



A close escape: protecting the name of *Cepaea nemoralis* (Linnaeus, 1758) once and for all by selecting a lectotype from the former collection of Queen Louisa Ulrika (Gastropoda: Helicidae)

RUUD A. BANK 

Chopinlaan 21, 9603 AM Hoogezaand, The Netherlands; ruud.bank@quicknet.nl [corresponding author]

BARNA PÁLL-GERGELY 

Centre for Agricultural Research, HUN-REN Centre for Agricultural Research, 2462 Martonvásár, Brunszvik u. 2, Hungary; pallgergely2@gmail.com

EIKE NEUBERT 

Natural History Museum Bern, Bernastrasse 15, CH-3005 Bern, Switzerland; eike.neubert@nmbe.ch

EDMUND GITTENBERGER 

National Biodiversity Center Naturalis, P.O. Box 9517, 2300 RA Leiden, The Netherlands; GiMaRIS, Rijksweg 75, 2171 AK Sassenheim, The Netherlands; egittenberger@yahoo.com

TED VON PROSCHWITZ 

Gothenburg Natural History Museum, Box 7283, 40235 Gothenburg, Sweden; Gothenburg Global Biodiversity Centre, University of Gothenburg, Box 461, 40530 Gothenburg, Sweden; ted.v.proschwitz@vgregion.se

OLIVIER GARGOMINY 

PatriNat (OFB-MNHN-CNRS-IRD), Muséum national d'Histoire naturelle - CP41, 36 rue Geoffroy Saint-Hilaire, 75005 Paris, France; olivier.gargominy@mnhn.fr

THOMAS A. NEUBAUER 

SNSB – Bavarian State Collection for Palaeontology and Geology, Richard-Wagner-Straße 10, 80333 Munich, Germany; Department of Earth and Environmental Sciences, Palaeontology & Geobiology, Ludwig-Maximilians-Universität München, Richard-Wagner-Straße 10, 80333 Munich, Germany; neubauer@snsb.de



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referred to by Linnaeus, it is therefore not a syntype of *Helix nemoralis*, and consequently cannot serve as lectotype. Apart from that, the shell of Gualtieri belongs to the Apennine subspecies *Cepaea nemoralis lucifuga* (Menke, 1828). In order to protect the name of the nominate subspecies we here select as lectotype a shell that once belonged to the Museum Ludoviciae Ulricae, now part of the Linnean collection curated in the Uppsala University Museum of Evolution.

Key words: *Cepaea nemoralis*, lectotype, Helicidae, Gualtieri, Linnaeus, Uppsala.

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Recently, Roosen, Callea & Schilthuizen (2026, *Deinsea* vol. 24) fixed a lectotype for the grove snail, *Cepaea nemoralis* (Linnaeus, 1758), based on a specimen from the Niccolò Gualtieri collection. However, we show that the single surviving shell in that collection does not correspond to the specimen

INTRODUCTION

The genus *Cepaea* Held, 1838 contains two extant species, *C. nemoralis* (Linnaeus, 1758) and *C. hortensis* (O. F. Müller,

1774), which are widely distributed in large parts of Europe. They have been investigated in depth due to their remarkable polymorphism with regard to shell colour and banding pattern, resulting in hundreds of publications. The two species are morphologically similar but can be separated by the colour of the apertural lip: dark in *C. nemoralis* and white in *C. hortensis*. This character has been used for more than 200 years.

Linnaeus (1758) introduced *Helix nemoralis* on page 773 in the tenth edition of his *Systema Naturae*. As locality he mentioned “Habitat in Europae arboribus” (i.e. “lives in the trees of Europe”). His description is very short (10 words), but luckily he referred to various publications, making it possible to identify the species he described. In his description he did not mention the colour of the apertural lip, but almost all figures in the works that he cited show shells with a dark lip. Hanley (1855: 377) noticed that the *Helix nemoralis* of Linnaeus contains both the white- and dark-lipped species, as Linnaeus did not discriminate both species. Hanley concluded that already in his time (1855) “the far greater preponderance, in the synonymy, of delineations of the dark-mouthed snail, justifies authors in assigning to it more especially the name *nemoralis*”.

