

Taxonomic notes on some recently described Eocene Glires (Mammalia)

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Hypsomyilus beijingensis Zhai, 1977 (Eurymylidae) from the middle Eocene of China is considered as Lagomorpha incertae familiae. *Shamolagus ninae* Gabunia, 1984 (Palaeolagidae) from the early Eocene of Kazakhstan is excluded from the genus *Shamolagus* Burke, 1941, considered as a *nomen dubium* and referred to Lagomorpha incertae familiae. *Bulatia aksyirica* Gabunia & Shevyreva, 1994 (Mixodontia incertae sedis) from the middle Eocene of Kazakhstan is considered as a *nomen dubium* and referred to Mammalia incertae ordinis. *Anatolmylus rozhdestvenskii* Averianov, 1994 (Mimotonidae) and *Romanolagus hekkeri* Shevyreva, 1995 (Palaeolagidae), both from the early Eocene Andarak 2 locality in Kirghizia, are considered as junior subjective synonyms of *Anatolimys rozhdestvenskii* Shevyreva, 1994 (Eurymylidae) described from the same locality; this species actually belongs to Mimotonidae. Accordingly, *Anatolimys* Shevyreva, 1994 = *Anatolmylus* Averianov, 1994 = *Romanolagus* Shevyreva, 1995 (new synonymy). *Annalagus margarita* Shevyreva, 1996 (Palaeolagidae) is considered as a *nomen dubium* and referred to the family "Mytonolagidae". *Dituberolagus venustus* Tong, 1997 (?Leporidae) from the middle Eocene of China is provisionally referred to Mimotonidae.

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Hypsomyilus beijingensis Zhai, 1977 (Zhai, 1977, p. 174, pl. 1, figs 7-9; Dashzeveg & Russell, 1988, fig. 11). The species was described from a fragmentary dentary with two molariform teeth (supposed d3-4) from the middle Eocene Changxindian Formation near Beijing, China and originally referred to the mixodontian [anagalidian in some Chinese authors] family Eurymylidae Matthew, Granger & Simpson, 1929. This systematic attribution was generally accepted (Li & Ting, 1983, p.30, 1993, tab. 11.1; Russell & Zhai, 1987, p. 205; Lucas, 1996, p. 135). The genus was placed in the monotypic subfamily Hypsimylinae (*nomen nudum*) within Eurymylidae by Dashzeveg & Russell (1988, p. 158). The teeth of the *H. beijingensis* holotype are p4 and m1 rather than d3-4 (see Dashzeveg & Russell, 1988, p. 143; Averianov, 1994, p. 395). In the extreme degree of unilateral hypsodonty and conid-like structure of hypoconulids *H. beijingensis* is more similar to the true lagomorphs rather than to mixodontians (Wilson, 1989, p. 4; Averianov, 1994, p. 395; Gabunia & Shevy-

reva, 1994, p. 61). The genus was transferred to Leporidae Fischer, 1817 by McKenna & Bell (1997, p. 111), who included in this family a number of generalized Paleogene lagomorphs. The family Leporidae sensu McKenna & Bell 1997 is not monophyletic and should be restricted to Neogene-Recent taxa with true hypsodont (rootless) teeth. *H. beijingensis* is a distinct taxon at the generic level (autapomorphy: hypoconulid on m1 very large, nearly equal in length to the remaining part of the talonid) and most similar to *Valerialagus reshetovi* Shevyreva, 1995 from the early Eocene of Kirghizia. Both taxa lack synapomorphies of Ochotonidae Thomas, 1897 and Leporidae, the only currently recognized as monophyletic taxa within Lagomorpha, and should be considered as Lagomorpha incertae familiae.

Shamolagus ninae Gabunia, 1984 (Gabunia, 1984, p. 124, pl. 15, fig. 1a, b). This species was described from two isolated lower molariform teeth from the Lower Obayla Formation (early Eocene) at Aksyir, Zaisan depression (Kazakhstan). The species

