



Junior homonymy warrants a replacement name for *Ramulus lineatus* (Liu & Cai, 1992) (Phasmatodea: Phasmatidae)

THIES H. BÜSCHER^{1*}, ROMAIN P. BOISSEAU² & PAUL D. BROCK³

¹ Functional Morphology and Biomechanics, Zoological Institute, Kiel University, Kiel, Germany;

✉ tbuescher@zoologie.uni-kiel.de; <https://orcid.org/0000-0003-0639-4699>

² Department of Ecology and Evolution, University of Lausanne, Lausanne, Switzerland

✉ romain.boisseau@unil.ch; <https://orcid.org/0000-0003-4317-1064>

³ Natural History Museum, Cromwell Road, London, SW7 5BD, U.K.;

✉ pauldbrock@btinternet.com; <https://orcid.org/0000-0003-0590-0414>; Website: <http://Phasmida.SpeciesFile.org>

Corresponding author: ✉ tbuescher@zoologie.uni-kiel.de

Ramulus Saussure, 1862 is the most speciose genus of stick and leaf insects. There are 151 valid species names assigned to this mainly Asian taxonomic group, which constitute 4.3% of all described stick and leaf insects as of today (Brock et al. 2024). This large number partially results from various genera being synonymized with *Ramulus* throughout the years. However, the number of species and history of nomenclatural treatment of this genus pose some difficulties to the stability of phasmid nomenclature. Misplacement of taxa within this genus is quite likely because of unclear diagnoses by various authors and numerous species assigned to genera synonymized with *Ramulus* throughout the years without complete treatment of all species included in those genera. These factors cause problems in defining useful unique characters for differentiation of *Ramulus* from other stick insects, making this genus a catch-all for various species and leading to *Ramulus* being recovered as largely paraphyletic in phylogenetic studies (e.g., Bank & Bradler 2022, Supplementary file 1). The problematic treatment of *Ramulus* necessitates thorough re-examination and is one of the major tasks in future phasmid taxonomy. This problem is also visible in complex nomenclatural changes in the past and the differences in egg morphology of various *Ramulus* species (e.g., Hennemann et al. 2008, Büscher et al. 2024).

It is, therefore, not surprising that this genus in particular includes a junior homonym that has been overlooked for a considerable time. *Ramulus lineatus* (Brunner von Wattenwyl, 1893) was described as *Paraclitumnus lineatus* Brunner von Wattenwyl, 1893 and *Ramulus lineatus* (Liu & Cai, 1992) was described as *Baculum lineatum* Liu & Cai, 1992.

Although *P. lineatus* is the type species of *Paraclitumnus* Brunner von Wattenwyl, 1893 by subsequent designation of Kirby, 1904, *Paraclitumnus lineatus* was first transferred to *Dubreuilia* Brunner von Wattenwyl, 1907, as *D. lineata*, by that author. In his 1907 publication, Brunner rejected his earlier name *Paraclitumnus*, by stating ‘Nomen rejiciendum’. However, *Dubreuilia* was subsequently synonymized with *Paraclitumnus* by Karny (1923), as confirmed by Bradley & Galil (1977) at a time when there was still considerable confusion with phasmid taxonomy. Bradley & Galil placed *Paraclitumnus* in Phasmatidae, subfamily Phasmatinae, tribe Baculini. *Ramulus* was placed in Heteronemiidae, subfamily Pachymorphinae, tribe Ramulini, but including the mainly African *Gratidia* Stål 1875, which considerably differs from the present arrangement (Brunner von Wattenwyl 1907, Karny 1923). *Paraclitumnus* was synonymised with *Ramulus* by Hennemann (2002). *Ramulus lineatus* (Liu & Cai, 1992) was first formally placed in *Ramulus* by Hennemann et al. (2008), as *Baculum* Saussure, 1861 was already reallocated to various other genera (see Hennemann et al. 2008).

Both of the *lineatus* taxa were originally described in different genera and therefore unproblematic regarding homonymy. However, upon synonymization of *Paraclitumnus* with *Ramulus* in Hennemann, 2002 and transfer of the species of Liu & Cai to *Ramulus*, *R. lineatus* (Liu & Cai, 1992) became a junior homonym of *R. lineatus* (Brunner von Wattenwyl, 1893).

