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Recapitulation of data on Ukrainian fossil insectivore mammals (Eulipotyphla, Insectivora, Mammalia)

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Abstract. The paper recapitulates data on the fossil insectivore mammals of Ukraine. They include families: Erinaceidae, Talpidae, Dimylidae, Heterosoricidae and Soricidae. In Ukraine the oldest insectivore remains come from the locality of Gritsev and are dated to the early Late Miocene (MN9). The insectivore taxa cited from this country are presented in twelve Tables of three types. One of them lists taxa published with descriptions, measurements, localities and geological ages, the second mentions taxa without descriptions or measurements and the third without descriptions, measurements or exact localities. Short remarks on questionable forms are given.

Key words: Erinaceidae, Talpidae, Dimylidae, Heterosoricidae, Soricidae, Late Miocene-Holocene, Ukraine.

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I. INTRODUCTION

Many papers were published on fossil mammals of Ukraine but only a dozen or so contain description of insectivore mammals with measurements, systematic positions as well as localities in which they were found and their geological ages. Those are the papers of PIDOPLICHKO 1955, 1956, TATARINOV 1958, TOPACHEVSKY 1959, 1962a, 1965 and 1966, SVISTUN 1968, MEZHZHERIN and SVISTUN 1968, GUREEV 1971, 1979, MEZHZHERIN 1972, TOPACHEVSKY and PASHKOV 1983, 1990, PASHKOV and TOPACHEVSKY 1990, RZEBIK-KOWALSKA and TOPACHEVSKY 1997, AGADZHANYAN 2009, RZEBIK-KOWALSKA and NESIN 2010 and RZEBIK-KOWALSKA and REKOVETS in press. Other papers concerning Ukrainian localities, their stratigraphy and fauna cite only the lists of insectivore taxa. The lists are usually copied from other publications of the same type, however without any verification. On the other hand it is known that some of these taxa were wrongly identified or improbable in Ukrainian territory.

As it can be seen in the Tables (I, IV, VIII, X) so far 40 named species are cited but only 25 (ten moles and 15 shrews) of 15 genera (four moles and eleven shrews) are well documented. As in neighbouring and territorially smaller Poland the number of well documented fossil insectivore mammals (Erinaceidae, Talpidae, Dimylidae, Heterosoricidae and Soricidae) equals 77 (RZEBIK-KOWALSKA 2009) the Ukrainian list seems to be incomplete.

The present paper lists in Tables (I-XII) all fossil insectivore mammals described or cited at any time in this country. It also shows which of them are well documented and really present on this area. Short remarks on the questionable forms are also given.

Abbreviations: LM = Late Miocene, P = Pliocene, EP = Early Pliocene, LP = Late Pliocene, Pl = Pleistocene, EPl = Early Pleistocene, MPl = Middle Pleistocene, LPl = Late Pleistocene, H = Holocene and EH = Early Holocene.

Surnames and initials of three authors are spelled in tables and references following original publications in Russian or Ukrainian, respectively: CHEPALYGA (in Russian papers), CHEPELIGA (in Ukrainian); V. A. MEZHZHERIN (in Russian), V. O. MEZHZHERIN (in Ukrainian); V. A. TOPACHEVSKY (in Russian) and V. O. TOPACHEVSKY (in Ukrainian).

II. FOSSIL INSECTIVORE MAMMALS OF UKRAINE

Class: **Mammalia** LINNAEUS, 1758

Superorder: **Insectivora** sensu NOVACEK, 1986

Order: **Eulipotyphla** WADDELL, OKADA and HASEGAWA, 1999

II.1. Family **Erinaceidae** FISCHER, 1814

(Tables I-III)

Comments. In the Ukraine the fossil Erinaceidae are represented by two subfamilies – the spineless gymnures – Galericinae and spiny hedgehogs – Erinaceinae.

The presence of the fossil hedgehog *Lanthanotherium* FILHOL, 1888 is not confirmed by morphological studies. Because it is found in many European countries situated in the vicinity of Ukraine, e.g. in Hungary, Slovakia and Romania, its presence in Ukraine is also very probable. Its occurrence in Europe was documented since the Middle to the middle Late Miocene (MN3/MN4 to MN11) (RZEBIK-KOWALSKA 2009) and in Asia (China) from MN4 and MN11-MN12 (QIU and STORCH 2005).

The second fossil form, *Amphechinus* AYMARD, 1850 from Gritsev also lacks a morphological description. As the remains of this genus were collected in western and southern Europe in localities dated from the Late Oligocene to the Middle Miocene (MN9), its presence in Ukraine is possible. It is also known from North America, Africa and Asia (ZIEGLER 2005). The name of the tribe, Amphechini GUREEV, 1979, cited by TOPACHEVSKY et al. (1997) is used very rarely in the European literature.

The recent *Hemiechinus auritus* (GMELIN, 1770) currently lives in the steppe zone of eastern Ukraine and its remains among the Late Pleistocene and Holocene fossils of this country are expected.

Instead, the presence of *Erinaceus europaeus* LINNAEUS, 1758 cited by TOPACHEVSKY (1957a, 1961b) in the Middle and Late Pleistocene in Ukrainian territory is unlikely. This European hedgehog is distributed in western Europe and the eastern boundary of its range reaches only the Odra river. On the other hand in the Pleistocene several other species of the genus *Erinaceus* occurred in Europe. Moreover, the white-breasted hedgehog, *E. roumanicus* BARRET-HAMMILTON, 1900 currently inhabits eastern Europe and the Ponto-Mediterranean region (SOMMER 2007). The remains mentioned by TOPACHEVSKY (1957a, 1961b) probably belong to the latter species.

Erinaceidae gen. et sp. indet. from Popovo 3 and Verkhnya Krynitsa 2 are now described as *Schizogalerix* sp. Hedgehog remains were not found in the material from Popovo 2.

Table I

Fossil Erinaceidae of Ukraine (published with descriptions, measurements, localities and geological ages)

Family Subfamilies Genera Species	Localities	Age	Publications
Erinaceidae			
Galericinae			
Schizogalerix cf. *sarmaticum* (LUNGU, 1981)	Mikhailovka 1	LM (Late Vallesian, MN10)	RZEBIK-KOWALSKA and NESIN 2010
	Frunzovka 2	LM (Early Turolian, MN11)	
Schizogalerix sp.	Popovo 3	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and REKOVETS in press
	Verkhnya Krynitsa 2	LM (Early/Middle Turolian, MN11/MN12)	
Erinaceinae			
cf. *Postpalerinaceus* sp.	Mikhailovka 2	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and NESIN 2010
Erinaceus sp.	Nogaisk	EPl (Early Biharian, Q1)	V. A. TOPACHEVSKY 1965

Table II

Fossil Erinaceidae of Ukraine (mentioned without descriptions or measurements)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Erinaceidae			
Galericinae			
Lanthanotherium sp.	Gritsev	LM (Early Vallesian, MN9)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; RZEBIK-KOWALSKA and V. O. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001; NESIN 2013
Schizogalerix cf. *sarmaticum*	Mikhailovka 1	LM (Late Vallesian, MN10)	NESIN 2013
	Frunzovka 2	LM (Early Turolian, MN11)	
Schizogalerix sp.	Gritsev	LM (Early Vallesian, MN9)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; RZEBIK-KOWALSKA and V. O. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001
	Novoelizavetovka 3	LM (Middle Turolian, MN12)	NESIN 2013
	Cherevychnoe 3	LM (Middle Turolian, MN12)	NESIN 2013
Galericinae gen. et sp. indet	Gritsev	LM (Early Vallesian, MN9)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001
Erinaceinae			
?Amphechini	Gritsev	LM (Early Vallesian, MN9)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997
Amphechinus sp.	Gritsev	LM (Early Vallesian, MN9)	RZEBIK-KOWALSKA and V. O. TOPACHEVSKY 1997; NESIN 2013
	Cherevychnoe 3	LM (Middle Turolian, MN12)	NESIN 2013
cf. *Hemiechinus* sp.	Gorishnya Vygnanka	LP	TATARINOV 1965b
cf. *Postpalerinaceus* sp.	Mikhailovka 2	LM (Early Turolian, MN11)	NESIN 2013