was originally attributed to the lagomorph family Palaeolagidae Dice, 1929, in spite of the fact that the genus *Shamolagus* Burke, 1941, known previously from the middle Eocene of China, was never attributed to that family and was uniformly considered as belonging to Leporidae. *S. ninae* was cited as belonging to Leporidae by Russell & Zhai (1987, p. 167). *Shamolagus* was excluded from Leporidae by McKenna (1982, fig. 1), but again considered within this family by McKenna & Bell (1997, p. 111). Recently, Shevyreva (1996, p. 377) concluded that *S. ninae* may belong to the mixodontian family Eurymylidae. The known teeth of *S. ninae* are relatively low crowned, lacking unilateral hypsodonty and generally resemble the lower molariform teeth of *Eurymylus laticeps* Matthew & Granger, 1925 from the late Paleocene of Mongolia (Sych, 1971, pl. 26, figs 1, 2; pl. 27, figs 1, 2). They differ from the teeth of *E. laticeps* in the greater difference in height between the trigonid and talonid and in the more marked remnants of conid-like hypoconulid. In the latter feature, the species resembles *Valerilagus reshetovi* from the early Eocene of Kirghizia (unpublished author's material). Most probably, "*Shamolagus*" *ninae* is neither an eurymylid nor a mixodontian but a true lagomorph. It differs from the closest lagomorph *V. reshetovi* in the brachyodont (not unilaterally hypsodont) molars (plesiomorphic condition for Lagomorpha), and from other Eocene lagomorph genera also in the greater difference in height between trigonid and talonid. *S. ninae*, based on known material, lacks any autapomorphies and could not be diagnosed at the generic level. It is considered here as a *nomen dubium*. It lacks any apomorphic characters of Ochotonidae or Leporidae and is referred here to Lagomorpha incertae familiae.

Bulatia aksyirica Gabunia & Shevyreva, 1994 (Gabunia & Shevyreva, 1994, p. 60, figs a-g). The taxon was described from one isolated lower molar (m1 or m2) from the middle Eocene Sargamyss Formation in Zaisan depression (Kazakhstan) and originally referred to the Mixodontia incertae familiae. The tooth is generally similar to p4 of the mimotonid *Aktashmys montealbus* Averianov, 1994 from the early Eocene of Kirghizia (Averianov, 1994, fig. 6D-H) and p4 of various *Mimotona* species from the Paleocene of China (Li & Ting, 1985, pl. 1, fig. 5a; Dashzeveg & Russell, 1988, figs 12, 14, 15) and could be p4 of an mimotonid. The holo-

type of *B. aksyirica* resembles also teeth of some anagalids from the Paleocene of China with unilaterally hypsodont dentition, like *Hsiuannania maguensis* Xu, 1976 and *H. tabiensis* Xu, 1976 (Xu, 1976, figs 5-8, pl. 2, fig. 3, pl. 3, fig. 3; Thenius, 1989, Abb. 422) or *Qipania yui* Hu, 1993 (Hu, 1993, figs 5, pl. 1, fig. 2). As *B. aksyirica* could not be referred based on known evidence either to Anagalida or Mixodontia, it is considered here as a *nomen dubium* and referred to Mammalia incertae ordinis.

Anatolimys rozhdstvenskii Shevyreva, 1994 (Shevyreva, 1994, p. 571, fig. 1). This taxon was described from two isolated upper molars from the early Eocene locality Andarak 2 in Kirghizia and originally referred to the Mixodontia, Eurymylidae. The same species was described as *Anatolmylus rozhdstvenskii* Averianov, 1994 based on more complete material from the same locality (Averianov, 1994, p. 402, figs 3, 4). The holotype of *A. rozhdstvenskii* Averianov, 1994 is a dentary fragment with i2, p4, m2 and m3 and alveoli of i3, p3 and m1. This informative fragment allows to determine the dental formula of the species (2/0/2/3) which is characteristic for the mixodontian family Mimotonidae Li in Chow & Qi, 1978. *Anatolmylus rozhdstvenskii* was originally referred to the Mimotonidae (Averianov, 1994, p. 401) and not to the Eurymylidae, which have one lower incisor only. Averianov's paper was published in "Acta Palaeontologica Polonica" in December 1994 and Shevyreva's paper was published in the October issue of "Doklady Akademii nauk" which was registered in the library of the Zoological Institute, St. Petersburg on November 28, 1994. Therefore, *Anatolimys rozhdstvenskii* Shevyreva, 1994 is considered here as a senior subjective synonym of *Anatolmylus rozhdstvenskii* Averianov, 1994. The information on the dates of publication of respective names and on relative priority of Averianov's name published by Averianov & Godinot (1998: 212) is incorrect.

