NOMENCLATURAL COMMENTS ON NON-MARINE MOLLUSCS OCCURRING IN THE BRITISH ISLES

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Abstract *Reviews of the nomenclatural status and related matters on selected non-marine molluscs occurring in the British Islands are provided, and in some cases nomenclatural actions carried out. The most significant points raised are:* Paludinella *L. Pfeiffer 1841 (Assimineidae) the nominal type species "*Helix littorina *Delle Chiaie 1828" is recognized as misidentified, and fixed as the species intended by L. Pfeiffer, for which* Paludinella globularis *(Hanley in Thorpe 1844) is the valid name;* Heleobia (Eupaludestrina) *Mabille 1877 (Cochliopidae), with type species* Hydrobia macei *Paladilhe 1867, is a senior subjective synonym of* Semisalsa *Radoman 1974;* Ecrobia ventrosa *(Montagu 1803) (Hydrobiidae) is declared nomen protectum, and* Turbo eburneus *Jacob in Adams & Kanmacher 1798 nomen oblitum;* Mercuria anatina *(Poiret 1801) (Hydrobiidae) is confirmed as the oldest available name for the* Mercuria *species aggregate; Physidae, the classification is reviewed and the species* acuta *Draparnaud 1805 is referred to* Physella (Acutiana); *this species is here designated as type species of* Acutiana *Fagot 1883;* Ferrissia fragilis *(Tryon 1863) (Planorbidae: Ancylinae) is accepted as the senior synonym of* F. wautieri *(Mirolli 1960);* Cochlicopa lubricella *(Porro 1838) (Cochlicopidae) is not validly proposed by Rossmässler (1834, 1835); relationship to* C. lubricoides *(Potiez & Michaud 1838), which may have precedence, remains to be clarified;* Papillifera papillaris *(O.F. Müller 1774) (Clausiliidae): reports of introductions into the British Isles are summarized;* Arion (Arion) vulgaris *Moquin-Tandon 1855 (Arionidae) proposed to be maintained as the valid name for the invasive species often referred to as* A. lusitanicus *[not of Mabille 1868]; to utilize the name vulgaris as intended, a neotype fixation to be validated by the ICZN is recommended;* Trochulus sericeus *(O.F. Müller 1774) (Hygromiidae) is probably based on juvenile* Monachoides incarnatus *(Müller 1774); authorship cannot be attributed to Draparnaud (1801); the current species concept requires fixation by a neotype according to article 75.6 ICZN.*

Key words Paludinella globularis, Heleobia (Eupaludestrina), Ecrobia ventrosa, Turbo eburneus, Mercuria anatina, Physella (Acutiana) acuta, Ferrissia fragilis, Cochlicopa lubricella, Papillifera papillaris, Arion vulgaris, Arion lusitanicus, Trochulus sericeus, Cornu, *misidentifications, neotype.*

INTRODUCTION

Considerable effort has been made in the last decade to produce checklists of molluscs with a Europe-wide or country scope, with the aim to standardize the zoological names used and draw attention to the progress in taxonomy and clarifications of nomenclatural issues. For the British Isles Anderson (2005), produced such a list, the first since the lists of Kerney (1976) and Waldén (1976). A modified list has subsequently been published by Bank, Falkner & Proschwitz (2007) as part of the CLECOM project. The website of the Conchological Society of Great Britain and Ireland contains a checklist (ConchSoc list) dated 2005. Of relevance is also the Europe-wide CLEMAM list for the marginally marine families Hydrobiidae, Cochliopidae and Assimineidae. Despite these efforts, a number of facts bearing on nomenclature have either not yet been considered, or alternative interpretations of the Code for Zoological Nomenclature are possible and, it is suggested here, preferable. A publication of mainly nomenclatural matters is considered justified at this stage as it should contribute to the correct usage of species names by preventing incorrect usages to become entrenched and hence more difficult to correct later. The opportunity is also taken to correct a few incorrect nomenclatural statements recently published by other authors concerning molluscs occurring in the British Isles.

In some cases (*Mercuria anatina*, *Arion vulgaris*, *Trochulus sericeus*) a recommendation is made to stabilize the meaning of a species-group name with the designation of a neotype. The actual neotype designation should be made in the context of a taxonomic revision of that species or species complex.

The succession of suprageneric taxa follow that of Bouchet & Rocroi (2005), which should also be consulted for suprafamilial arrangements. For names of the species group discussed here, the original genus group name (and species name, if the name under discussion was originally published as of infraspecific rank) is added in angular brackets. Taxa for which comments are

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provided are highlighted in bold type. The acronym ICZN refers to either the "International Code for Zoological Nomenclature" (1999) or the "International Commission for Zoological Nomenclature", according to context. Illustrated original material is kept in the Natural History Museum of London (NHMUK) or in the author's collection (K).

COMMENTS ON TAXA

Family Assimineidae H.Adams & A.Adams 1856

***Paludinella* L. Pfeiffer 1841**

Anderson (2005) placed the genus erroneously in the family Truncatellidae.

The type species was designated by Herrmannsen (1847b: 193–194) as *Helix littorina* Delle Chiaie 1828 (:215, 229, pl. 49.36–38). As will be discussed below, L.Pfeiffer (1841) understood this species as interpreted by Philippi (1841 :53, fig. 7), which is a strikingly different species from Delle Chiaie's *Helix littorina* (Fig 1A). According to article 70.3 ICZN, which governs cases of misidentified type species, a revising author has the choice to restrict the type species either to the nominal species cited as type species, or to the taxon actually involved in the misidentification. In the case of *Paludinella*, only the last alternative is conducive to nomenclatural stability, as it will leave the taxonomic concept of the genus group name unchanged. The second alternative would change the taxonomic concept of the name *Paludinella* to a non-assimineid taxon, which may be a junior synonym of the littorinid genus *Melarhaphe* Mühlfeld in Menke 1828. Regardless of the definitive identification of "*Helix*" *littorina* Delle Chiaie, in this case the genus name would take a meaning with which it had never been associated to date. Consequently, the type species of *Paludinella* L.Pfeiffer 1841 is according to article 70.3 ICZN hereby restricted to the species intended by L.Pfeiffer 1841 and Philippi 1841. Their type species concept needs a further restriction as they did not distinguish *P. littorina* auct. and *P. sicana* (Brugnone 1876) and may have had both. The type species of *Paludinella* is therefore restricted to the species currently referred to as *P. littorina*, i.e. the species with a large protoconch (Gaglini, 1991; Aartsen, 2008). The valid name for this taxon is *Cingula*? *globularis* Hanley in Thorpe 1844.

***Paludinella globularis* (Hanley in Thorpe 1844) n.comb.** [*Cingula?*]. (Fig. 1E–H).

Anderson (2005) and CLEMAM: *Paludinella littorina* (Delle Chiaje 1828). Bank *et al.* (2007) and ConchSoc list: *Paludinella* (*Paludinella*) *littorina* (Delle Chiaje 1828).

Inspection of Delle Chiaie's original publication revealed, that 1) the author's name is spelled Delle Chiaie in his own work although subsequently always quoted as Delle Chiaje; and 2) Delle Chiaie did not describe the assimineid commonly so named. The current interpretation of his '*Helix littorina*' is based on Philippi's species concept (1841: 53, fig.7; as *Truncatella littorina*). The original texts read (translated from Italian and Latin):

> P. 215: "Elice littorina. Microscopical shell from the coast at Posillipo [near Naples, Campagna, Italy], which belongs to this genus, apparently similar to the *Littorina* drawn in the work on Egypt pl 3 fig. 16[1]. It is yellow, transparent, has a spire with four whorls, which are blue in one of its varieties which is provided with a white band too." .
>
> P.225: "*Helix littorina*.- E. littorina Shell very small, amber-coloured, spire with four whorls. Audouin Coquill. d'Egypt. Tom. 22, p.170, tab. 3, figs. 16, 18, and 19[2].".

Delle Chiaie's description, while inadequate, is consistent with the coloured figures, which clearly show an elongate ovate-conical shell of ca. 3.3 mm height and 1.9 mm breadth; the shell colour is brown with a conspicuous white band on the umbilical side and a narrower one at the suture (Fig. 1A). The figures of the three species figured by Savigny (1817) with which Delle Chiaie compares his species are similarly elongate-conical and quite dissimilar to *Paludinella littorina* auct. *Paludinella littorina* auct. measures up to 2.0 : 1.8 mm (Fretter & Graham 1978, southern England) or 2.3 : 1.9 mm (Cesari 1988, lagoon

[1]Unnamed Red Sea species illustrated by Savigny (1817: pl. 3 fig.16, placed in *Littorina* by Audouin (1827: 170) and named *Cingula tiberiana* by Issel (1869: 199–200). See Pallary (1926: 56–57) for a summary and a facsimile of Savigny's plates.

[2]Here the separate works of Savigny (1817: pl. 3) and Audouin (1827: 170) are incorrectly quoted as one. Moreover Delle Chiaie quotes them as if all were conspecific with his *Helix littorina*, although the illustrations clearly show three different species. For Fig. 16 see footnote 1; Fig. 18 was interpreted as *Cingula* sp. by Issel (1869: 331), but as *Amnicola* or *Bithynia* sp.juv. by Pallary (1926: 57); Fig. 19 was named *Litiopa savignyi* Issel 1869 (:197–198, 331).