Table II (continuation)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Erinaceus sp.	Kotlovina 1	EP (Late Ruscinian, MN15)	NESIN 2013
	Odessa (catacombs)	EP (Late Ruscinian, MN15)	
	Kotlovina 2	EPl (previously Late Villanyan, MN17)	
	Kotlovina 3	EPl (previously Late Villanyan, MN17)	
	Nogaisk	EPl (Early Biharian, Q1)	V. O. TOPACHEVSKY 1957b
	Bolshevik 2 (l. III)	EPl (Late Biharian, Q2)	REKOVETS, CHEPALYGA, NESIN and SVETLITSKAYA 1990; REKOVETS 1990
	Tarkhankut	EPl (Early Biharian, Q1)	REKOVETS and NADACHOWSKI 1995
	Nogaisk	EPl (Early Biharian, Q1)	
	Cherevychnoe 1	EPl (Early Biharian, Q1)	
	Bolshevik 2 (l. III)	EPl (Late Biharian, Q2)	
	Tikhonovka 1	EPl (Late Biharian, Q2)	
Erinaceidae gen. et sp. indet.	Novoelizavetovka 2	LM (Early Turolian, MN11)	NESIN 2013 REKOVETS and PASHKOV 2009
	Popovo 3	LM (Early Turolian, MN11)	
	Verkhnya Krynitsa 2	LM (Early/Middle Turolian, MN11/MN12)	
	Popovo 2	LP (Early Villanyan, end of MN16)	

Table III

Fossil Erinaceidae of Ukraine (mentioned without descriptions, measurements or exact localities)

Family Subfamily Genera Species	Localities	Age	Publications
Erinaceidae			
Erinaceinae			
Erinaceus europaeus LINNAEUS, 1758	alluvia (lower course of Dnieper)	LPl and H	V. O. TOPACHEVSKY 1957a
	alluvia (middle course of Dnieper, Cherkasy-Mishurin Rig and Kiev-Cherkasy)	MPl and LPl	V. O. TOPACHEVSKY 1961b
	Podolia and Prikarpatie (north to Carpathian Mts	H	TATARINOV 1970
Erinaceus europaeus rumanicus (should be *E. e. roumanicus*) now *E. roumanicus* BARRET-HAMMILTON, 1900	Podolia and Prikarpatie (north to Carpathian Mts)	H	TATARINOV 1970
Erinaceus sp.	Podolia and Prikarpatie (north to Carpathian Mts)	H	TATARINOV 1970
Hemiechinus auritus (GMELIN, 1770)	alluvia (lower course of Dnieper)	LPl and H	V. O. TOPACHEVSKY 1957a
cf. *Hemiechinus* sp.	Podolia and Prikarpatie (north to Carpathian Mts)	P	TATARINOV 1970

II.2. Family **Talpidae** FISCHER, 1814

(Tables IV-VI)

Comments. Identification of Desmaninae species is difficult especially in the case of isolated teeth.

Three genera of water-moles (Desmaninae) are listed for Ukraine, including *Mygalinia*, *Ruemkelia* and *Desmana*. The presence of the small forms *Mygalinia* and *Ruemkelia* is well documented. However, their identification [*Mygalinia* (=*Ruemkelia*)] by V.O. TOPACHEVSKY et al. (1997) and NESIN and NADACHOWSKI (2001) is incorrect because these two genera distinctly differ and both were found in Ukraine. Also an identification

Mygalinia (=*Dibolia*) sp. (NESIN 2013) is incorrect because a new name for *Dibolia* RÜMKE, 1985 is *Ruemkelia* RZEBIK-KOWALSKA and PAWŁOWSKI, 1994.

The genus *Ruemkelia* (a new name for *Dibolia* RÜMKE, 1985, an invalid homonym, see RZEBIK-KOWALSKA and PAWŁOWSKI 1994) is considered by some authors, e.g. HUTTERER (1995), as a synonym of the genus *Archaeodesmana* TOPACHEVSKY and PASHKOV, 1983. However, the *Archaeodesmana* has as its type species *Desmana pontica* SCHREUDER, 1940, and the genus *Dibolia* (=*Ruemkelia*) has as its type species *Dibolia dekkersi* RÜMKE, 1985. According to the first author of the present paper such an assumption (congenerity of *D. pontica* and *D. dekkersi*) should not be established without a study of original material. The new name *Ruemkelia* seems to be more correct because the replacement of the name *Dibolia* by *Ruemkelia* had a purely nomenclatorical character and does not depend on the "state of art" in systematic of the desmans.

So far, besides the recent *Desmana moschata*, ten named species of *Desmana* were described or identified from Ukrainian territory (see above). Five of them (*D. thermalis*, *D. kujalnikensis*, *D. meridionalis*, *D. moldavica* and *D. moschata*) were listed from the Late Pliocene. However, from the ecological point of view the presence of so many forms adapted to one (aquatic) environment seems improbable.

The species described by TOPACHEVSKY and PASHKOV (1990) and PASHKOV and TOPACHEVSKY (1990) were not compared with known forms from Europe (e.g. *D. moldavica* was compared only with *D. jalpugensis* and *D. kujalnikensis* only with *D. nehringi*). The sizes of the desmans described by them do not differ substantially. Their holotypes were described on the grounds of different teeth (e.g. *D. jalpugensis* based on a mandible with p4, *D. kuljakensis* based on an isolated upper P3) and particular teeth and their characters were described incidentally (e.g. in p4 of *D. jalpugensis* the described talonid is very well developed, in *D. moldavica* it is poorly developed but in *D. kujalnikensis* this structure is not mentioned) and therefore many Ukrainian remains of this genus are still unidentified.

The species *Desmana pontica* described by SCHREUDER (1940) from the Late Miocene Polgárdi in Hungary and cited by NESIN (2013) from Cherevychnoe 3 was transferred by RÜMKE (1985) to the genus *Dibolia* and now it represents *Ruemkelia* species (RZEBIK-KOWALSKA and PAWŁOWSKI, 1994) or *Archaeodesmana* (HUTTERER 1995).

The presence of the genus *Galemys* is problematical in Ukraine. One species, *Desmana kormosi*, cited by REKOVETS and PASHKOV (2009) from Popovo 2 and acknowledged by RÜMKE (1985) as belonging to the genus *Galemys* (*Galemys kormosi*) may suggest its presence in Ukraine. However, in the locality Popovo 2 there were no remains belonging to the genus *Galemys.* It is, however, probable that some specimens identified as *Desmana* sp. actually represent the genus *Galemys*. The genus is known from neighboring Poland (MN14/MN15-MN16, RZEBIK-KOWALSKA 2009) and Hungary (Early Pleistocene, JÁNOSSY 1986). A revision of the Ukrainian desmans is necessary.

The presence of the American (Late Miocene – Early Pliocene) genus *Domninoides* GREEN, 1956 in Europe was criticized by ZIEGLER (1999). Described by GIBERT (1975) from the Middle Miocene (MN6) of Spain, it was also noted from Gritsev by TOPACHEVSKY (in RZEBIK-KOWALSKA and TOPACHEVSKY 1997) and in the paper of NESIN and NADACHOWSKI (2001), the authors listed it as the dominant taxon. However, these remains were never studied in detail.