Romanolagus hekkeri Shevyreva, 1995 [*nomen nudum* (?) in Shevyreva, 1994, p. 572] (Shevyreva, 1995, p. 377, fig. 1(a-v)). This taxon was described from a maxillary fragment with M1 from the early Eocene locality Andarak 2 in Kirghizia and originally referred to the Palaeolagidae (Lagomorpha); the paper of 1994 contained a few characters given in the discussion; a description was published in 1995. The tooth is unilaterally

hypsodont, with paracone and metacone forming triangle and with considerably developed postcingulum. The two later characters are unusual for Lagomorpha but very typical of mixodontians. In fact, the holotype of *R. hekkeri* could not be distinguished by the size or morphology from the known upper molars of the mimotonid *Anatolimys rozhdestvenskii* described from the same locality (see above). Therefore, *Romanolagus hekkeri* Shevyreva, 1995 is considered here as a junior subjective synonym of *Anatolimys rozhdestvenskii* Shevyreva, 1994 (see also the note above about the paper by Averianov & Godinot, 1998). The complete synonymy of the species is, accordingly, *Anatolimys rozhdestvenskii* Shevyreva, 1994 = *Anatolmylus rozhdestvenskii* Averianov, 1994, **syn. n.** = *Romanolagus hekkeri* Shevyreva, 1995, **syn. n.** The respective generic names based on these species are synonyms as well: *Anatolimys* Shevyreva, 1994 = *Anatolmylus* Averianov, 1994, **syn. n.** = *Romanolagus* Shevyreva, 1995, **syn. n.**

Annalagus margarita Shevyreva, 1996 (Shevyreva, 1996, p. 375, fig. 1). The species was described from several isolated teeth (holotype: d3; paratypes: lower molariform tooth, upper incisors) from the upper Eocene lower Aksyir Formation in Zaisan depression (locality Baldys), Kazakhstan and originally referred to Amphilaginae, Palaeolagidae, Lagomorpha. The known material on this species is not diagnostic at the generic level, all lagomorph fossil taxa are based on diagnostic features of permanent dentition, the limits of variation for deciduous teeth are not known, and d3 is not known for the majority of Eocene lagomorph genera. Therefore, the name *Annalagus margarita* Shevyreva, 1996 is considered here as a *nomen dubium*. In the small, simple, well separated anteroconid of rounded shape on d3 (plesiomorphic condition?), *A. margarita* is most similar to species of the genera *Mytonolagus* Dice, 1934, *Procaprolagus* Gureev, 1960, *Palaeolagus* Leidy, 1856 and *Megalagus* Walker, 1931, most approaching the condition of "*Mytonolagus* near *M. petersoni*" Burke, 1934 (Dawson, 1970, fig. 26) and *Procaprolagus vusillus* Storer, 1984 (Storer, 1984, fig. 14N). d3 of *A. margarita* differs from d3 in both latter species by the relatively larger anteroconid and lack (or early loss by wear) of hypoconulid (derived features?). Among the Eocene Asiatic lagomorphs, the d3 is known also for *Valerialagus reshetovi* Shevyreva, 1995 from

the early Eocene of Kirghizia (unpublished material of N.S. Shevyreva). In this species, d3 has a relatively smaller anteroconid, not well separated from the trigonid. By the structure of the d3, lower molariform tooth and upper incisors, *A. margarita* could be provisionally referred to the family "Mytonolagidae" (paraphyletic group).

Dituberolagus venustus Tong, 1997 (Tong, 1997, p. 57, 204, fig. 31, pl. 5, figs 1-4). The taxon was described from several isolated lower teeth from the middle Eocene Hetaoyuan Formation in Henan Province, China and originally referred to the Lagomorpha, ?Leporidae. It is generally similar in dental morphology to *Bulatia aksyirica* from the middle Eocene of Kazakhstan (see above), but differs in the more simplified structure of talonids lacking distinct cusps. Probably, an isolated M2 from the same locality (IVPP 10230.10; Tong, 1997, fig. 29E, pl. 4, fig. 13) originally referred to the lagomorph *Lushilagus? danjiangensis* Tong & Lei, 1987 belongs to the same species. It is noticeably similar to upper molars of mimotonid *Aktashmys montealbus* from the early Eocene of Kirghizia (Averianov, 1994, fig. 5). If this assignment is correct, *D. venustus* could be referred to the family Mimotonidae. The taxon is distinct at the generic level (autapomorphy: simplified ridge-like talonids without distinct cusps).

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