Ramulus lineatus (Brunner von Wattenwyl, 1893) is a separate species found in Myanmar: Carin Cheba (Karin Hills, Tenasserim Mountain Range) and Sri Lanka [Ceylon]. Despite sharing the same epithet, these two names represent different species and their type localities are reasonably distant. Due to the differing distributions and nomenclatural history subsequent publications missed the homonymy (Hennemann et al. 2008, Brock & Büscher 2022). This is not surprising given the complex rearrangements of species now assigned to *Ramulus* and the publication history of early

descriptions of Chinese stick insects that were occasionally not broadly recognized, due to limited circulation range and language of publication.

Homonymy was noticed after an automatic check for duplicates in the current list of valid taxa of the taxonomic database “Phasmida Species File Online” (Brock et al. 2024). This check was performed during the early and ongoing development of an upcoming stick insect trait database (“Phasmatodata”, Boisseau, R.P. et al., online database in preparation). This upcoming open access database aims at archiving and accessing a great diversity of phasmid traits (e.g. morphological, ecology, life history and behaviour) at a global scale and therefore relies on the taxonomic background data for stick and leaf insects. Homonymy is particularly problematic for such databases as records for the same species might be inadvertently entered under the wrong homonym name. *Ramulus lineatus* was the only case we found. Therefore, Phasmida Species File is now free of homonyms, unless future taxonomic work produces similar combination names.

The species of Liu & Cai 1992, is now re-named after its type locality, Diancang Mountain to solve homonymy. The new replacement name is therefore *Ramulus diancangensis* Büscher, Boisseau & Brock, 2024 **nom. nov.** (the genus *Ramulus* is masculine, *diancangensis* an adjective).

The holotype male of *Ramulus diancangensis* Büscher, Boisseau & Brock, 2024 **nom. nov.** is deposited at the Institute of Zoology, Chinese Academy of Sciences (IZCAS). This specimen (China: Yunnan, Dali, Diancang Mountain, 2600 m., 29.vi.1981, leg. Wang Shuyong) is the only known individual of this taxon to date.

References

- Bank, S. & Bradler, S. (2022) A second view on the evolution of flight in stick and leaf insects (Phasmatodea). *BMC Ecology and Evolution*, 22 (1), 62.
<https://doi.org/10.1186/s12862-022-02018-5>
- Bradley, J.C. & Galil, B.S. (1977) The taxonomic arrangement of the Phasmatodea with keys to the subfamilies and tribes. *Proceedings of the Entomological Society of Washington*, 79 (2), 176–208.
- Brock, P.D. & Büscher, T.H. (2022) *Stick and leaf-insects of the world, Phasmids*. NAP Editions, Verrières-le-Buisson, 612 pp.
- Brock, P.D., Büscher, T.H. & Baker, E. (2024) *Phasmida Species File Online*. Available from: <http://phasimida.speciesfile.org> (accessed 30 April 2024)
- Brunner von Wattenwyl, K. (1907) *Die Insektenfamilie der Phasmiden. Vol. II*. Engelmann, Leipzig, pp. 181–338.
- Büscher, T.H., Reck, L.M. & Gorb, S.N. (2024) Functional surface structures on the eggs of stick and leaf insects (Insecta: Phasmatodea). *Zoologica*, 166, 1–278.
- Hennemann, F.H. (2002) Notes on the Phasmatodea of Sri Lanka (Orthoptera). *Mitteilungen der Münchner Entomologischen Gesellschaft*, 92, 37–78.
- Hennemann, F.H., Conle, O.V. & Zhang, W. (2008) Catalogue of the stick and leaf-insects (Phasmatodea) of China, with a faunistic analysis, review of recent ecological and biological studies and bibliography (Insecta: Orthoptera: Phasmatodea). *Zootaxa*, 1735 (1), 1–76.
<https://doi.org/10.11646/zootaxa.1735.1.1>
- Karny, H.H. (1923) Zur Nomenklatur der Phasmoiden. *Treubia*, 3, 230–242.
- Kirby, W.F. (1904) *A synonymic catalogue of Orthoptera. 1. Orthoptera Euplexoptera, Cursoria et Gressoria. (Forficulidae, Hemimeridae, Blattidae, Mantidae, Phasmidae)*. British Museum, London, 501 pp.
- Liu, S.L. & Cai, B.L. (1992) Phasmatodea: Phasmatidae and Heteronemiidae. In: Chen, S.X. (Ed.), *Insects of the Hengduan Mountains Region. Vol. 1*. Sinica Press, Beijing, pp. 59–64.