Table IV

Fossil Talpidae of Ukraine (published with descriptions, measurements, localities and geological ages)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Talpidae			
Desmaninae			
cf. *Mygalinia hungarica* (KORMOS, 1913)	Verkhnya Krynitsa 2	LM (Early/Middle Turolian, MN11/MN12)	RZEBIK-KOWALSKA and REKOVETS in press
Ruemkelia sp.	Mikhailovka 1	LM (Late Vallesian, MN10)	RZEBIK-KOWALSKA and NESIN 2010
	Mikhailovka 2	LM (Early Turolian, MN11)	
	Frunzovka 2	LM (Early Turolian, MN11)	
	Verkhnya Krynitsa 2	LM (Early/Middle Turolian, MN11/MN12)	RZEBIK-KOWALSKA and REKOVETS in press
Desmana aff. *nehringi* KORMOS, 1913	Novopetrovka	EP (Early Ruscinian, MN14)	V. O. TOPACHEVSKY 1962a
	Velikomikhailovka	EP (Early Ruscinian, MN14)	
Desmana cf. *nehringi*	Odessa, 16th Station of Bolshoy Fontan	LM (Late Turolian, MN13)	RZEBIK-KOWALSKA and NESIN 2010
Desmana thermalis KORMOS, 1930	Nogaisk	EPl (Early Biharian, Q1)	V. O. TOPACHEVSKY 1962a, 1965
	Kairy	EPl (Early Biharian, Q1)	V. O. TOPACHEVSKY 1962a
Desmana (*Pliodesmana*) *jalpugensis* PASHKOV and TOPACHEVSKY, 1990	Kotlovina (probably 2, 3)	EPl (previously Late Villanyan, MN17)	PASHKOV and V. A. TOPACHEVSKY 1990
Desmana (*Galemodesmana*) *kujalnikensis* PASHKOV and TOPACHEVSKY, 1990	Cherevychnoe 2	LP (Early Villanyan, end of MN16)	PASHKOV and V. A. TOPACHEVSKY 1990
	Kryzhanovka 2	LP (Early Villanyan, middle of MN16)	
Desmana meridionalis TOPACHEVSKY and PASHKOV, 1990	Zhevakhova Gora (ls. 11, 15)	LP (Early Villanyan, middle of MN16)	V. A. TOPACHEVSKY and PASHKOV 1990
	Tiligul (=Morskoe)	EPl (Early Biharian, Q1)	
Desmana nogaica TOPACHEVSKY and PASHKOV, 1990	Cherevychnoe 1	EPl (Early Biharian, Q1)	V. A. TOPACHEVSKY and PASHKOV 1990
	Nogaisk	EPl (Early Biharian, Q1)	
	Taman	EPl (Q1)	

Table IV (continuation)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Desmana gureevi TOPACHEVSKY and PASHKOV, 1990	Karaï Dubina	EPl (Early Biharian, Q1)	V. A. TOPACHEVSKY and PASHKOV 1990
	Luzanovka	EPl (Early Biharian, Q1)	
Desmana moschata ternopolitava PIDOPLICHKO, 1956	Sinyakovo	EPl	PIDOPLICHKO 1956 V. A. TOPACHEVSKY 1962a
	Gorishnya Vygnanka	LP	TATARINOV 1958
Desmana moschata palaeoborysthenica TOPACHEVSKY, 1959	Novogrod-Severskii	LPl (Late Weichselian)	V. O. TOPACHEVSKY 1959, 1962a
	Romankovo	MPl	SVISTUN 1968
Desmana sp.	Verkhnya Krynitsa 1	LP (Early Villanyan, beginning of MN16)	RZEBIK-KOWALSKA and REKOVETS in press
	Popovo 2	LP (Early Villanyan, end of MN16)	
	Popovo 1	P/Pl boundary (previously Early/Late Villanyan, MN16/MN17)	
cf. *Desmana* sp.	Verkhnya Krynitsa 2	LM (Early/Middle Turolian, MN11/MN12)	RZEBIK-KOWALSKA and REKOVETS in press
Desmaninae gen. et sp. indet. 1	Frunzovka 2	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and NESIN 2010
Desmaninae gen. et sp. indet. 2	Mikhailovka 1	LM (Late Vallesian, MN10)	
Uropsilinae			
Desmanella cf. *dubia* RÜMKE, 1976	Mikhailovka 1	LM (Late Vallesian, MN10)	RZEBIK-KOWALSKA and NESIN 2010
Desmanella sp.	Mikhailovka 2	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and NESIN 2010
Talpinae			
Urotrichini			
Urotrichus giganteus ZIEGLER, 2006	Mikhailovka 2	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and NESIN 2010
?*Scaptonyx* sp.	Mikhailovka 1	LM (Late Vallesian, MN10)	RZEBIK-KOWALSKA and NESIN 2010

Table IV (continuation)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Talpini			
Talpa gilothi STORCH, 1978	Mikhailovka 2	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and NESIN 2010
Talpa cf. *europaea* LINNAEUS, 1758	Srednyaya Cave (near Nizhnee Krivche)	Pl	TATARINOV 1965a
Talpidae incertae sedis			
Desmanodon major ENGESSER, 1980	Mikhailovka 2	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and NESIN 2010

Table V

Fossil Talpidae of Ukraine (mentioned without descriptions or measurements)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Talpidae			
Desmaninae			
Migalinia sp. (should be *Mygalinia* sp.)	Mikhailovka 2	LM (Early Turolian, MN11)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997
Mygalinia sp.	Mikhailovka 2	LM (Early Turolian, MN11)	NESIN and NADACHOWSKI 2001
Mygalinia (=*Ruemkelia*)	Mikhailovka 1	LM (Late Vallesian, MN10)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001
	Vinogradovka 1	LM (Late Turolian, MN13)	NESIN 2013
Ruemkelia (=*Mygalinia*)	Mikhailovka 1	LM (Late Vallesian, MN10)	NESIN 2013
Mygalinia (=*Dibolia*) sp.	Novoelizavetovka 2	LM (Early Turolian, MN11)	NESIN 2013
Ruemkelia sp.	Mikhailovka 2	LM (Early Turolian, MN11)	NESIN 2013
	Frunzovka 2	LM (Early Turolian, MN11)	

Table V (continuation)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Desmana cf. *kormosi* now *Galemys* cf. *kormosi* (SCHREUDER, 1940)	Popovo 2	LP (Early Villanyan, end of MN16)	REKOVETS and PASHKOV 2009
Desmana pontica now *Ruemkelia pontica* (SCHREUDER, 1940)	Cherevychnoe 3	LM (Middle Turolian, MN12)	NESIN 2013
Desmana (*Archaeodesmana*) sp.	Frunzovka 2	LM (Early Turolian, MN11)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001
	Mikhailovka 2	LM (Early Turolian, MN11)	
	Vinogradovka 1	LM (Late Turolian, MN13)	NESIN 2013
Desmana (*Archaeodesmana*) cf. *verestchagini* TOPACHEVSKI, 1961 (in 1961a)	Verkhnya Krynitsa 2	LM (Early/Middle Turolian, MN11/MN12)	REKOVETS and PASHKOV 2009
Desmana aff. *verestchagini*	Odessa, 16th Station of Bolshoy Fontan	LM (Late Turolian, MN13)	V. O. TOPACHEVSKY, CHEPALIGA, NESIN, REKOVETS and I.V. TOPACHEVSKY 1988
Desmana nehringi	Zhevakova Gora (ls. 11, 15)	LP (Early Villanyan, middle of MN16)	V. A. TOPACHEVSKY, SKORIK, CHEPALYGA 1979
Desmana cf. *nehringi*	Odessa, 16th Station of Bolshoy Fontan	LM (Late Turolian, MN13)	NESIN 2013
	Zhevakova Gora (l. 4, previously 15)	LP (Early Villanyan, middle of MN16)	
Myogale thermalis now *Desmana thermalis*	Kairy	EPl (Early Biharian, Q1)	V. O. TOPACHEVSKY 1956
Desmana thermalis	Kairy	EPl (Early Biharian, Q1)	V. O. TOPACHEVSKY 1957b
	Nogaisk	EPl (Early Biharian, Q1)	
	Zhevakova Gora (ls. 5)	EPl (Early Biharian, Q1)	V. A. TOPACHEVSKY, SKORIK, CHEPALYGA 1979
	Tiligul (=Morskoe)	EPl (Early Biharian, Q1)	REKOVETS and NADACHOWSKI 1995
	Zhevakhova Gora (l. 5)	EPl (Early Biharian, Q1)	