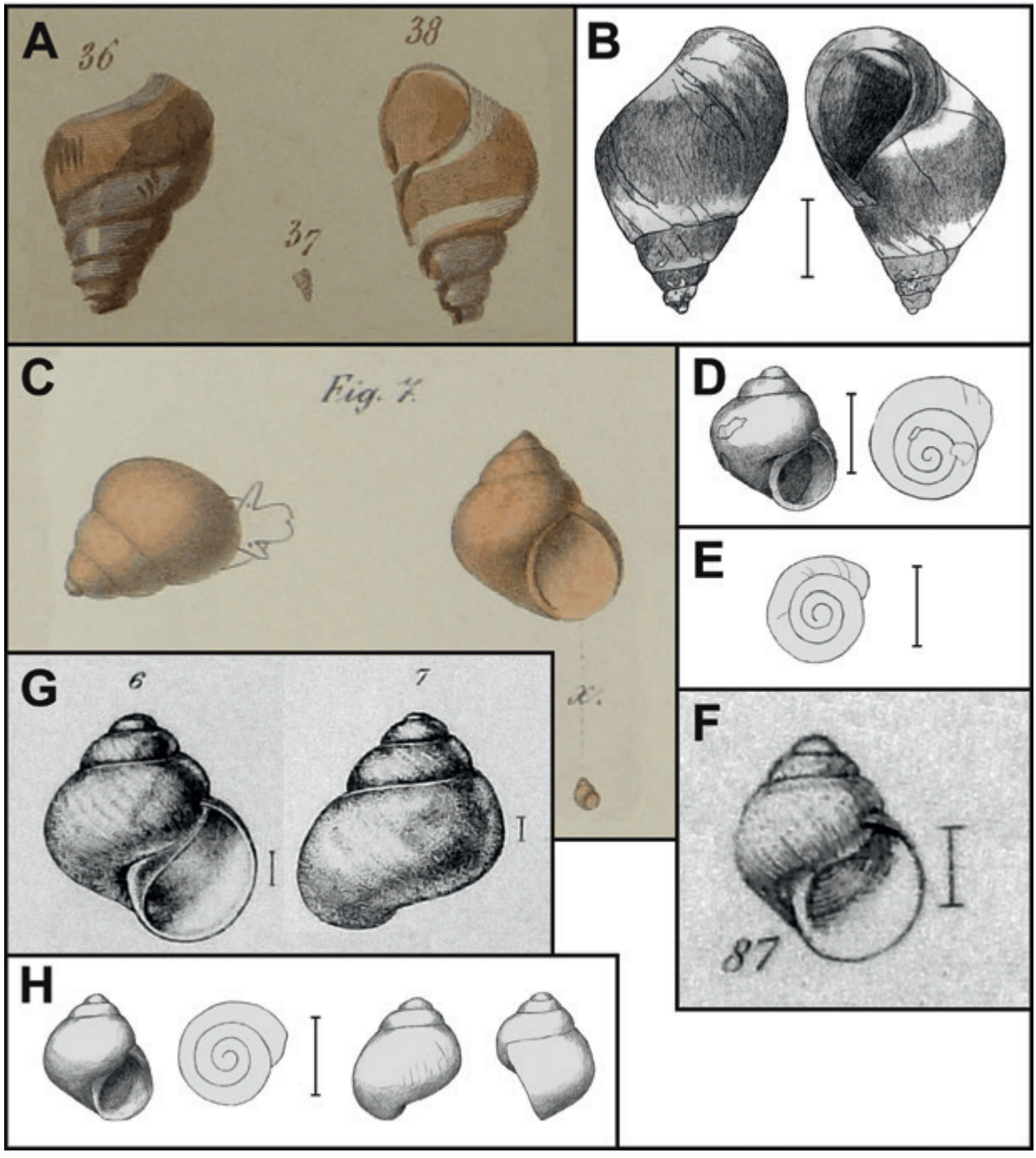

Figure 1 Identification of *Helix littorina* Delle Chiaie 1828.
The scales for figures 1B, D, E and H represent 1 mm. All reproduced figures would be at approximately the same magnification, if the dimensions given were accurate. A) Original figure of *Helix littorina* Delle Chiaie (1828: pl. 49 figs. 36–38): Posilippo W of Naples; height 3.3 mm (possibly juvenile a specimen of *Melarhaphe neritoides* (Linnaeus)). B) *Melarhaphe neritoides* (Linnaeus 1758). Italy: Miliscola W of Naples, 22.8.1972, coll.K 4746. Height 3.7 mm. Juvenile slender shell. C) Fig. 7 of Philippi (1841), as *Truncatella littorina*. Palermo; height 2.4 mm (= *Paludinella sicana* or *P. globularis*). D) *Paludinella sicana* (Brugnone 1876). Sicily: Palermo. G.B.Sowerby coll., ex Monterosato. NHMUK 1911.10.26.113. E) *Paludinella globularis* (Hanley in Thorpe 1844). Sicily: Palermo. G.B.Sowerby coll., ex Monterosato. NHMUK 1911.10.26.114. F) *Paludinella globularis* (Hanley in Thorpe 1844), syntype. Fig. 87 of Thorpe (1844): Original figure of *Cingula (?) globularis*. Weymouth; Metcalfe leg. height 2.9 mm. G) *Paludinella globularis* (Hanley in Thorpe 1844), syntype. Pl. 81 figs. 6–7 of Forbes & Hanley (1852–53). Weymouth, Metcalfe leg.; height 2.9 mm. H) *Paludinella globularis* (Hanley in Thorpe 1844), topotype. England: Weymouth. Damon coll., NHMUK 1911.10.26.26117.

of Venice, Italy), has a much larger apical angle and a relatively wider aperture, and is uniformly horn coloured.

The identity of Delle Chiaie's *Helix littorina* remains uncertain as syntypes could not be identified in the Delle Chiaie collection, now housed in the Museo Zoologico of the Università degli Studi di Napoli Federico II (N.Maio, pers.comm. 13.10.2011). The illustrated colour pattern fits well with that of the common Mediterranean littorinid *Melarhaphe neritoides* (Linnaeus 1758), which has, however, a broader shell (Fig. 1B). It is tentatively suggested, that Delle Chiaie described juvenile and somewhat bleached *Melarhaphe neritoides* and that the illustrated shell (here reproduced Fig, 1A) is drawn too slender. Delle Chiaie may not have recognized such specimens as juvenile *Melarhaphe neritoides,* because older specimens are of a different appearance: the spire is usually more or less corroded, so that the last whorl appears to be relatively much bigger. Delle Chiaie described such specimens as *Turbo Lémani* (:212–213, 223, pl.48 figs 13–14), which is a misidentification of *Cyclostoma lemani* Basterot 1825.

Philippi's extensive publications establish his credentials as an accurate and experienced taxonomist, but in this case it is incomprehensible what caused him to identify an assimineid from Palermo (Fig. 1C–E) with Delle Chiaie's species, unless it is assumed that he did not see Delle Chiaie's work but relied on incomplete secondhand information about the original description of *Helix littorina*: He cites the diagnosis given on p. 225 of Delle Chiaie's work, but was apparently unaware of the passage on p. 215 which describes a colour pattern incompatible with that of *Paludinella littorina* auct. Also he declared the figure as poor, but the depiction of the colour pattern agrees with that described on p. 215 and the comparison with the shells figured by Savigny (1817) proves that Delle Chiaie did indeed describe a much more elongate and ovate-conical shell than the most elongate *Paludinella littorina* auct. shells may represent. In support of his conclusion Philippi also cites the locality Posilippo and a note in Scacchi's faunal list (1836: 15); here "*Ciclostoma littorinum* Delle Chia." [sic] is merely listed as amphibiously living in rock crevices at high sealevels (as does *Melarhaphe neritoides*, which Scacchi lists as *Littorina saxatilis* [not *Turbo saxatilis* Olivi 1792]). It is not evident how this information supports Philippi's assertions.

In a recent review of European Assimineidae, Aartsen (2008: 175–177, figs, 21–22) only cites the original diagnosis of *Helix littorina* Delle Chiaie given on p. 225, just as Philippi (1841) did, and does not mention the obvious discrepancies between Delle Chiaie's data, and the characters of *Paludinella littorina* auct. He overlooked the synonym *Cingula? globularis* Hanley in Thorpe 1844 and mentions a name "*Assiminea littorina* var. *pallida* Jeffreys", which does not appear to have been published: Jeffreys (1869: 101–102) merely writes: "Southern [European] specimens are more deeply coloured than ours, but similar in all other respects."

At Palermo, whence Philippi collected his material, both *Paludinella littorina* auct. and *P. sicana* (Brugnone 1876) occur, according to materal in NHMUK (Fig. 1D–E). Thus, Philippi may have had either or both at his hands. His illustration (here reproduced as Fig. 1C) may represent *Paludinella sicana* (Brugnone 1876). When Pfeiffer (1841) introduced the new genus *Paludinella*, he referred to Philippi's material and another sample from Triest, of which the species identity is unknown. The differences between *P. littorina* auct. and *P. sicana* (Brugnone 1876) have only recently been clarified (Gaglini, 1991; Aartsen, 2008). The taxonomic concept of the type species of *Paludinella* cited as *Paludinella littorina*, is through these revisions restricted to the species with the large protoconch, for which the correct name is *P. globularis*.

Cingula? globularis "Metcalfe" Hanley in Thorpe 1844 (:xlii, fig. 87) was described from Weymouth, England; Forbes & Hanley 1850 (:132–134, pl. 81.6–7) redescribe and refigure the type material as "*Rissoa littorea* Delle Chiaje", with the name "*Rissoa*? *globularis*" [sic, error for *Cingula?*] included in its synonymy. The original figures are here reproduced (Fig. 1E–F). Topotypical material from Weymouth (Fig. 1H) consists only of the *Paludinella* species with a large protoconch. Killeen & Light (2002) redescribed and illustrated this species from SW England, mapped its distribution and described its habitat.

The authorship of the name *Cingula? globularis* reqires discussion. Thorpe (1844: iv) states that the "Systematic index" (:xvii–l), which contains the original description of *Cingula? globularis,* was contributed by Hanley. Norris & Dance (2002) suggest that Charles Thorpe and Sylvanus Charles Thorp Hanley are the same

person. Notwithstanding the probablity of this, the authorship of the name *Cingula? globularis* is cited as indicated in Thorpe (1844) in order to facilitate referencing. Metcalfe, who coined the species name, cannot be cited as author, as there is no evidence to suggest that he contributed the description.

The name *Paludinella littorea* was actually made available by Forbes & Hanley (1850) as *Rissoa littorea*. This is an intentional spelling change, because the authors cite as synonyms *Helix littorina* Delle Chiaie and *Truncatella littorina* Philippi with their correct spellings. This synonymy demonstrates that Forbes & Hanley did not intend to introduce a new species taxon different from "*Helix littorina* Delle Chiaie". Consequently, *littorea* is an unjustified emendation, i.e. an objective synonym of *Helix littorina* Delle Chiaie. Therefore it cannot be applied to any species segregate different from *Paludinella littorina* auct. in the *Paludinella globularis* complex, as F. Nordsieck (1972: 145, pl. R14.22) suggested. The earlier use of the spelling *littorea* by Philippi 1844a, in the legend to pl. 24 fig.2, but not in the text, is evidently a spelling error and therefore not an available name.

Family Bithyniidae J.E.Gray in Turton 1857

Anderson (2005): Bithyniidae Troschel 1857; Bank *et al.* (2007): Bithyniidae J.E.Gray 1857.

The family name Bithyniidae is usually attributed to Troschel 1857, but Troschel (1857:101) proposed it as 'group', and states expressly in the introduction that he regards such names as without a rank and only intended as a temporary reference. As such they are unavailable in zoological nomenclature (ICZN article 1.3.5). Bithyniidae was validated by Gray in Turton (1857: 24). A full discussion of the status of Troschel's names is given by Bouchet *et al.* (2005: 5–6).

Family Hydrobiidae Stimpson 1865a

Anderson (2005): Hydrobiidae Troschel 1857; Bank *et al.* (2007): Hydrobiidae Stimpson 1865.

The family names Hydrobiidae is usually attributed to Troschel 1857, but Troschel (1857:106) proposed it as 'group' and states expressly in the introduction that he regards such names as without a rank and only intended as a temporary reference. As such they are unavailable in zoological nomenclature (ICZN article 1.3.5). Hydrobiidae was made available by Stimpson 1865a (:52, in title of paper only). A full discussion is given by Bouchet *et al.* (2005:5–6).

Wilke *et al.* (2001) propose to divide the former family Hydrobiidae into the families Hydrobiidae s.str., Amnicolidae, Cochliopidae, Moitessieriidae and Lithoglyphidae on the basis of anatomical and molecular genetic criteria. This subdivision, and further subfamilial subdivisions have been adopted by Bouchet *et al.* (2005) and are applied here.

Family Hydrobiidae Stimpson 1865a: Subfamily Hydrobiinae Stimpson 1865a

Included genera: *Ecrobia* Stimpson 1865 (syn. *Ventrosia* Radoman 1977), *Hydrobia* Hartmann 1821, and *Peringia* Paladilhe 1874.

***Ecrobia* Stimpson 1865b**

Anderson (2005) and CLEMAM: *Ventrosia* Radoman 1977; Bank *et al.* (2007): *Ecrobia* Stimpson 1865.

The type species of *Ecrobia* Stimpson 1865b (:42) is by original designation *Turbo minutus* Totten 1834 (:369, fig. 6a-6b) [non Brown 1818 (:463, pl. 10.13), nec Michaud (1828: 122, pl. [1].7–9), nec S. Woodward (1833:28, 44, pl. 3.20)] for which the replacement name *Hydrobia totteni* Morrison (1954:26) is the valid name; it has been originally described from the coasts of Massachusetts and Rhode Island. However, the subjective synoynm *Paludestrina truncata* Vanatta (1924:26-, figs. 5–7; from Little Choptank River, Town Point, Dorchester County, Maryland) has priority and thus becomes the valid species name. This species has been extensively redescribed (Davis 1966, Hershler & Davis 1980, Davis *et al.* 1988, Davis *et al.* 1989). Hershler & Davis (1980) and Davis *et al.* (1989) emphasize its close relationship with the European "*Hydrobia*" *ventrosa* and note that more studies are needed to prove species separation between these nominal taxa. In any case they are congeneric, and the senior name *Ecrobia* takes precedence over the name *Ventrosia* Radoman 1977. The latter has been placed on the Official List of Genus Group Names in Zoology in Opinion 2034 (2003); nonetheless the precedence of the name *Ecrobia* is determined by the normal application of the Code (article 80.6.4).

