Case 3321

Bythinella Moquin-Tandon, 1856 (Mollusca, Gastropoda, Prosobranchia, RISSOOIDEA): proposed conservation of usage by the designation of *Bulimus viridis* Poiret, 1801 as the type species

Dietrich Kadolsky
66 Heathhurst Road, Sanderstead, Surrey CR2 0BA, U.K.

Abstract. The purpose of this application, under Article 70.2 of the Code, is to conserve the usage of the generic name *Bythinella* Moquin-Tandon, 1856 by designating *Bulimus viridis* Poiret, 1801 as the type species. *Bythinella* is a replacement name for *Leachia* Risso, 1826 (not *Leachia* Lesueur, 1821) for which the type species is *Leachia viridescens* Risso, 1826. Although its identity is uncertain, *Leachia viridescens* Risso, 1826 is not congeneric with *Bythinella* in its accustomed sense.

Keywords. Nomenclature; taxonomy; Gastropoda; Prosobranchia; RISSOOIDEA; *Bythinella*; *Bythinella viridis*; *Leachia*; Europe.

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1. The name *Leachia* Risso, 1826 (p. 102) (not Lesueur, 1821, pp. 86–87, Cephalopoda) was proposed for four species of presumed aquatic gastropods from the Mediterranean coastal area of France. The four species are: (1) *L. viridescens* Risso, 1826 (p. 102, pl. 3, fig. 35): 'fosses aquatiques', length 6 mm; in the figure list the name is given as '*Leachia viridis*'; (2) *L. cornea* Risso, 1826 (p. 102): 'eaux saumâtres', length 4 mm; (3) *L. vitrea* Risso, 1826 (p. 103, pl. 3, fig. 33): 'dans les mares', length 2 mm; (4) *L. lineolata* Risso, 1826 (p. 103): 'lieux humides' (i.e. apparently terrestrial); length 9 mm. Monterosato, 1884 (p. 230) designated *Leachia viridescens* as the type species of *Leachia* Risso, 1826. Later, Hannibal, 1912 (p. 185) designated *Cyclostoma vitreum* Draparnaud, 1801 as the type species of *Leachia* Risso, 1826. This action was invalid because Monterosato's designation has priority. Hannibal implicitly regarded the name '*Leachia vitrea*' Risso, 1826 as a new combination rather than a new species.

2. The Risso collection has been the subject of four publications, but the identity of *Leachia viridescens* Risso, 1826 has not been satisfactorily documented. Mortillet (1851, p. 107) included the genus *Leachia* (presumably all four of its nominal species) in synonymy with *Hydrobia acuta* (Draparnaud, 1805) without providing details. Bourguignat (1861, p. 65) thought that *L. viridescens* was a species of *Bithynia* Leach in Abel, 1818 'sur laquelle nous n'avons pu former une opinion précise sur sa valeur spécifique'. Later Bourguignat (1887, p. 8, footnote) corrected himself and placed *Leachia viridescens* in the genus *Bythinella* Moquin-Tandon, 1856. This is an astounding change in generic placement, considering the obvious dissimilarity between *Bithynia* and *Bythinella*, which Bourguignat explained by his original unfamiliarity with the genera of the 'Paludinidae' and the fact that *Bythinella* was not recognized as a valid genus in 1861. Bourguignat's taxonomic judgement between 1861 and 1887 seems to have been muddled. He did not provide any details about the