Table V (continuation)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Desmana (*Pliodesmana*) *moldavica* PASHKOV and TOPACHEVSKY, 1990	Verkhnya Krynitsa 1	LP (Early Villanyan, beginning of MN16)	REKOVETS and PASHKOV 2009
Desmana (*Pliodesmana*) cf. *jalpugensis*	Popovo 1	P/Pl boundary (previously Early/Late Villanyan, MN16/MN17)	REKOVETS and PASHKOV 2009
Desmana (*Pliodesmana*) sp.	Kotlovina 2	EPl (previously Late Villanyan, MN17)	NESIN 2013
	Kotlovina 3	EPl (previously Late Villanyan, MN17)	
Desmana (*Galemodesmana*) sp.	Krasnopol	EP (Early Ruscinian, MN14)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001; NESIN 2013
	Kotlovina 1	EP (Late Ruscinian, MN15)	NESIN 2013
	Kotlovina 2	EPl (previously Late Villanyan, MN17)	
	Kotlovina 3	EPl (previously Late Villanyan, MN17)	
Desmana meridionalis	Kryzhanovka 1	EPl (Early Biharian, Q1)	REKOVETS and NADACHOWSKI 1995
Desmana nogaica	Nogaisk	EPl (Early Biharian, Q1)	REKOVETS and NADACHOWSKI 1995
	Kairy	EPl (Early Biharian, Q1)	
	Cherevychnoe 1	EPl (Early Biharian, Q1)	
Desmana gureevi	Karai Dubina	EPl (Early Biharian, Q1)	REKOVETS and NADACHOWSKI 1995
	Luzanovka	EPl (Early Biharian, Q1)	
Myogale cf. *moschata* now *Desmana* cf. *moschata* (LINNAEUS, 1758)	Sinyakovo	EPl	PIDOPLICHKO 1955
Desmana moschata	Morozovka 2	MPl (Steinheimian, Q3)	V. A. TOPACHEVSKY, KORNIETS, SVISTUN 1975
	Borisova Gora	LPl	MARKOVA 1987
Desmana moschata ternopolitana	Sinyakovo	EPl	PIDOPLICHKO 1956

Table V (continuation)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Desmana sp.	near Kryzhanovka	LP (?Villanyan) and ?EPl (?Q1)	SHEVCHENKO 1965
	near Leventsovka	?LP (?Late Villanyan)	
	Verkhnyaya Emancha	MPl (Q3)	MARKOVA 1980
	Bolshevik 2 (l. III)	EPl (Late Biharian, Q2)	REKOVETS, CHEPALYGA, NESIN and SVETLITSKAYA 1990; REKOVETS 1990
	Bolshevik 2 (l. I)	MPl (Steinheimian, Q3)	
	Tikhonovka 2	EPl (Q1)	REKOVETS and NADACHOWSKI 1995
	Bolshevik 2 (l. III)	EPl (Late Biharian, Q2)	
	Protopopovka (ls. 1 and 2)	EPl (Late Biharian, Q2)	
	Morozovka 2	MPl (Steinheimian, Q3)	
	Bolshaya Kamyshevakha 1	MPl (Steinheimian, Q3)	
	Gunki	MPl (Late Steinheimian, Q3)	
	Bolshevik 2 (l. I)	MPl (Steinheimian, Q3)	
	Mikhailovka 1	LM (Late Vallesian, MN10)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001
Desmana sp. ?	near Kryzhanovka	EPl ?(Q1)	SHEVCHENKO 1965
Desmaninae gen. et sp. indet.	Mikhailovka 1	LM (Late Vallesian, MN10)	NESIN 2013
	Frunzovka 2	LM (Early Turolian, MN11)	
Uropsilinae			
Desmanella cf. *dubia*	Mikhailovka 1	LM (Late Vallesian, MN10)	NESIN 2013
Desmanella sp.	Mikhailovka 2	LM (Early Turolian, MN11)	NESIN 2013
Scalopinae			
Scalopini			
Domninoides sp.	Gritsev	LM (Early Vallesian, MN9)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; RZEBIK-KOWALSKA and V. O. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001; NESIN 2013
Proscapanus sp.	Gritsev	LM (Early Vallesian, MN9)	RZEBIK-KOWALSKA and V. O. TOPACHEVSKY 1997; NESIN 2013

Table V (continuation)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Proscapanus (=*Alloscapanus*)	Gritsev	LM (Early Vallesian, MN9)	NESIN and NADACHOWSKI 2001
?Urotrichinae	Gritsev	LM (Early Vallesian, MN9)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001
	Novoelizavetovka 3	LM (Middle Turolian, MN12)	NESIN 2013
Talpinae			
Urotrichini			
Urotrichus giganteus	Mikhailovka 2	LM (Early Turolian, MN11)	NESIN 2013
?*Scaptonyx* sp.	Mikhailovka 1	LM (Late Vallesian, MN10)	NESIN 2013
Urotrichini sp. 1 and sp. 2	Gritsev	LM (Early Vallesian, MN9)	RZEBIK-KOWALSKA and V. O. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001; NESIN 2013
Talpini			
Talpa gilothi	Mikhailovka 2	LM (Early Turolian, MN11)	NESIN 2013
Talpa minor FREUDENBERG, 1914	Gorishnya Vygnanka	LP	TATARINOV 1965b
Talpa cf. *praeglacialis* KORMOS, 1930	Cherevychnoe 1	EPl (Early Biharian, Q1)	REKOVETS and NADACHOWSKI 1995
Talpa europaea	Sinyakovo	EPl	PIDOPLICHKO 1955, 1956
Talpa ex gr. *europaea*	Mikhailovka 5	LPl (Eem)	AGADZHANYAN 2009
Talpa sp.	Krasnopol	EP (Early Ruscinian, MN14)	NESIN 2013
	Kotlovina 1	EP (Late Ruscinian, MN15)	
	Kotlovina 2	EPl (previously Late Villanyan, MN17)	
	Kotlovina 3	EPl (previously Late Villanyan, MN17)	
	Leventsovka	?LP (?Late Villanyan)	SHEVCHENKO 1965
	Gunki	MPl (Steinheimian, Q3)	REKOVETS and NADACHOWSKI 1995
Talpa sp. ?	near Kryzhanovka	EPl (Q1)	SHEVCHENKO 1965
Talpidae incertae sedis			
Desmanodon major	Mikhailovka 2	LM (Early Turolian, MN11)	NESIN 2013
Talpidae gen. et sp. indet.	Cherevychnoe 3	LM (Middle Turolian, MN12)	NESIN 2013

Table VI

Fossil Talpidae of Ukraine (mentioned without descriptions, measurements or exact localities)

Family Subfamilies Genera Species	Localities	Age	Publications
Talpidae			
Desmaninae			
Desmana moschata	alluvia (lower course of Dnieper)	LPl and H	V. O. TOPACHEVSKY 1957a
	alluvia (middle course of Dnieper, Cherkasy-Mishurin Rig and Kiev-Cherkasy)	MPl and LPl	V. O. TOPACHEVSKY 1961b
Desmana moschata ternopolitana	Podolia and Prikarpatie (north to Carpathian Mts)	H	TATARINOV 1970
Talpinae			
Talpa minor	Podolia and Prikarpatie (north to Carpathian Mts)	P	TATARINOV 1970
Talpa cf. *europaea*	Podolia and Prikarpatie (north to Carpathian Mts)	Pl and H	TATARINOV 1970
Talpa europaea	alluvia (lower course of Dnieper)	LPl and H	V. O. TOPACHEVSKY 1957a
	alluvia (middle course of Dnieper, Cherkasy-Mishurin Rig and Kiev-Cherkasy)	MPl and LPl	V. O. TOPACHEVSKY 1961b
	Podolia and Prikarpatie (north to Carpathian Mts)	Pl and H	TATARINOV 1970

The fossil mole *Proscapanus* GAILLARD, 1899 (Scalopini) mentioned by TOPACHEVSKY (in RZEBIK-KOWALSKA and TOPACHEVSKY 1997) from Gritsev is known from several European localities (MN4-MN11), among others from Slovakia and the Republic of Moldova, therefore it is also probable in Ukraine. The combination *Proscapanus* (*Alloscapanus*) cited by NESIN and NADACHOWSKI (2001) is incorrect and *Alloscapanus* BAUDELOT, 1968 is not a valid genus because it is a junior synonym of *Proscapanus* GAILLARD, 1899 (VAN DEN HOEK OSTENDE and FURIÓ 2005).