***Ecrobia ventrosa* (Montagu 1803)** [*Turbo*]

Anderson (2005) and CLEMAM: *Ventrosia ventrosa* (Montagu 1803). Bank *et al.* (2007) and ConchSoc list: *Ecrobia ventrosa*.

The nomenclatural history of this species has been discussed, i.a., by Kadolsky (2001), and a lectotype has been designated by the ICZN in Opinion 2034. Although the name *ventrosa* Montagu 1803 has been placed on the Official List here, it still competes with other available names for priority and homonymy (ICZN article 80.6.4). The name *Turbo eburneus* Jacob in Adams & Kanmacher (1798: 637, pl. 14 fig. 15) is an unused senior synonym. In fact, Montagu introduced the name *ventrosa* as a replacement name, apparently because of inappropriateness of the epithet *eburneus* (= ivory-like). According to article 23.9 ICZN, *Turbo eburneus* is hereby declared a nomen oblitum, and *Turbo ventrosus* Montagu 1803 a nomen protectum. A list of more than 25 citations in which the name *Turbo ventrosus* Montagu 1803 is used as the valid name for a species group taxon in the last 50 years is given in Appendix 1.

***Hydrobia acuta neglecta* Muus 1963**

Anderson (2005): *Hydrobia acuta neglecta* (Muus 1963); Bank *et al.* (2007), CLEMAM and ConchSoc list: *Hydrobia neglecta* Muus 1963.

As the name *neglecta* was originally proposed in the genus *Hydrobia*, the author name cannot be placed in brackets as long as the taxon is classified in the genus *Hydrobia*. The classification as subspecies of *H. acuta* is based on Wilke *et al.*'s (2000; 2002) and Wilke & Pfenniger's (2002) studies, including molecular genetic analyses.

Family Hydrobiidae Stimpson 1865a: Subfamily uncertain

Mercuria Boeters 1971 is the only included genus. Molecular genetic analyses have to date not resolved the relationships of this genus. Wilke *et al.* (2001) show it as closely related to *Hauffenia* Pollonera 1898, possibly in an unnamed subfamily, but not closely related to the North American Nymphophilinae Taylor 1966; in contrast, Hershler *et al.* (2003) suggest a relationship with Nymphophilinae Taylor 1966 and with Hydrobiinae.

***Mercuria anatina* (Poiret 1801)** [*Bulimus*] agg. (Fig. 2)

Anderson (2005): *Mercuria* cf. *similis* (Draparnaud 1805) [*Cyclostoma*]; Bank *et al.* (2007) and ConchSoc list: *Mercuria anatina* (Poiret 1801).

Falkner *et al.* (2002: 77) and Glöer (2002: 102–103, fig. 77) separate *Mercuria* populations from the British Isles, the Netherlands, and Belgium from *M. similis* (Draparnaud 1805) s.str. under the name of *M. anatina* (Poiret 1801). Poiret's species is here accepted as a form of *Mercuria*, however, its identity as a species segregate is unresolved,

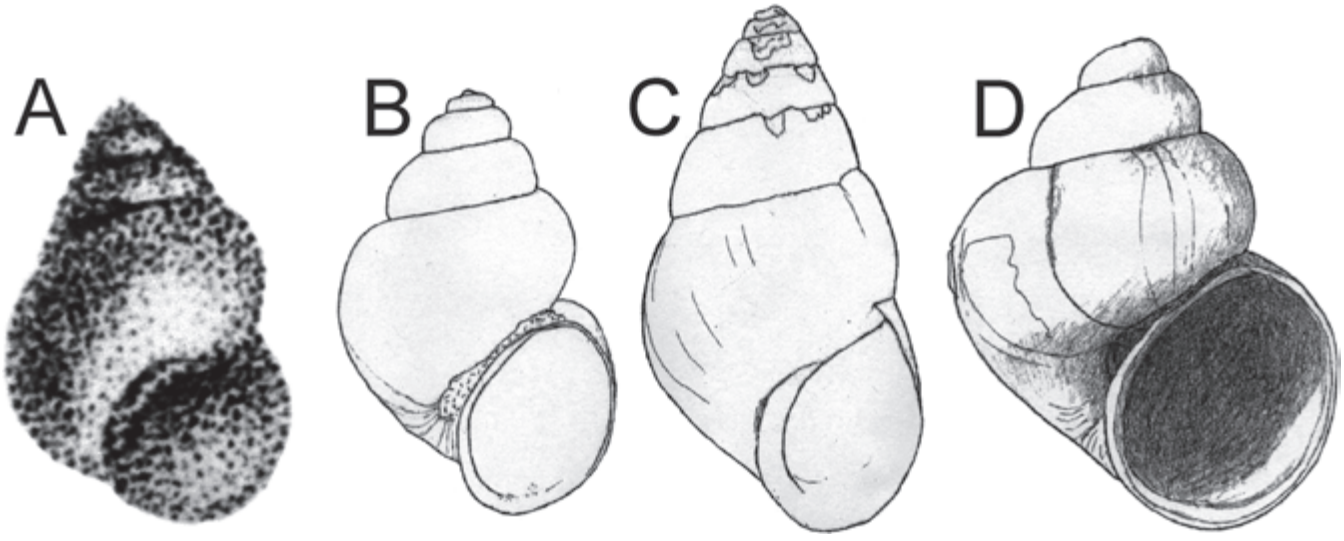

Figure 2 Subsequent identifications of "*Bulimus*" *anatinus* Poiret 1801. All figures at the same scale. A) Draparnaud (1805: pl. 1 figs. 24–25), as *Cyclostoma anatinum*. Locality not given; height 3.2 mm (= *Mercuria anatina*, probable syntype). B) *Mercuria anatina* (Poiret 1801), fully grown. Tributary of River Arun 1 km NE Arundel (Sussex, England), 18.9.1999, coll. K 6692; height 3.26 mm. C) *Peringia ulvae* (Pennant 1777), half-grown. Wangerooge (East Frisian Islands, Germany), Oct. 1963, coll. K 279; height 4.08 mm. D) *Bithynia leachii* (Sheppard 1823), juvenile. Oldenburg (Oldb.) (Lower Saxony, Germany), subfossil, 1965, coll. K 907; height 3.76 mm.

and its supposed origin in northern France is incorrect, as will be discussed below. Being the oldest name in the species complex, it is here used to denote the species aggregate. Its splitting in several segregate species by Falkner *et al.* (2002: 77) is based on as yet unpublished studies. In the event that a species split is justified, it is proposed to retain the name *M. anatina* for the British and conspecific populations and fix the definition of the so restricted species *M. anatina* with the selection of a neotype.

The identity of Poiret's species requires a discussion. The original description is insufficient. He describes it as follows (translated from French and Latin and combined):

> "Shell subconical, somewhat pointed; aperture rounded. 4.5 whorls, diameter almost 2 mm, height about 3 mm [in the Latin text: length 2 lines, diametre 1 line [= 4.5 : 2.25 mm (!)]]. Surroundings of Paris ? Communicated by Lamarck."

A 'variety A' is described as: "The same, somewhat larger, with 5 whorls. The variety A was found at the mouth of the Somme, and was communicated by Faujas de St. Fond."

The variety A has been identified by Férussac (1807: 102) as being identical with the Mediterranean *Hydrobia acuta* (Draparnaud 1805), though at the time the species concept of *H. acuta* included *Ecrobia ventrosa* (Montagu 1803) and possibly *Heleobia* spp. The material from the Somme estuary is *Peringia ulvae* (Pennant 1777), which at that time was called *anatina* Poiret by some French authors, according to Jeffreys (1862: 65–66). Obviously, the identity of the variety has no bearing on the taxonomic concept of the 'typical' form, but it appears to have influenced the assumptions of subsequent authors about the identity and habitat of '*Bulimus*' *anatinus* Poiret. For example, Michaud (1831: 100, as *Paludina anatina* Draparnaud), gives the habitat as brackish water, although Draparnaud had stated it to be freshwater. Picard (1840) reports *Peringia ulvae* under the name of *Paludina anatina* from the Somme estuary (see discussion below). Boeters (1971: 176) implies *anatina* is a marine hydrobiid.

The type locality of Poiret's species, given questionably as "surroundings of Paris", has to be treated as erroneous, as no *Mercuria* were ever reported, nor should be expected to occur here. If this locality were correct, Poiret may have described a Tertiary fossil not recognized as such, and almost certainly unrelated to *Mercuria*. Lamarck himself (1822: 175) did not shed any light on the question: He listed *Bulimus anatinus* Poiret 1801 as a synonym of *Paludina muriatica* (Beudant 1810) [*Turbo*], which is actually a synonym of *Ecrobia ventrosa*. Lamarck did not specifically mention the origin of *Bulimus anatinus*, nor any occurrences of his *Paludina muriatica* in the vicinity of Paris, or indeed anywhere in northern France.

Draparnaud (1805: 37, pl. 1 figs. 24–25) clearly described a form of *Mercuria* under the name of *Cyclostoma anatinum*. Although he does not refer to Poiret, it is here assumed that he described Poiret's species, and to this end probably had procured material from Poiret, i.e. syntypes. This would be analogous to the case of *Cyclostoma viride* (now *Bythinella viridis* (Poiret 1801)), where both Poiret and Draparnaud cite the same very specific locality, near Chartreuve, Département Aisne, and the same habitat. Theoretically, Draparnaud could have collected the *Bythinella* material himself, but to do so, he would have had to travel some 630 km (measured in a straight line) from his home town Montpellier; it is so much more probable that Poiret sent him his material, and if so, it becomes highly probable that Draparnaud would have asked for "*Bulimus*" *anatinus* as well. Thus, it may be surmised that Draparnaud procured voucher specimens from Poiret of both '*Bulimus*' *anatinus* and '*B.*' *viridis*, as identification from Poiret's poor texts alone would be impossible. The Draparnaud collection, since 1820 in the Natural History Museum in Vienna, held in 1820 one specimen of "*Cyclostoma anatinum*" which was later missing (Locard 1895).

For the identification of "*Bulimus*" *anatinus* Poiret as a form of *Mercuria*, Falkner *et al.* (2002: 76-) rely on another specimen in the Natural History Museum Vienna reported by Frauenfeld (1863: 1026) as coming from Charpentier's collection and being an "original", i.e. a syntype. This specimen has not been illustrated or described in the literature, nor any evidence supporting its status as a syntype has been published other than Frauenfeld's statement. If this specimen were accepted as a syntype, it would be unsuitable to establish the identity of a species segregate within the *Mercuria anatina / similis* complex, because according to Falkner *et al.* 2002 it is a single teratological specimen without a locality. This does, however, not affect the availability of

the name '*anatina* Poiret', nor does it preclude restricting the taxonomic concept to a species segregate in a suitable way.

Jeffreys made two contradictory statements about Draparnaud's original material. Under *Bithynia leachii* (Sheppard) (1862: 62–63) we find: "The late M. D'Orbigny gave me, at Rochelle, in 1830 some shells which he had received from Draparnaud under the name of "*Cyclostoma anatinum*." These appear to be a small variety of the present species, and are probably the *B. humilis* of Boubée." '*Bithynia humilis* Boubée' appears to be a nomen nudum. Juvenile *Bithynia leachii* differ from adult *Mercuria* spp. of similar size by their more rapidly increasing whorls, which are consequently fewer, and a much larger aperture. They are also not as slender as the specimen figured by Draparnaud. Draparnaud or Poiret may have also associated juvenile individuals of *Bithynia* spp. with "*Cyclostoma anatinum*", but Draparnaud's figured specimen is clearly not one of them.