type material of *L. viridescens*. The original description and figure do not fit the (then) prevailing use of the name *Bythinella*, even if wider contemporary usage is considered. Caziot (1919, p. 169) and Arnaud (1977, p. 144) placed *Leachia viridescens* in synonymy with *Hydrobia acuta* (Draparnaud, 1805). At that time the taxonomic concept of *Hydrobia acuta* included at least three species: *Hydrobia acuta* (species aggregate), *Ecrobia ventrosa* (Montagu, 1803) and *Heleobia stagnorum* (Gmelin, 1791) (species aggregate). I inspected the remaining putative syntype of *Leachia viridescens* in the Muséum National d'Histoire Naturelle, Paris. It is a very poorly preserved specimen that may be an individual of *Ecrobia ventrosa* (Montagu, 1803) or, less likely, *Hydrobia acuta* (Draparnaud, 1805). It is not the specimen depicted in Risso's original figure from which it differs in several points (e.g. the shell length of 3.8 mm instead of 6 mm). It is not certain that this specimen is actually a syntype since there is evidence of loss of material from the collection as well as mixing of labels and material. On the other hand, its status cannot be disproved and Risso's description and figure may well be interpreted as referring to a species in the hydrobiid species aggregate referred to above. In any event his figure and measurement may be regarded as dubious. The habitat given by Risso, 'fosses aquatiques' (water holes) is incompatible with that of *Bythinella*, which inhabits springs and spring outflows in hilly terrain. The size given for *L. viridescens* exceeds that of *Bythinella* species, as well as that of *Hydrobia* species. Kadolsky (in press) suggested that *Leachia viridescens* could be identical with *Galba truncatula* (Müller, 1774) in the family LYMNAEIDAE, subclass Euthyneura, whereas *Hydrobia* and *Bythinella* are in the superfamily RISSOOIDEA, subclass Prosobranchia. This presupposes that Risso's measurement is correct, the putative syntype is incorrectly so labelled and the wording chosen by Risso to characterize the habitat implies a freshwater habitat. Other authors (who do not appear to have inspected the type series) have interpreted it as a form of *Hydrobia* (aggregate) (e.g. Martens, 1858, p. 198; Frauenfeld, 1865, p. 660; Clessin, 1880, p. 171; Monterosato, 1884, p. 231 and Dollfus, 1912, p. 185). In conclusion, the identity of the type species cannot be determined beyond doubt. Therefore, the use of *Leachia viridescens* as the type species of *Bythinella* will cause instability or confusion and the case is referred to the Commission under Article 70.2 of the Code.

3. None of the authors who discussed *Leachia viridescens* had considered the possibility that Risso may have misapplied the name *Bulimus viridis* Poiret, 1801 to some material in his collection. According to Arnaud, 1977, Risso commonly used species names without quoting the original author. He added the label (N) (= nova) to each of his four *Leachia* species, but this could have indicated either a new combination or a new species. The practice of authors to credit themselves with the authorship of new binominal combinations was widespread in the early part of the 19th century (see Zilch, 1970). For example, the name *Leachia vitrea* Risso was interpreted as a new combination of *Cyclostoma vitreum* Draparnaud, 1801 by Gray (1847, p. 151, in *Hydrobia*), Küster (1852, p. 56, pl. 11, figs. 1–4, in *Paludina*) and Hannibal (1912, p. 185, in *Hydrobia*). However, there is no evidence in Risso's work to support this view and his material is not conspecific with Draparnaud's species. Risso used the combination *Leachia viridis* only once and all authors have dismissed this as an error for *L. viridescens*. He cited the vernacular name Léachie verdâtre, not Léachie verte, both in the main text (p. 102) and in the listing for figure 35 associated

with plate 3. If Risso's use of the species name *viridis* could be attributed to Poiret, 1801 it would offer a convenient, but arbitrary interpretation which is not supported in the literature. I consider *Leachia viridescens* to be the correct original spelling of the name of a then new nominal species. Use of the name *viridis* in the figure list is recognized as a lapsus calami. Due to the uncertainty about the identity and status of this nominal species it is considered to be a nomen dubium. Under Article 75.5 the type specimen of a nomen dubium should be replaced by a neotype, however, it would not serve the interests of stability to do so, considering the widespread use of *Bulimus viridis* as the type species of *Bythinella*.