The fossil *Talpa minor,* largely distributed in Europe in the Pliocene and Pleistocene, was noted by TATARINOV (1965b) from the Late Pliocene and the recent *T. europaea* LINNAEUS, 1758 by TOPACHEVSKY (1961b) from the Middle and Late Pleistocene. Their fossils were never thoroughly described but both species are very probably present in this part of Europe. On the other hand *T.* cf. *praeglacialis* mentioned by REKOVETS and NADACHOWSKI (1995) from Cherevychnoe (Late Biharian?) most probably represents a recent *T. europaea*. According to many authors (KRETZOI 1938, HELLER 1958, VON KOENIGSWALD 1970, RABEDER 1972 and others) *T. praeglacialis*, *T. fossilis* and the recent *T. europaea* are similar in size and morphology and they should be considered as one species. The names *T. fossilis* (= *T. praeglacialis*) indicate only a chronospecies.

II.3. Family **Dimylidae** SCHLOSSER, 1887

(Table VII)

Comments. So far the Dimylidae family known from Europe and the Middle East (MP27-MN11) is represented in Ukraine only in one locality and according to TOPACHEVSKY (in RZEBIK-KOWALSKA and TOPACHEVSKY 1997) by one genus, *Plesiodimylus* GAILLARD, 1897. This form is characterised by less specialized dentition, most probably adapted to an insectivorous diet. It is the most widespread (found in more than 70 localities) of all European Dimylidae taxa and is known from the Middle and Late Miocene (MN4 to MN11), among others from Poland (RZEBIK-KOWALSKA 1996), Slovakia (FEJFAR and SABOL 2005) and Hungary (HIR and MÉSZÁROS 2002, PRIETO et al. 2012). According to SCHMIDT-KITTLER (1973), the family is related to Soricidae (absence of a zygomatic arch) rather than to the Erinaceidae (RZEBIK-KOWALSKA 2009). However, a closer relationship between Dimylidae and Talpidae is corroborated by some fossil finds from Anatolia (VAN DEN HOEK OSTENDE 1995).

Table VII

Dimylidae of Ukraine (mentioned without descriptions or measurements)

Family Genus Species	Locality	Age	Publications
Dimylidae			
Plesiodimylus sp.	Gritsev	LM (Early Vallesian, MN9)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; RZEBIK-KOWALSKA and V. O. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001; NESIN 2013

II.4. Family **Heterosoricidae** VIRET and ZAPFE, 1951

(Tables VIII-IX)

Comments. So far only one taxon was found in Ukraine. *Dinosorex* cf. *zapfei* ENGESSER, 1975 (TOPACHEVSKY et al. 1997) was later described as a new species, *D. grycivensis* RZEBIK-KOWALSKA and TOPACHEVSKY, 1997. The genus (with numerous species) is known from the Late Oligocene (MP29) to the Late Miocene (MN10) from many European countries. *D. grycivensis* was also found in Poland, the Republic of Moldova and is largely represented in Spain (FURIÓ et al. 2015), thus opening serious questions about the real extent of its distribution in the past.

Table VIII

Heterosoricidae of Ukraine (published with descriptions, measuremets, localities and geological ages)

Family Genus Species	Locality	Age	Publication
Heterosoricidae			
Dinosorex grycivensis RZEBIK-KOWALSKA and TOPACHEVSKY, 1997	Gritsev	LM (Early Vallesian, MN9)	RZEBIK-KOWALSKA and V. O. TOPACHEVSKY 1997

Table IX

Heterosoricidae of Ukraine (mentioned without descriptions or measurements)

Family Genus Species	Localities	Age	Publications
Heterosoricidae			
?*Dinosorex zapfei* ENGESSER, 1975	Gritsev	LM (Early Vallesian, MN9)	NESIN and NADACHOWSKI 2001
Dinosorex cf. *zapfei*	Gritsev	LM (Early Vallesian, MN9)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997
Dinosorex grycivensis	Gritsev	LM (Early Vallesian, MN9)	NESIN 2013

II.5. Family **Soricidae** FISCHER, 1814

(Tables X-XII)

Comments. In Ukraine *Miosorex* sp. was cited for the first time by TOPACHEVSKY et al. (1997) from Cherevychnoe dated to MN12. If the identification is correct, these remains are the youngest in Europe because this common Miocene genus, known from almost all European countries (from Portugal to the Republic of Moldova), was dated so far to MN3-MN11 (RZEBIK-KOWALSKA 2009). Its presence in Ukraine (although in older localities, MN11) was confirmed by RZEBIK-KOWALSKA and NESIN (2010) and RZEBIK-KOWALSKA and REKOVETS (in press).

Pachyura sp. mentioned in TOPACHEVSKY (1956) probably represents the genus *Paenelimnoecus* (see REUMER 1984). In Europe *Paenelimnoecus* is known from the early

Middle Miocene (MN3) to the Late Pliocene (MN16). In 2006 it was transferred by FEJFAR, STORCH, and TOBIEN from the subfamily Allosoricinae to the newly created by them subfamily Paenelimnoecinae. In 1988 TOPACHEVSKY et al., cited it from Cherevychnoe (MN12). Its presence in Ukraine is probable because it is also known from neighboring countries such as Poland, Hungary, Slovakia and Romania. The only species correctly described from Ukraine, "*Paenelimnoecus*" *repenningi*, belongs probably to another genus (see RZEBIK-KOWALSKA 2009).

Anourosoricini are represented by three or four genera (*Amblycoptus*, *Crusafontina*, *Paranourosorex* and potentially *Anourosoricodon*) in Ukraine (RZEBIK-KOWALSKA 1998).

Paranourosorex sp. was listed for Ukraine from the late Early Pliocene (MN15) by TOPACHEVSKY et al. (1997) and NESIN and NADACHOWSKI (2001), however without any description or measurements. Because it was described from nearby Poland (early Early Pliocene, MN14, RZEBIK-KOWALSKA 1975) and cited from Slovakia (MN15, FEJFAR and SABOL 2005) it is also expected in neighboring territories. It was also found in Asia (Kazakhstan, China, between MN12 and MN14, STORCH and ZAZHIGIN 1996).

On the other hand, *Anourosorex* sp. cited by TOPACHEVSKY (1962b) from the "Middle Pliocene" of Kamyanske was later identified as *Anourosoricodon pidoplitschkoi* TOPACHEVSKY, 1966. So far the latter was never found in any other country. In the papers of TOPACHEVSKY et al. (1997) and RZEBIK-KOWALSKA and TOPACHEVSKY (1997), TOPACHEVSKY supposed that *Anourosoricodon* may be a synonym of *Crusafontina*. However, this opinion as well as the suggested presence in Gritsev of such taxa as *Lanthanotherium*, *Amphechinus*, *Domninoides*, *Proscapanus* and *Plesiodimylus* were never confirmed by morphological study. The paper on Gritsev (RZEBIK-KOWALSKA and TOPACHEVSKY 1997) had no continuation because of the death of professor V. O. TOPACHEVSKY.

Blarina ukrainica described by PIDOPLICHKO in 1955 was later included into *Beremendia* (GUREEV 1971). CROCHET and MICHAUX (1981) mentioned *Beremendia* cf. *ucrainica* from the Middle Pleistocene of France and RZEBIK-KOWALSKA (1998) placed it in *Beremendia fissidens* (Beremendiini).

In general, *Sulimskia* is also expected in Ukraine because it was described from Poland (MN15) and later found in other European countries, e.g. in Slovakia and Hungary (in localities dated between MN14 and the Pliocene/Pleistocene boundary, RZEBIK-KOWALSKA 1998). It is also known from western Siberia, the Transbaikalia region (Late Pliocene, STORCH et al. 1998), inner Mongolia (QIU and STORCH 2000) and China (MN14-MN15, QIU and STORCH 2005). However, its occurrence in the Late Miocene (MN11) localities (cited by TOPACHEVSKY et al. 1997, NESIN and NADACHOWSKI 2001 and NESIN 2013 without any description) is less probable.

The presence of *Neomysorex* mentioned in Ukraine by TOPACHEVSKY et al. (1997) and NESIN and NADACHOWSKI (2001) (MN15) was later confirmed by RZEBIK-KOWALSKA and NESIN (2010) and RZEBIK-KOWALSKA and REKOVETS (in press). Ukrainian remains found in Late Miocene (MN11-MN12) localities are the oldest known so far. It is also known from the Early Pliocene (MN14-MN14/MN15) of Poland (RZEBIK-KOWALSKA 1981).