As a supplement (1862: 310) Jeffreys added: ".... I received a communication of considerable importance as regards the determination of some of the species described by Draparnaud. It consisted of the original types or specimens of that author, from the public museum at Montpellier, and which, through the great kindness of the director, M. Michaud, I have now had an opportunity of examining and comparing with my own specimens." According to this material, *Cyclostoma anatinum* sensu Draparnaud would be identical with *Peringia ulvae* (Pennant). However, Draparnaud's figure does not resemble *Peringia ulvae*, as the shell is much broader with a well rounded last whorl, which is larger than in *Peringia ulvae*. The background of Jeffreys' statement is enigmatic as Draparnaud's collection was acquired by Naturhistorisches Museum Wien in 1820 (Locard, 1895). An inquiry into the collections held at the Université de Montpellier was negative (V. Prié, e-mail 29.3.2011).

Falkner *et al.* (2002) believe the record of "*Paludina anatina* Michaud" by Picard (1840: 301–302) from the mouth of the Somme River (the origin of Poiret's '*Bulimus anatinus* var. A') is "sans ambiguité" based on a *Mercuria* species, thus supporting the hypothesis that Poiret based his *Bulimus anatinus* on a *Mercuria* species extant in northern France. However, Picard described, i.a., the tentacles as having a black circle at their extremities, and a shell with hardly impressed sutures and a subcarinate last whorl. These characters are not known in *Mercuria* species, but agree well with *Peringia ulvae* (Pennant). Thus, no published record of a *Mercuria* species living in northern France appears to exist.

In conclusion, Poiret's species is accepted as a *Mercuria* species on the basis of Draparnaud's redescription and figure probably of a syntype, and the identity of a putative syntype in the Charpentier collection. Its origin is unknown, but an origin in northern France can be ruled out. The name is the oldest available species name in the genus *Mercuria*. In this case the problem remains that this nominal taxon is from an unknown type locality, and is insufficiently characterized to be attributed to any species segregate in the *Mercuria anatina / similis* complex. Should this complex be divided into species segregates, the nominal species *Mercuria anatina* will have to be redefined. In this case it is unlikely that the British populations retain the name *M. similis*, as this nominal species is now fixed by a neotype and a type locality in the lagoons of the French Mediterranean coast by Boeters & Falkner (2000 :37–38). It is recommended to fix the species concept with the designation of a neotype to the species occurring in Britain, the Netherlands and Belgium, as the name has been so utilized in recent literature, and competing alternative usages are lacking.

Family Hydrobiidae Stimpson 1865a: Subfamily Tateinae Thiele 1925

The genus *Potamopyrgus* Stimpson 1865, with the species *Potamopyrgus antipodarum* (Gray 1843), belongs into this subfamily.

Family: Cochliopidae Tryon 1863: Subfamily Semisalsinae Giusti & Pezzoli 1980

Included: Genus *Heleobia* Stimpson 1865b, with the species *Heleobia stagnorum* (Gmelin 1791).

The subfamily Semisalsinae has as its type genus the nominal genus *Semisalsa* Radoman 1974, which had been proposed for European species of the otherwise South American genus *Heleobia*, and is currently regarded as a subjective synonym of it. Should the European forms be regarded as a lineage for which a genus-group name is required, *Semisalsa* would be available, but an older name is *Eupaludestrina* Mabille 1877

with the type species *Hydrobia macei* Paladilhe 1867, designated by Kadolsky (2008:121).

Family Amnicolidae Tryon 1862: Subfamily Amnicolinae Tryon 1862

Included: The genus *Marstoniopsis* van Regteren Altena 1936, with the species *Marstoniopsis insubrica* (Küster 1853).

Family Lymnaeidae Rafinesque 1815

***Stagnicola fuscus* (C. Pfeiffer 1821)** [*Limnaeus*]

Anderson (2005): *Lymnaea* (*Stagnicola*) *fusca* (C. Pfeiffer 1821); Bank *et al.* (2007): *Stagnicola fuscus* (C. Pfeiffer 1821); ConchSoc: *Stagnicola fusca* (C. Pfeiffer 1821).

The author of the species name is not to be cited in brackets, when the species is placed in the genus *Lymnaea* Lamarck 1799, of which *Limnaeus* is an unjustified emendation (article 51.3.1 ICZN). The grammatical gender of *Stagnicola* is masculine, hence *Stagnicola fuscus* is the correct form.

***Stagnicola corvus* (Gmelin 1791)** [*Helix*]

Anderson (2005): *Lymnaea* (*Stagnicola*) *corva* (Gmelin 1791) [cited p. 629 but not accepted as proven in the British Isles]; Bank *et al.* (2007) and ConchSoc list: *Stagnicola corvus* (Gmelin 1791).

Gmelin (1791: 3665) treats the species name as a noun in apposition (Lat. *corvus*, a raven); hence, it is undeclineable.

***Radix balthica* (Linnaeus 1758)** [*Helix*]

Anderson (2005), Bank *et al.* (2007) and ConchSoc list: *Radix balthica*.

Anderson lists *Helix ovata* Müller 1774 (:85) as a synonym. However, *Helix ovata* Müller 1774 is an unrelated species; the name *ovata* has been introduced in Lymnaeidae as *Limneus ovatus* by Draparnaud 1805 (:50, pl.2 figs 30–31).

Anderson's statement: "Linnaeus designated what was subsequently perceived as a 'mixed' collection of high and low spired forms for this name, but the acceptance of a single unifying taxon now releases the name" is nomenclaturally incorrect: The name *balthica* Linnaeus is available regardless which ecophenotypes are present in the type series.

Frogley & Preece (2007: 283) wished to retain the name *Buccinum peregrum* Müller 1774 for this species, as this name "is listed as a conserved name by the ICZN". The name *Buccinum peregrum* was placed on the Official List of Specific Names in Zoology in Opinion 336 (1953), but it is not "conserved" thereby; the relative precedence of the names *peregrum* Müller 1774 and *balthica* Linnaeus 1758 is still governed by the principle of priority (Article 80.6.4 ICZN). *Radix balthica* is a very apt name, as the species is very common in the northern Baltic Sea, and was never confused with any other species; by contrast, the synonymous name *R. peregra* has been regularly applied to a high-spired *Radix* species occurring in southern Germany and further east (now *Radix labiata* (Rossmässler 1835)), and probably also to high-spired phenotypes of *R. balthica*. Falkner *et al.*'s discussion and their nomenclatural conclusions (2002: 94–95) are sensible and well to the point.

Family Planorbidae Rafinesque 1815

Bouchet & Rocroi (2005: 263–264) present a subfamilial subdivision of the Planorbidae. Taking into account the refined classification by Albrecht *et al.* (2007: 36–37) on the basis of a molecular genetic analysis, the genera occurring in NW Europe can now be attributed to subfamilies as follows:

Subfamily Ancylinae Rafinesque 1815: *Ancylus*, *Ferrissia*.

Subfamily Coretinae Gray 1847: *Planorbarius*.

Subfamily Planorbinae: *Anisus*, *Bathyomphalus, Gyraulus, Planorbis, Segmentina, Hippeutis*.

New Subfamily?: *Menetus*.

Albrecht *et al.* (2007) attribute *Planorbarius corneus* (Linnaeus 1758) questionably to Camptoceratinae Dall 1870, although molecular genetic analyses for *Camptoceras* Benson 1843 were not available. The name Coretinae Gray 1847 is not only the senior name, but also unequivocally applicable to a clade including *Planorbarius*: its type genus *Coretus* Gray 1847 has as type species (by original designation) *Helix corneus* Linnaeus 1758 and is therefore an objective synonym of *Planorbarius* Duméril 1806a (same type species through subsequent monotypy by Froriep in Duméril 1806b).

The freshwater limpets *Ancylus* and *Ferrissia* are classified in the family Planorbidae by Bouchet & Rocroi (2005) and by Albrecht *et al.* (2007), but Walther *et al.* (2006a), likewise employing molecular genetic data, maintain a separate family Ancylidae with the subfamilies Laevapicinae

Hannibal 1912 and Ancylinae. The genera *Ferrissia* and *Ancylus* are placed in the latter.

***Ferrissia fragilis* (Tryon 1863)** [*Ancylus*]

Anderson (2005): *Ferrissia wautieri* (Mirolli 1960); Bank *et al.* (2007) and ConchSoc list: *Ferrissia* (*Pettancylus*) *wautieri* (Mirolli 1960).

Walther *et al.* (2005, 2006b) identify *Ferrissia wautieri* with the North American *Ferrissia fragilis* (Tryon 1863) (:149–150, pl. 1 fig.15), based on molecular genetic data from Polish, German and a Danish locality; the latter had originally been reported as *Acroloxus lacustris* (Linnaeus, 1758) by Jørgensen *et al.* (2004). Walther *et al.* also recognize this species in the Philippines and in Taiwan, and characterize it as a possibly worldwide 'cryptic invader'. Recently material from the type locality (Lago di Mergozzo, Italy) of the nominal species *Watsonula wautieri* Mirolli 1960 has been sequenced and confirmed as conspecific with *Ferrissia fragilis* by Marrone *et al.* (2011).

Family Physidae Fitzinger 1833

The generic groupings within the Physidae are still the subject of much analysis and debate. The transfers of the species *acuta* Draparnaud 1805 from *Physa* to *Physella* and then to *Haitia* were proposed on the basis of internal morphology (Te 1980, Taylor 2003). Wethington & Lydeard (2007) proposed a phylogeny based on molecular genetic analyses which largely confirmed as monophyletic Taylor's (2003) groupings based on penial morphology, but reduced the number of biological species and suggested that several genus names are unnecessary even if narrow genus concepts are applied. These authors also showed that in some cases, e.g. *P. zionis*, the taxonomic significance of anatomical characters should be interpreted differently.

The significance of the results of this study for the classification of the Physidae have not yet been fully considered. Although many species, including many type species of nominal genera, are not yet analyzed by molecular genetic methods and/or their anatomy studied, conclusions concerning the species occurring in the British Isles can already be drawn. Wethington & Lydeard (2007) confirm four monophyletic groups, viz. *Aplexa*, the *P. acuta/ gyrina* group, the *P. fontinalis* group and the *P. marmorata* group. The authors unite the last three groups in the genus *Physa*, but a more differentiated classification is warranted even at this stage, as these groups are also morphologically defineable. The *P. acuta/ gyrina* group can be assigned to the genus *Physella* s.lat., and the subclades within this taxon be differentiated as subgenera. These subgenera are characterized by penial morphology as follows (morphotype letter designations of Wethington & Lydeard (2007)): *Physella* (*Physella*): type b, *Physella* (*Costatella*): type bc, *Physella* (*Acutiana*): type c. The species treated by Wethington & Lydeard (2007) are then grouped as follows:

Aplexa Fleming 1820 (type species *Bulla hypnorum* Linnaeus 1758): analyzed species: *A. elongata* (Say 1821);

Physella (*Physella*) Haldeman 1842 (type species *Physa globosa* Haldeman 1841): analyzed species: *gyrina* Say 1821 (incl. *microstoma* Haldeman 1840), *ancillaria* Say 1825; a synonym is *Physodon* Haldeman 1842 [not Müller & Henle 1839, Pisces] (type species *Physa microstoma* Haldeman 1840)).

Physella (*Costatella*) Dall 1870 (type species *Physa costata* Newcomb 1861): analyzed species: *pomilia* Conrad 1834, *hendersoni* Clench 1925;

Physella (*Acutiana* Fagot 1883) (type species *Physa acuta* Draparnaud 1805, here designated): analyzed species: *acuta* Draparnaud 1805, *spelunca* Turner & Clench 1974, sp. A Wethington & Lydeard 2007, *zionis* Pilsbry 1926. Genus-group synonyms are *Petrophysa* Pilsbry 1926 (type species *Physa zionis* Pilsbry 1926), *Haitia* Clench & Aguayo 1932 (type species *Physa mexicana* Philippi 1841), and possibly *Alampetista* Zilch 1956 (type species *Physa osculans* Haldeman 1841, treated by Te (1980) as a member of the *Haitia* clade, but declared unrecognizeable by Taylor (2003)).

