

Romania

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Introduction

The oldest descriptions of Romanian fossil insectivores date from the 1930s. At that time, I. Simionescu described two Early Pliocene localities, Mălușteni (in 1930) and Berești (in 1932), both containing a rich mammal fauna. Among the insectivores, Simionescu identified such genera as *Erinaceus*, *Talpa*, *Myogale* and *Sorex*.

After the Second World War the palaeontologists C. Rădulescu, P.-M. Samson, E. Terzea, M.C. Feru, T. Jurcsák and E. Știucă published papers on the insectivores. Rădulescu and Samson described and commented upon numerous faunal complexes and species from Romania, spanning the time scale from the Middle Miocene to the end of the Pleistocene (Rădulescu & Samson 1984, 1985, 1987, 1989, 1995a, b, 2001; Rădulescu *et al.*, 1993, 1995, 1997, 1998; Samson & Rădulescu, 1973). They also described two new species of Talpidae (Rădulescu & Samson, 1989; Rădulescu *et al.*, 1989). Terzea studied the Early Pliocene localities of Ciuperceni 1 and 2 (1980, 1997) and many other younger ones, but most extensively the Betsia Karstic Complex dated to the Early to Middle Pleistocene. Recently, eleven Pliocene insectivore faunas from Romania were revised by Rzebik-Kowalska (2002).

Still, the fossil insectivores are little known in Romania. So far only 20 named species of 18 genera (one hedgehog, nine moles, and ten shrews) were found. Among them four species of moles were described as new. The oldest (Middle Miocene, MN7/8) Romanian specimens come from the localities of Comănești 1 and Taut and belong to hedgehogs *Galerix*, *Amphexhinus* and *Lantanothereum*, to the mole *Desmanella* and to so far unidentified shrews, Soricidae gen. et sp. indet. (Feru *et al.*, 1979a, 1980). For the time being, the Romanian Miocene localities lack Dimylidae, Heterosoricinae and Crocidosoricinae, insectivores that were very common elsewhere in Europe at that time. Only in the Late Ruscinian and the Biharian the number of insectivore species was rather high (higher than in the other periods), although never as high as in other European countries, such as, for example, in Poland.

The material listed in this article is stored in the Laboratory of Paleontology, University of Bucharest (LPUB) or in the Institut de Spéologie "Émile Racovitza", Bucharest (IS"ÉR").

Insectivore faunas in the Neogene of Romania

MN 7/8

Comănești 1

Location – Crișul Alb Basin, County of Arad, south-west Romania.

Stratigraphy – Astaracian, Late Volhynian.

Literature – Feru *et al.* (1980).

Insectivores – Erinaceidae: *Parasorex socialis* von Meyer, 1865. Talpidae: Talpidae indet. cf. *Desmanella*.

Taxonomic descriptions – Feru *et al.* (1980) listed the insectivores. *Galerix socialis* (H.v. Meyer) in Feru *et al.* (1980) was included in *Parasorex* for reasons given by Van den Hoek Ostende (2001).

Storage of material – IS"ÉR".

Taut

Location – Crișul Alb Basin, County of Arad, south-west Romania.

Stratigraphy – Astaracian, Bessarabian.

Literature – Feru *et al.* (1979a).

Insectivores – Erinaceidae: *Amphelichinus* sp., *Lantanothereum* sp. Soricidae: Soricidae gen. et sp. indet.

Taxonomic descriptions – Feru *et al.* (1979a) listed the insectivores and discussed a specific status of *Lantanothereum*.

Storage of material – IS"ÉR".

MN 9

Comănești 2

Location – Crișul Alb Basin, County of Arad, south-west Romania.

Stratigraphy – Vallesian, Upper Kersonian.

Literature – Feru *et al.* (1980).

Insectivores – Erinaceidae: *Parasorex* gr. *socialis* von Meyer, 1865.

Taxonomic descriptions – Feru *et al.* (1980) listed the insectivores. *Galerix* gr. *socialis* (H. v. Meyer) in Feru *et al.* (1980) is here included in *Parasorex* (see Van den Hoek Ostende, 2001).

Storage of material – IS"ÉR".

MN 11

Reghiu

Location – Department of Vrancea.