LECTOTYPIFICATIONS OF THE DARK-MOUTHED SHELL

In the collection of the Linnean Society of London, eight specimens of “*Helix nemoralis*” are present in the sample labelled LINN 560, and all represent the species currently known as *Cepaea hortensis* (see Roosen et al., 2026a). Interestingly, Kennard & Woodward (1920: 208) mentioned that there are 26 specimens of *Helix nemoralis* in the Linnean collection, a number that is ignored by Roosen et al. (2026a). They also ignored that the eight shells are stored in a glass-stopped box of twentieth-century manufacture, not in a Linnean metal box. Furthermore, Kennard & Woodward (1920) showed that Linnaeus had received shells from Müller and that in some cases there is indisputable evidence that some are still in the collection. In the case of *Helix nemoralis*, they mentioned that possibly some of the specimens in the collection may have come from Müller. After all, it was Müller who corrected Linnaeus by pointing out that the dark- and white-lipped shells belong to two different species, and who introduced the name *Helix hortensis* for the latter. Although Roosen et al. (2026a) considered the eight specimens as “probable syntypes” of *Helix nemoralis*, it is clear from the above that their status as syntypes remains questionable.

Another specimen that Roosen et al. (2026a) considered a syntype of *Helix nemoralis*, is a shell in the collection of Niccolò Gualtieri (University of Pisa). Linnaeus (1758: 773)

referred to plate 1 figure P of the magnum opus “Index Testarum Conchyliorum” published by Gualtieri in 1742. Roosen et al. (2026a) are of the opinion that the shell in the Gualtieri collection marked as “I. P” is the shell figured by Gualtieri (1742). As a consequence, they considered the shell a syntype of *Helix nemoralis*. As it is a dark-lipped shell, it fits with the general concept of the species. Roosen et al. (2026a) subsequently “designate the only extant specimen of which the syntype status cannot be contested and that fits the current interpretation of *C. nemoralis* as the lectotype of *Helix nemoralis* to preserve the long-established name of this common species”. They did so to avoid a white-lipped shell being designated as the lectotype in the future, which would destabilise nomenclature by confusing the identities of *C. nemoralis* and *C. hortensis*. Unfortunately, despite their honourable intention, the lectotype selection by Roosen et al. (2026a,b) comes with a number of problems. Here, we will argue (1) that the shell in the Gualtieri collection is not the shell that is figured by Gualtieri (1742), (2) that the shell cannot be considered a syntype and thus cannot serve as lectotype, and (3) that their “lectotype” destabilises the nomenclature of the polytypic *C. nemoralis*. To fix the identity of the species, we here select the syntype of *Helix nemoralis* present in the collection of the Museum Ludoviciae Ulricae (Uppsala) as the lectotype of *Helix nemoralis*.

The Niccolò Gualtieri (1688–1744) collection is deposited in the Museo di Storia Naturale del Territorio of the University of Pisa (MNSP). The MNSP is housed in the Carthusian monastery at Calci. Dijkstra, Coomans and Moolenbeek visited the MNSP in November 1990 (Dijkstra, 2016) in order to trace shells from Georg Rumphius (1627–1702) and/or Pectinidae shells figured in Niccolò Gualtieri’s 1742 “Index Testarum Conchyliorum” (representing 110 plates with approximately 1200 figures). However, they found the Gualtieri collection “in complete disarray due to the reconstruction of the monastery and museum collections. Some figured specimens were already selected and temporarily placed in show-cases, but other displaced material was stored in monk’s cells and in complete disorder” (Dijkstra, 2016: 113). The hundreds of shells donated by Rumphius could not be found (which confirms the bitter complaints of Martelli 1903 that Rumphius’s shells cannot be traced anymore), and only 25 figured Pectinidae shells could be found out of the 46 figured in the “Index Testarum Conchyliorum”. Some 30 years after the visit of Dijkstra, Coomans and Moolenbeek, a start has been made with the recovery and cataloguing of the Gualtieri collection (Romani, Callea & Bonaccorsi, 2026). These authors mentioned that “The cataloguing process has revealed several challenges: multiple specimens marked with the same number (‘Gualtieri series’), inconsistencies between numbers and figures, missing or displaced 19th-century labels, and difficulties in