Stenophysa Martens 1898 (type species *Physa sowerbyana* d'Orbigny 1841, a subjective synonym of *Physa marmorata* Guilding 1828): analyzed species: *marmorata*;

Physa Draparnaud 1801 (type species *Bulla fontinalis* Linnaeus 1758): analyzed species: *fontinalis*, *jenessi* Dall 1919 (type species of *Beringophysa* Starobogatov & Budnikova 1976), *vernalis* Taylor & Jokinen 1985 (type species of *Laurentiphysa* Taylor 2003).

The genus-group name *Acutiana* Fagot 1883 (:223) appears to have hitherto been overlooked. It was proposed as of section rank (i.e below subgenus rank); such names are available genus-group

names according to article 10.4 ICZN. The name indicates that *Physa acuta* is the intended type species, which is named under the heading of *Physa (Acutiana) saintsimonis* Fagot 1883 (: 224).

***Physella* (*Acutiana*) *acuta* (Draparnaud 1805) n. comb.** [*Physa*]

Anderson (2005): *Physella acuta*; Bank *et al.* (2007) and ConchSoc list: *Haitia acuta*.

The molecular genetic analysis of Wethington & Lydeard (2007) confirmed the synonymy of *P. acuta* (Draparnaud) of Europe with the North American *P. heterostropha* (Say 1817), already proposed by Taylor (2003) and Anderson (2005).

Family Succineidae Beck 1837

***Quickella arenaria* (Potiez & Michaud 1838)** [*Succinea*]

Anderson (2005), Bank *et al.* (2007) and ConchSoc list: *Quickella arenaria* (Potiez & Michaud 1835).

The date of publication of Potiez & Michaud's work should be taken as before 27 October 1838 as long as there is no proof that the parts were validly published on the dates given on the plates- see discussion in Appendix 2. Bouchard-Chantereaux (1838) did not quote Potiez & Michaud, although these authors redescribed the species probably from material received from him. Likewise, Potiez & Michaud do not quote Bouchard-Chantereaux which appears to be due to them having completed the manuscript around the dates given on the plates. Bouchard-Chantereaux' paper does not contain a printed date; Sherborn (1923: 446) gives 1837 without providing supporting evidence. It is listed in *Bibliographie de la France, ou Journal général de l'imprimerie et de la librairie*, in issue **1838** (45) (:530, no. 5600) which is dated 10.11.1838. This is thus the oldest date on which the work is proven to be published. The work of Potiez & Michaud is listed 14 days earlier (**1838** (43)) in this Journal and is therefore accorded precedence.

Family Cochlicopidae Pilsbry 1900 (1879)

***Cochlicopa* cf. *lubricella* (Porro 1838)** [*Bulimus*? *lubricus* var.]

Anderson (2005): *Cochlicopa* cf. *lubricella* (Rossmässler 1834); Bank *et al.* (2007) and ConchSoc list: *Cochlicopa lubricella* (Rossmässler 1834).

Falkner *et al.* 2002 (:104) argued that the species name *lubricella* was made available by Rossmässler 1834 (:6). The fact that the name is published in synonymy would on its own not have made the name unavailable (article 11.6.1), but the lack of any description, differential diagnosis or indication does (article 12 ICZN). The mentioning of that name by Rossmässler 1835 (:88) is again a nomen nudum. The name becomes available through Porro 1838 (:54) who used it for the first time as the valid name for what he considered a variety of *Cochlicopa lubrica* (Müller) from the province of Como, northern Italy, and provided a diagnosis (see Quick 1954)[3]. Falkner *et al.* (2002) argue that the populations in the vicinity of Vienna, to which Rossmässler referred, are not conspecific with those from the province of Como, where Porro's material came from, and that nomenclatural stability would better be served by defining the name *lubricella* by the Vienna populations. As this statement is based on as yet unpublished observations, and other studies, summarized by Anderson (2005), indicate that the genetic relationships of phenotypical *C. lubricella*, *C. lubrica* and other proposed taxa are far from understood, it is hard to see that a state of nomenclatural stability exists at this stage. Furthermore, the taxonomic concept of *C. lubricella* (Porro) could eventually be stabilized by an appropriate choice of a neotype, assuming that syntypes cannot be traced. This can only be done meaningfully after the relationships of the various strains in the *C. lubrica/ lubricella* complex are clarified. In the meantime, populations with the external morphology of *C. lubricella* could be named provisionally as suggested by Anderson (2005).

A potential senior synonym is the name *Achatina lubricoides* "Férussac" Potiez & Michaud 1838 (:129, pl. 11 figs 9–10) from the Appennine and Rimini, Italy. It is a nomen nudum in Férussac 1821 (:51), Beck 1837 (:80) and Schlüter 1838 (:8). Falkner *et al.* (2002) argue that Potiez & Michaud's

[3]The original texts read (translated from German and Italian):
"There are larger and smaller varieties [of *Achatina lubrica*], of which *A. polita* v.Mühlf. may be a good species, but *A. intermedia* Ziegler from Krain and A.*lubricella* Ziegler from Jedlersee near Vienna are hardly different." (Rossmässler 1834).
"But *A. intermedia* Ziegler from Krain and A.*lubricella* Ziegler from Jedlersee near Vienna are only varieties of our species [*Achatina lubrica*]." (Rossmässler 1835).
"The variety *lubricella* has smaller dimensions, and a smaller number of whorls [than *B. lubricus*]." (Porro 1838).

work was published in parts between 1835 and 1838, at the dates given on the plates. In this case the name *Achatina lubricoides* would be available from November 1835 and thus have definitively priority over *C. lubricella*. However, there is no evidence that they were actually published in the sense of the ICZN, article 8.1, and the entire work is therefore considered to be published before Oct. 27, 1838 (see Appendix 2). Porro's work was published before Dec 29, 1838, which is the date of an article by Monti (1838) reporting about it (Manganelli in litt., Aug. 2011). The publication of Porro's work is therefore deemed to postdate that of Potiez & Michaud. Therefore the name *lubricoides* Potiez & Michaud 1838 would have precedence over *lubricella* Porro 1838 if these nominal taxa were conspecific.

The following nominal species-group names have also been proposed for small and/or slender forms in the *Cochlicopa* species complex and are available to designate species segregates:

Achatina minima Siemaschko 1847 (:11, pl. 1 fig. 4a–c), from Riga (Estonia);

Glandina (*Cionella*) *lubrica* var. *nilssoni* Malm 1851 (:123) from Ignaberga (Sweden);

Bulimus (*Zua*) *maderensis* Lowe 1852 (:119) from Madeira;

Achatina collina Drouet 1855 (:152, 178–179), from Fontaines near Lyon, Mouy-de-l'Oise and Liézey in the Vosges Mts. (France);

Bulimus (*Cochlicopa*) *subcylindricus* [var.] e *exiguus* Moquin-Tandon 1855 (:304) from Metz and Grenoble, France. Moquin-Tandon and subsequent authors (e.g. Bourguignat (1864: 204), Jordan (1879: 343), Locard (1882: 132), Westerlund (1887: 148)) adopted this name as valid because they believed it to be available from Menke, 1830 (:29), who, however, published it as nomen nudum.

Cionella columna Clessin 1875 (:41–42, pl. 2 fig. 4), from Blaubeuren (Germany: Württemberg) and drift of the Oka River between Vladimir and Nizhnyi-Novgorod (Russia);

Ferussacia crassula Fagot 1879 (:23–24) from Hers (Déptm. Haute-Garonne, France), Pleistocene.

Zua locardi Pollonera 1885 (:693) from Mont Cenis (2000 m), Italian Alps;

Cionella (*Zua*) *lubrica litauica* Westerlund 1887 (:148) from Lithuania.

The name *Bulinus* [sic] *lubricus pulchellus* Hartmann 1821b (:51) is a nomen nudum, which does not appear to have been made available by any subsequent author.

Family Pupillidae Turton 1831

***Pupilla pratensis* (Clessin 1871)** [*Pupa* (*Pupilla*) *muscorum* var.]

Proschwitz *et al.* (2009) separated this taxon, hitherto regarded as an ecophenotype of *P. muscorum*, from *P. muscorum* (Linnaeus 1758) as a separate species on the basis of shell morphology, molecular genetics and habitat preference. They also discuss reports of extant and Pleistocene forms from Britain possibly referrable to *P. pratensis*. To date its occurrence in Britain has not been proven, but this could be due to the fact that it has not been recognized as a separate species before 2009.

Family Clausiliidae Gray 1850

***Alinda biplicata biplicata* (Montagu 1803)** [*Turbo*]

Anderson 2005: *Balea* (*Alinda*) *biplicata*; Bank *et al*. (2007) and and ConchSoc list: *Balea* (*Alinda*) *biplicata biplicata*.

H. Nordsieck (2007) proposed to treat *Alinda* H.Adams & A.Adams 1855 as a separate genus beside *Balea* Gray 1824 on the basis of molecular genetic distances (Gittenberger 2006) and differences in penial morphology. The type species of the genus *Alinda* H.Adams & A.Adams 1855 is *Turbo biplicatus* Montagu 1803, designated by v. Martens 1860 (:281).

***Papillifera papillaris* (O.F. Müller 1774)** [*Helix*]

This species is not listed as a member of the British fauna by Anderson (2005), Bank *et al.* (2007) or ConchSoc list. Two colonies are now known to exist in England: at Cliveden Manor near Maidenhead, Buckinghamshire (Holyoak 2005; Ridout Sharpe 2007; Black 2008) and at Brownsea Castle on Brownsea Island, Dorsetshire (Ridout Sharpe 2011). Ridout Sharpe (2007) supposes the population at Cliveden Manor was introduced with marble masonry imported from Rome in 1896, though its existence is proven by voucher material only since 2004. The population at Brownsea Castle may even date back to the late 18th century, when the then owner imported marble statues from Italy, although it was only discovered in 1993 (Ridout Sharpe

2011). In that case a record of "*Turbo bidens*" by Maton & Rackett (1807: 178–179, pl.5 fig. 3, reproduced by Dance, 2008) from Dorset, identifiable as *Papillifera papillaris*, may refer to the Brownsea population. The figured specimen was said to be from the Pulteney collection, now in the possession of the Linnean Society of London. Dance (2008), in a review of early published records of introductions of *Papillifera papillaris* in the British Isles, mentions also an occurrence from the vicinity of Edinburgh, observed by Laskey in 1827 and 1828 and doubtless extinct since a long time.

Maton & Rackett (1807), and likewise Rackett (in Pulteney 1813 (:51)) doubted very much that this species was found in Dorsetshire, or indeed anywhere in the British Isles. Pulteney's himself (1799: 46, 1813: 51; as "*Turbo bidens*") did not provide any evidence that his collection included *Papillifera papillaris*. His "*Turbo bidens*" is a clausiliid with a ribbed shell of 19 mm length, most likely *Alinda biplicata* (Montagu 1803), and his "*Turbo perversus*" is *Cochlodina laminata* (Montagu 1803).

Turton (1831: 73–74, fig. 56) cited *P. papillaris* from Scotland and Wales, albeit with an expression of doubt. No further information is available on the purported occurrence in Wales. Dance's reproduction (2008) of a figure from Turton's work, supposedly being fig. 56 representing "*Clausilia bidens*" [sensu Turton, i.e. *P. papillaris*] is actually fig. 55 representing *Alinda biplicata*.

Many authors, e.g. Falkner *et al.* (2002: 112–113), applied the senior name *Turbo bidens* Linnaeus 1758 to this species. Kadolsky (2009b) showed this to be incorrect and fixed the meaning of the name *Turbo bidens* through a neotype designation, which renders it a senior subjective synonym and the valid name for the Italian species hitherto known as *Cochlodina (Procochlodina) incisa* (Küster 1876).

Family Discidae Thiele 1931 (1866)

***Discus ruderatus* (W. Hartmann 1821)** [*Helix*]

ConchSoc list: *Discus* (*Discus*) *ruderatus* (Férussac 1821).

