. Pp. 210–333 in Walckenaer, M. & Gervais, P., *Histoire naturelle des Insectes. Aptères. Mémoires du Muséum National d'Histoire Naturelle*, vol. 4. Paris.
- Gmelin, J.F. 1790. Lepidoptera-Aptera. Pp. 2225–3020 in: *Caroli a Linné Systema Naturae*, Ed. 13, vol. 1 (Insecta). Beer, Lipsiae.
- Haase, E. 1887. Die Indisch-Australischen Myriopoden. Pt. 1. Chilopoden. *Abhandlungen und Berichte des Königlichen Zoologischen und Anthropologisch-Ethnographischen Museum zu Dresden*, **5**: 1–118.
- Humbert, A. & Saussure, E. De. 1870. Myriapoda nova Americana. *Revue et Magasin de Zoologie Pure et Appliquée*, (2)**22**: 202–205.
- Kraus, O. 1957. Myriapoden aus Peru. VI: Chilopoden. *Senckenbergiana Biologica*, **38**: 359–404.
- Linnaeus, C. 1758. *Systema Naturae*, Ed. 10, vol. 1. 824 pp. Salvii, Holmiae.
- Lucas, H. 1846. Myriapodes. Pp. 525–542 in Orbigny, A.C.V. Dessalines d' (Ed.), *Dictionnaire universel d'histoire naturelle*, vol. 8. 766 pp. Martinet, Paris.
- Mayr, E. 1963. The statute of limitation and chilopod nomenclature. *Annals and Magazine of Natural History*, **13**(6): 509–110.

- Meinert, F.** 1870. Myriapoda Musaei Hauniensis. Bidrag til myriapodernes morfologi og systematik. 1. Geophili. *Naturhistorisk Tidsskrift*, (3)7: 1–128.
- Minelli, A.** 1978. Secretions of centipedes. Pp. 73–85 in Bettini, S. (Ed.), *Arthropod venoms. Handbuch der Experimentellen Pharmakologie*, vol. 48. xxxiii, 977 pp. Springer, Berlin.
- Minelli, A., Foddai, D., Pereira, L.A. & Lewis, J.G.E.** 2000. The evolution of segmentation of centipede trunk and appendages. *Journal of Zoological Systematics and Evolutionary Research*, 38: 103–117.
- Newport, G.** 1845. Monograph of the class Myriapoda order Chilopoda; with observations on the general arrangement of the Articulata. *Transactions of the Linnean Society of London*, 19(9): 265–302; 349–439.
- Pocock, R.I.** 1901. The Chilopoda or centipedes of the Australian Continent. *Annals of Natural History*, (7)8: 451–463.
- Shear, W.A. & Peck, S.B.** 1992. Centipedes (Chilopoda) and Symphyla of the Galápagos Islands, Ecuador. *Canadian Journal of Zoology*, 70: 2260–2274.
- Verhoeff, K.W.** 1937. Über einige Chilopoden aus Australien und Brasilien. *Zoologische Jahrbücher, Abteilung für Systematik und Geographie der Tiere*, 70: 1–176.
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