

Overview of Myospalacids (Cricetidae, Myospalacinae) from Transbaikalia

by

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Abstract

Review of data on myospalacid remains of the Middle Pliocene through the Late Pleistocene from Transbaikalia are presented. The Pliocene species belong to the genus *Prosiphneus* and the most of the Pleistocene ones to the genus *Myospalax*. This group of rodents was abundant during the Middle Pliocene but gradually reduced in number towards Recent time.

Keywords: *Myospalax*, *Prosiphneus*, Cricetidae, Pliocene, Pleistocene, Transbaikalia

Zusammenfassung

Es wird ein kurzer Überblick über die Daten der Myospalacidenreste für das Mittel- und Spätpliozän in Transbaikalien gegeben. Die pliozänen Arten gehören zur Gattung *Prosiphneus* und die meisten pleistozänen Arten zur Gattung *Myospalax*. Diese Gruppe von Nagetieren war zahlreich im Laufe des Mittelplioziäns und wurde bis heute allmählich reduziert.

1. Introduction

Myospalacids or zokors are endemics of Asia, the present area of distribution restricted to the south of West Siberia, the Altai region, eastern Kazakhstan, the south of eastern Transbaikalia, the south of Far East of Russia, North-East Mongolia and in Central China and south of China. The recent myospalacids are represented by seven species: *Myospalax psilurus* (MILNE-EDWARDS, 1874), *M. epsilanus* THOMAS, 1912, *M. aspalax* (PALLAS, 1776), *M. myospalax* (LAXMANN, 1773), *M. fontanieri* (MILNE-EDWARDS, 1867), *M. rotschildi* THOMAS, 1911, and *M. smithi* THOMAS, 1911 (ROSSOLIMO, 1995).

The record of myospalacids in Central Asia covers the time span from the Late Miocene to the Recent and in the Transbaikalian area they are known from the Middle Pliocene to the Recent. The classification of myospalacids, mainly with emphasis on the extinct species, was given recently by ZHENG (1994). This author followed to the classification of TEILHARD DE CHARDIN & YOUNG (1931) referring myospalacids to the family Siphneidae (TEILHARD DE CHARDIN & YOUNG, 1931) with three subfamilies: Myospalacinae LILLJEBORG, 1866, Prosiphneinae LEROY, 1941 and Mesosiphneinae ZHENG, 1994. In my research I follow the classification of GROMOV universally accepted in systematics of rodents (GROMOV & ERBAJEVA, 1995) in which this group of rodents is attributed to the family Cricetidae FISCHER, 1817 with subfamily Myospalacinae LILLJEBORG, 1866 in which the extinct rooted species are referred to the genus *Prosiphneus* TEILHARD DE CHARDIN, 1926 and the rootless forms to the genus *Myospalax* LAXMANN, 1769.

Transbaikalian myospalacids comprise seven species belonging to two genera distributed from the Middle Pliocene to the Recent. The extinct species are: *Prosiphneus praetingi* TEILHARD DE CHARDIN (1942), *P. aff. lyratus* TEILHARD DE CHARDIN, 1942, *P. youngi* TEILHARD DE CHARDIN, 1940, *Myospalax omegodon* TEILHARD DE CHARDIN & YOUNG, 1931, *M. wongi* (YOUNG, 1934). The modern species are: *Myospalax aspalax* (PALLAS, 1778) and *M. psilurus* (MILNE-EDWARDS, 1874) (GROMOV & ERBAJEVA, 1995; ERBAJEVA, 1970; ALEXEEVA, 2005).

2. The Sequence of Myospalacid Faunas

The stratigraphically oldest fauna with zokors in the Transbaikalian area is Udunga (Fig. 1) situated on the left bank of the Temnik river in the western Transbaikalia. A list of both large and small mammals is given by ALEXEEVA (2005). This fauna is characterized by the predominance among small mammals of zokors which belong to *Prosiphneus praetingi* in parallel with leporids of lagomorphs. The species was abundant, being represented by more than 40% of the of small mammal remains. This taxon is known as well from the sites of Tologoi 1.1 and Beregovaya (Western Transbaikalia) and Gryazi (Eastern Transbaikalia).