Férussac 1821 (:40) published a nomen nudum, while Hartmann (1821a: 231, pl. 2 fig. 11) provided a description and illustration, as Falkner *et al.* (2002: 119) correctly state.

Family Trigonochlamydidae Hesse 1882

***Solenochlamys ysbryda* Rowson & Symondson 2008**

This adventive species is another addition to the checklists published to date.

Family Arionidae Gray 1840

***Arion* (*Arion*) *vulgaris* Moquin-Tandon 1855** [*Arion* (*Lochea*) *rufus* var. α]

Anderson 2005: *Arion* (*Arion*) *vulgaris* Moquin-Tandon 1855; Bank *et al.* 2007 and ConchSoc list: *Arion* (*Arion*) *lusitanicus* Mabille 1868.

Bank *et al.* (2007: 49–50) acknowledge that this invasive species is not conspecific with the true *A. lusitanicus* as described by Mabille 1868 (:134; type locality Portugal, Sierra d'Arrabida near Lisbon) and redescribed by Castillejo & Rodriguez (1993), Borredà & Collado (1996), Borredà *et al.* (1996), Castillejo (1997a, 1997b). Molecular genetics confirmed that there is no close relationship between *Arion lusitanicus* of the Iberian Peninsula and the populations so identified from other areas of Europe (Quinteiro *et al.*, 2005).

Bank *et al.* (2007) proposed to maintain the habitual usage of the name *Arion lusitanicus* on the grounds that it is now widely established. Such procedure would require a ruling by the ICZN to endorse a neotype which would have to be deliberately selected so as not to be conspecific with the original species concept (article 75.6). However, the name *Arion lusitanicus* is in current use for the original species concept of Mabille (1868). This case is different from the example given in article 75.6 of the ICZN, in which the original concept of a misidentified species was not understood, and where the name had not been used for the taxon in its original sense.

Moquin-Tandon introduced the name *vulgaris* (1855: 10, pl. figs 1–19) as the first of 11 named 'varieties' of *Arion rufus* and added as a synonym *Limax rufus* Linnaeus (now *Arion rufus*). These actions have to be understood as the redefinition of the species *Arion rufus* in a wide sense (i.e. with 11 'varieties'), and the naming of the "typical" variety, i.e. *Arion rufus* Linnaeus s.str., as '*vulgaris*'. Therefore, the name *vulgaris* Moquin-Tandon is, according to article 72.7 ICZN, an objective synonym of *Arion rufus* (Linnaeus 1758). However, the illustrated dissected specimen intended to represent *Arion*

rufus var. *vulgaris* does show a specimen not conspecific with *Arion rufus* in its restricted sense, but with *Arion lusitanicus* sensu Regteren-Altena 1955 [non Mabille]. To apply the name *A. vulgaris* validly to the species here discussed, a ruling of the ICZN to set aside Article 72.7 is required, and the species concept needs to be fixed with the selection of a neotype. Until such application is made and ruled upon, it is proposed to utilize Moquin-Tandon's name which has a far greater claim to be identified with the species here discussed than the name *A. lusitanicus*.

Family Helicidae Rafinesque 1815

***Cornu aspersum* (Müller 1774)** [*Helix*]

Anderson (2005), Bank *et al.* (2007) and ConchSoc list: *Cornu aspersum.*

An application to the ICZN is pending (Cowie 2011) to place the genus-group name *Cornu* Born 1778 on the Official List. The reason for this application is the uncertainty as to the availability of the genus-group name *Cornu* Born 1778, because it was proposed for a scalarid specimen of "*Helix*" *aspersa* Müller. This was named *Cornu copiae* Born 1778 and is the type species of *Cornu* by monotypy. Both genus and species name are in this author's opinion available because Born did not recognize his material as being teratological and therefore did not intentionally name a teratological specimen as such (article 1.3.2 ICZN).

A live scalarid specimen of *Cornu aspersum* resembling the specimen described and figured by Born (1778) was figured by Bailey (2006: 12). Schileyko (2006: 1817, fig. 2330B) illustrates a syntype of *Cornu copiae* Born.

Family Hygromiidae Tryon 1866

***Candidula gigaxii* (L.Pfeiffer 1847)** [*Helix*]

Anderson 2005 and ConchSoc list: *Candidula gigaxii* (L.Pfeiffer 1850); Bank *et al.* 2007: *Candidula gigaxii* (L.Pfeiffer 1848).

L. Pfeiffer (1847: 167) published the name *gigaxii* as a manuscript name attributed to Charpentier in synonymy of a 'variety b?' of *Helix caperata* Montagu 1803 [= *Candidula intersecta* (Poiret 1801)]. The question mark is explained to signify the uncertainty as to whether the 'variety' would deserve the rank of a separate species. The variety is briefly diagnosed; Charpentier's manuscript name was first used as valid by L.Pfeiffer 1850 (:85). The case is analogous to the provisions of article 11.6.1 ICZN for names originally published in synonymy of another name then treated as valid, but differs in that the name *gigaxii* was not published as a synonym of another available name. The only reason why Pfeiffer did not accept *gigaxii* as a varietal name was probably his (as well as of his contemporaries) strict adherence to binominal nomenclature. It is almost certain that Pfeiffer would have accepted *gigaxii* as a varietal name, had he thought this was permissible, just as he accepted it once he considered the taxon a separate species (1850). In continuity with established practice in this and similar cases, the name *gigaxii* is considered available from its first publication by Pfeiffer (1847).

Bank *et al.* (2007: 52, 63) give the year of publication as 1848. Gargominy *et al.* (2011: 362) accept 1847 based on a communication by Bank. Ruud Bank kindly provided evidence (by e-mail, 19.10.2011) in support of this date, see Appendix 3.

***Trochulus sericeus* (O.F. Müller 1774)** [*Helix*]

Anderson 2005, Bank *et al.* 2007 and ConchSoc list: *Trochulus sericeus* (Draparnaud 1801).

This species is usually referred to as *Trochulus sericeus* (Draparnaud 1801), as if Draparnaud (1801: 85; 1805: 103, pl. 7 figs 16–17) had introduced a new species. If that were the case, Draparnaud's name would be invalid as a junior objective homonym of Müller's species. In fact, Draparnaud quotes in both of his works Müller's '*Helix sericea*'. The omission of the name '*Helix sericea* Draparnaud' in Sherborn's Index Animalium (1922–33) is therefore correct.

The species described by Müller has been variably interpreted, viz. as juvenile *Monachoides incarnatus* (Müller 1774) by Beck (1837: 20) and Menke (1845: 114); as *Ashfordia granulata* (Alder 1830) by Jeffreys (1830: 333, 1862: 201–202), Turton (1831: 38–39), Forbes & Hanley (1852: 71–72), Reeve (1863: 77, textfig.); as *Trochulus sericeus* sensu Draparnaud by Alder (1838: 340) and Gray (in Turton 1840: 153, pl. 11 fig. 134); as *Trochulus hispidus* (Linnaeus 1758) by Forcart (1965, 1966); as juvenile *Petasina unidentata* (Draparnaud 1805) by Falkner (1982: 30–31); as "une espèce difficilement reconnaissable" by Falkner *et al.* (2002: 148). Müller's collection appears to be lost; a likely place for it would be the Zoological Museum

Copenhagen, but here no Müller material has been recognized (O.Tendal, pers.comm. 2002).

Müller (1774: 62) describes his species as follows (freely translated from Latin):

> "*Helix* with a perforated shell, subglobose, subcarinate, convex on both sides, tomentose.
>
> Danish [name]: silk snail.
>
> Diametre 3 lines [6.54 mm].
>
> The appearance and structure of *Helix hispida*, which one may believe at first impression, is proving to be different to more closely observing people.
>
> Shell of transparent horn-brown colour, slightly keeled; a greater transparency of the keel feigns a pale band; the entire shell is covered with very minute and shiny hair, which with a sharp eye piece[4] can be seen everywhere. The centre below is provided with a delicate perforation, not an umbilicus; aperture lunate as in its congeners.
>
> In gardens."

Crucial for the understanding of the diagnosis is the word *tomentum* and its adjective *tomentosus, -a, -um*. Dictionaries of classical Latin give *tomentum* as "stuffing (of a pillow, mattress, cushion etc.)". In this meaning the expression appears to be devoid of sense when describing the surface properties of a shell, but in botanical literature, both old and modern, the word 'tomentose' denotes the covering of plant parts with dense and short hair. Thus it could be concluded that Müller did indeed describe a hairy shell. However, in the description of the shell of *Trochulus hispidus* (:73), Müller is using the terms '*hispidosa*' (hairy), '*pilus*' (hair) and '*seta*' (bristle); further, he describes the shell as '*umbilicata*'. Evidently, the use of a different term in the description of *Helix sericea* signifies a qualitative difference to the hairs of *Trochulus hispidus*. This and the description of the umbilicus as perforate, i.e, significantly narrower then in *T. hispidus*, as well as in *T. sericeus* Auct., indicates that the name *sericea* Müller cannot refer to *Trochulus hispidus*, *T. sericeus* Auct. or *Petasina unidentata*. It cannot refer to shells of *Ashfordia granulata*, either, which do not have a pale band at the periphery, are usually not subcarinate and do not occur in Denmark., which Müller gives as a locality.

Beck (1837: 20) lists *Helix sericea* Müller as the juvenile of *Monachoides incarnatus* with an exclamation mark. Unfortunately the meaning of the latter is not explained. Beck's work is a catalogue of the non-marine shells in the collection of Prince Christian Frederick [king of Norway, who later became Christian VIII of Denmark]; throughout the work, exclamation marks are attached to many names, both valid names and synonyms. A plausible explanation would be that Beck had compared those taxa with the original specimens of those authors, or had received voucher specimens from them.

The identification of *Helix sericea* Müller as juvenile *Monachoides incarnatus* fits all characters mentioned by Müller, if it is assumed that the terms '*tomentum*' and '*tomentosa*' refer to the characteristic microsculpture of that species, which gives it a silky gloss not present in *Trochulus sericeus* Auct. and other *Trochulus* species, and inspiring the choice of species name (*sericeus* = silky). If this interpretation is correct, Müller would have mistaken the small and densely spaced papillae of the shell surface as a dense covering of very short hair. Also, Müller grouped *Helix sericea* together with his *Helix incarnata*; throughout his work, similar species are usually described in sequence. Müller may not have noted the same microsculpture in his material of adult *Monachoides incarnatus* because the shells may have been worn. Both *M. incarnatus* and "*Helix*" *sericea* were reported from Frederiksdal near Copenhagen by Müller (:215). Schlesch (1934), in a checklist of the non-marine molluscs of Denmark, cites *Monachoides incarnatus* as widespread, but does not mention *Trochulus sericeus* Auct. (sensu Draparnaud). Forcart (1965), likewise, states that *T. sericeus* Auct. does not occur in the vicinity of Copenhagen..

As the name '*Helix*' *sericea* was since 1845 not regarded as a synonym of *Monachoides incarnatus* but always used for a taxon related to *Trochulus hispidus*, the way forward to nomenclatural stability would be to fix the meaning of Müller's species with the designation of a neotype. This would require an endorsement by the ICZN,

[4]A part of Müller's text here is hardly comprehensible: "tota testa tomento minutissimo obtegitur, hoc tamen oculo armato & certo situ, quovis pilo resplendente, tantum conspicitur." Literally: "the entire shell is covered with very small stuffing, nevertheless so far with an armed eye and secure construction [*situs*], anywhere with shiny hair, such a quantity can be seen". Thus, the translation given in the main text is a free, and not necessarily correct, interpretation.

as the taxonomic concept of Müller is evidently different from that applied to *Trochulus sericeus* Auct.. Falkner *et al.* (2002) suggested that *T. sericeus* Auct.may actually be a species complex; therefore, a neotype designation should be made in the context of a taxonomic review.

Family Margaritiferidae Henderson 1929 (1910)

***Margaritifera* Schumacher 1815 ("1816")**

Anderson (2005): *Margaritifera* Schumacher 1816; Bank *et al.* 2007: *Margaritifera* Schumacher 1815.