Stratigraphy – Early Turolian, Kersonian/Meotian.

Literature – Știucă (2003).

Insectivores – Erinaceidae: *Schizogalerix* ex gr. *sarmatica* (Lungu, 1981). Soricidae: cf. *Paenelimnoecus* sp.

Taxonomic descriptions – The preliminary list of species, including the insectivores as well as their descriptions were given by Știucă (2003). *Galerix* ex gr. *sarmaticus* Lungu, 1981 in Știucă (2003) was included in *Schizogalerix* (Van den Hoek Ostende, 2001).

Storage of material – IS"ÉR".

MN 14

Berești

Location – Dacic Basin, County of Galați, Moldavia.

Stratigraphy – Early Ruscinian, Late Dacian, Parscovian.

Literature – Simionescu (1932), Samson & Rădulescu (1973), Rădulescu *et al.* (1998), Rădulescu & Samson (1995a, 2001).

Insectivores – Erinaceidae: *Erinaceus* sp. Talpidae: *Desmana amutriensis* Rădulescu, Samson & Știucă, 1989, *Talpa neagui* Rădulescu & Samson, 1989 (type locality).

Taxonomic descriptions – Rădulescu & Samson (1989) gave a description of *Talpa*, Rădulescu *et al.* (1989, 1992) of *Desmana* and Rădulescu & Samson (1995a) listed *Erinaceus*

sp. *Myogale* sp. in Simionescu (1932) was included in *Desmana verestchagini* as a new subspecies *D. v. amutriensis* by Rădulescu *et al.* (1989). Rădulescu *et al.* (1992) elevated this taxon to species rank, *D. amutriensis*. *Talpa* sp. in Simionescu (1932) and Samson & Rădulescu (1973) was described by Rădulescu & Samson (1989) as a new species, *T. neagui*.

Storage of material – LPUB.

Ciuperceni 1

Location – Dacic Basin, County of Teleorman, southern Romania.

Stratigraphy – Early Ruscianian, Late Dacian, Parscovian.

Literature – Terzea (1980, 1981, 1997).

Insectivores – Talpidae: *Archaeodesmana getica* (Terzea, 1980) (type locality).

Taxonomic descriptions – Terzea (1980) described *Desmana getica*. Rümke (1985), van den Hoek Ostende *et al.* (1989) and Rzebik-Kowalska & Pawłowski (1994) changed its generic and specific status (see remarks).

Storage of material – IS"ÉR".

Remarks – Terzea (1980) described a new species of desmanine mole, *Desmana getica*, from Ciuperceni 1. Rümke (1985) changed its generic and specific names into *Dibolia bifida* (Engesser, 1980). In a paper on the phylogeny of the European Desmaninae, Van den Hoek Ostende *et al.* (1989) wrote that "Rümke's identification of the mandible from Ciuperceni has been changed to *Dibolia dekkersi*". The latter species was first described from Kardias, one of the Ptolemais lignite mines, in Greece, locality also dated to the Early Pliocene (MN14). However, if the form from Ciuperceni 1 is identical with *Dibolia dekkersi* from Greece, the name *getica* has priority upon the name *dekkersi*.

Rzebik-Kowalska & Pawłowski (1994) noted that the genus *Dibolia* was established by Latreille in 1829 for some species of leaf beetles and that the name *Dibolia* Rümke, 1985 was a junior homonym of *Dibolia* Latreille, 1829. Therefore, Rzebik-Kowalska & Pawłowski (1994) proposed the generic name *Ruemkelia* (in honour of dr C.G. Rümke) for *Dibolia dekkersi* and other species of the genus *Dibolia*. Therefore, the name of desmanine mole from Ciuperceni 1 should be *Ruemkelia getica* (Terzea, 1980). This name was already used by Terzea (1997). However, other authors have not agreed with this generic name and they propose the name *Archaeodesmana* (see remarks of Podlesice, Poland in Rzebik-Kowalska, 2005).

MN 15

Ciuperceni 2

Location – Dacic Basin, County of Teleorman, southern Romania.

Stratigraphy – Late Ruscinian, Early Romanian, Siensian.

Literature – Terzea & Boroneanț (1979), Terzea (1981, 1997).