The Early Pleistocene *Neomys newtoni* (Neomyini) was found in Ukraine only once at Medzhybozh (Q3) (RZEBIK-KOWALSKA and REKOVETS, in press). It is known from neighboring Poland and Romania. It was also cited by ZAITSEV and BARYSHNIKOV (2002) from the northern Caucasus and from the Early and Middle Pleistocene of Europe (RZEBIK-KOWALSKA 1998).

The recent *Neomys fodiens* (PENNANT, 1771) was cited by TOPACHEVSKY (1961b) in Middle and Late Pleistocene alluvial deposits. So far it has been found in almost all European countries (RZEBIK-KOWALSKA 1998). Today its large range over the entire northern and central Palaearctic includes Ukrainian territory.

Episoriculus cited from Gritsev by NESIN and NADACHOWSKI (2001) is improbable in Ukraine. Species of this genus now live in southeastern Asia. If remains from Gritsev really belong to the Neomyini, they could be representatives of *Asoriculus*. It was mentioned by TOPACHEVSKY in RZEBIK-KOWALSKA and TOPACHEVSKY (1997) and later confirmed by RZEBIK-KOWALSKA and NESIN (2010) and RZEBIK-KOWALSKA and REKOVETS (in press). Its remains from Frunzovka 2 (MN11) are the oldest known so far. This genus was widely distributed in Europe from MN13 to the Early Pleistocene (RZEBIK-KOWALSKA 2009) and was also collected in Asia Minor (MN14-MN15, STORCH et al. 1998).

Both species of *Crocidura* (*C. leucodon* and *C. suaveolens*) are possible as fossils in Ukraine because they live there today.

On the other hand, the presence of *Suncus* is less probable although TOPACHEVSKY (1957b, 1965) cited it (without description) from the Late Pliocene of Kairy. So far there are no unambiguous published records of fossil European *Suncus*. The single specimen (i1) found in Petralona (Greece, SICKENBERG 1971) could represent this genus but its assignment is uncertain.

Sorex arcticus KERR, 1792 described by MEZHZHERIN (1972) from the Late Pleistocene of alluvial deposits of Desna and Dnieper rivers is quite impossible in the area of Ukraine. Today, the species lives in Canada (from Yukon to Quebec) and in the northern part of the USA.

Sorex praearaneus praearaneus described by MEZHZHERIN in the same paper (1972) is now placed in the subgenus *S.* (*Drepanosorex*) *praearaneus.* It appeared in the Early Pleistocene (former MN17) and survived probably until the Late Pleistocene. It also lived in Poland, Hungary (type locality), Slovakia and Romania (RZEBIK-KOWALSKA 2009).

Remains of the recent *Sorex araneus* LINNAEUS, 1758 described by PIDOPLICHKO (1955, 1956) and TOPACHEVSKY (1961b) from the Early and Middle Pleistocene alluvial deposits of Ukraine could have also belonged (especially older Middle Pleistocene remains) to fossil *S. subaraneus* HELLER, 1958. Now it is impossible to say when *S. subaraneus* disappeared and *S. araneus* appeared on the European continent (RZEBIK-KOWALSKA 2009). Only a revision of all European fossils of *S. subaraneus* and *S. araneus* could help in understanding this problem as well as the question of ancestry of the recent species.

Table X

Fossil Soricidae of Ukraine (published with descriptions, measuremets, localities and geological ages)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Soricidae			
Crocidosoricinae			
Miosorex grivensis (DEPÉRET, 1892)	Popovo 3	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and REKOVETS in press
cf. *Miosorex* sp.	Mikhailovka 2	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and NESIN 2010
	Verkhnya Krynitsa 2	LM (Early/Middle Turolian, MN11/MN12)	RZEBIK-KOWALSKA and REKOVETS in press
Paenelimnoecinae			
„*Paenelimnoecus*" *repenningi* (BACHMAYER and WILSON, 1970)	Frunzovka 2	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and NESIN 2010
Soricinae			
Anourosoricini			
Anourosoricodon pidoplitschkoi TOPACHEVSKY, 1966	Kamenskoe	EP (Late Ruscinian, MN15)	V. O. TOPACHEVSKY 1966 GUREEV 1971, 1979
Amblycoptus oligodon KORMOS, 1926	Mikhailovka 2	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and NESIN 2010
	Frunzovka 2	LM (Early Turolian, MN11)	
Amblycoptus sp. or *Kordosia* sp.	Odessa, 16th Station of Bolshoy Fontan	LM (Late Turolian, MN13)	RZEBIK-KOWALSKA and NESIN 2010
Crusafontina kormosi (BACHMAYER and WILSON, 1970)	Mikhailovka 1	LM (Late Vallesian, MN10)	RZEBIK-KOWALSKA and NESIN 2010
	Frunzovka 2	LM (Early Turolian, MN11)	
Crusafontina cf. *kormosi*	Verkhnya Krynitsa 2	LM (Early/Middle Turolian, MN11/MN12)	RZEBIK-KOWALSKA and REKOVETS in press

Table X (continuation)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Beremendiini			
Beremendia fissidens (PÉTENYI, 1864)	Popovo 2	LP (Early Villanyan, end of MN16)	RZEBIK-KOWALSKA and REKOVETS in press
	Popovo 1	P/Pl boundary (previously Early/Late Villanyan, MN16/MN17)	
	Popovo 0	EPl (previously Late Villanyan, MN17)	
Blarina ucrainica PIDOPLICHKO, 1955 now *Beremendia fissidens*	Chortkov	EPl (Early Biharian, Q1)	PIDOPLICHKO 1955
	Gorishnya Vygnanka	LP	TATARINOV 1958
	Verkhnyaya Vygnanka	?EPl	
cf. *Beremendia minor* RZEBIK-KOWALSKA, 1976	Verkhnya Krynitsa 1	LP (Early Villanyan, beginning of MN16)	RZEBIK-KOWALSKA and REKOVETS in press
Blarinellini			
Petenyia dubia BACHMAYER and WILSON, 1970	Verkhnya Krynitsa 2	LM (Early/Middle Turolian, MN11/MN12	RZEBIK-KOWALSKA and REKOVETS in press
	Lobkove	LM (Middle Turolian, MN12)	
Petenyia cf. *dubia*	Frunzovka 2	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and NESIN 2010
Petenyia hungarica KORMOS, 1934	Verkhnya Krynitsa 1	LP (Early Villanyan, beginning of MN16)	RZEBIK-KOWALSKA and REKOVETS in press
?*Petenyia* sp.	Odessa, 16th Station of Bolshoy Fontan	LM (Late Turolian, MN13)	RZEBIK-KOWALSKA and NESIN 2010
Blarinini			
Mafia cf. *dehneli* (KOWALSKI, 1956)	Mikhailovka 2	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and NESIN 2010
Neomyini			
Neomysorex alpinoides (KOWALSKI, 1956)	Verkhnya Krynitsa 2	LM (Early/Middle Turolian, MN11/MN12)	RZEBIK-KOWALSKA and REKOVETS in press