identifying small or poorly preserved shells”. It should be stressed that today, approximately 700 specimens from the Gualtieri collection are preserved in the Museum’s malacological section (Manganelli & Benocci, 2011: 175-176), being the remnant of what was once an immense collection of shells. This remnant is scientifically important as it potentially contains types of species established by e.g. Linnaeus and Gmelin.

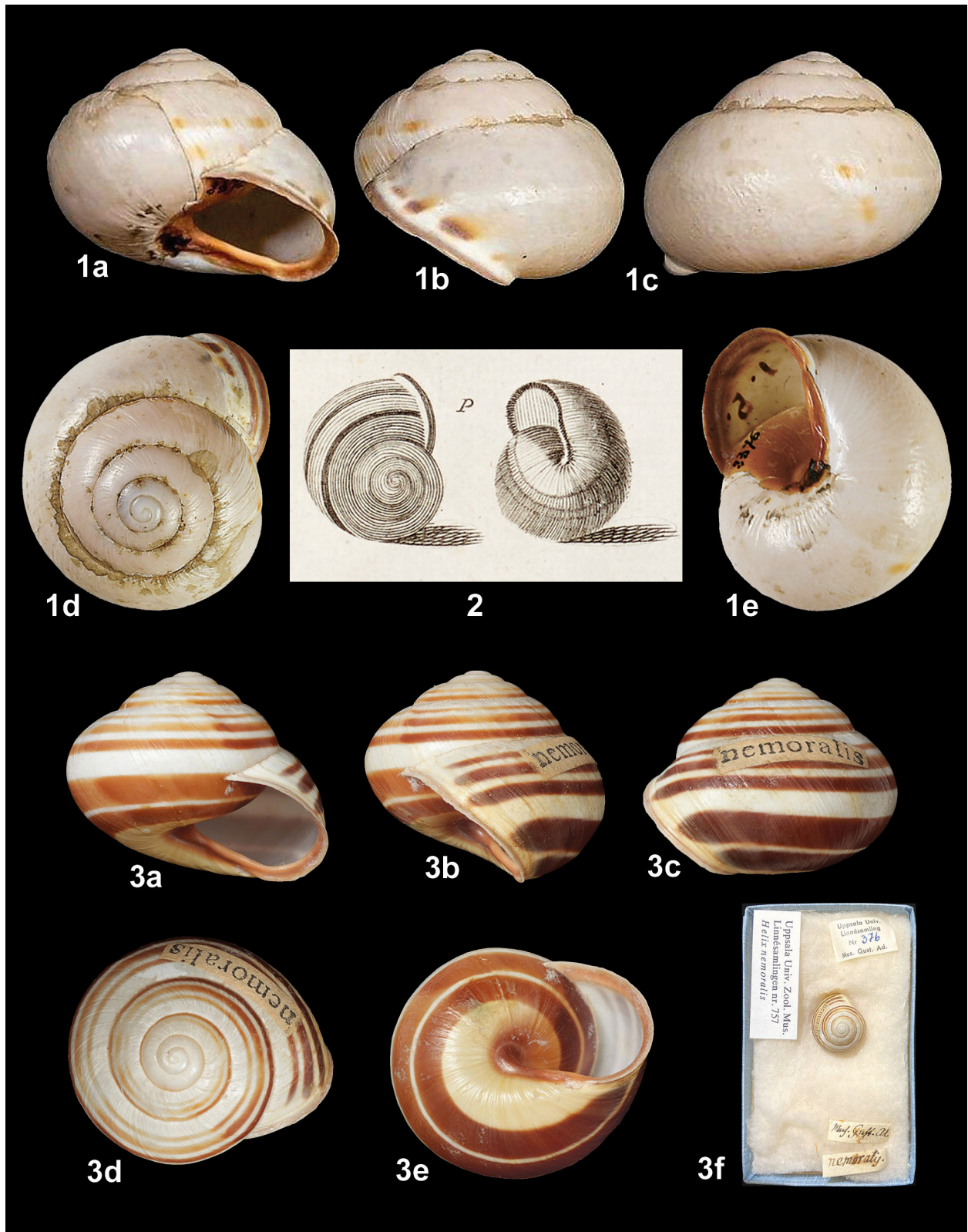
A single shell of *Cepaea nemoralis* is nowadays present in the Gualtieri collection. It was marked “I. P” by Gualtieri, thus referring to his figure P of plate 1 published in his “Index Testarum Conchyliorum”. We here provide photographs of five different positions of the shell (Figs 1a–e), as well as a copy of plate 1 fig. P (Fig. 2). The shell positions shown in Figs 1a–c were already provided by Roosen et al. (2026a). The views in Figs 1d–e are taken from the same positions as shown by Gualtieri in plate 1 fig. P; unfortunately, these figures (and a copy of Gualtieri’s fig. P) are missing in Roosen et al. (2026a). Although the authors mentioned that “the shell does not look much like the original drawing published in Gualtieri”, they were still of the opinion that this is “the only remaining syntype of which the type status is not challenged”. However, we have serious doubts that this shell is indeed the one figured by Gualtieri. The mark “I. P” on the shell is from Gualtieri himself; however, the old label accompanying it is of a later age and is not in the handwriting of Gualtieri. There is no evidence that there was only a single shell of this species present in the original Gualtieri collection. Considering that a major part of the Gualtieri collection is missing, it is well possible that additional specimens of that species were lost. Gualtieri lived his whole life in the area (Florence) where the species is common, and he might have collected multiple specimens himself. Furthermore, it was noted by Romani, Callea & Bonaccorsi (2026) that in the collection of Gualtieri for some species multiple specimens are marked with the same number (“Gualtieri series”), being strong evidence that the marking does not necessarily refer to the figured specimen, but to the species that is represented by the figure. Finally, the “lectotype” selected by Roosen et al. (2026a,b) does not show the distinct dark bands on the last whorl shown in Gualtieri’s figure. Based on the provided evidence, we thus reject the syntype status of this shell and consider the lectotype selection as invalid according to ICZN Article 74.2.

