



## ON THE SPELLING OF *TROCHULUS LUBOMIRSKII* VS. *LUBOMIRSKI* (ŚLÓRSKI, 1881) (GASTROPODA: PULMONATA: HYGROMIIDAE) – THE OPPOSITE POINT OF VIEW

ANDRZEJ LESICKI<sup>1</sup>, MAŁGORZATA PROĆKÓW<sup>2</sup>, WOJCIECH MAGOWSKI<sup>3</sup>

<sup>1</sup>Department of Cell Biology, Institute of Experimental Biology, Faculty of Biology, Adam Mickiewicz University, Umultowska 89, 61-614 Poznań, Poland (e-mail: alesicki@sun.amu.edu.pl)

<sup>2</sup>Museum of Natural History, Wrocław University, Sienkiewicza 21, 50-335 Wrocław, Poland (e-mail: mprockow@biol.uni.wroc.pl)

<sup>3</sup>Department of Animal Taxonomy and Ecology, Institute of Environmental Biology, Faculty of Biology, Adam Mickiewicz University, Umultowska 89, 61-614 Poznań, Poland (e-mail: magowski@amu.edu.pl)

**ABSTRACT:** The paper discusses arguments for the preservation of the original spelling of the species-level name for *Trochulus lubomirski* (Ślósarski, 1881) versus arguments for the preservation of the amended spelling *lubomirskii*. The authors argue that the obvious “prevailing usage” of the spelling *lubomirskii* should be taken as the decisive argument to preserve this form of spelling under Art. 33.3.1 of the International Code of Zoological Nomenclature.

**KEY WORDS:** *Trochulus lubomirskii*, correct spelling, zoological nomenclature

### INTRODUCTION

PALL-GERGELY et al. (2013) encountered a nomenclatural problem with the correct spelling of the species-level name of the land snail *Trochulus lubomirskii* (Ślósarski, 1881). They argued for the spelling “*lubomirski*” because such spelling was used by ŚLÓRSKI (1881) in his original description of the species. They analysed the International Code of Zoological Nomenclature (ICZN 1999) considering that Arts. 31.1, 32.2, 32.3, 33.3, 33.4 and 33.5 as well as Recom-

mendation 31A were relevant to the case, and moreover supported their point of view that the correct spelling is “*lubomirski*”. On the other hand they have rejected Art. 33.2.3.1 that permits preservation of the spelling “*lubomirskii*” when this form of spelling is considered to be in “prevailing usage”. After the analysis of the same Articles of the Code (ICZN 1999) we have come to the opposite conclusion, namely, that the spelling “*lubomirskii*” should be preserved instead.

### OUTLINE OF THE NOMENCLATORIAL PROBLEM

The species was originally described (and spelled) by ŚLÓRSKI (1881) as *Helix (Fruticicola) Lubomirski*. The specific name was corrected by spelling with lower case at the beginning of the 20th century (POLIŃSKI 1914, 1917, 1919, WAGNER 1915) which is nowadays in accordance with Art. 28 of the International Code of Zoological Nomenclature (ICZN

1999). The current generic placement of the species is questionable as it is placed in either the genus *Trochulus* Chemnitz, 1786 (being itself a replacement name for *Trichia* Hartmann, 1840) (PROĆKÓW 2009, WELTER-SCHULTES 2012) or *Plicuteria* Shileyko, 1978 (SHILEYKO 2006, PALL-GERGELY et al. 2013).

The arguments that the original spelling “*lubomirski*” is correct and should be preserved can be found in the following Articles of the Code:

- 31.1. Species-group names formed from personal names: “31.1.2. A species-group name, if a noun in the genitive case (see Article 11.9.1.3) formed directly from a modern personal name, is to be formed by adding to the stem of that name *-i* if the personal name is that of a man [...].”
- 32.2. Correct original spelling: “The original spelling of a name is the “correct original spelling”, unless it is demonstrably incorrect as provided in Article 32.5.”
- 32.3. Preservation of correct original spelling: “The correct original spelling of a name is to be preserved unaltered, except where it is mandatory to change the suffix or the gender ending under Article 34 [...].”
- 32.5.1. Spellings that must be corrected (incorrect original spellings): “[...] Incorrect [...] latinization [...] are not to be considered inadvertent errors”.
- 33.4. Use of *-i* for *-ii* and vice versa, and other alternative spellings, in subsequent spellings of species-group names: “The use of the genitive ending *-i* in a subsequent spelling of a species-group name that is a genitive based upon a personal name in which the correct original spelling ends

with *-ii*, or vice versa, is deemed to be an incorrect subsequent spelling, even if the change in spelling is deliberate [...].”