Insectivores – Talpidae: *Archaeodesmana getica* (Terzea, 1980), Desmaninae (small-sized), *Talpa minor* Freudenberg, 1914, *Talpa csarnotana* Kretzoi, 1959.

Taxonomic descriptions – Terzea (1980) described *Desmana getica* and Rümke (1985), Van den Hoek Ostende *et al.* (1989) and Rzebik-Kowalska and Pawłowski (1994) changed its generic and specific names (see remarks of Ciuperceni 1). Terzea (1997) gave the list of all the Insectivora.

Desmana getica in Terzea (1980) was included in *Dibolia bifida* by Rümke (1985), in *Dibolia dekkersi* by Van den Hoek Ostende *et al.* (1989), in *Ruemkelia getica* in Terzea (1997) and is here listed as *Archaeodesmana getica*. *Talpa* sp. in Terzea & Boroneanț (1979) was included in *Talpa csarnotana* by Terzea (1997).

Storage of material – IS"ÉR".

Dranic-0

Location – Dacic Basin, Oltenia, Jiu Valley, southern Romania.

Stratigraphy – Late Ruscinian, Early Romanian, Siensian.

Literature – Rădulescu *et al.* (1997, 1998), Rădulescu & Samson (2001).

Insectivores – Talpidae: *Archaeodesmana* sp., *Desmana* (large-sized), *Desmanella* cf. *woelfersheimensis* Dahlmann, 2001. Soricidae: *Allosorex stenodus* Fejfar, 1966, *Beremendia fissidens* (Petényi, 1864), *Blarinoides mariae* Sulimski, 1959, *Deinsdorfia* cf. *hibbardi* (Sulimski, 1962), *Sorex* (*Drepanosorex*) cf. *praeearaneus* Kormos, 1934, *Sorex* cf. *minutus* Linnaeus, 1766, *Asoriculus gibberodon* (Petényi, 1864).

Taxonomic descriptions – The first lists of insectivores were published by Rădulescu *et al.* (1995, 1997), and a revision as well as a detailed descriptions were made by Rzebik-Kowalska (2002). *Sorex minutus* in Rădulescu *et al.* (1995) was changed into *Sorex* cf. *minutus* by Rădulescu *et al.* (1997). *Dibolia* sp. in Rădulescu *et al.* (1995) was listed as *Ruemkelia* by Rzebik-Kowalska (2002) and as *Archaeodesmana* in this paper (see remarks of Ciuperceni 1 and of Podlesice, Poland (Rzebik-Kowalska, 2005). *Desmana* cf. *amutriensis* in Rădulescu *et al.* (1995, 1997) was, on account of the paucity of the material, classified as *Desmana* (large size) by Rzebik-Kowalska (2002). *Desmanella* sp. in Rădulescu *et al.* (1995, 1997) was included in *Desmanella* cf. *woelfersheimensis* by Rzebik-Kowalska (2002).

Storage of material – IS"ÉR".

Dranic-1

Location – Dacic Basin, Oltenia, Jiu Valley, southern Romania.

Stratigraphy – Late Ruscinian, Early Romanian, Siensian.

Literature – Rădulescu *et al.* (1993, 1997, 1998), Rădulescu & Samson (2001).

Insectivores – Erinaceidae: *Erinaceus* sp. Talpidae: *Archaeodesmana* sp., *Desmana* (large-sized), *Desmanella* cf. *woelfersheimensis* Dahlmann, 2001. Soricidae: *Blarinoides* sp., *Petenyia hungarica* Kormos, 1934, *Sorex* (*Drepanosorex*) cf. *praeearaneus* Kormos, 1934.

Taxonomic descriptions – Rădulescu *et al.* (1993, 1995, 1997) gave the first lists of the insectivores and Rzebik-Kowalska (2002) made a revision and detailed descriptions. Rzebik-Kowalska (2002) changed *Mioechinus* sp. in Rădulescu *et al.* (1995, 1997) into *Erinaceus*, included *Desmanella* sp. in *D. cf. woelfersheimensis*, and transferred *Dibolia* sp. to *Ruemkelia* (*Archaeodesmana* sp. in this paper, see remarks of Ciuperceni 1 and of Podlesice, Poland (Rzebik-Kowalska, 2005)). *Desmana nehringi* in Rădulescu *et al.* (1993) was included in *Desmana* cf. *amutriensis* by Rădulescu *et al.* (1995), and on account of poor material classified as *Desmana* (large-sized) by Rzebik-Kowalska (2002). Most probably *Desmana* cf. *nehringi* and *Desmana* cf. *amutriensis* in Rădulescu *et al.* (1997) also represent this species.

