Establishment of Cylominae Zaitzev, 1908 as a valid name for the subfamily Rygmodinae Orchymont, 1916 with an updated list of genera (Coleoptera: Hydrophilidae)

Matthias SEIDEL¹,², Emmanuel ARRIAGA-VARELA¹,² & Martin FÍKÁČEK¹,²

¹Department of Zoology, Faculty of Science, Charles University, Viničná 7, CZ-123 83 Praha 2, Czech Republic; e-mails: seidelma@natur.cuni.cz, arriagavarelae@natur.cuni.cz
²Department of Entomology, National Museum, Cirkusová 1740, CZ-19300 Praha 9 – Horní Počernice, Czech Republic; e-mail: mfikacek@gmail.com

Abstract. Cylominae Zaitzev, 1908 is established as a valid subfamily name for Rygmodinae Orchymont, 1916, syn. nov., due to the recent transfer of Cyloma Sharp, 1872 to the subfamily. The history of nomenclature of the subfamily is reviewed and an updated overview of family-group and genus-group names currently assigned to the subfamily is provided.

Key words. Coleoptera, Hydrophilidae, Cylominae, Rygmodinae, genus, new synonym, new status, nomenclature

Introduction

Recent advances in the phylogenetic studies stabilized the subfamiliar classification of the family Hydrophilidae. Six major clades of Hydrophilidae were recognized in the multigene analysis performed by Short & Fíkáček (2013) and established as subfamilies: mainly aquatic Hydrophilinae, Chaetarthriinae, Enochrinae and Acidocerinae, and mostly terrestrial Sphaeridiinae and Rygmodinae. The subfamily assignment of most genera was also revised in the course of the study. Subsequent studies either corroborated the proposed classification (Bloom et al. 2014, Fíkáček et al. 2015, Toussaint et al. 2016) or corrected the subfamily assignment of genera previously not available for studies (Fíkáček & Vondráček 2014). However, nomenclatural issues concerning some family-group names resulting from these changes were not addressed properly. For this reason, the nomenclature of the family-group and genus-group names of the subfamily Rygmodinae is revised here, in order to make it stable before the ongoing revision of this clade will be published.
History of the subfamily

The tribe Cylomina was the first established family-group taxon (ZAITZEV 1908) encompassing the New Zealand genera *Cyloma* Sharp, 1872, *Psephoboragus* Broun, 1893 (currently a junior subjective synonym of *Cyloma*) and *Cylomissus* Broun, 1903. Several years later, ORCHYMONT (1916) proposed the tribe Rygmodini, providing just a very inaccurate diagnosis. His concept of Rygmodini became clear after a more detailed definition was provided by ORCHYMONT (1919) – the group encompassed 14 genera endemic to New Zealand, i.e. *Adolopus* Sharp, 1884, *Cyloma*, *Gitocyloma* Broun, 1915 (junior subjective synonym of *Cyloma*), Namostygnus Broun, 1909 (junior subjective synonym of *Cyloma*), *Psephoboragus*, *Cylomissus*, *Exydrus* Broun, 1886, *Hydrostygnus* Sharp, 1884, *Rygmodus* White, 1846, *Saphydrus* Sharp, 1884, *Tormissus* Broun, 1893, *Thomosis* Broun, 1904 (junior subjective synonym of *Tormissus*), *Tormus* Sharp, 1884, *Stygnohydrus* Broun, 1893 (junior subjective synonym of *Tormus*), and the Australian endemic *Pseudohydrobius* Blackburn, 1898. ORCHYMONT (1919) explained the establishment of the Rygmodini by the fact that *Rygmodus* (the type genus) is the oldest described taxon in the group. Although he commented on the name Cylomina Zaitzev, 1908, he ignored its priority over Rygmodini. The status proposed by ORCHYMONT (1919), i.e. Rygmodini as a valid name, with Cylomina as its synonym, was corroborated by KNISCH (1924).