- 33.5. Cases of doubt: “In any case of doubt whether a different subsequent spelling is an emendation or an incorrect subsequent spelling, it is to be treated as an incorrect subsequent spelling (and therefore unavailable), and not as an emendation.”

However, we consider that there are some arguments rendering the alternative spelling “*lubomirskii*” correct. They can be found in the Articles:

- 31A (Recommendation). Avoidance of personal names as nouns in apposition: “An author who establishes a new species-group name based on a personal name should preferably form the name in the genitive case and not as a noun in apposition, in order to avoid the appearance that the species-group name is a citation of the authorship of the generic name.”
- 33.3. Incorrect subsequent spellings: “[...] but 33.3.1. when an incorrect subsequent spelling is in prevailing usage and is attributed to the publication of the original spelling, the subsequent spelling and attribution are to be preserved and the spelling is deemed to be a correct original spelling.”

## EXPLANATORY COMMENTS AND CONCLUSIONS

In our opinion it would be important to consider the intention of the name’s author. ANTONI ŚLÓ-SARSKI (1881) honoured his fellow malacologist Prince WŁADYSŁAW LUBOMIRSKI creating the name “*Helix Lubomirski*”. The original paper was written in Polish, with diagnosis in Latin. It is not possible to infer today whether ŚLÓ-SARSKI (1881) had used the name as a noun in apposition or as in a genitive case. Generally, the use of a noun in apposition is rare in the Polish language; it would seem forced, and potentially even offensive if such a noble name were translated directly from Latin into Polish. The natural form would be the genitive (*Lubomirskiego*).

The specific name was repeated several times in the original publication; therefore it certainly did not represent an erroneous spelling, e.g. lapsus calami or printer’s error. Unfortunately, it is not also used in Polish in the text, which would indicate the intention of the author to use it as a noun in apposition or genitive. ANTONI ŚLÓ-SARSKI wrote in total seven scientific papers on molluscs of the Polish Kingdom (POKRYSZKO & RIEDEL 1999, RIEDEL & POKRYSZKO 1999), five of the them (listed in: RIEDEL 1988) were published before 1881. The only one published later (ŚLÓ-SARSKI 1883) did not mention *Helix Lubomirski*.

Therefore we cannot confirm that ANTONI ŚLÓ-SARSKI used the name in any of his texts again.

KIMAKOWICZ (1890) was the first author to use the specific name spelled with *-ii* several times as *Fruticicola (Trichia) Lubomirskii*, citing the original spelling *Helix Lubomirski* of ŚLÓ-SARSKI (1881) as a synonym. Therefore, it is evident that he amended the name intentionally. Anyway, the author of emendation (and followers) could have acted with two considerations in mind:

- 1) the specific name should not be the noun in apposition, but genitive instead;
- 2) the specific name, if coined from the person’s last name, should take the Latin genitive suffix *-i*. Thus, the family name proper “Lubomirski” should be expressed as a specific name in Latinized genitive “*lubomirskii*”.

It is worth noting that several other species dedicated to W. LUBOMIRSKI about the same time, namely *Pipreola lubomirskii* Taczanowski, 1879 (Aves, Passeriformes), *Breda lubomirskii* (Taczanowski, 1878) (Arachnida), *Hyalella lubomirskii* (Wrzeźniowski, 1879) (Crustacea) or *Mycetophila lubomirskii* Dziedzicki, 1884 (Diptera) were named in that way from the outset. This indicates that even in the times of ŚLÓ-SARSKI’S



original description other Polish authors were using the genitive. The name of the snail could have been seen as wrong very early.