Storage of material – IS"ÉR".

Dranic-2

Location – Dacic Basin, Oltenia, Jiu Valley, southern Romania.

Stratigraphy – Late Ruscinian, Early Romanian, Siensian.

Literature – Rădulescu *et al.* (1993, 1995, 1997), Rădulescu & Samson (2001).

Insectivores – Talpidae: *Archaeodesmana* sp., *Galemys* sp., *Desmana* (large-sized). Soricidae: *Paenelinnoecus pannonicus* (Kormos, 1934), *Mafia* cf. *csarnotensis* Reumer, 1984, *Deinsdorfia* sp., *Asoriculus gibberodon* (Petényi, 1864).

Taxonomic descriptions – Rădulescu *et al.* (1993, 1995, 1997) gave lists of insectivores and Rzebik-Kowalska (2002) made a revision and the first detailed descriptions.

Deinsdorfia cf. *kordosi* in Rădulescu *et al.* (1993, 1995, 1997) was included in *Deinsdorfia* sp. by Rzebik-Kowalska (2002). *Episoriculus* cf. *gibberodon* in Rădulescu *et al.* (1997) was included in *Asoriculus* by Rzebik-Kowalska (2002), and *Dibolia* sp. in Rădulescu *et al.* (1993, 1995) was included in *Ruemkelia* by Rzebik-Kowalska (2002) and in *Archaeodesmana* in this paper (see remarks of Ciuperceni 1 and of Podlesice, Poland (Rzebik-Kowalska, 2005)). *Galemys sulimskii* in Rădulescu *et al.* (1993, 1995, 1997) was on account of poor material (one fragment of an M2) classified as *Galemys* sp. by Rzebik-Kowalska

(2002). *Desmana nehringi* in Rădulescu *et al.* (1993, 1995) was included in *Desmana* cf. *nehringi* in Rădulescu *et al.* (1997) and on account of the paucity of the material classified as *Desmana* (large-sized) by Rzebik-Kowalska (2002).

Storage of material – IS"ÉR".

Dranic-3

Location – Dacic Basin, Oltenia, Jiu Valley, southern Romania.

Stratigraphy – Late Ruscinian or Ruscinian/Villanyan boundary, Early/Middle Romanian, Sciencian.

Literature – Rădulescu *et al.* (1993,1995, 1997), Rădulescu & Samson (2001).

Insectivores – Talpidae: *Archaeodesmana* sp., *Desmana* (large sized), *Talpa* sp., *Desmanella* cf. *woelfersheimensis* Dahlmann, 2001. Soricidae: *Blarinoides mariae* Sulimski, 1959, *Deinsdorfia* cf. *kordosi* Reumer, 1984, *Asoriculus gibberodon* (Petényi, 1864).

Taxonomic descriptions – Rădulescu *et al.* (1993, 1995, 1997) gave the first lists of insectivores and Rzebik-Kowalska (2002) made a revision and gave descriptions. *Desmana nehringi* in Rădulescu *et al.* (1997) was, on account of the paucity of the material, included in *Desmana* (large-sized) by Rzebik-Kowalska (2002). On the subject of *Archaeodesmana* see remarks of Ciuperceni 1.

Storage of material – IS"ÉR".

Dranic-X

Location – Dacic Basin, Oltenia, Jiu Valley, southern Romania.

Stratigraphy – Late Ruscinian, Early Romanian, Siensian.

Literature – Rzebik-Kowalska (2002).

Insectivores – Talpidae: *Galemys* sp.

Taxonomic descriptions – Rzebik-Kowalska (2002) gave a description of the *Galemys*.

Storage of material – IS"ÉR".

Lupoaia Quarry (8)

Location – Dacic Basin, Motru Valley, County of Gorj, south-west Romania.