The publication date of Schumacher's work is usually given as 1816, but according to Gosch (1878: 217) it was already published in 1815. Observations supporting a publication date of 1815 were discussed by Kadolsky (2009a); see also Kadolsky in Bogatov *et al.* (2003).

APPENDIX 1

Uses of the name *ventrosa* Montagu 1803 [*Turbo*] as a valid species group name since 1958 (selection). The references cited only here are not repeated in the reference list.

1958 *Hydrobia ventrosa-* Jaeckel, Klemm & Meise, *Abhandlungen und Berichte aus dem Staatlichen Museum für Tierkunde- Forschungsstelle Dresden* **23**: 173 [excl. syn. *stagnorum*]

1960 *Hydrobia ventrosa-* Jaeckel *Die Muscheln und Schnecken der deutshen Meeresküsten* (Die Neue Brehm-Bucherei, Wittemberg: 18, 45, 46, 48, 52, 55, fig. 5b

1964 *Hydrobia ventrosa-* Sparks, *Proceedings of the Malacological Society of London* **36** (7): 10

1966 *Hydrobia ventrosa-* Davis, *Venus* **25** (1): 39-

1966 *Hydrobia ventrosa-* Mars, *Vie et Milieu Supplément* **20**: 243–245, fig. 14c, 14.2, pl. 1 figs 25–29

1966 *Hydrobia stagnalis ventrosa-* Strausz, *Die miozän-mediterranen Gastropoden Ungarns*. (Budapest (Akadémiai Kiadó)): 63-, pl. 47.14

1968 *Hydrobia ventrosa-* Nordsieck F, *Die europäischen Meeres- Gehäuseschnecken*: 42, pl.6 fig. 24.00 [excl. syn. *stagnalis* Baster]

1973 *Hydrobia ventrosa-* Báldi: 249, pl. 26.6 (Late Oligocene, Egerian: Hungary) [identity? the fig. is *Melanopsis* sp.]

1973a *Hydrobia ventrosa-* Radoman, *Muséum d'Histoire naturelle de Belgrad. Éditions hors série*, **32**: 5 (type species of *Hydrobia* [!])

1975 *Hydrobia ventrosa-* Chukhchin *in* Likharev IM, *Molluscs, their systematics, evolution and significance in nature:* 5th All-Union meeting on molluscan research, **5** (Leningrad (Akademiya Nauk SSSR)): 121 [in Russian]

1976 *Hydrobia ventrosa-* Bishop, *Journal of Molluscan Studies* **42**: 319–324, fig. 1a–o

1976 *Hydrobia ventrosa-* Il'ina, Nevesskaya & Paramonova, *Trudy Paleontologicheskogo Instituta* **155 (**Moskva (Akademiya Nauk SSSR)): 27, 34–36, 38, 39, 84, 86, 88, 89, 117, 139, 140, 177, 189, 242, pl. 21.21–29

1976 *Hydrobia (Hydrobia) ventrosa-* Kerney, *Journal of Conchology* **29** (1): 26, 28

1977 *Hydrobia ventrosa-* Fish & Fish, *Journal of Molluscan Studies* **47**: 89–98, figs. 1a, 2a–c

1978 *Hydrobia ventrosa-* Chukhchin, *Malacological Review* **11**: 114 (= translation Chukhchin 1975)

1979 *Hydrobia ventrosa-* Bank, Butot & Gittenberger, *Basteria* **43**: 51-, 57, figs. 3–6 (lectotype fig. 3)

1980 *Hydrobia ventrosa-* Hershler & Davis, *Biological Bulletin* **158** (2): 216–**XXX**

1983 *Hydrobia (Hydrobia) ventrosa-* Groh, *Archiv für Molluskenkunde* **113** (1/6): 163, pl.15.1

1984 *Hydrobia ventrosa-* Bank & Butot, *Malakologische Abhandlungen* **10** (2): 5–9, figs. 1–3, 8–9

1984 *Ventrosia ventrosa-* Giusti & Pezzoli, *Lavori della Società Italiana di Malacologia* **21**: 131–134, fig. 3, pl. 3–4

1984a *Hydrobia ventrosa*-Boeters, *Heldia* **1** (1): 3

1985 *Hydrobia ventrosa-* Cherrill & James, *Journal of Conchology* **32** (2):123–132

1988 *Hydrobia ventrosa-* Cesari, *Bollettino del Museo civico di Storia Naturale di Venezia* **38**: 13, 15, fig. 2

1988 *Hydrobia ventrosa-* Falniowski, *Malakologische Abhandlungen* **13** (3): 27–28, figs. 8–14

1988 *Hydrobia ventrosa-* Graham, Synopses of the British Fauna, New Series, **2 (**New edition) (Brill/Backhuys): 190–**XXX**, fig. 70

1989 *Hydrobia ventrosa-* Davis, McKee & Lopez, *Proceedings of the Academy of Natural Sciences of Philadelphia* **141**: 342, 347–**XXX**

1990 *Ventrosia ventrosa-* Sabelli *et al.*, Catalogo annotato dei molluschi marini del Mediterraneo. *Edizioni Libreria Naturalistica Bolognese* **1** (Società Italiana di Malacologia, Bologna): 157

1992 *Hydrobia ventrosa-* Barnes, *Journal of Conchology* **34**(2): 59–62

1993 *Hydrobia (Hydrobia) ventrosa-* Boeters, *Archiv für Molluskenkunde* **122**: 149–**XXX**

1993 *Hydrobia (Hydrobia) ventrosa-* Haase, *Malacologia* **35** (2): 289–397, fig. 1
1994 *Hydrobia ventrosa-* Alexandrowicz, *Geologia* **20** (3): 333–340, figs. 1–4
1994 *Hydrobia ventrosa-* Brown, *Freshwater snails of Africa and their medical importance* (Taylor & Francis): 70, fig. 32b
1995 *Hydrobia ventrosa-* Drake & Arias, *Journal of Molluscan Studies* **61**(2): 185–194
1995 *Ventrosia ventrosa-* Cossignani T & Cossignani V, *Atlante delle conchiglie terrestri e dulciacquicole italiane* (Ancona (Ed. L'Informatore Piceno)): 12, 46 (fig. is *Hydrobia acuta!*)
1995 *Hydrobia ventrosa-* Cherrill & James: 185–194
1995 *Hydrobia ventrosa-* Giusti, Manganelli & Schembri, *Museo regionale de Scienze naturali. Monografie* **15**: 121–125, figs. 43–47, 53–55
1996 *Hydrobia ventrosa-* Dhora & Welter-Schultes, *Schriften zur Malakozoologie* **9**: 104, map
1998 *Hydrobia ventrosa-* Bamber, *Journal of Conchology Special Publication* **2**:266
1998 *Hydrobia (Hydrobia) ventrosa-* Boeters, Mollusca: Gastropoda: Rissooidea. *In* Schwoerbel J & Zwick P (eds), *Süßwasserfauna von Mitteleuropa* **5** (1/2): 24, figs. E5-E8, N3
1998 *Hydrobia (Hydrobia) ventrosa-* Gittenberger *et al.*, *Nederlandse Fauna* **2 (**Utrecht (Nationaal Natuurhistorisch Museum Naturalis, European Invertebrate Survey- Nederland)): 80, fig. 73, 84, 114, 124–125
1998a [*Hydrobia* (*Ventrosia)*] *ventrosa-* Giusti, Manganelli & Bodon, *Bulletin of Zoological Nomenclature* **55** (3): 139–143
1998b *Hydrobia ventrosa-* Giusti, Manganelli & Bodon, *Journal of Conchology* **36**(3): 1–7, figs. 1 (lectotype *acuta*, as des. Boeters 1984b), 7–10, 15–18 (Etang de Prévost)
1999 *Hydrobia ventrosa-* Hoeksema, *Bulletin of Zoological Nomenclature* **56**(1): 62
1999 [*Hydrobia (Ecrobia)*] *ventrosa-* Kadolsky, *Bulletin of Zoological Nomenclature* **56** (1): 62–63
1999 [*Hydrobia* (*Ventrosia)*] *ventrosa-* Giusti, Manganelli & Bodon, *Bulletin of Zoological Nomenclature* **56** (2):144–148
1999 *Ventrosia ventrosa-* Wilke *et al.*, *Bulletin of Zoological Nomenclature* **56** (3): 187–190
1999 *Ventrosia ventrosa-* Bank, *Bulletin of Zoological Nomenclature* **56**: 268–270
2000 *Hydrobia (Hydrobia) ventrosa-* Boeters, *Mitteilungen der deutschen malakozoologischen Gesellschaft* **65**: 36
2000 *Hydrobia (Ecrobia) ventrosa-* Kadolsky & Piechocki, *Archiv für Molluscenkunde* **128** (1/2): 228
2000 *Hydrobia* (*Ventrosia*) *ventrosa-* Wilke & Davis, *Biological Journal of the Linnean Society* **70** (1): 90–104 (population genetics)
2000b *Ventrosia ventrosa-* Wilke, Rolán & Davis, *Marine Biology* **137**: 828
2001 *Hydrobia ventrosa-* Falkner *et al.*, *Heldia* **4** (1/2): 17
2001 *Ventrosia ventrosa-* Falniowski & Wilke, *Journal of Molluscan Studies* **67**: 485–486
2001 *Ventrosia ventrosa-* Giusti, Manganelli & Bodon, *Bulletin of Zoological Nomenclature* **58** (4): 303
2001 [*Hydrobia (Ecrobia)*] *ventrosa-* Kadolsky, *Bulletin of Zoological Nomenclature* **58** (1): 56–58
2001 *Ventrosia ventrosa-* Wilke & Davis, *Bulletin of Zoological Nomenclature* **58** (4): 301–302
2001 *Ventrosia ventrosa-* Wilke *et al.*, *Proceedings of the Academy of Natural Sciences of Philadelphia* **151**: 18 (genetics)
2002 *Hydrobia ventrosa-* Bodon & Cianfanelli, *Bollettino Malacologico* **38** (1–4): 25
2002 *Hydrobia ventrosa-* Falniowski & Szarowska, *Bulletin of Zoological Nomenclature* **59** (2): 128–130
2002 *Hydrobia (Hydrobia) ventrosa-* Glöer, Mollusca I. In *Die Tierwelt Deutschlands und der angrenzenden Meeresteile nach ihren Merkmalen und nach ihrer Lebensweise* **73**. (2., neubearbeitete Auflage) (Hackenheim (Conchbooks)): 99-, figs. 73, 74
2002 *Hydrobia (Hydrobia) ventrosa* (or *Ecrobia ventrosa*)- Falkner *et al.*, *Patrimoines naturels* **52**: 28, 58, 74–75
2003 [*Hydrobia* or *Ventrosia*] *ventrosa-* ICZN (Opinion 2034), *Bulletin of Zoological Nomenclature* **60** (2): 152–154
2003 *Ventrosia ventrosa-* Wilke, *Zoological Journal of the Linnean Society* **137**: 322, fig. 3 (cladogram)
2004 *Ventrosia ventrosa-* Barszcz, *Folia Malacologica* **12**(3): 141–144
2005 *Ventrosia ventrosa-* Anderson, *Journal of Conchology* **38** (6): 610, 624 (checklist)
2005 *Hydrobia ventrosa-* Bank, *De Kreukel*, **spec. edit.**: 128
2007 *Ecrobia ventrosa-* Bank *et al.*, *Heldia* **5** (3): 47, 55 (checklist)
2008c *Ecrobia ventrosa-* Wiese & Richling, Schelpen van het Nederlandse strand (Nederlandse Malacologische Vereniging): fig. on chart