Table X (continuation)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
?*Neomysorex* cf. *alpinoides*	Mikhailovka 2	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and NESIN 2010
	Frunzovka 2	LM (Early Turolian, MN11)	
Asoriculus cf. *gibberodon* (PETÉNYI, 1864)	Odessa, 16th Station of Bolshoy Fontan	LM (Late Turolian, MN13)	RZEBIK-KOWALSKA and NESIN 2010
Asoriculus sp.	Frunzovka 2	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and NESIN 2010
cf. *Asoriculus* sp.	Popovo 3	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and REKOVETS in press
	Verkhnya Krynitsa 2	LM (Early/Middle Turolian, MN11/MN12)	
Neomys newtoni HINTON, 1911	Medzhybozh	MPl (Q3)	RZEBIK-KOWALSKA and REKOVETS in press
Soricini			
Sorex pseudoalpinus RZEBIK-KOWALSKA, 1991	Mikhailovka 2	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and NESIN 2010
Sorex praearaneus praearaneus now *S.* (*Drepanosorex*) *praearaneus* KORMOS, 1934	Nogaisk	EPl (Early Biharian, Q1)	MEZHZHERIN 1972
	Ozernoe	MPl	
Sorex araneus LINNAEUS, 1758	Novogrod Severskii	LPl (Late Weichselian)	MEZHZHERIN and SVISTUN 1968
	Mikhailovka 5	LPl (Eem)	AGADZHANYAN 2009
Sorex arcticus KERR, 1792	Novogrod Severskii	LPl (Late Weichselian)	MEZHZHERIN 1972
Sorex minutus LINNAEUS, 1766	Khrenniki	LPl	MEZHZHERIN 1972
	Mikhailovka 5	LPl (Eem)	AGADZHANYAN 2009
Zelceina cf. *podlesicensis* RZEBIK-KOWALSKA, 1990	Mikhailovka 2	LM (Early Turolian, MN11)	RZEBIK-KOWALSKA and NESIN 2010
Zelceina sp.	Verkhnya Krynitsa 2	LM (Early/Middle Turolian, MN11/MN12)	RZEBIK-KOWALSKA and REKOVETS in press

Table XI

Fossil Soricidae of Ukraine (mentioned without descriptions or measurements)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Soricidae			
Crocidosoricinae			
?*Miosorex* sp.	Mikhailovka 2	LM (Early Turolian, MN11)	NESIN 2013
Miosorex sp.	Cherevychnoe 3	LM (Middle Turolian, MN12)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001; NESIN 2013
?Paenelimnoecinae or ?Crocidurinae			
Pachyura *sp.* *(?Paenelimnoecus* or *?Suncus)*	Kairy	EPl (Early Biharian, Q1)	V. O. TOPACHEVSKY 1956
Paenolimnoecinae			
„Paenelimnoecus" repenningi	Frunzovka 2	LM (Early Turolian, MN11)	NESIN 2013
Paenelimnoecus sp.	Novoelizavetovka 3	LM (Middle Turolian, MN12)	NESIN 2013
	Cherevychnoe 3	LM (Middle Turolian, MN12)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001
"*Paenelimnoecus*" sp.	Novoelizavetovka 2	LM (Early Turolian, MN11)	NESIN 2013
	Cherevychnoe 3	LM (Middle Turolian, MN12)	
Soricinae			
Anourosoricini			
Amblicoptini (should be Amblycoptini, now Anourosoricini)	Gritsev	LM (Early Vallesian, MN9)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001

Table XI (continuation)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Anourosorex sp. (now *Anourosoricodon*)	Kamenskoe	EP (Late Ruscinian, MN15)	V. O. TOPACHEVSKY 1962b
Anourosoricodon (=?*Crusafontina*)	Gritsev	LM (Early Vallesian, MN9)	RZEBIK-KOWALSKA and V. O. TOPACHEVSKY 1997; NESIN 2013
Anourosoricodon (=*Crusafontina*)	Gritsev	LM (Early Vallesian, MN9)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001
Amblicoptus sp. (should be *Amblycoptus*)	Mikhailovka 2	LM (Early Turolian, MN11)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997
Amblycoptus oligodon	Mikhailovka 2	LM (Early Turolian, MN11)	NESIN 2013
	Frunzovka 2	LM (Early Turolian, MN11)	
Amblycoptus sp.	Novoelizavetovka 2	LM (Early Turolian, MN11)	NESIN and NADACHOWSKI 2001; NESIN 2013
	Novoelizavetovka 3	LM (Middle Turolian, MN12)	NESIN 2013
	Cherevychnoe 3		
	Odessa, 16th Station of Bolshoy Fontan	LM (Late Turolian, MN13)	V. O. TOPACHEVSKY, CHEPALYGA, NESIN, REKOVETS and I.V. TOPACHEVSKY 1988
Amblycoptus sp. or *Kordosia* sp.	Odessa, 16th Station of Bolshoy Fontan	LM (Late Turolian, MN13)	NESIN 2013
Crusafontina kormosi	Mikhailovka 1	LM (Late Vallesian, MN10)	NESIN 2013
	Frunzovka 2	LM (Early Turolian, MN11)	
Paranourosorex sp.	Kotlovina 1	?EP (Late Ruscinian, MN15)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001

Table XI (continuation)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Beremendiini			
Blarina ucrainica now *Beremendia fissidens*	Chortkov	EPl Early Biharian, Q1)	PIDOPLICHKO 1956; TATARINOV 1958
	Gorishnya Vygnanka	LP	TATARINOV 1965b
	Verkhnyaya Vygnanka	?EPl	TATARINOV 1958
Beremendia sp.	Zhevakova Gora (l. 9)	EPl (Early Biharian, Q1)	V. A. TOPACHEVSKY, SKORIK, CHEPALYGA 1979; REKOVETS and NADACHOWSKI 1995
	Kotlovina 1	?EP (Late Ruscinian, MN15)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001
	Kotlovina 2	EPl (previously Late Villanyan, MN17)	NESIN 2013
	Kotlovina 3	EPl (previously Late Villanyan, MN17)	
Blarinini			
Mafia cf. *dehneli*	Mikhailovka 2	LM (Early Turolian, MN11)	NESIN 2013
Sulimskia sp.	Novoelizavetovka 2	LM (Early Turolian, MN11)	NESIN 2013
	Novoelizavetovka 3	LM (Middle Turolian, MN12)	
	Cherevychnoe 3	LM (Middle Turolian, MN12)	
?*Sulimskia* sp.	Mikhailovka 2	LM (Early Turolian, MN11)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997
cf. *Sulimskia* sp.	Novoelizavetovka 2	LM (Early Turolian, MN11)	NESIN and NADACHOWSKI 2001
Blarinini gen. et sp. indet.	Novoukrainka 1	LM (Late Turolian, MN13)	NESIN and NADACHOWSKI 2001
Blarinellini			
Petenyia cf. *dubia*	Frunzovka 2	LM (Early Turolian, MN11)	NESIN 2013
?*Petenyia* sp.	Odessa, 16th Station of Bolshoy Fontan	LM (Late Turolian, MN13)	NESIN 2013

Table XI (continuation)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Neomyini			
?*Neomysorex* cf. *alpinoides*	Mikhailovka 2	LM (Early Turolian, MN11)	NESIN 2013
	Frunzovka 2	LM (Early Turolian, MN11)	
Neomysorex sp.	Kotlovina 1	EP (late Ruscinian, MN15)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001
Episoriculus sp. now *Asoriculus* sp.	Gritsev	LM (Early Vallesian, MN9)	V. A. TOPACHEVSKY, NESIN and I. V. TOPACHEVSKY 1997; NESIN and NADACHOWSKI 2001
Asoriculus cf. *gibberodon*	Odessa, 16th Station of Bolshoy Fontan	LM (Late Turolian, MN13)	NESIN 2013
Asoriculus sp.	Gritsev	LM (Early Vallesian, MN9)	NESIN 2013
	Frunzovka 2	LM (Early Turolian, MN11)	
?*Asoriculus* sp.	Gritsev	LM (Early Vallesian, MN9	RZEBIK-KOWALSKA and V. O. TOPACHEVSKY 1997
Soriculini gen. et sp. indet. now Neomyini	Novoukrainka 1	LM (Late Turolian, MN13)	NESIN and NADACHOWSKI 2001
Soricini			
Sorex pseudoalpinus	Mikhailovka 2	LM (Early Turolian, MN11)	NESIN 2013
Sorex araneus	Chortkov	EPl (Early Biharian, Q1)	PIDOPLICHKO 1955, 1956
	Novogrod Severskii	LPl (Weichselian)	MEZHZHERIN and SVISTUN 1968
Sorex praearaneus now *Sorex* (*Drepanosorex*) *praearaneus*	Gunki	MPl (Steinheimian, Q3)	MARKOVA 1980
Sorex macropygmaeus MILLER, 1901 now *Sorex caecutiens* LAXMANN, 1788	Chortkov	EPl (Early Biharian, Q1)	PIDOPLICHKO 1955, 1956

