

An area-analytical zoogeographical classification of the gastropod family Neritidae.

By KAROLY BABA, Szeged.

Abstract

The area-analytical classification of freshwater snails hasn't yet been achieved with the help of the fundamental publication of DE LATTIN (1967). The author presents an area-analytical classification of fourteen species of the family Neritidae.

Keywords: Neritidae, area-analytical classification, West-Palearctic elements, West-Asian elements.

Introduction

The area-analytical classification of freshwater snails is missing as opposed to many groups of invertebrate living creatures (like Odonata by DEVAI 1876 or Trichoptera by MALICZKY 1983). The author tries to repair this defect with the classification of the species of the Neritidae.

Material and Method

The author shows the range of the species on generalized maps, which were made by the data from literature. The refugial areas of the fauna elements are based on DEVAI's publication (1976) (figure 1).

Fauna groups

Holo-Mediterranean, Ponto-Caspian and West-Asian elements are found within the species of the family .

Theodoxus subthermalis ISSEL 1868 belongs to the Pre-Asian and the Iranian refugial areas, based on the occurrence of this species in Iran, in the rivers of the Caucasus region and Azerbaijan (figure 2).

Theodoxus pallasi (LINDHOLM 1924) is a member of the Ponto-Caspian fauna. The Caspian Sea, the Sea of Azov and the Black Sea at Alal and the Sulina (delta of Danube) are the general range of this species (SHADIN 1952) (figure 2).

Theodoxus schultzei (GRIMM 1877) (SHADIN 1952) is another species of this area – of the Caspian Sea region (figure 2).

The species of many refugial areas belong to the Holo-Mediterranean elements (figure 1a-c).

Theodoxus fluviatilis (LINNE 1758) is accepted as one oft hese (FORCART 1965, ILLIES 1978, JAECKEL & al. 1975, HOLYOAK 1983, LINDHOLM 1901, RUDZITE & al 1997, SCHLESCH & al. 1938, SOÓS 1943) (figure 2).

Theodoxus bourguignati RECLUZ 1852 is an Atlanto-Mediterranean element (GERMAIN 1931) (figure 2).

Theodoxus danubialis (C. PFEIFFER 1828), *Theodoxus transversalis* (C. PFEIFFER 1828) (figure 2) and *Theodoxus prevostianus* (C. PFEIFFER 1828) are species of Ponto-Mediterranean, Ponto-Pannonian and subrefugial areas. They have been pressed back by cultural effects (JAECKEL 1975, REISCHÜTZ & SEIDL 1982, SOÓS 1943) (figure 3).

Other Ponto-Mediterranean elements are *Theodoxus pilidei pilidei* (TOURNOUER 1879) and *Theodoxus varius* (MENKE 1828) without Ponto-Pannonian subareas (figure 3).

Theodoxus meridionalis (PHILIPPI 1836) with its occurrence in Sicily is a species of the South-Italian refugial area (COSSIGNIANI & al. 1995) (figure 3).

Theodoxus heldreichi (MARTENS 1878), *Theodoxus altenai* SCHÜTT 1965, *Theodoxus anatolicus* (RECLUZ 1841) (BILGIN 1980) are members of the Euxinian refugial area (figure 3).

Summary

The author gives an area-analytical classification of the family Neritidae based on DEVAI's publication (1976). The 14 species are attached to the arboreal zoo-biom and the West-Palearctic groups. The wide part of the species attached to Holo-Mediterranean area, numerically 11 species, 10 out of all attached to five refugial areas (figure 1), 2 species attached to the Ponto-Caspian refugial area and 1 species is an element of the West-Asian refugial area.

Thanks to SANDOR BAGDI für drawing of the maps.