Polish malacologists of the first half of the 20th century used the Latin name with the amended spelling “*lubomirskii*” in papers written only in Polish (see: POLIŃSKI 1914, 1917, 1919, MŁODZIANOWSKA-DYRDOWSKA 1928, KAZNOWSKI 1938, 1939) or in other languages (WAGNER 1915, POLIŃSKI 1924, DYRDOWSKA 1926), probably following KIMAKOWICZ (1890). They also colloquially called it “ślimak Lubomirskiego (Lubomirski’s snail)” in Polish; this is the natural form in Polish. Both the Polish name “ślimak Lubomirskiego” and the Latin name with spelling “*lubomirskii*” were used in the major Polish malacological catalogues and keys (URBAŃSKI 1957, WIKTOR 2004). There are other important Polish publications in which spelling “*lubomirskii*” was used (RIEDEL 1988, PIECHOCKI & RIEDEL 1997, RIEDEL & POKRYSZKO 1999, SULIKOWSKA-DROZD 2008). Moreover, RIEDEL (1988) in his catalogue of the Polish gastropod fauna stressed that ŚLÓRSKI (1881) had used the wrong spelling citing among synonyms of *Trichia (Plicuteria) lubomirskii* (Ślósarski, 1881) its original name as “*Helix (Fruticicola) Lubomirski* [sic!] Ślósarski, 1881”.

Since the time when modern nomenclatural rules have been applied, the later form of the species name spelling (*lubomirskii*) has been universally accepted as if correct (even if it was not). It has prevailed in the vast majority of scientific literature to date. We suspect that, except for the original publication of ŚLÓRSKI (1881), the name spelled *lubomirski* was not used intentionally before 2012 (WELTER-SCHULTES 2012). PALL-GERGELY et al. (2013) mentioned other papers in which the spelling “*lubomirski*” was used. We can even extend this list (LOŹEK 1971, KORALEWSKA-BATURA 1992, BÁBA 2005, DOMOKOS 2007, BARGA-WIĘCŁAWSKA 2011a, b)<sup>1</sup>. However, we suggest that whenever the name “*lubomirski*” appears (apart from WELTER-SCHULTES 2012 and PALL-GERGELY et al. 2013), this spelling was used unintentionally. RIEDEL (1988) stressed that JAECKEL (1939) used the incorrect spelling. SHILEYKO (1978a) used the spelling “*lubomirski*” only once in his paper introducing genus-level name *Plicuteria* with *Plicuteria lubomirski* as the only species of the genus (see: SHILEYKO 1978a: 30). In every other place in his paper “*lubomirskii*” is used (pp. 2, 31, 45, 49, 51, 54), therefore it may be inferred that it was a printer’s error or lapsus calami on page 30. This is confirmed by the fact that the author used “*lubomirskii*” consistently in his other publications (SHILEYKO 1978b, 2006, SYSOEV & SHILEYKO 2009). LOŹEK used both spellings in his different papers (1956 vs. 1971). Although GROSSU (1983) used

“*lubomirski*”, he stated that he had followed the data of KIMAKOWICZ (1890) and POLIŃSKI (1914) but both latter authors used the spelling “*lubomirskii*”. Both spellings are used in the same paper of BARGA-WIĘCŁAWSKA (2011a) and DOMOKOS (2007), although *lubomirskii* is the only spelling in the later paper of DOMOKOS & PELBÁRT (2011) It appears that several authors have been careless over spelling. WELTER-SCHULTES (2012: 563) stated that “original spelling was not *lubomirskii*, the correct spelling *lubomirski* was used in some recent Polish sources”. We have listed above several recent fundamental Polish malacological publications with the spelling “*lubomirskii*”. We have also found usage of the spelling “*lubomirski*”, but only in very few local Polish papers with doubtful quality of peer-reviewing. On the other hand, even in the book by WELTER-SCHULTES (2012) himself, the spelling “*lubomirskii*” can be found (see: p. Q64 of the Appendix “The most frequent species in Europe”) which illustrates how easily errors may appear.

Apart from a long list of publications in which the spelling “*lubomirskii*” was used we can list numerous Internet resources using this spelling, e.g.

- Biodiversity Heritage Library BHL: [http://www.biodiversitylibrary.org/name/Trochulus\\_\(Plicuteria\)\\_lubomirskii](http://www.biodiversitylibrary.org/name/Trochulus_(Plicuteria)_lubomirskii);
- BioLibCZ: <http://www.biolib.cz/cz/taxon/id2924/>;
- CBIS: <http://www.carpat.es.org/cbisec/zoo.php?id=10208>;
- Comparative Toxicogenomics Database (CTD): <http://ctdbase.org/detail.go?type=taxon&acc=934985>;
- Encyclopedia of Life: <http://eol.org/pages/21379524/overview>;
- Fauna Europaea: <http://www.faunaeur.org/index.php>;
- Fauna Europaea: [http://www.faunaeur.org/full\\_results.php?id=428055](http://www.faunaeur.org/full_results.php?id=428055);
- Protein Knowledgebase (UniProtKB): <http://www.uniprot.org/taxonomy/934985>;
- Ruthenica (Russian Malacological Journal): [http://www.ruthenica.com/documents/Continental\\_Russian\\_molluscs\\_ver2-3-1.pdf](http://www.ruthenica.com/documents/Continental_Russian_molluscs_ver2-3-1.pdf);
- Wikipedia: [http://en.wikipedia.org/wiki/Trochulus\\_lubomirskii](http://en.wikipedia.org/wiki/Trochulus_lubomirskii).