4. When Moquin-Tandon, 1856 (pp. 515–516) introduced the name *Bythinella* as a subgenus of '*Bythinia*' (= *Bithynia* Leach in Abel, 1818), he included as synonyms *Leachia* Risso, 1826 and *Bithinella* Moquin-Tandon, 1851 (p. 239). The latter is actually a misquotation or emendation of 'les Bithinelles', an unavailable vernacular name. Moquin-Tandon noted that *Leachia* Risso was preoccupied by *Leachia* Lesueur, 1821 (Cephalopoda). Without this homonymy, there is no reason to assume Moquin-Tandon would not have used the name *Leachia* Risso. *Bythinella* was thus implicitly proposed as a replacement name (Article 12.2.3) for the preoccupied *Leachia* Risso and has the same type species (see Articles 60, Recommendation 60A and 67.8). However, no subsequent author noted this point. Throughout the literature the genus-group name *Bythinella* was regarded as newly proposed by Moquin-Tandon, 1856 with the type species *Bulimus viridis* Poiret, 1801 (pp. 44–47) designated by Stimpson (1865, pp. 17, 44). Topotypical material of *Bythinella viridis* (Poiret, 1801) was discussed by Boeters (1974, p. 271, figs. 1 (possible syntype), 24–25, 35); Radoman (1976, p. 138, pl. 1, fig. 1; 1983, p. 171, fig. 203 D, pl. 12, fig. 203); Boeters (1998, p. 40, figs. L 5-L 8, P 2); and Glöer (2002, p. 161, fig. 193). *Bythinella* has been accepted as the valid name of a genus including numerous small species of freshwater RISSOOIDEA inhabiting mainly springs and spring outflows in hilly and mountainous areas of Europe. Although the taxonomic concept of *Bythinella* has been considerably narrowed since its introduction at least 126 nominal species-group taxa have been associated with this generic name in the past 50 years (excluding all East Asiatic and all Tertiary European species which are all either definitely or very probably incorrectly placed in this genus). A number of these nominal species have been excluded from *Bythinella* in more recent studies and there is still debate and on-going research into the status of some of those species remaining in the genus (e.g. Falkner et al., 2002, p. 78 and Giusti & Pezzoli, 1977a, b). In the last 50 years 83 references in which the genus name was used as valid are known to the author. A list of these references, which is far from complete, is held by the Commission Secretariat.

5. Stimpson (1865, pp. 17, 44) designated *Bulimus viridis* Poiret, 1801 as the type species of *Bythinella*. However, as a replacement name for *Leachia* Risso, the type species must be one of the originally included species (Article 67.8.1). The first valid type species designation for one name is also valid for the other (Article 67.8, see example). Although Risso (1826, pl. 3, fig. 35) used the name *Leachia viridis* in the figure list, it can be interpreted as a lapsus calami (see para. 3 above). There is no evidence to confirm the suggestion that Risso intended to figure Poiret's nominal species *B. viridis*; therefore, Stimpson's type species designation is invalid. Montero-sato's designation of *Leachia viridescens* as the type species of *Leachia* Risso is the

valid type species designation for *Bythinella*. As discussed in para. 3 above, the identity of *Leachia viridescens* Risso is in doubt. It is certainly not a species of *Bythinella* in its accustomed sense, despite Bourguignat's (1887) statement. The prevailing taxonomic concept of the nominal genus *Bythinella* has, without exception, been based on *B. viridis* (Poiret). It is therefore proposed that *Bulimus viridis* Poiret, 1801 be fixed as the type species of *Bythinella* Moquin-Tandon, 1856 in order to conserve usage of the name in its accustomed sense.

6. There were several later unjustified emendations of the name *Bythinella* due to the fact that it was derived from the name *Bithynia* Leach in Abel, 1818, for which some authors had adopted the spellings *Bithinia* or *Bythinia*. Moquin-Tandon, 1856 followed this principle by using the spellings '*Bythinia*' and '*Bythinella*'. Fischer (1885, p. 725) used the spelling *Bithinella*. He is known to have emended the spelling of many genus-group names for linguistic reasons. In this case he wanted to be consistent with *Bithinia*. The spelling *Bithinella* was also used by Clessin (1880, pp. 171, 176) and Cossmann (1888, p. 217; 1921, pp. 121–123). However, Clessin (1880, pp. 192, 194) also used the spelling *Bythinella*. As he also changed between *Bythinia* and *Bithinia*, his intentions are not apparent. Fagot (1886, p. 62) used the spelling *Bithynella* intentionally to be consistent with *Bithynia*, which he adopted as the correct spelling. Since he quoted synonyms with their correct spellings there can be no question of error. The spelling *Bithynella* was also used by Kennard & Woodward (1914, pp. 3, 11). It is proposed that the names *Bithinella* Fischer, 1885 and *Bithynella* Fagot, 1886 are placed on the Official Index.