Literature

- ADAM, W. (1960): Faune de Belgique, Mollusques, 1. Mollusques terrestres et dulcicoles.- 402 pp., 4 tab., Institut Royal des Sciences Naturelle de Belgique: Bruxelles.
- BILGIN, F. (1980): Bati Anadolu'nun bazi önemli tatli sularindan toplanan Mollusca türlerinin sistematigi ve dagilisi.- Diyarbakir Universitesi Tip Fakültesi Dergisi 8(2): 4-64, Diyarbakir.
- BLESS, R (1980): Bestandsentwicklungen der Mollusken-Fauna heimischer Binnengewässer und die Bedeutung für Naturschutz und Landschaftspflege.- Biol. Abh. 5:2-48, Biologie Verlag: Wiesbaden.
- BUTENKO, J. V. (1967): On the fauna of freshwater molluscs of South and South-East Kazakstan. In, J. A. STAROBOGATOV (ed.), Molljuski i jih rol v biocenozah i formirovanii faun.- Tr. zool. Inst. Akad. Nauk CCCR 42:205-212, Leningrad,.
- COSSIGNANI, T. & V. COSSIGNANI (1995): Atlante delle Conchiglie terrestri e dulciacquicole Italiane.- 208 pp., L'Informatore Piceno: Ancona.
- DE LATTIN, G. (1967): Grundriß der Zoogeographie.- 602 pp., G. Fischer Verl.: Jena.
- DEVAI, G. (1976): A magyarorszagi szitaköto (Odonata) fauna chorologiai vizsgalata (The chorological research of the dragonflies (Odonata) fauna of Hungary).- Acta biol. Debrec. 13, Suppl 1:119-157. Debrecen.
- DHORA, D. & F. W. WELTER- SCHULTES (1996): List of species and atlas of the non-marine molluscs of Albania.- Schr. Malakozool. 9:90-197, Cismar.
- FITTKAU, E. J. (1983): Lebensfunde von *Theodoxus transversalis* C. PFEIFFER in der Alz.- Mitt. zool. Ges. Braunan 4(7/9):185.
- FORCART, L. (1965): Rezente Land- und Süßwassermollusken der süditalienischen Landschaften Apulien, Basilicata und Calabrien.- Verh. naturf. Ges. Basel 76(1):59-184.
- FRANK, C., J. JUNGBLUTH & A. RICHNOVSZKY (1990): Die Mollusken der Donau vom Schwarzwald bis zum Schwarzen Meer.- 142 pp., Akaprint: Budapest.
- GIROD, A & E. PEZZOLI (1971): Nota sui molluschi dulcicoli dei sistemi idrici di Castelgoffredo (Mantova).- Natura Soc. It. Sc. Nat. Mus. Civ. St. Nat. Milano 62(3):359-368.
- GERMAIN, L. (1931): Fauna de France 22. Mollusques terrestres et fluviatiles.- p. 678-683, Lechevalier: Paris.
- GLÖER, P., C. MEIER-BROOK & O. OSTERMANN (1992): Süßwassermollusken.-111 pp., Deutscher Jugendbund für Naturbeobachtung: Hamburg.
- GROSSU, A. V. (1989): Gastropoda Romaniae 1. 11. Subclasa Prosobranchia si Opisthobranchia.- p. 117-444, Editura Litera: Bucuresti.
- HOLYOAK, D. T. (1983): Distribution of land and freshwater mollusca in Corsica.- J. Conch. 31:235-251, London.
- ILLIES, J. (1978): Limnofauna Europaea.- 532 pp., Gustav Fischer Verl: Stuttgart-New York-Arnsterdam.