HANSEN (1991) performed the first phylogenetic analysis of the Hydrophilidae and proposed a new classification of the family (the so-called Hansen’s Classification). In the course of this work, he redefined Rygmodini as containing six genera only: *Pseudohydrobius*, *Rygostralia* Orchymont, 1933, *Saphydrus*, *Rygmodus*, *Eurygmus* Hansen, 1990, and *Cylorygmus* Orchymont, 1933. The genera *Tormus*, *Tormissus*, *Hydrostygnus* and *Exydrus* were transferred to a newly established tribe Tormissini, and the genera *Cyloma* and *Adolopus* to the tribe Coelostomatini; several genus-level synonymies were also proposed. The transfer of *Cyloma* from Rygmodini to Coelostomatini resulted in placing Cylomina Zaitzev, 1908 in synonymy with Coelostomatini Heyden, 1891.

SHORT & FIKÁČEK (2013) reassessed the phylogeny and classification of Hydrophilidae based on a multigene dataset. They found a strong support for most of the genera assigned to ‘basal sphaeridiine clades’ in Hansen’s Classification (i.e. Rygmodini, Tormissini, Andotypini and Borborophorini) to form a monophyletic group. Based on these results, the subfamily Rygmodinae was established for the clade, and the remaining family-group names were synonymized with it. The genera *Adolopus* and *Cyloma* were transferred back to Rygmodinae from Coelostomatini, and the genera *Tormus* and *Afrotormus* Hansen, 1999 (previously classified in Tormissini) were moved to Hydrophilinae. Furthermore, *Anticura* Spangler, 1979 was moved from Hydrophilinae to Rygmodinae. Due to the ongoing revision of the group, no formal family-group taxa (tribes, subtribes) were established inside of the subfamily. In this revised concept, Rygmodinae contained 18 genera. Subsequently, one new genus was described by FIKÁČEK et al. (2014) and *Pseudorygmodus* Hansen, 1999 was transferred from Rygmodinae to Chaetarthriinae by FIKÁČEK & VONDRAČEK (2014).

When reassigning *Cyloma* back from Coelostomatini to Rygmodinae, SHORT & FIKÁČEK (2013) did not resurrect the family-group name Cylomina from synonymy with Coelostomatini and therefore overlooked its nomenclatural priority over Rygmodinae. Here we fix...
this issue, and establish Cylominae Zaitzev, 1908, stat. nov., as a valid subfamily name, with Rygmodinae Orchymont, 1916 standing as its synonym. The names standing previously in synonymy with Rygmodinae Orchymont, 1916 are transferred under Cylominae Zaitzev, 1908. An updated overview of family-group and genus-group names currently assigned to the subfamily is provided below.

### Spelling corrections

When Zaitzev (1908) introduced Cylomina in his catalogue, the name was listed as ‘Cyl(l)omina’, corresponding to his spelling of the type genus – ‘Cyl(l)oma’. This is the reason why Cylomina was listed as Cylomina by some subsequent authors (e.g., Hansen 1991, Bouchard et al. 2011), but all of them considered this spelling as an unjustified emendation, since Sharp’s (1872) original spelling of the genus was Cyloma. In agreement with that, we are using Cylomina as the correct original spelling of ZAITZEV’s (1908) name.

Bouchard et al. (2011: 7–9, 157) considered Cyloma as a neuter noun of Greek origin, based on the ending -loma (Greek word for margin), and in agreement with that corrected the genitive stem for formation of family-group names from ‘Cylom-’ used by all previous authors to ‘Cylomat-’. However, as discussed by Newton & Thayer (1992: 15), Cyloma was explicitly stated as ‘a word without any classical derivation’ in the original description by Sharp (1872: 152). As such, the stem formation for the family-group name follows Article 29.3.3 of the International Code of Zoological Nomenclature (ICZN 1999). This Article states that ‘if a generic name is or ends in a word not Greek or Latin, or is an arbitrary combination of letters, the stem for the purposes of the Code is that adopted by the author who establishes the new family-group taxon’. ZAITZEV’s (1908) establishment of Cylomina (stem: Cylom-) hence determined the stem formation for family-group names derived from Cyloma. Consequently, we consider the stem formation done by Bouchard et al. (2011) as incorrect, and establish the subfamily name as Cylominae.