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

(1) to use its plenary power to set aside all previous fixations of type species for the nominal genus *Bythinella* Moquin-Tandon, 1856 and to designate *Bulimus viridis* Poiret, 1801 as the type species;

(2) to place on the Official List of Generic Names in Zoology the name *Bythinella* Moquin-Tandon, 1856 (gender: feminine), type species by designation in (1) above *Bulimus viridis* Poiret, 1801;

(3) to place on the Official List of Specific Names in Zoology the name *viridis* Poiret, 1801, as published in the binomen *Bulimus viridis* (specific name of the type species of *Bythinella* Moquin-Tandon, 1856);

(4) to place on the Official Index of Rejected and Invalid Generic Names in Zoology the following names:

(a) *Leachia* Risso, 1826 (a junior homonym of *Leachia* Lesueur, 1821);

(b) *Bithinella* Fischer, 1885 (an unjustified emendation and junior objective synonym of *Bythinella* Moquin-Tandon, 1856);

(c) *Bithynella* Fagot, 1886 (an unjustified emendation and junior objective synonym of *Bythinella* Moquin-Tandon, 1856).

References

Arnaud, P.M. 1977. Révision des taxa malacologiques méditerranéens introduits par Antoine Risso. *Annales du Muséum d'Histoire naturelle de Nice*, **5**: 101–150.

Boeters, H.D. 1974. Die Gattung *Bythinella* und die Gattung *Marstoniopsis* in Westeuropa, 1: Westeuropäische Hydrobiidae, 4 (Prosobranchia). *Malacologia*, **14**(1–2): 271–285.

Boeters, H.D. 1998. Mollusca: Gastropoda: Rissooidea. *In* Schwoerbel, J. & Zwick, P. (Eds.), *Süsswasserfauna von Mitteleuropa*, Bd. 5(1/2). 9, 76 pp. Gustav Fischer, Stuttgart.

Bourguignat, J.R. 1861. *Étude synonymique sur les mollusques des Alpes Maritimes publiés par A. Risso en 1826*. 84 pp., 1 portrait, 1 pl. Bouchard-Huzard, Paris.

Bourguignat, J.R. 1887. *Étude sur les génériques des petites Paludinidées à opercule spirescent suivie de la description du nouveau genre* Horatia. 56 pp., 1 pl. Paris.

Caziot, E. 1919. Synonymic study on the mollusks of the Departement des Alpes-Maritimes mentioned by Antoine Risso with notes on their classification. *Proceedings of the Academy of Natural Sciences of Philadelphia*, **71**: 156–170.

Clessin, S. 1880. Studien über die Familie der Paludiniden. *Malakozoologische Blätter*, (NF)**2**: 161–196.

Cossmann, M. 1888. Catalogue illustré des coquilles fossiles de l'Éocène des environs de Paris. *Annales de la Société royale malacologique de Belgique*, **23**: 3–324.

Cossmann, M. 1921. *Essais de paléoconchologie comparée*. 345, 2 pp., pls. A-D, pls. 1–6. Cossmann, Paris.

Dollfus, G.F. 1912. Recherches critiques sur quelques genres ou espèces d'*Hydrobia* vivants ou fossiles. *Journal de Conchyliologie*, **59**(3): 179–270.

Draparnaud, J.P.R. 1801. *Tableau des mollusques terrestres et fluviatiles de la France*. 116 pp. Renaud, Bossauge, Masson & Besson, Montpellier & Paris.

Fagot, P. 1886. Catalogue descriptif des mollusques terrestres et d'eau douce de la région de Toulouse. *Bulletin de la Société d'Histoire naturelle de Toulouse*, **20**: 37–80.

Falkner, G., Ripken, Th.E.J. & Falkner, M. 2002. Mollusques continentaux de France. Liste de référence annotée et bibliographie. *Patrimoines naturels*, **52**: 1–305.

Fischer, P. 1885. *Manuel de conchyliologie et de paléontologie conchyliologique*, part 8. Pp. 689–784. F. Savy, Paris.

Frauenfeld, G. von. 1865. Zoologische Miscellen. V. *Verhandlungen der kaiserlich-königlichen zoologisch- botanischen Gesellschaft in Wien*, **15**: 525–536.

Giusti, F. & Pezzoli, E. 1977a. Primo contributo alla revisione del genere *Bythinella* in Italia. *Natura Bresciana. Annali dei Musei Civici di Storia Naturale - Brescia*, **14**: 3–80.

Giusti, F. & Pezzoli, E. 1977b. The genus *Bythinella* in Italy (Prosobranchia, Hydrobioidea). *Malacologia*, **16**(1): 131.