Stratigraphy – Late Ruscinian, Early Romanian, Siensian.

Literature – Rădulescu *et al.* (1993, 1998).

Insectivores – Talpidae: *Desmana amutriensis* Rădulescu, Samson & Ştiucă, 1989 (type locality).

Taxonomic descriptions – Rădulescu *et al.* (1989, 1992) described *Desmana*, the only insectivore of this locality. *Desmana verestchagini amutriensis* in Rădulescu *et al.* (1989) got the rank of species in Rădulescu *et al.* (1992).

Storage of material – IS"ÉR".

Măluşteni

Location – Dacic Basin, County of Covurlui, Moldavia.

Stratigraphy – Late Ruscinian, Early Romanian, Siensian.

Literature – Simionescu (1930, 1932), Rădulescu *et al.* (1998), Rădulescu & Samson (2001).

Insectivores – Erinaceidae: *Erinaceus* sp. Talpidae: *Desmana amutriensis* Rădulescu, Samson & Ştiucă, 1989, *Talpa neagui* Rădulescu & Samson, 1989. Soricidae: *Sorex* sp.

Taxonomic descriptions – Simionescu (1930) gave descriptions of *Sorex*, *Talpa* and *Erinaceus*. A revision of the *Talpa* was undertaken by Rădulescu & Samson (1989), and of *Desmana* by Rădulescu *et al.* (1989, 1992). Rădulescu *et al.* (1995) listed all insectivores found in this locality.

Myogale sp. in Simionescu (1932) was included in *Desmana verestchagini amutriensis* by Rădulescu *et al.* (1989), which was later changed into *Desmana amutriensis* (Rădulescu *et al.*, 1992) (see also Bereşti). *Talpa* sp. in Simionescu (1930) and Samson & Rădulescu (1973) was included in *Talpa neagui* by Rădulescu & Samson (1989) (see also Bereşti).

Storage of material – LPUB.

Remarks – Samson & Rădulescu (1973) did not find the remains of *Sorex* reported by Simionescu (1930) from this locality.

MN 16

Debren - 1

Location – Depression of Braşov, Debren Valley, County of Covasna, Central Romania.

Stratigraphy – Early Villanyian, Middle Romanian, Palendovian.

Literature – Rădulescu & Samson (1984).

Insectivores – Talpidae: *Galemys kormosi* (Schreuder, 1940). Soricidae: *Blarinoides mariae* Sulimski, 1959.

Taxonomic descriptions – Rădulescu & Samson (1984) described *Desmana kormosi* [= G.] *kormosi* and *Blarinoides*.

Storage of material – IS"ÉR".

Podari

Location – Dacic Basin, Jiu Valley, south of Craiova, southern Romania.

Stratigraphy – Early Villanyian, Middle Romanian, Palendovian.

Literature – Feru *et al.* (1979b), Rădulescu *et al.* (1993, 1995, 1997).

Insectivores – Erinaceidae: *Erinaceus* sp. Talpidae: *Galemys* sp., *Desmana radulescui* Știucă, Petculescu & Arghir, 2003, *Talpa* sp., *Desmanella* cf. *woelfersheimensis* Dahlmann, 2001. Soricidae: *Paenelimnocus pannonicus* (Kormos, 1934), *Beremendia fissidens* (Petényi, 1864), *Blarinoides mariae* Sulimski, 1959, *Mafia* cf. *csarnotensis* Reumer, 1984, *Deinsdorfia* cf. *hibbardi* (Sulimski, 1962).

Taxonomic descriptions – Feru *et al.* (1979b), Rădulescu and Samson (1995b), and Rădulescu *et al.* (1995, 1997) gave lists of the insectivores. Rzebik-Kowalska (2002) made a revision with detailed descriptions. Știucă *et al.* (2003) described a new species of *Desmana*, *Desmana radulescui*, based on the material described by Rzebik-Kowalska (2002) as *Desmana* (the largest-sized).