2008 *Hydrobia ventrosa*- Hellström, *The Malacologist* **50**: 8
2008a *Ecrobia ventrosa*- Wiese & Richling, *Zoetwatermolluscen van Nederland* (Nederlandse Malacologische Vereniging): fig. on chart
2008 *Ventrosia ventrosa*- de Jong, Spirula **363**: 73
2009 *Ecrobia ventrosa*- Jungbluth & v.Knorre, *Mitteilungen der deutschen malakozoologischen Gesellschaft* **81**: 8, 19
2010 *Ecrobia ventrosa*- Haase *et al.*, *Journal of Molluscan Studies* **76** (1): 101–103
2011 *Ecrobia ventrosa*- Gargominy *et al.*, *MalaCo* **7**: 317, 347

Other names applied to *Ecrobia ventrosa* since 1958:
1962 *Hydrobia (Hydrobia) stagnorum*- Jaeckel, *Ergänzungen und Berichtigungen zum rezenten und quartären Vorkommen der mitteleuropäischen Mollusken*. In *Die Tierwelt Mitteleuropas*, **2 (Ergänzung)** (Lief. 1). (Quelle & Meyer, Leipzig): 39- [non *stagnorum* Gmelin 1791]
1965 *Hydrobia stagnorum*- Schütt, *Archiv für Molluskenkunde* **91** (4/6): 53-, pl. 1.9 (*ventrosa* in Syn.) [non *stagnorum* Gmelin 1791?]
1966 *Hydrobia stagnorum*- Butot & Kiauta, Basteria **30** (2–3): 23, tb. 1, pl. 1.2 (chromosomes) [non *stagnorum* Gmelin 1791?]
1966 *Hydrobia stagnalis*- Ziegelmeier, *Helgoländer wissenschaftliche Meeresuntersuchungen* **13**: 12, 37, pl. 8.4a–b (syn. *ventrosa*) [non Linnaeus 1767]
1967 *Hydrobia (Paludestrina) stagnorum*- Jaeckel, Gastropoda.- *In* Illies J (ed.), *Limnofauna Europaea*. (Stuttgart, Gustav Fischer)): 92 (*ventrosa* in Syn.) [non *stagnorum* Gmelin 1791]
1971 *Hydrobia stagnorum*- Sliggers, *Basteria* **35** (5): 81–84, figs. 1–4 [non *stagnorum* Gmelin 1791]
1972 *Hydrobia (Hydrobia) stagnorum*- Girotti, *Geologica Romana* **11**: 230-, fig. 2 [non *stagnorum* Gmelin 1791?]
1972 *Hydrobia stagnalis*- F. Nordsieck, *Die europäischen Meeresschnecken (Opisthobranchia mit Pyramidellidae; Rissoacea)*. (Stuttgart, Gustav Fischer)): 141, pl. R II fig. 3 (*ventrosa* in Syn.) [non Linnaeus 1767]
1975 *Hydrobia (Hydrobia) stagnorum*- Esu & Girotti, Geologica romana, **13**: 224-, figs. 33–38 (*ventrosa* in Syn.) [non *stagnorum* Gmelin 1791?]
1975 *Hydrobia stagnorum*- Suderlau, *Hercynia, N.F.* **12** (2): 235, 239, 246, figs. 4, 5 [non *stagnorum* Gmelin 1791]
1977 *Hydrobia* sp.- Arnaud, *Annales du Muséum d'Histoire Naturelle de Nice* **5**: 144 (lectotype designated of *Leachia vitrea* Risso 1826, a name subsequently applied to Mediterranean populations of *E. ventrosa*)
1977 *Ventrosia stagnorum*- Radoman, Archiv für Molluskenkunde, **107** (4–6): 209, fig. 3, pl. 21.11–13 [non *stagnorum* Gmelin 1791]
1978 *Ventrosia stagnorum*- Willmann & Pieper, Gastropoda. *In* Illies J, *Limnofauna Europaea, 2. Auflage* (Stuttgart & New York (Gustav Fischer), Amsterdam (Swets & Zeitlinger)): 121 [non *stagnorum* Gmelin 1791]
1984 *Hydrobia acuta*- Boeters, *Heldia* **1** (1): 4-, figs. 1–2, pl. 1a.1 (lectotype designation, invalidated by Opinion 2035) [non *acuta* Draparnaud 1805; non pl. 1a.2 = PT *acuta* = *H. acuta* sensu Mars 1966]
1988 *Hydrobia (Hydrobia) acuta*- Boeters, *Archiv für Molluskenkunde* **118** (4/6): 189-, figs. 8–11, 29, 41–42, pl. 1.5 (LT *acuta*, des. Boeters 1984) [non *acuta* Draparnaud 1805]
1988 *Hydrobia (Hydrobia) atuca* Boeters, *Archiv für Molluskenkunde* **118** (4/6): 190–191, figs. 5–7, 30–32, 43–47, pl. 1.6
1991 *Ventrosia stagnorum*- Jovanović, *Glasnik prirodnyachkog muzeya u Beogradu, Seriya B*: *Bioloshke Nauke* **46**: 213 [non *stagnorum* Gmelin 1791]
1991 *Hydrobia stagnalis*- Poppe & Goto, *European seashells*, **1** (Wiesbaden (Christa Hemmen)): 94, pl. 10.20–21 [non Linnaeus 1767]
1999 *Hydrobia acuta*- Boeters *et al.*, *Bulletin of Zoological Nomenclature* **56** (1): 57–61
2001 *Hydrobia acuta*- Falkner *et al.*, *Heldia* **4** (1/2): 17 [non *acuta* Draparnaud 1805]
2001 *Hydrobia acuta*- Gittenberger, *Bulletin of Zoological Nomenclature* **58** (2): 140–141
2002 *Hydrobia (Hydrobia) acuta* (or *Ecrobia vitrea*)- Falkner *et al.*, *Patrimoines naturels* **52**: 28, 58, 74–75 [non *acuta* Draparnaud 1805]
2004 "*Hydrobia*" sp.- Meng *et al.*, *Hallesches Jahrbuch für Geowissenschaften, B*, **26**: 124, 127-, pl. 2.1–6
2007 *Ecrobia vitrea*- Beckmann, *Die Land-und Süßwassermollusken der Balearischen Inseln* (Conchbooks, Hackenheim): 37
2007 *Ecrobia atuca*- Beckmann, *Die Land-und Süßwassermollusken der Balearischen Inseln* (Conchbooks, Hackenheim): 38 [not figs. 13, pl. 9.7 = *Hydrobia acuta* or *H.* sp. A]

2007 *Hydrobia acuta*- Beckmann, *Die Land-und Süßwassermollusken der Balearischen Inseln* (Conchbooks, Hackenheim): 38, fig. 14, pl. 9.8 [not *acuta* Draparnaud 1805; fig. only]
2009 *Hydrobia* ? sp.- Meng, *Mitteilungen der deutschen malakozoologischen Gesellschaft* **81**: 50
2011 *Ecrobia vitrea*- Gargominy *et al.*, *MalaCo* **7**: 317, 347

NOTES:

1) The nominal species *Turbo stagnalis* Baster 1765 (invalid) = *Helix stagnalis* Linné 1767 [non Linnaeus 1758] = *Helix stagnorum* Gmelin 1791 has been redefined as a species of *Heleobia (Eupaludestrina)* by Bank *et al.* 1979 and Bank & Butot 1984.
2) The application of the name *Cyclostoma acutum* Draparnaud 1805 to *E. ventrosa* came about by Boeters' lectotype designation (1984), which was annulled in Opinion 2034 (ICZN 2003).
3) *Hydrobia atuca* Boeters 1988 is a species segregate described from Mallorca, which Wilke (pers. comm.) considers to fall in the variability range of *E. ventrosa*.
4) *Leachia vitrea* Risso 1826 is based on Mediterranean *Ecrobia* material, which some authors treat as a species separate from *E. ventrosa*, although Wilke *et al.* 2001, from their molecular genetic analysis, considered the genetic distances too small to justify a separation as species or subspecies.

APPENDIX 2

The publication dates of the first volume of Potiez & Michaud's "Galérie des mollusques, ou catalogue méthodique, descriptif et raisonné des mollusques et coquilles du Muséum de Douai (J.-B. Baillière, Paris & Londres)".

According to a communication by the author Michaud to Paulucci (Paulucci 1879), "Le premier volume ... fut, dans son entier, publié en 1838; mais les livraisons successives parurent en même temps que les planches ... ". Falkner *et al.* (2002) have on the basis of this statement assumed the dates engraved on the plates represent the publication dates of both the plates and the pertinent text, without, however, providing a breakdown of the dates of the text. It is not doubted that the volume was printed in parts between 1835 and 1838, but there is no proof that the parts so printed were "obtainable, when first issued, free of charge or by purchase" (article 8.1.2 ICZN) at the dates printed on the plates: the work is not mentioned in the literature reports of the *Archiv für Naturgeschichte* (1835–1838). In the *Bibliographie de la France, ou Journal général de l'imprimerie et de la librairie* it is only listed in issue 1838 (43) (:507, no. 5361), which is dated 27.10.1838. This is thus the oldest date on which this work is demonstrably published. It is not referenced in the works of contemporaneous authors even when they described the same species (Rossmässler 1835–1838, Beck 1837, Bouchard-Chantereaux 1838). This is most significant in the case of Beck: Potiez & Michaud must have been in contact with him, as they "borrowed" some of his unpublished names and thus made them available under their own authorship (*Pupa unicarinata* (:175–176, pl. 17, "Dec. 1835"), *Cyclostoma rufilabrum* (:241, pl. 24, "Mar. 1836"), *Phasianella meleagris* (:311)). They also cited Beck as authority for seven synonyms, species identifications or genus attributions without a bibliographic reference to Beck's published work which means that they must have obtained the information from Beck's unpublished communications. Examples are:

"*Bulimus rhodospirus* Moricand fide Beck" (:152–153, pl. 15, "Nov. 1835"), published by Beck (1837: 56) as *Bulimus* (*Pachyotus*) *rhodospirus* Moricand without a reference to Potiez & Michaud;

"*Littorina zic-zak* Beck" (:280, pl. 28, "April 1836") (a new combination and unjustified emendation of *Trochus ziczac* Gmelin 1791: name not published by Beck);

Ampullaria carinata Lamarck, syn. *A. lusitanica* Beck ms. (:307), a name not published by Beck.

One should expect that at this level of communication Beck should have received the parts of Potiez & Michaud's work printed in 1835 and 1836, had they then been available for distribution. Likewise, Bouchard-Chantereaux (1838: 190), in the description of *Succinea arenaria*, does not mention the description by Potiez & Michaud (:67–68), which should have been published in November 1835, if the dates on the plate for species in neighboring text were the publication dates.

Unless additional evidence about the publication dates of Potiez & Michaud's work becomes

known, the publication date of the entire volume, including the plates and the separately paginated plate legends, is taken as before 27 October 1838.

APPENDIX 3

Publication date of Pfeiffer L 1847–1848: *Monographia Heliceorum viventium sistens descriptiones systematicas et criticas omnium huius familiae generum et specierum hodie cognitarum*, **1** : (1): 1–160 (1847) [before 27.9.]; (2): 161–321 (1847 [after 27.9.]); (3): i-xxxii, 321–484 (before 23.6.1848). Lipsiae.

Part 1 of this work was published before 27 Sept 1847, as this is date Rossmässler wrote a review of it, published in the November 1847 issue of *Zeitschrift für Malakozoologie*, **4** (:174–176). Consistent with this date is the record in *Leipziger Repertorium der deutschen und ausländischen Literatur*, **5** (52) (:509), published 24.12.1847.

Part 2 is cited as being published in 1847 in the literature reports of *Archiv fur Naturgeschichte* **14** (2) (:239), and of *Isis* **1848** (6) (p. 700–701). No further details of the date are given.

Part 3 is recorded as published in 1848 in *Leipziger Repertorium*, **6** (25) (:443). This issue was published 23.6.1848. *Isis* **1848** (6) (: 700–701) reports Parts 2 and 3 together and gives 1847 as their date, which appears to be incorrect for Part 3. *Archiv für Naturgeschichte* **15** (2) (: 92) also mentions Part 3 as being published in 1848.

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