- JAECKEL, S. G., W. KLEMM & W. MEISE (1975): Die Land- und Süßwassermollusken der nördlichen Balkanhalbinsel.- Abh. Ber. Mus. Tierkunde Dresden 23(2):141-205, Leipzig.
- KERNEY, M.P. (1976): European invertebrate survey. Atlas of the non-marine mollusca of the British Isles.- 199 pp., Institute of Terrestrial Ecology: Cambridge.
- KLEMM, W. (1960): Mollusca. Catalogus Faunae Austriae VII a.- 59 pp., Österr. Akad. Wiss., Springer Verlag: Wien.
- LINDHOLM, W.A. (1901): Beiträge zur Kenntniss der Weichtierfauna Südrusslands.- Nachr.bl. dtsh. malak. Ges. 33:161-186, Frankfurt/Main.
- LISICKY, M. J. (1991): Mollusca Slovenska.- 341 pp., Vydavatelstvo, Slovenskej Akad. Vied: Bratislava.
- LOZEK, V. (1956): Klic Československých mekkysu.- 437 pp., 42 tab., Slovenskej Akademia Vied: Bratislava.
- LUCIVJANSKA, V. & J. STEFFEK (1991): Malakozoológická zbierka MgPh. Tibora Weisza a jej význam pre Slovensku zoológiu.- J. Zbor. Slov. Nar. Muz. Prir. Ved. Bratislava 37:55-83.
- MALICKY, H. (1983): Chorological patterns and biome types of European Trichoptera and other freshwater insects.- Arch. Hydrobiol. 96(2):233-244, Stuttgart.
- NESEMAN, H. (1991): Zoogeography and composition of leech fauna of Danubian lowland rivers in the Kisalföld compared with some molluscs (Hirudinea, Gastropoda).- Miscea. zool. Hung. 6:35-51, Budapest.
- PIECHOCKI, A. (1979): Mieczaki (Mollusca). Slirniki (Gastropoda).- Fauna Slodkowodna Polski 7:1-187, Polska Akad. Nauk: Warszawa-Poznan.
- PINTER, L., A. RICHNOVSZKY & A. SZIGETHY (1979): A magyarországi recens puhatestűek elterjedése (Distribution of the recent mollusca of Hungary).- Soósiana Suppl. 1:1-351, Budapest.
- RÄHLE, W. (1980): Land- und Süßwassermollusken von Kephallinia und Zakynthos (Ionische Inseln).- Arch. Moll 110(4/6):199-224, Frankfurt/Main.
- REISCHÜTZ, P.L.(1981): Die rezenten Wasserschnecken Österreichs (Moll. Gastropoda).- Mitt. Abt. Zool. Landesmus. Joanneum 10(2):127-135, Graz.
- REISCHÜTZ, P.L. & F. SEIDL (1982): Gefährdungstufen der Mollusken Österreichs.- Mitt. zool. Ges. Braunau 4(4/6):117-128, Braunau/Inn..
- RICHNOWSZKY, A. & L. PLNTER (1979): A vizicsigák és kagylók (Mollusca) kishatározója.- Vizügyi Hidrobiológia 6: 1-206, Budapest.
- RUDZITE, M., D. PLLATE & E. PARELE (1997): Molluskenfauna Lettlands (Gastropoda, Bivalvia).- Mitt. dtsh. malak. Ges. 59:1-10, Frankfurt/Main
- SCHÜTT, H. (1963): Vier bemerkenswerte Höhlenschnecken.- Arch. Moll. 92(5/6):205-213, Frankfurt/Main.
- SCHLESCH, H. & C. KRAUSP (1938): Zur Kenntnis der Land- und Süßwassermollusken Litauens.- Arch.Moll. 70(2/3):73-125, Frankfurt/Main.
- SHADIN, V. I. (1952): Molljusi presnich i solonovatic wod CCCR- 372 pp., Akademija Nauk: Mockva-Leningrad.
- SOÓS, L. (1943): A Karpatt medence mollusca faunája.- Magyar Tudományos Akademia Bp. 1- 478.
- TURNER, H., J. G. J. KUIPER, N. THEW, R. BERNASCONI, J. RÜETSCHI, M. WÜTHRICH & M. GOSTELI (1998): Atlas der Mollusken der Schweiz und Liechtensteins.- Fauna Helvetica 2:1-494, Geostat: Neuchatel.
- VARGA, Z. (1971): A szetterjedesi centrumok és a szetterjedesi folyamat jelen tásége a földrajzi izoláció kialakulása és a mikroevolúció szempontjából.- Allattani közlemények 18(1/4):142-149.

- VARGA, Z. (1975): Geographische Isolation und Subspeciation bei den Hochgebirgslepidopteren der Balkanhalbinsel.- *Acta Entomol. Jugosl.* 11(1/2):5-40.
- ZEITLER, M. L. (1998): Die Wassermollusken im Einzugsgebiet der Prella (Nordostdeutschland).- *Malak. Abh. Mus. Tierk. Dresden* 19(13): 127-138.

Address of the author:

Karoly Bába, Vár u. 6, Szeged, Hungary.

Fig. 1: System of freshwater refugial areas (fauna circles) and faunal elements in the Arboreal of Palearctic region (DE LATTIN 1967, Z. VARGA 1971, 1975) from Gy. DÉVAI 1976



West-Palearctic Elements

- 1. South-mediterranean Elements
(Canarian, Mauretanian, Tyrrhenian, Cyprean, Cyprian Refugial areas)
- 1. Holomediterranean Elements
 - 1.a Atlantomediterranean
 - 1.b Adriatomediterranean Refugial areas
 - 1.c Pontomediterranean
 - 1.d South Italian
 - 1.e euxin
- 2. Ponto-Caspian Elements
Ponto-Caspian Refugial areas
- West-Asian Elements
 - a.) Pre-Asian Elements
- 3. Syrian Refugial areas
- 4. Iranian
 - b) Central-Asian Elements
- 5. Afghan Refugial areas
- 6. Turkestanian