Mioechinus sp. in Rădulescu *et al.* (1995, 1997) was included in *Erinaceus* by Rzebik-Kowalska (2002). *Petenyiella gracilis* in Rădulescu & Samson (1995b) and Rădulescu *et al.* (1995, 1997) was included in *Paenelimnocus* by Rzebik-Kowalska (2002), while the *Galemys kormosi* mentioned in these papers was, on account of a poor material, classified as *Galemys* sp. *Desmaninae* indet. (very large) in Rădulescu & Samson (1995b) was mentioned as *Desmaninae* indet. (very large-sized form) in Rădulescu *et al.* (1995), *Desmaninae* indet. in Rădulescu *et al.* (1997), *Desmana* (the largest-sized) in Rzebik-Kowalska (2002), and was described as a new species of *Desmana*, *D. radulescui* by Știuca *et al.* (2003).

Desmanella sp. in Rădulescu & Samson (1995b) and Rădulescu *et al.* (1995, 1997) was included in *Desmanella* cf. *woelfersheimensis* by Rzebik-Kowalska (2002).

Storage of material – IS"ÉR".

Remarks – The presence of *Sorex* ex gr. *minutus* and *Sorex* cf. *minutus* listed by Rădulescu & Samson (1995b) and Rădulescu *et al.* (1995, 1997) has not been confirmed in the work of Rzebik-Kowalska (2002). The description of a new species of *Desmana* on the ground of three isolated teeth (one M1, one i2 and one slightly damaged element, most probably an upper C) seems to be unfounded (see Rzebik-Kowalska 2002).

Valea Crişului

Location – Intracarpethian Basin, Braşov Depression, Central Romania.

Stratigraphy – Early Villanyian, Romanian.

Literature – Rzebik-Kowalska (2002).

Insectivores – Talpidae: *Desmana* (large-sized).

Taxonomic descriptions – Rzebik-Kowalska (2002) gave a description of the *Desmana*.

Storage of material – IS"ÉR".

MN 17

Cherleştii - Moşteni

Location – Dacic Basin, Olt Valley, southern Romania.

Stratigraphy – Late Villanyian, Late Romanian, Valahian.

Literature – Feru *et al.* (1978), Rădulescu *et al.* (1995).

Insectivores – Talpidae: *Desmana* (medium-sized), *Desmana* (large sized).

Taxonomic descriptions – Rădulescu & Samson (1987) and Rădulescu *et al.* (1995) listed *Desmana*. *Desmana nehringi* in Feru *et al.* (1978), Rădulescu & Samson (1987) and Rădulescu *et al.* (1995) was classified as *Desmana* (medium-sized)(partim) and *Desmana* (large-sized) (partim) by Rzebik-Kowalska (2002).

Storage of material – IS"ÉR".

Slatina 1

Location – Dacic Basin, Olt Valley, southern Romania.

Stratigraphy – Late Villanyian, Late Romanian, Valahian.

Literature – Feru *et al.* (1978), Rădulescu & Samson (2001).

Insectivores – Talpidae: *Galemys* sp., *Desmana* (large-sized).

Taxonomic descriptions – Rădulescu *et al.* (1995) listed *Galemys* and Rzebik-Kowalska (2002) gave descriptions of *Galemys* and *Desmana*. *Galemys kormosi* in Rădulescu *et al.* (1995, 1997) was, on account of the poor material, classified by Rzebik-Kowalska (2002) as *Galemys* sp.

Storage of material – IS"ÉR".

Slatina 2

Location – Dacic Basin, Olt Valley, southern Romania.

Stratigraphy – Late Villanyian, Late Romanian, Valahian.

Literature – Feru *et al.* (1978), Rădulescu *et al.* (1995, 1998), Rădulescu & Samson (2001).

Insectivores – Talpidae: *Desmana nehringi* Kormos, 1913, *Talpa fossilis* Petényi, 1864. Soricidae: *Beremendia fissidens* (Petényi, 1864).

Taxonomic descriptions – Rădulescu & Samson (1987) and Rădulescu *et al.* (1995) listed *Talpa*, *Desmana*, and *Beremendia* and Rzebik-Kowalska (2002) discussed the systematic position of *Talpa* and *Beremendia*.

Storage of material – IS"ÉR".

Remarks – Rzebik-Kowalska (2002) did not find *Desmana nehringi* mentioned by Rădulescu & Samson (1987) and Rădulescu *et al.* (1995).

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