Table XI (continuation)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Sorex aff. *runtonensis* HINTON, 1911	Cherevychnoe 1	EPl (Early Biharian, Q1)	REKOVETS and NADACHOWSKI 1995
Sorex cf. *minutus*	Mikhailovka 5	LPl (Eem)	AGADZHANYAN 2009
Sorex sp.	Bolshevik 1	MPl	SHEVCHENKO 1965
	Srednyaya Cave (near Nizhnee Krivche)	Pl	TATARINOV 1965a
	Verkhnyaya Emancha	MPl (Q3)	MARKOVA 1980
	Gunki	MPl (Steinheimian, Q3)	
	Chernyanka	LPl (Eem)	MARKOVA 1985
	Bolshevik 2 (l. III)	EPl (Late Biharian, Q2)	REKOVETS, CHEPALYGA, NESIN and SVETLITSKAYA 1990; REKOVETS 1990
	Bolshevik 2 (l. I)	MPl (Steinheimian, Q3)	
	Anetovka 2	LPl (Late Weichselian)	REKOVETS and STARKIN 1990
	Chortkov	EPl (Early Biharian, Q1)	REKOVETS and NADACHOWSKI 1995
	Tarkhankut	EPl (Early Biharian, Q1)	
	Kairy	EPl (Early Biharian, Q1)	
	Karai Dubina	EPl (Early Biharian, Q1)	
	Luzanovka	EPl (Early Biharian, Q1)	
	Bolshevik 2 (ls. II, III)	EPl (Late Biharian, Q2)	
	Protopopovka (l. 2)	Epl (Late Biharian, Q2)	
	Tikhonovka 1	*EPl (Late Biharian, Q2)*	
	Bolshevik 2 (l. I)	MPl (Steinheimian, Q3)	
	Morozovka 2	MPl (Steinheimian, Q3)	
	Bolshaya	MPl (Steinheimian, Q3)	
	Kamyshevakha 1		
	Demidovka	MPl (Steinheimian, Q3)	
	Gunki	MPl (Steinheimian, Q3)	
	Medzhybozh	MPl (Steinheimian, Q3)	
	Matveevka	MPl (Steinheimian, Q3)	
	Kamenskoe	EP (Late Ruscinian, MN15)	REKOVETS and PASHKOV 2009
	Mikhailovka 4	MPl (Steinheimian, Q3)	AGADZHANYAN 2009
	Mikhailovka 5	LPl (Eem)	
Zelceina cf. *podlesicensis*	Mikhailovka 2	LM (Early Turolian, MN11)	NESIN 2013

Table XI (continuation)

Family Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Crocidurinae			
Crocidura sp. [near *C. leucodon* (HERMANN, 1780)]	Srednyaya Cave (near Nizhnee Krivche)	Pl	TATARINOV 1965a
Crocidura sp.	Tarkhankut	EPl (Early Biharian, Q1)	REKOVETS and NADACHOWSKI 1995
Suncus sp.	Kairy	EPl (Early Biharian, Q1)	V. O. TOPACHEVSKY 1957b
Soricidae gen. et sp. indet.	near Leventsovka	LP (Villanyan)	SHEVCHENKO 1965
	Morozovka 2	MPl (Steinheimian, Q3)	V. A. TOPACHEVSKY, KORNIETS and SVISTUN 1975
	Borisova Gora	LPl	MARKOVA 1987
	Zhevakova Gora (ls. 11, 15)	LP (Early Villanyan, middle of MN16)	V. A. TOPACHEVSKY, SKORIK and CHEPALYGA 1979
	Zhevakova Gora (l. 4, previously 15)	LP (Early Villanyan, middle of MN16)	NESIN 2013
	Odessa, 16th Station of Bolshoy Fontan	MN13	V. O. TOPACHEVSKY, CHEPALYGA, NESIN, REKOVETS and I.V. TOPACHEVSKY 1988
	Orekhovka	LM (MN13)	V. A. TOPACHEVSKY, NESIN and PRISYAZHNYUK 1990
	Tiligul (=Morskoe)	EPl (Early Biharian, Q1)	REKOVETS and NADACHOWSKI 1995
	Popovo 3	LM (Early Turolian, MN11)	REKOVETS and PASHKOV 2009
	Verkhnya Krynitsa 2	LM (Early/Middle Turolian, MN11/MN12)	
	Verkhnya Krynitsa 1	LP (Early Villanyan, beginning of MN16)	
	Popovo 2	LP (Early Villanyan, end of MN16	
	Popovo 1	P/Pl boundary (previously Early/Late Villanyan, MN16/MN17	

Table XII

Fossil Soricidae of Ukraine (mentioned without descriptions, measurements or exact localities)

Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Soricidae			
Soricinae			
Beremendiini			
Blarina (?) sp. ?	middle course of Kychurgan river	EP (Early Ruscinian, MN14)	SHEVCHENKO 1965
Blarina ucrainica now *Beremendia fissidens*	Podolia and Prikarpatie (north to Carpathian Mts)	P, EPl	TATARINOV 1970
Soricini			
Sorex praearaneus praetetragonurus	alluvia of Desna and Dnieper rivers	Pl	MEZHZHERIN 1972
Sorex arcticus (with description)	alluvia of Desna and Dnieper rivers	LPl	MEZHZHERIN 1972
Sorex araneus	alluvia (middle course of Dnieper, Cherkasy-Mishurin Rig, Kiev-Cherkasy)	MPl and LPl	V. O. TOPACHEVSKY 1961b
	Podolia and Prikarpatie (north to Carpathian Mts)	EPl and H	TATARINOV 1970
	alluvia of Dnieper river	LPl, EH	MEZHZHERIN and SVISTUN 1968
Sorex araneus praetetragonurus MEZHZHERIN and SVISTUN, 1966	alluvia of Dnieper river	LPl, EH	MEZHZHERIN and SVISTUN 1966, 1968
Sorex cf. *araneus*	Podolia and Prikarpatie (north to Carpathian Mts)	Pl	TATARINOV 1970
Sorex minutus	Podolia and Prikarpatie (north to Carpathian Mts)	H	TATARINOV 1970
Sorex macropygmaeus now *Sorex caecutiens*	Podolia and Prikarpatie (north to Carpathian Mts)	EPl	TATARINOV 1970
Sorex sp.	Srednyaya Cave (near Nizhnee Krivche)	Pl	TATARINOV, 1965a
	Podolia and Prikarpatie (north to Carpathian Mts)	Pl and H	TATARINOV, 1970

Table XII (continuation)

Subfamilies **Tribes** Genera Species	Localities	Age	Publications
Sorex sp. ?	basins of Salcha and Kagul rivers	EP (Late Ruscinian, MN15)	SHEVCHENKO 1965
Neomyini			
Neomys fodiens (PENNANT, 1771)	alluvia (middle course of Dnieper, Kiev-Cherkasy)	MPl and LPl	V. O. TOPACHEVSKY, 1961b
	Podolia and Prikarpatie (north to Carpathian Mts)	H	TATARINOV, 1970
Neomys sp.	Podolia and Prikarpatie (north to Carpathian Mts)	H	TATARINOV, 1970
Crocidurinae			
Crocidura leucodon	alluvia (middle course of Dnieper, Kiev-Cherkasy)	MPl and LPl	V. O. TOPACHEVSKY, 1961b
	Podolia and Prikarpatie (north to Carpathian Mts)	H	TATARINOV, 1970
Crocidura suaveolens (PALLAS, 1811)	alluvia (middle course of Dnieper, Kiev-Cherkasy)	MPl and LPl	V. O. TOPACHEVSKY, 1961b
	Podolia and Prikarpatie (north to Carpathian Mts)	H	TATARINOV, 1970
Crocidura sp.	Podolia and Prikarpatie (north to Carpathian Mts)	Pl and H	TATARINOV, 1970

III. CONCLUSIONS

The list of the Ukrainian fossil insectivore mammals (Eulipotyphla) is still incomplete and some taxa cited in this list are wrongly identified or improbable in this country. The recapitulation and arrangement of data present in the paper together with comments concerning uncertain forms should help in studies of this group of mammals in Ukraine. Each new well described form enlarges the knowledge on these mammals in less explored Eastern Europe.

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