

Short Note

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Back to the future: the proper name for red-backed voles is *Clethrionomys Tilesius* and not *Myodes Pallas*

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Abstract: Two names (*Clethrionomys* and *Myodes*) are used interchangeably for red-backed voles, which is contrary to one of the fundamental principles of zoological nomenclature, that each taxon has a single and unique valid name. Fixation of *Mus lemmus* Linnaeus, 1758, as the type of *Myodes* Pallas, 1811, meets the requirements stipulated in the Article 69.1.1 of the 4th edition of the International Code of Zoological Nomenclature, and is therefore valid. Hence, the genus group name *Myodes* is a junior synonym of *Lemmus* Link, 1795, and is not available for red-backed voles. The oldest valid name for red-backed voles is *Clethrionomys Tilesius*, 1850, with the type species (*Mus rutilus* Pallas, 1779) subsequently designated by Palmer (1928).

Keywords: type concept; type fixation; zoological nomenclature.

By the mid-20th century, the nomenclature of the genus group names for Holarctic mammals had largely been set (Ellerman and Morrison-Scott 1951, Miller and Kellogg 1955). Corbet (1978) stressed the need for the stability of

zoological nomenclature and pointed out changes which were unnecessary in his view. One of these changes was regarding red-backed voles, known at Corbet's time under the generic name *Clethrionomys Tilesius*, 1850. A decade earlier, Kretzoi (1964) argued for the primacy of *Myodes* Pallas, 1811, over *Clethrionomys* based on the principal of priority. Kretzoi, however, ignored provisions of Article 23.b. in the 1st edition of the International Code of Zoological Nomenclature (International Commission of Zoological Nomenclature 1961). Namely, he should either prove that *Myodes* has been used as a senior synonym in the primary zoological literature during the last 50 years (i.e. since 1914) or referred the name to the Commission. The entire issue was left unresolved for nearly four decades until Carleton et al. (2003), Pavlinov (2003a,b, 2006) and Musser and Carleton (2005) began advocating Kretzoi's view but without referring the case to the Commission. Currently, both names are used interchangeably for the same taxon and some ecologists (e.g. Zhigalskii 2012, Danilova 2017) started using them in combination as "*Myodes (Clethrionomys)*". Such a practice is contrary to one of the fundamental principles of zoological nomenclature, that each taxon has a single and unique valid name. In this particular case, the nomenclatural inconsistency is above all problematic as red-backed voles are widespread and abundant in boreal and temperate forests throughout the Holarctics and are widely used in fundamental and applied research. These voles were, for a considerable period of time, a model group in research on small-mammal population dynamics (reviewed in Bashenina 1981, Petruszewicz 1983, Henttonen 2000) and recently attracted additional interest as reservoir hosts of Hantavirus (e.g. Olsson et al. 2005, Weber de Melo et al. 2015). In addition, red backed voles were since 2000 heavily used in other novel research topics, most notably in reconstructing the impact of glacial-interglacial climatic dynamics on temperate species and their survival in refugia (Deffontaine et al. 2005, Kotlik et al. 2006, Runck et al. 2009), and as a model in research on the evolution

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of metabolic rate (Labocha et al. 2004, Sadowska et al. 2009) and of life-history strategies (Mappes et al. 2008). Experts engaged in medical zoology, epidemiology, population ecology and many other biological subdisciplines frequently use zoological names, but have little time or interest in disentangling nomenclatural problems on their own. The instability of taxonomic names is perplexing to them, even more so when they perceive such changes as unnecessary. In our view, a replacement of *Clethrionomys* with *Myodes* is an example of an unnecessary and unjustified change. Subsequently, we list our arguments for the retention of *Clethrionomys* as a genus group name for red-backed voles.