Apart from the above, there is another problem with this shell. *Cepaea nemoralis* is considered by various authors a polytypic species. One subspecies is living in the Apennines (variably known as *C. n. lucifuga*, *C. n. apennina* or as *C. n. etrusca* – see Appendix), whereas in the remaining part of Europe, the nominate subspecies (*C. n. nemoralis*) is living. The oldest name for the Apennine subspecies is *C. n. lucifuga* (Menke, 1828). It differs from the nominate subspecies by having on average a larger shell and typically a mal-

leated surface (compare also Boettger, 1921: 334; Cianfanelli, 2009: 59; Martucci et al., 2018: 52). Although the subspecies status is sometimes questioned, many papers accept it as such (e.g. Forcart, 1968; Alzona, 1971; Giusti & Mazzini, 1971; Giusti, 1973, 1976; Cesari, 1980; Forni & Sacchi, 2004; Cossignani & Cossignani, 2020 – and references cited in these publications). Forni & Sacchi (2004: fig. 4) showed the distribution of the two subspecies *etrusca* (= *lucifuga*) and *nemoralis* south and north of the Po River, respectively, and documented the occurrence of hybridization. There seems to be also anatomical differences between the two subspecies: Hesse (1919: 85) reported that the flagellum of the penis is shorter in *C. n. lucifuga*, despite having a larger shell than *C. n. nemoralis*. Finally, Grindon & Davison (2013) showed that two out of three Apennine populations display a unique mitochondrial gene cytochrome oxidase subunit I (COI) haplotype, a haplotype that is not seen in the remaining part of Europe.