To our knowledge, the only Web page with the spelling “*lubomirski*” is:

- AnimalBase: <http://www.animalbase.uni-goettingen.de/zooweb/servlet/AnimalBase/home/speciestaxon?id=14933>, authored by WELTER-SCHULTES.

<sup>1</sup> We can also add some papers with spelling “*lubomirskii*” to those listed by PALL-GERGELY et al. (2013) – HESSE (1921), BOETTGER (1926), KLEMM (1954, 1974), HUDEC (1964), REISCHÜTZ (1982), WITKOWSKI et al. (2003), KANTOR & SYSOEV (2005), JUNGBLUTH & KNORRE (2009), CAMERON et al. (2010), HORSÁK et al. (2010), CUTTELOD et al. (2011).

Based on the above premise and the fact that spelling of the species name has fundamental significance in browsing through electronic resources, we are of the opinion that the amended name, even if discordant with the above mentioned articles of the International Code of Zoological Nomenclature should be preserved, invoking the opportunity created by the Exception 33.3.1. We suggest that the spelling “*lubomirski*” has not been used intentionally in any major publication for over 130 years since its introduc-

tion in 1881 by Ślósarski. In our opinion it is clear that the spelling “*lubomirski*” is in “prevailing usage” and that this term has an obvious, self-explanatory meaning as inferred from both the letter and the spirit of the Code (ICZN 1999). Based on this interpretation, the species-group name “*lubomirskii*” should be preferred as available over the original spelling “*lubomirski*”.