The source of disagreement is the fixation of the type species for *Myodes*. Namely, Pallas (1811) did not fix the type as was common in his time. He based *Myodes* on 10 species group names which are now in seven different genera: *Lemmus lemmus*, *Dicrostonyx torquatus*, *Lagurus lagurus*, *Microtus arvalis*, *Microtus socialis*, *Stenocranius gregalis*, *Alexandromys oeconomus* and *Clethrionomys rutilus*; a further two names (*alliarius* and *saxatilis*) are *nomina dubia*. The type species was subsequently designated by Coues (1877: 239) who left no doubt regarding the taxonomic scope of *Myodes* as defined in his detailed taxonomic review of North American rodents: “The foregoing diagnosis, so drawn as to exclude *Cuniculus* [= *Dicrostonyx*], is based upon *Mus lemmus* of Linnaeus, and indicates a perfectly natural generic group of Arvicolinae”. Tesakov et al. (2010: 85) interpreted this statement as a nomenclatural act of type fixation of *Myodes*. Carleton et al. (2014: 948) opposed the conclusion by Tesakov et al. (l.c.), claiming that a valid fixation was achieved by the subsequent act of Lataste (1883: 349), who explicitly designated *Mus rutilus* as the type species for *Myodes*. Such an interpretation, dating back to Kretzoi (1964), necessitated the replacement of *Clethrionomys*, a long established name for red-backed voles (cf. Ellerman & Morrison-Scott 1951, Corbet 1978) with *Myodes*, a name which was widely used for lemmings (current genera *Myopus*, *Lemmus* and *Dicrostonyx*) throughout the 19th century (e.g. Bonaparte 1845: 29, Carus 1868: 107) and into the early 20th century (Johnston 1903: 256, Winge 1908: 78). *Myodes* was in disuse after the nomenclature of European mammals was stabilized in the works of Trouessart (1910) and Miller (1912), until restored by Kretzoi (1964).

The central argument of Carleton et al. (2014) against Tesakov et al. (2010) is that “Coues (1877) nowhere used the words ‘type’ or ‘type species’ in a nomenclatural context in his treatment of *Myodes*”. The 4th edition of the International Code of Zoological Nomenclature (International Commission of Zoological Nomenclature 1999;

hereafter the Code) specifies subsequent designation of the type species in Article 69.1.1, according to which the fixation is valid if the author used “an equivalent term” [to type or type species] and “if it is clear that author accepts it as the type species” (text in square brackets is ours). The following statement made by Coues, “The foregoing diagnosis [of *Myodes*], is based upon *Mus lemmus* of Linnaeus” undoubtedly qualifies as “an equivalent term” to type species. Furthermore, reading the account of Coues (1877) and knowing his earlier (Coues 1874) taxonomic list leaves no doubt that according to him, *Myodes* was identical to the current concept of *Lemmus*. One can presume with good reason that Coues (1877), who was, at any rate, not strict in quoting type species, saw no reason for the argument that *Mus lemmus* is the type of *Myodes*. Namely, his concept of “*Mus lemmus* of Linnaeus” as the type species for *Myodes* was so concordant with the practice of his time (e.g. Thomas 1896) that no further mention was needed.

We conclude that Coues’ (1877) act of fixing *Mus lemmus* as the type species of *Myodes* fulfils the stipulations of the Code and is therefore valid. *Myodes* is thus antedated by *Lemmus* Link, 1795, and as such, its junior synonym. For further arguments, see Tesakov et al. (2010). If an author established a nominal genus but did not fix its type species (as is the case with *Myodes*), the first author who subsequently designated one of the originally included nominal species fixed the type species for the taxon and no later designation is valid (Article 69.1. of the Code). The earliest designation of the type species for *Myodes* is by Coues (1877); hence the act by Lataste (1883) is predated and therefore invalid. The correct name for red-backed voles remains *Clethrionomy* Tilesius (Palmer 1928).

Arguments against the validity of Coue’s act of type fixation are exposed at length in Carleton et al. (2014). Their text provides an interesting insight into the development of the concept of type in the 19th century, but the discussion on how Coues understood and applied the type concept in his various publications is irrelevant from the nomenclatural point of view. Instead, the entire argument made by Carleton et al. (2014) exemplifies what Corbet (1978: 8) called the product of “zoologically sterile research into the early literature” and “a pedantic search for loopholes”. The replacement of *Clethrionomys* with *Myodes* served no meaningful zoological or nomenclatural purpose but introduced unnecessary confusion and resulted in the current use of two generic names for red-backed voles.

Because Coues made a valid designation of *Mus lemmus* Linnaeus as the type of *Myodes* Pallas, the genus

group name *Myodes* is a junior synonym of *Lemmus* Link and is therefore not available for red-backed voles. The oldest valid name for red-backed voles is *Clethrionomys Tilesius* with *Mus rutilus* Pallas, 1779 as the type species (subsequent designation by Palmer 1928: 87). *Clethrionomys* contains five extant species: *Clethrionomys californicus* (Merriam, 1890), *Clethrionomys centralis* (Miller, 1906), *Clethrionomys gapperi* (Vigors, 1830) (in Gapper 1830), *Clethrionomys glareolus* (Schreber, 1780) and *Clethrionomys rutilus* (Pallas, 1779).

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