Roosen et al. (2026a), who only referred to shell size differences, noted an average size of *Cepaea nemoralis lucifuga* of 24.0 to 27.6 mm (diameter of the shell), yet without indicating a source. Cesari (1980) measured 500 specimens of *C. n. lucifuga* (from various populations) and 1,000 specimens of *C. n. nemoralis* (from five populations in Northern Italy). The reported size range (diameter of the shell) of *C. n. lucifuga* is 20.3–33.6 mm, with an average size of 23.5–30.5 mm. For *C. n. nemoralis* he reported a size range of 17.1–27.3 mm, with an average size of 19.5–22.0 mm. Less than 2% of the 1,000 specimens of *C. n. nemoralis* reached a size above 24 mm. Gualtieri’s specimen, however, has a diameter of 26.2 mm, which is within the average size range of *C. n. lucifuga* but close to the maximum size measured for *C. n. nemoralis*. Already from the size alone, it is highly likely that the shell of Gualtieri belongs to *C. n. lucifuga*. Interestingly, although Roosen et al. (2026a) reported that the shell is “nearly smooth”, it shows at various parts – despite the poor preservation state – the malleated sculpture which is often seen in *C. n. lucifuga* but rarely in *C. n. nemoralis*. This, and the fact that Gualtieri lived his whole life in Florence, i.e. in the distribution area of *C. n. lucifuga*, leaves little doubt that the shell of Gualtieri originates from the Apennines, although no locality is mentioned on the label or in the “Index Testarum Conchyliorum”. This immediately raises a problem: when we accept the lectotype selection by Roosen et al. (2026a,b), the endemic subspecies of the Apennines would become *C. n. nemoralis*, and what is now known as *C. n. nemoralis* in the remaining part of Europe would need a new name. However, as we mentioned earlier, there is no evidence that this shell is indeed the shell figured by Gualtieri – and thus, it cannot serve as a lectotype.

We disagree with Roosen et al. (2026a) that there are no syntypes other than the eight shells present in the Lin-



Figs 1-3. *Cepaea nemoralis* (Linnaeus, 1758) sensu lato. **1-2.** *Cepaea nemoralis lucifuga* (Menke, 1828). **1a-e.** Shell marked as “I.P.” in the collection of Gualtieri (Museo di Storia Naturale del Territorio of the University of Pisa); diameter = 26.2 mm. This shell does not match with plate 1 fig. P of the Index Testarum Conchyliorum and is therefore not a syntype of *Helix nemoralis*. **2.** Copy of plate 1 fig. P from Gualtieri (1742). This shell is to be considered a paralectotype of *Helix nemoralis*. **3a-f.** *Cepaea nemoralis nemoralis* (Linnaeus, 1758). Lectotype of *Helix nemoralis* as present in the Museum Ludoviciae Ulricae (Uppsala); diameter = 23.3 mm. Figs 1a-c courtesy of Roosen et al.; figs 1d-e courtesy of Dr. Marco Dellacasa; figs 3a-f courtesy of Dr. Hans Mejlom.