## REFERENCES

- BÁBA K. 2005. Patakmenti égerligetek vizsgálata Szlovákiában. *Malakológiai Tájékoztató* 23: 151–153.
- BARGA-WIĘCŁAWSKA J. A. 2011a. Malakocenozy w strefach nieciągłości tektonicznych na terenie Kielc w rejonach Karczówka, Brusznia, Niewachłów, Gruchawka. *Kieleckie Towarzystwo Naukowe*, pp. 1–71.
- BARGA-WIĘCŁAWSKA J. A. 2011b. Ślimaki lądowe Świętokrzyskiego Parku Narodowego – zagrożenia i warunki ochrony. In: ANDRZEJSKA A., LUBAŃSKI A. (eds). *Trwałość i efektywność ochrony przyrody w polskich parkach narodowych*. Kampinoski Park Narodowy, Izabelin 2009, pp. 397–408.
- BOETTGER C. R. 1926. Untersuchungen über die Entstehung eines Faunenbildes. Zur Zoogeographie der Weichtiere Schlesiens. *Zeitschr. Morph. Ökol. Tiere* 6: 333–414.
- CAMERON R. A. D., POKRYSZKO B. M., HORSÁK M. 2010. Land snail faunas in Polish forests: patterns of richness and composition in a post-glacial landscape. *Malacologia* 53: 77–134. doi: 10.4002/040.053.0105
- CUTTELOD A., SEDDON M., NEUBERT E. 2011. European Red List of Non-marine Molluscs. Publications Office of the European Union, Luxembourg.
- DOMOKOS T. 2007. A puhatestűek védelmi helyzetének változása hazánkban, különös tekintettel az elmúlt közel negyedévszázadra (1702–) 1979–2005 (Vázlatos kronológia). *Malakológiai Tájékoztató (Malacological Newsletter)* 25: 33–56.
- DOMOKOS T., PELBÁRT J. 2011. A magyarországi recens puhatestűek (Mollusca) magyar köznyelvi elnevezései (2011). *Malakológiai Tájékoztató (Malacological Newsletter)* 29: 25–39.
- DYRDOWSKA M. 1926. Les mollusques terrestres testacés de Posnanie et les particularités de leur distribution géographique. *Bull. Soc. Amis Sci. Poznań B* 2: 60–72.
- HESSE P. 1921. Beiträge zur näheren Kenntnis der Subfamilie Fruticicolinae. *Arch. Moll.* 53: 55–83.
- HORSÁK M., JUŘIČKOVÁ L., BERAN L., ČEJKA T., DVOŘÁK L. 2010. Komentovaný seznam měkkýšů zjištěných ve volné přírodě České a Slovenské republiky. Annotated list of mollusc species recorded outdoors in the Czech and Slovak Republics. *Malacol. Bohemoslov. Suppl.* 1: 1–37.
- HUDEC V. 1964. Über die Verbreitung der Schnecke *Trichia striolata* (C. Pfeiff.) in der Südwestslowakei. *Zool. listy* 13: 265–268.
- ICZN (INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE) 1999. International Code of Zoological Nomenclature, 4th Edition. The International Trust for Zoological Nomenclature, London.
- JAECKEL S. SEN. 1939. Zur Kenntnis der schlesischen Mollusken. *Arch. Moll.* 71: 154–156.
- JUNGBLUTH J. H., KNORRE D. VON 2009. Rote Liste der Binnenmollusken [Schnecken (Gastropoda) und Muscheln (Bivalvia)] in Deutschland. 6. revidierte und erweiterte Fassung 2008. *Mitt. dtsh. malakozool. Ges.* 81: 1–28.
- KANTOR YU. I., SYSOEV A. V. 2005. Catalogue of molluscs of Russia and adjacent countries. A. N. Severtzov Institute of Ecology and Evolution, Russian Academy of Sciences, Moscow.
- KAZNOWSKI K. 1938. Materiały do fauny malakologicznej Gór Świętokrzyskich. In: *Sprawozdania współpracowników Sekcji zoologicznej Oddziału Krakowskiego. Spraw. Kom. Fizyogr. Kraków* 71: 32–33.
- KAZNOWSKI K. 1939. Materiał mięczaków z mało pod tym względem zbadanego terenu Gór Świętokrzyskich. In: *Sprawozdania współpracowników Sekcji zoologicznej Oddziału Krakowskiego. Spraw. Kom. Fizyogr. Kraków* 72: 29.
- KIMAKOWICZ M. VON 1890. Beitrag zur Molluskenfauna Siebenbürgens. II. Nachtrag. *Verh. Mitt. Siebenb. Ver. Naturwiss. Hermannstadt.* 40: 1–113.
- KLEMM W. 1954. Klassen Gastropoda und Bivalva. In: FRANZ H. (ed.). *Die Nordost-Alpen im Spiegel ihrer Landtierwelt. Eine Gebietsmonographie. Der 1. Band.* Wagner, Innsbruck, pp. 210–280.
- KLEMM W. 1974. Die Verbreitung der rezenten Land-Gehäuse-Schnecken in Österreich. *Denkschrift. Österreich. Akad. Wissenschaft.* 117: 1–503.
- KORALEWSKA-BATURA E. 1992. Mięczaki (Mollusca) Wielkopolski. *Seria Zoologia* 18, Wydawnictwo Naukowe UAM, Poznań.
- LOŽEK V. 1956. Klíč československých měkkýšů. SAV, Bratislava.
- LOŽEK V. 1971. Karpatský hlemýžď *Trichia lubomirski* (Slosarski) na Lužnici. *Sborník Jihočeského Muzea v Českých Budějovicích, Přírodní vědy* 11: 63–66.
- MŁODZIANOWSKA-DYRDOWSKA M. 1928. Ślimaki lądowe skrupowe w Poznańskim i właściwości ich rozmieszczenia. *Pr. Kom. Mat.-Przyr. PTPN, B, Poznań* 4: 1–96.