East-Palearctic Elements

- 9. Mongolian Elements
Dzungarian Refugial areas
Mongolian-Altaic-Hangayn Refugial areas
Daurian Refugial areas
- Siberian Elements
 - a.) West Siberian Elements
7. West Siberian Refugial areas
 - b.) Central Siberian Elements
8. Angaran Refugial areas
 - c.) East Siberian Elements
10. Stanovoy-Bureyan
Okhostkian Refugial areas
Kamchatkan
 - d.) Manchurian Elements
11. Amurean
Sakhalin-Kurilian
Hokkaidon Refugial areas
Manchu-Ussurian

Pacific-Palearctic Elements

- 12. Japanese
- 13. Korean
- 14. Sino-Pacific Refugial areas
- 15. Sino-Tibethian
- 16. Yunnan

Note: The Korean Refugial area belongs to Manchurian elements by DE LATTIN 1967.

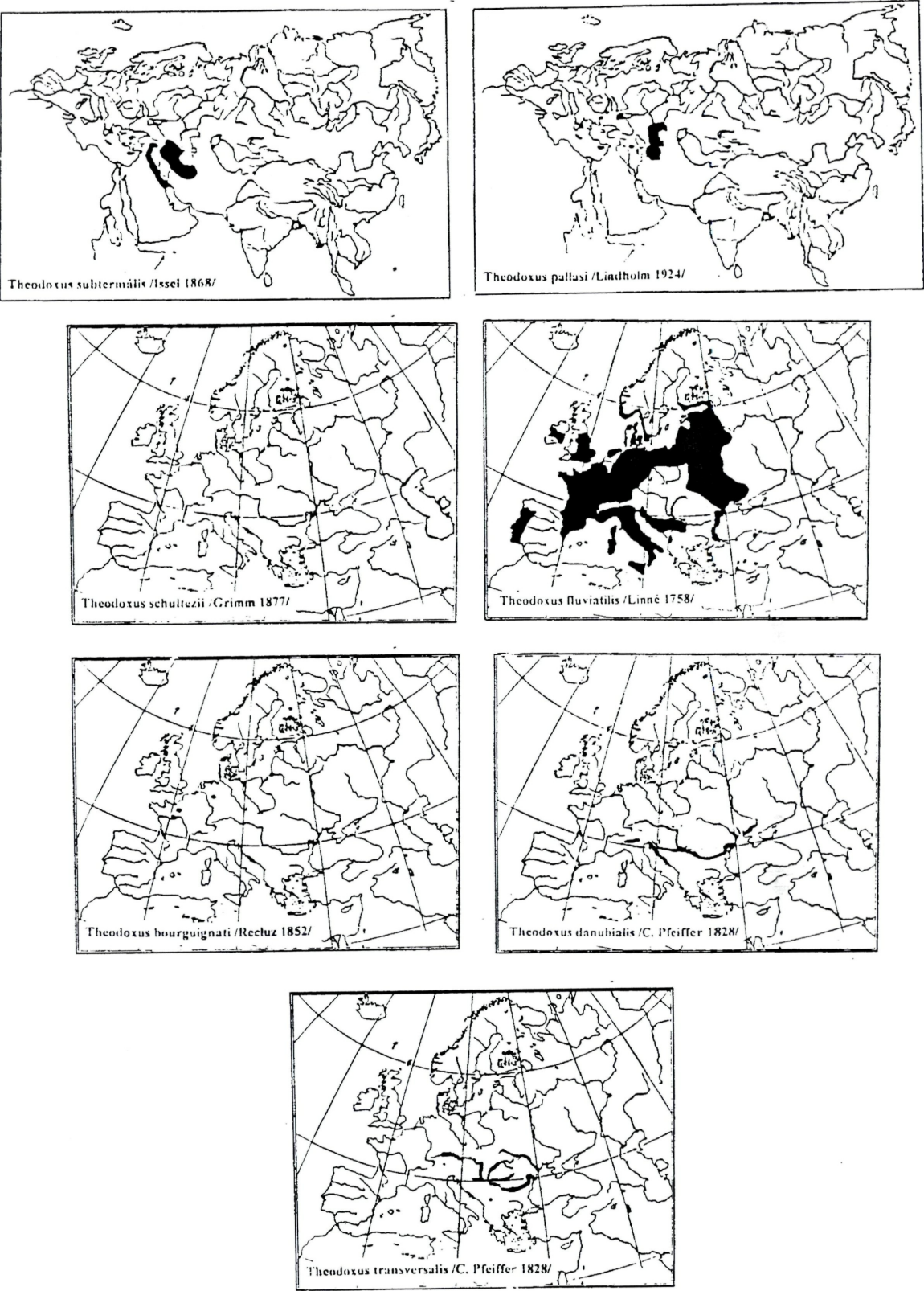


Fig. 2

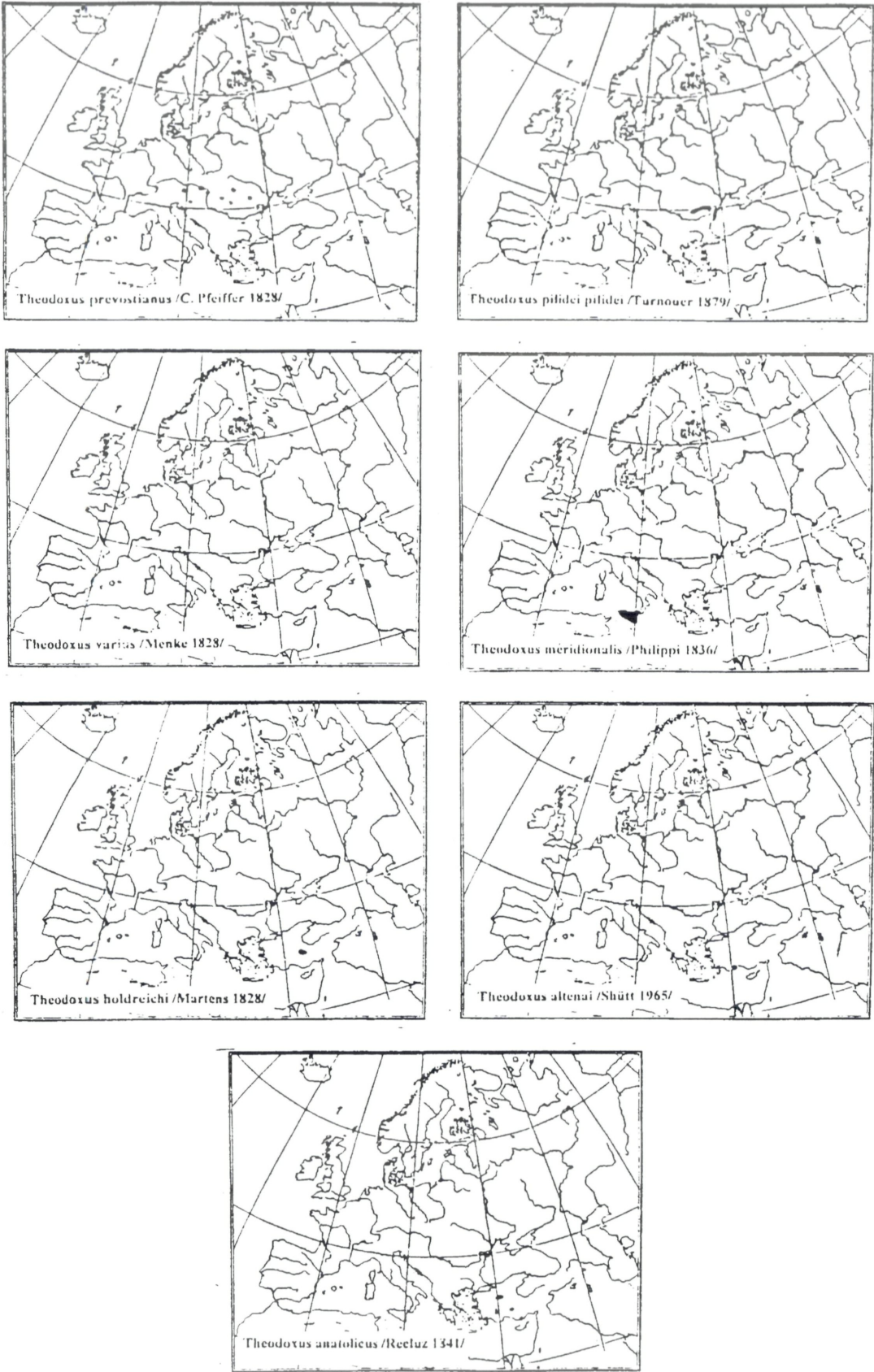


Fig. 3

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Nachrichtenblatt der Ersten Malakologischen Gesellschaft Vorarlbergs](#)

Jahr/Year: 2002

Band/Volume: [10](#)

Autor(en)/Author(s): Karoly Baba

Artikel/Article: [An area-analytical zoogeographical classification of the gastropod family Neritidae. 8-14](#)