

Etymology and Nomenclature of the Genera *Lestes* and *Sympecma* (Odonata: Lestidae)

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1. Genus *Lestes* Leach, 1815:137

Etymology: gr. ληστής (lēstēs; alternatively: lēstēs), masculine = "robber, bandit, pirate" (see also Härmäläinen & Fliedner 2023). It is a Greek word transliterated into Latin without other changes and therefore takes the masculine grammatical gender (ICZN Article 30.1.2.).

Nomenclature: Leach (1815, p.137) described the genus as follows: "Wings membranaceous, with an oblong quadrate stigma. Abdomen of the male armed with a forceps-like appendage". The information in the entry "barbarus (FABRICIUS)" in Steinmann 1997 (p. 111) that Leach established "*Lestes barbarus*" as the "generotype" of *Lestes* is incorrect, in fact Leach did not include any species in the new genus. The description of new genera without including any species in them is allowed by ICZN Article 12 for genus names described before 1931. However, such genera of course have no so-called "originally included nominal species" from which a type species could be designated. ICZN Article 67.2.2. therefore stipulates that "the nominal species that were first subsequently and expressly included in it [i.e. the genus] are deemed to be the only originally included nominal species".

The first author to assign a species to the genus *Lestes* was Samouelle (1819), who included only a single species in the genus: "*Lestes autumnalis*". Thus, ICZN Article 69.3 would apply here, and "*Lestes autumnalis*" would be the type species of the genus. However, "*Lestes autumnalis*" is a *nomen nudum*, is not available as a taxon name under current nomenclature rules, and thus cannot be designated as a type species. The species epithet *autumnalis* apparently originates from an unpublished manuscript by William Elford Leach that circulated among fellow entomologists in the years after 1815, but was never published due to his illness in 1821 and his early death. The next author to assign species to the genus *Lestes* was Stephens (1835). He lists the following three species in *Lestes*: "*Lestes viridis*", "*Lestes nympha*", and "*Lestes forcipula*". For all three species, he cites his own "Catalogue" from 1829 (Stephens 1829), which, however, contains only lists of names but no descriptions,

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so it is irrelevant for nomenclatural purposes. For "*Lestes viridis*", Stephens (1835) additionally cites "Van. Linden, p. 36," thus clearly referring to the work by Vander Linden (1825), not to Vander Linden (1820). "*Lestes viridis*" is therefore the nominal taxon *Agrion viridis* Vander Linden, 1825:36. Regarding "*Lestes nympha*", Stephens (1835) additionally cites "Kirby MSS." This must refer to Kirby's "Synonymic Catalogue", which was already circulating as an unfinished manuscript ("MSS") at that time, but was not published until much later (Kirby 1890). The catalog, as finally published in 1890, contains both a reference to the mention of "*Lestes nympha*" in Stephens (1835) and a reference to the original description of the name by Hansemann (1823). However, the as yet unfinished "Kirby MSS" to which Stephens (1835) refers could, of course, only have contained a reference to Hansemann (1823), therefore the reference to "Kirby MSS" in Stephens (1835) indirectly refers to Hansemann's original description, even though Stephens does not explicitly mention Hansemann. He presumably was not even aware of Hansemann's publication, as it was written not in English or Latin, but in German. "*Lestes nympha*" is therefore the nominal taxon *Agrion nympha* Hansemann, 1823:161. Finally, regarding "*Lestes forcipula*", Stephens (1835) cites as his sources "Charpentier, Horae Ent. p. 6. – Le. autumnalis. Steph. Catal. 308. No. 3422". "*Lestes autumnalis*" remains a *nomen nudum* here too, but the reference to Charpentier (1825) confirms that "*Lestes forcipula*" refers to the nominal taxon *Agrion forcipula* Charpentier, 1825:6.

The type species of *Lestes* must therefore be selected from these three nominal taxa: *Agrion viridis* Vander Linden, 1825:36, *Agrion nympha* Hansemann, 1823:161 and *Agrion forcipula* Charpentier, 1825:6 (ICZN Article 69.1.). To the best of my knowledge, this has not yet been done; instead, there is a mistaken debate (see overview in Jödicke 1997) as to whether "*Lestes barbara/barbarus*" or "*Lestes sponsa*" is the type species, even though neither belongs to the originally included nominal taxa and therefore cannot be considered as type species (see, in particular, the "Example" following ICZN Recommendation 67B). Therefore, the genus currently has no type species designated in accordance with the rules of the ICZN. In accordance with ICZN Article 69 I herewith designate the nominal taxon *Agrion forcipula* Charpentier, 1825:6 as the type species of the genus *Lestes* Leach, 1815:137. So far, only new taxon names but no other nomenclatural acts can be registered with ZooBank (www.zoobank.org), so this nomenclatural act cannot currently be registered separately, but this article has been registered as a whole with the ZooBank identifier 79F9109C-22D7-4205-8DB5-7D7552E93E30 in order to fulfil all ICZN criteria of publication.