Glöer, P. 2002. *Mollusca I. Süsswassergastropoden Nord- und Mitteleuropas. Bestimmungsschlüssel, Lebensweise, Verbreitung*. Die Tierwelt Deutschlands, 73 Teil. Ed. 2. 327 pp. Conchbooks, Hackenheim.

Gray, J.E. 1847. A list of the genera of recent mollusca, their synonyma and their types. *Proceedings of the Zoological Society of London*, **15**(179): 129–219.

Hannibal, H. 1912. A synopsis of the recent and Tertiary freshwater Mollusca of the Californian province, based upon an ontogenetic classification. *Proceedings of the Malacological Society of London*, **10**(3): 167–211.

Kadolsky, D. (in press). Family and genus group names assigned to the Prosobranch snail family 'Hydrobiidae s. lat.' (Gastropoda, Rissooidea). *Heldia*, **6**, Sonderheft 9.

Kennard, A.S. & Woodward, B.B. 1914. *List of British non-marine mollusca*. 12 pp. Taylor & Francis, London.

Küster, H.C. 1853. Die Gattungen *Paludina*, *Hydrocaena* und *Valvata*. In Abbildungen nach der Natur mit Beschreibungen. *Systematisches Conchylien-Cabinet von Martini und Chemnitz*, Bd. 1, Abt. 21, livr. 119, pp. 57–96, pls. 9–14. Bauer & Raspe, Nürnberg.

Leach, W.E. 1818. P. 362 *in* Abel, C., *Narrative of a journey in the interior of China, in a voyage to and from that country in the years 1816 and 1817* . . . 420 pp., 16 pls. Longman, Hurst, Rees, Orme, Brown, London.

Lesueur, C.A. 1821. Descriptions of several new species of cuttle-fish. *Journal of the Academy of Natural Sciences of Philadelphia*, **2**: 86–101.

Martens, E. von. 1858. Ueber einige Brackwasserbewohner aus den Umgebungen Venedigs. *Archiv für Naturgeschichte*, **24**(1): 152–208.

Monterosato, T. di. 1884. Conchiglie littorali mediterranee. *Il Naturalista Siciliano*, **3**(8): 227–231.

Moquin-Tandon, A. 1851. Observations sur les genres Paludine et Bithinie (*Paludina*, Lam., et *Bithinia*, Gray). *Journal de Conchyliologie*, **2**: 237–245.

Moquin-Tandon, A. 1856. *Histoire naturelle des mollusques terrestres et fluviatiles de France, contenant des études générales sur leur anatomie et leur physiologie et la description particulière des genres, des espèces et des variétés*, vol. 2, livr. 6. Pp. 369–646. Baillière, Paris.

Mortillet, G. 1851. Coquilles fluviatiles et terrestres des environs de Nice. *Bulletin de la Société d'Histoire naturelle de Savoie*, **2**(3): 72–110.

Poiret, J.L.M. 1801. *Coquilles fluviatiles et terrestres observées dans le département de l'Aisne et aux environs de Paris.* xi, 119 pp. Paris.

Radoman, P. 1976. Speciation within the family Bythinellidae on the Balkans and Asia Minor. *Zeitschrift für zoologische Systematik und Evolutionsforschung*, **14**(2): 130–152.

Radoman, P. 1983. Hydrobioidea a superfamily of Prosobranchia (Gastropoda), I. Systematics. *Serbian Academy of Sciences and Arts, Monograph*, 547. 2, 56 pp., 12 pl. (No. 57). Department of Sciences, Beograd.

Risso, A. 1826. *Histoire naturelle des principales productions de l'Europe méridionale et particulièrement de celles des environs de Nice et des Alpes Maritimes*, vol. 4. 438 pp., 12 pls. Levrault, Paris.

Stimpson, W. 1865. Researches upon the Hydrobiinae and allied forms chiefly made upon materials in the Museum of the Smithsonian Institution. *Smithsonian Miscellaneous Collections*, **7**(201): 1–57.

Zilch, A. 1970. *Microna* Ziegler in Frauenfeld 1863. *Archiv für Molluskenkunde*, **100**(3/4): 147–149.

Acknowledgement of receipt of this application was published in BZN **61**: 134.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).