nean collection in London or the single shell in the Gualtieri collection in Pisa that could serve as a lectotype. It is well known that Linnaeus investigated at various periods between July 1751 and March 1755 the shell and insect collection of Queen Louisa Ulrika (1720-1782) that was housed at the castle of Drottningholm near Stockholm. The descriptive catalogue written by Linnaeus in 1755, known as the “Museum Ludoviciae Ulricae” (M.L.U.), was published after a long delay in 1764. However, from the given timeline, it is clear that Linnaeus used his observations in this collection for his tenth edition of the *Systema Naturae* (1758). Indeed, the abbreviation “M.L.U.” is found under many of his species diagnoses (Dance, 1967: 14). Roosen et al. (2026a) acknowledged that all specimens mentioned by Linnaeus (1764) are possible syntypes of species described by Linnaeus (1758). As a fact, several lectotypes for molluscan species have been selected from the M.L.U. collection, e.g. *Buccinum flammeum* Linnaeus, 1758 and *Strombus urceus* Linnaeus, 1758 (Beu, 2010: 217; Kronenberg, 2025: 389). Interestingly, Linnaeus (1764: 670) mentioned *Helix nemoralis*, and distinguished two forms: α (with white lip) (now *Cepaea hortensis*) and β (with dark lip). The Uppsala University Museum of Evolution (Zoology section) houses part of the Linnean collection, including the shells that once belonged to Queen Louisa Ulrika (Wallin, 2001). The single specimen present in the M.L.U. labelled as *Helix nemoralis* (catalogue number 757) has a diameter of 23.3 mm and a height of 15.9 mm and a dark lip. The photograph (Fig. 3; courtesy of Hans Mejlon) shows a well-preserved shell with no trace of malleated sculpture. Although it is a relatively large shell, it represents clearly the nominate subspecies. We therefore select this specimen as the lectotype of *Helix nemoralis* Linnaeus, 1758. No locality is given on the label; it remains therefore “Europae” (Linnaeus, 1758: 773). Given that Louisa Ulrika was born in Berlin and brought with her from Berlin a small shell collection when she married Crown Prince Adolf Frederick of Sweden in 1744, the shell is likely to derive from northeastern Germany.

CONCLUSION

We show that the lectotype designation for *Helix nemoralis* by Roosen et al. (2026a,b) based on a specimen from the Niccolò Gualtieri collection is invalid. The chosen specimen cannot be considered as a syntype, since it does not correspond to the specimen illustrated in his “Index Testarum Conchyliorum” and referred to by Linnaeus when describing *H. nemoralis*. Moreover, Gualtieri’s specimen represents the Apennine subspecies, *Cepaea nemoralis lucifuga*. By selecting the specimen present in the Museum Ludoviciae Ulricae with catalogue number 757 as the new lectotype, we solve the confusion and preserve the name *Cepaea*

nemoralis nemoralis for the common European subspecies. The valid lectotype protects the name *Helix nemoralis* in the sense as used invariably over at least the last 100 years, thereby stabilising the nomenclature of one of the iconic land snails of Europe that has been, and still is, the subject of evolutionary and genetic studies.

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APPENDIX

Various names, authors and publication dates are used in literature for the *Cepaea nemoralis* subspecies living in the Apennines. We here provide the correct name and basionyms for clarity.

Cepaea nemoralis lucifuga (Menke, 1828)

Helix lucifuga Menke, 1828: 9. Type locality: not mentioned.

Note (1): name attributed to Ziegler. Note (2): this is an older name for *etrusca*; it is necessary to replace *etrusca* with *lucifuga* as the latter was used several times as a valid taxon after 1900.

Helix etrusca Rossmässler, 1835: 58. Type locality: “In Italien bei Pisa”. Note (1): name attributed to Ziegler. Note (2): again discussed by Rossmässler (1837: 6, pl. 22 fig. 298a) [from Genova].

Helix [*Tachea*] *nemoralis* var. *apennina* Stabile, 1864: 66.

Type locality: “Versant nord de l’Apennin” (various localities mentioned).

Helix genuensis Stabile, 1864: 66. Nomen nudum (name in synonymy of *apennina*). Note: name attributed to Porro.

Helix nemoralis var. *nigrolabiata* Bourguignat, 1880: 143.

Type locality: “environs de Viareggio, en Toscane”.

Helix [*Tachea*] *nemoralis* var. *alpheia* De Stefani, 1883: 91. Type locality: “Bagno di S. Giuliano”; “Nel bosco di S. Rossore presso Pisa, in altri luoghi della pianura fra l’Arno e la Magra e qualche volta fino alla base dei monti prossimi si trova questa varietà”.

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