- PÁLL-GERGELY B., FARKAS R., DELI T., WELTER-SCHULTES F. 2013. *Plicuteria lubomirski* (Ślósarski, 1881), a forgotten element of the Romanian mollusc fauna, with notes on the correct spelling of its name (Gastropoda: Pulmonata: Hygromiidae). *Folia Malacol.* 21: 91–97. doi: 10.12657/folmal.021.010
- PIECHOCKI A., RIEDEL A. 1997. Mollusca. In: RAZOWSKI J. (ed.). Checklist of animals of Poland. PAS, Cracow, pp. 104–121.
- POKRYSZKO B. M., RIEDEL A. 1999. Polish malacology – past, present and future. *Folia Malacol.* 7: 275–291.
- POLIŃSKI W. 1914. Ślimaki Ojcowa. Spraw. Kom. Fizyogr. Kraków 48: 16–50.
- POLIŃSKI W. 1917. Materyały do fauny malakozoologicznej Królestwa Polskiego, Litwy i Polesia. *Prace Wydz. III Tow. Nauk. Warsz.* 27: 1–130.
- POLIŃSKI W. 1919. Rozsiedlenie geograficzne Helicidów w Polsce (szkic zoogeograficzny z mapką). *Przegl. Geogr. Warszawa* 1: 269–280.
- POLIŃSKI W. 1924. Anatomisch-systematische und zoogeographische Studien über die Heliciden Polens. *Bull. Acad. Pol. Sci. Lett., Cl. Sci. Math. Nat., B, Cracovie* 1924: 131–279.
- PROĆKÓW M. 2009. The genus *Trochulus* CHEMNITZ, 1786 (Gastropoda: Pulmonata: Hygromiidae) – a taxonomic revision. *Folia Malacol.* 17: 101–176. doi: 10.2478/v10125-009-0013-0
- REISCHÜTZ P. L. 1982. Zur Verbreitung von *Helicodiscus singleyanus inermis* H. B. Baker und *Plicuteria lubomirskii* (Ślósarski) in Niederösterreich. *Mitt. Zool. Ges. Braunau* 4: 131–132.
- RIEDEL A. 1988. Ślimaki lądowe Gastropoda terrestria. Katalog Fauny Polski 36. PWN, Warszawa.
- RIEDEL A., POKRYSZKO B. M. 1999. Malakologia polska. Historia, stan obecny, perspektywy. Stowarzyszenie Malakologów Polskich, Bogucki Wydawnictwo Naukowe, Poznań.
- SHILEYKO A. A. 1978a. On the systematics of *Trichia* s. lat. (Pulmonata: Helicoidea: Hygromiidae). *Malacologia* 17: 1–56.
- SHILEYKO A. A. 1978b. Nazemnye mollyuski nadsemeystva Helicoidea. *Fauna SSSR, N.S.*, 117, Mollyuski III, 6. Nauka, Leningrad.
- SHILEYKO A. A. 2006. Treatise on recent terrestrial pulmonate Molluscs. Part 14. *Ruthenica, Supplement* 2: 1907–2047.
- SULIKOWSKA-DROZD A. 2008. Hygromiidae. In: BOGDANOWICZ W., CHUDZICKA E., PILIPIUK I., SKIBIŃSKA E. (eds). *Fauna Polski. Charakterystyka i wykaz gatunków. Vol. III. Muzeum i Instytut Zoologii PAN, Warszawa*, pp. 401–402, 423.
- SYSOEV A., SHILEYKO A. 2009. Land snails of Russia and adjacent countries. Pensoft, Sofia–Moscow.
- ŚLÓSARSKI A. 1881. Materyały do Fauny malakologicznej Królestwa Polskiego [I–III]. *Pam. Fizyogr. Warszawa* 1: 292–320.
- ŚLÓSARSKI A. 1883. Materyały do fauny malakologicznej Królestwa Polskiego. [IV]. *Pam. Fizyogr. Warszawa* 3: 431–445.
- URBAŃSKI J. 1957. Krajowe ślimaki i małże. Klucz do oznaczania wszystkich gatunków dotąd w Polsce wykrytych. PZWS, Warszawa.
- WAGNER A. J. 1915. Beiträge zur Anatomie und Systematik der Stylomatophoren aus dem Gebiete der Monarchie und der angrenzenden Balkanländer. *Denkschr. Math.-Nat. Kl. Akad. Wiss. Wien* 91: 429–498.
- WELTER-SCHULTES F. W. 2012. European non-marine molluscs, a guide for species identification. Planet Poster Editions, Göttingen.
- WIKTOR A. 2004. Ślimaki lądowe Polski. Mantis, Olsztyn.
- WITKOWSKI Z. J., KRÓL W., SOLARZ W. (eds) 2003. *Carpathian List Of Endangered Species. WWF and Institute of Nature Conservation, Polish Academy of Sciences, Vienna–Cracow*.

Received: March 1st, 2013

Accepted: April 18th, 2013