### Updated overview of family- and genus-group names within Cylominae

#### Subfamily Cylominae Zaitzev, 1908

Cylominae Zaitzev, 1908: 400. Type genus: *Cyloma* Sharp, 1872.

- Cylomina: Zaitzev (1908): 400 (incorrect original spelling based on incorrect subsequent spelling of the name of type genus).

#### Adolopus Sharp, 1884


**Distribution.** New Zealand (Hansen 1999).
Andotypus Spangler, 1979
Distribution. Chile (FIKÁČEK et al. 2014).

Anticura Spangler, 1979

Austrotypus Fikáček, Minoshima & Newton, 2014
Austrotypus Fikáček, Minoshima & Newton, 2014: 559. Type species: Austrotypus nothofagi Fikáček, Minoshima
& Newton, 2014 (by original designation).
Distribution. Australia (New South Wales, Queensland), Peru (FIKÁČEK et al. 2014).

Borborophorus Hansen 1990
Distribution. Australia (New South Wales, Queensland) (HANSEN 1999).

Coelostomopsis Hansen, 1990
Distribution. Australia (New South Wales, Queensland) (HANSEN 1999).

Cyloma Sharp, 1872
Cyloma Sharp, 1872: 152. Type species: Cyloma lawsonus Sharp, 1872 (by monotopy).
= Cylloma: ZAITZEV (1908): 400 (incorrect subsequent spelling).
= Psephoboragus Broun, 1893b: 1402. Type species: Psephoboragus signatus Broun, 1983 (designated by KNISCH
= Namostygmus Broun, 1909: 98. Type species: Namostygmus rufipes Broun, 1909 (by monotypy). Synonymized
= Gitocyloma Broun, 1915: 277. Type species: Gitocyloma nigratus Broun, 1915 (by monotypy). Synonymized by
Distribution. New Zealand (HANSEN 1999).

Cylomissus Broun, 1903
Cylomissus Broun, 1903: 613. Type species: Cylomissus glabratu Broun, 1903 (by monotypy).
= Cyclomissus Zaitzev, 1908: 400 (incorrect subsequent spelling).
Distribution. New Zealand (HANSEN 1999).

Cylorygmus Orchymont, 1933
Cylorygmus Orchymont, 1933: 293. Type species: Cylorygmus lineatopunctatus Orchymont, 1933 (by original
designation).
Distribution. Chile (HANSEN 1999, FIKÁČEK & VONDRÁČEK 2014), South Africa (Western Cape) (HEBAUER 2002).
Eurygmus Hansen, 1990


**Distribution.** Australia (Queensland) (Hansen 1999).

Exydrus Broun, 1886

*Exydrus* Broun, 1886: 940. Type species: *Cyclonotum flavicorne* Broun, 1886 (designated by Knisch 1924: 106).

**Distribution.** New Zealand (Hansen 1999).

Hydrostygnus Sharp, 1884

*Hydrostygnus* Sharp, 1884: 475. Type species: *Hydrostygnus brouni* Sharp, 1884 (designated by Hansen 1999: 238)

**Distribution.** New Zealand (Hansen 1999).

Petasopsis Hansen, 1990


**Distribution.** Australia (Queensland) (Hansen 1999).

Pseudohydrobius Blackburn, 1898

*Pseudohydrobius* Blackburn, 1898: 231. Type species: *Pseudohydrobius floricola* Blackburn, 1898 (by monotypy).

**Distribution.** Australia (New South Wales, Victoria, Queensland) (Hansen 1999, Fikacek & Watts 2015).

Rygmodus White, 1846


**Distribution.** New Zealand (Hansen 1999).

Rygmostralia Orchymont, 1933

*Rygmostralia* Orchymont, 1933: 293. Type species: *Rygmostralia brunnea* Orchymont, 1933 (by original designation).

**Distribution.** Australia (New South Wales) (Hansen 1999).

Saphydrus Sharp, 1884

*Saphydrus* Sharp, 1884: 467. Type species: *Saphydrus suffusus* Sharp, 1884 (designated by Knisch 1924: 108).

**Distribution.** New Zealand (Hansen 1999).

Tormissus Broun, 1893


**Distribution.** New Zealand (Hansen 1999).
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