2. Genus *Sympecma* Burmeister, 1839:823

Etymology: the hypothesis that the genus name is a meaningless word inadvertently coined by Burmeister and Selys, because neither of them was able to correctly decipher the word "Sympycna", which was allegedly already written in Charpentier's then-unpublished manuscript (see Fliedner 2006; Jödicke 1997) cannot be maintained, because the genus name is not meaningless at all. Instead, the genus name is based on the Greek participle σύμπηκτος (súmpēktos) = "solidified, congealed", combined with the Greek suffix -μᾶ (-mă), which is added to verbal stems to form grammatically neuter nouns denoting the result of a process. The Greek term σύμπηκμᾶ (súmpēkmă) therefore means "that which has solidified" or, in this context, "the solidified one/the frozen one". This is an allusion to the fact that the species of this genus overwinter as adults (the only group of dragonflies to do so!) and can therefore be found in a state of cold torpor amongst the vegetation during winter. The transliteration (or, more accurately in this context, transcription) of the Greek kappa as "c" rather than "k" was not unusual in 19th-century academic usage, as the classical Latin "C, c" corresponds to the classical Greek kappa. The genus name *Sympecma* is therefore a word transliterated unchanged from classical Greek, and according to ICZN Article 30.1.2. takes the neuter grammatical gender of the word in Greek.

Nomenclature: Burmeister (1839, p. 823) mentions *Sympecma* as a subgenus of *Agrion*, referring to a manuscript by Charpentier; he quotes as follows: "Sympecma Charp.". However, Charpentier's manuscript had not yet been published at the time of the publication of Burmeister's work in 1839, so that, according to the nomenclature rules currently in force (ICZN 1999), Burmeister must be regarded as the original author. Selys (1840) also refers to Charpentier's unpublished manuscript and quotes as follows: "Subgenus SYMPECMA. T. de Charp. MSS". When Charpentier's work was finally published at the end of 1840 (Charpentier 1840), the taxon appeared under the name *Sympycna*; apparently Charpentier decided at the last minute to change the name in the manuscript; he writes the following regarding the etymology: "Nomen a Graeco σύμπηκτος desumtum, propter alarum arcte erectarum situm, quem animal vivens in sedendo prae se fert". The statement in Steinmann (1997) that Burmeister's *Sympecma* is an "undescribed name" is incorrect, as is the page reference "824". Instead, Burmeister (1839) provides a brief but valid description on page 823: "Die Einen, welche sich durch sehr schmale etwas zugespitzte Fluegel, und einen zierlicheren Koerperbau

auszeichnen, tragen ihre Fluegel in der Ruhe, gleich den Vorigen, aufgerichtet und zusammen geklappt. Ihr Randmahl ist schmal". In addition he also assigns two species to the subgenus: "*Agrion phallatum*" and "*Agrion cingulatum*". The description of the subgenus thus meets the requirements of the ICZN (1999) and the name is a valid genus-group name. However, no type species is designated in the original description and can only be designated subsequently from the two species originally assigned to it (ICZN Article 67.2.). In Burmeister (1839) "*Agrion phallatum*" refers to the nominal taxon *Agrion phallatum* Charpentier, 1825:10 and "*Agrion cingulatum*" refers to the nominal taxon *Agrion cingulatum* Burmeister, 1839:823. Steinmann (1997) and Jödicke (1997) take the view that Selys (1840) designated "*Agrion fusca* Vander Linden, 1823" as the type species by monotypy. However, this is incorrect: while it is true that Selys (1840) deals in greater detail only with "*Sympecma fusca*", he also includes a second species within the genus *Sympecma*: "L'*Agrion zonatum* (Burmeister) de l'Océanie est du genre *Sympecma*". There is therefore no monotypy. More importantly, only *Agrion phallatum* Charpentier, 1825:10 or *Agrion cingulatum* Burmeister, 1839:823 can be designated as the type species, because these are the two originally included nominal species (ICZN Article 67.2.); "*Agrion fusca*" is not one of the originally included nominal taxa and is therefore not eligible as a type species. I am not currently aware of any publication that meets the criteria set out in ICZN Article 69.1. Therefore, *Sympecma* currently has no type species designated in accordance with the rules of the ICZN.

In accordance with ICZN Article 69 I herewith designate the nominal taxon *Agrion phallatum* Charpentier, 1825:10 as the type species of the genus *Sympecma* Burmeister, 1839:823. So far, only new taxon names but no other nomenclatural acts can be registered with ZooBank (www.zoobank.org), so this nomenclatural act cannot currently be registered separately, but this article has been registered as a whole with the ZooBank identifier 79F9109C-22D7-4205-8DB5-7D7552E93E30 in order to fulfil all ICZN criteria of publication.

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