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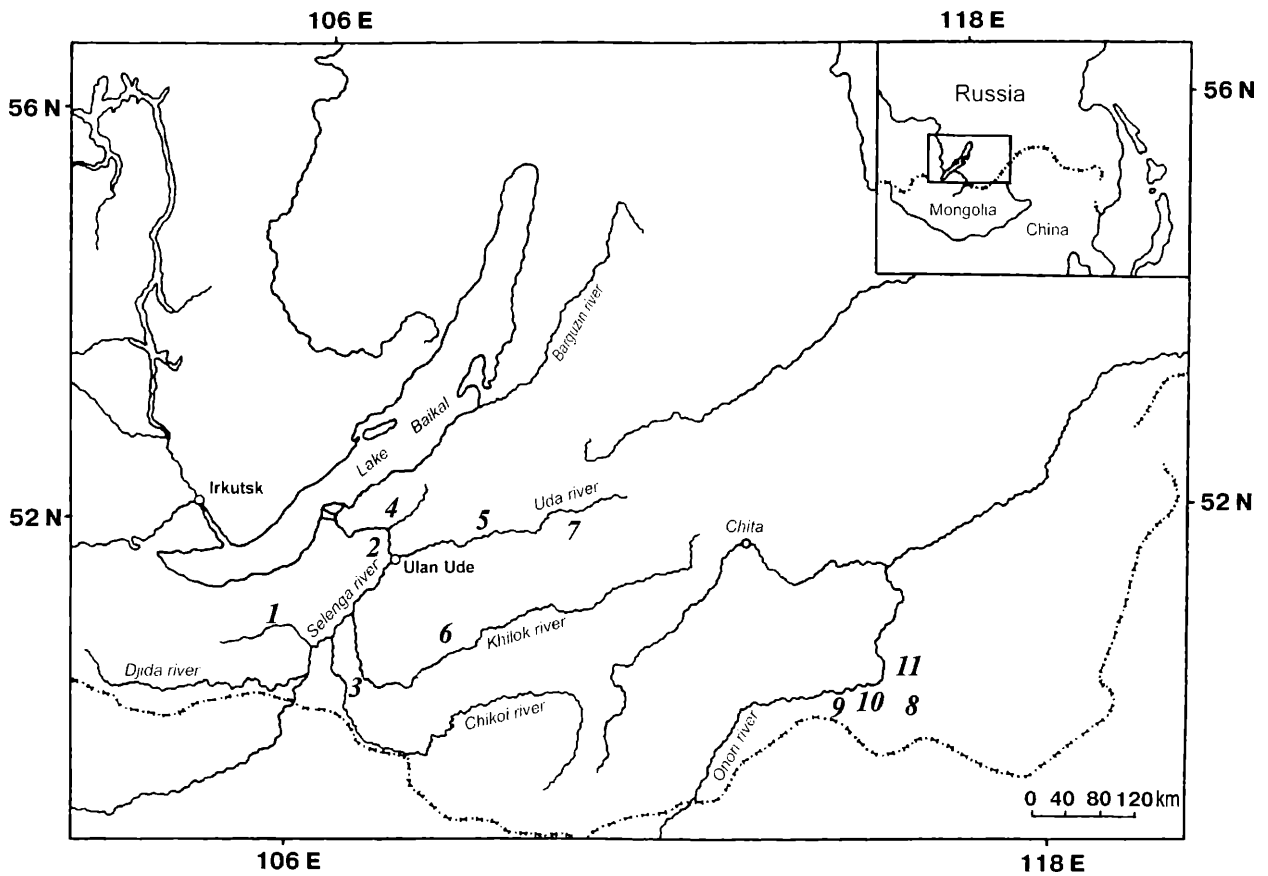


Figure 1: Sketch map of the main localities of extinct Transbaikalian myospalacids: 1 – Udunga; 2 – Tologoi; 3 – Beregovaya; 4 – Zasukhino, Klochnovo I, II; 5 – Dodogol; 6 – Ust'-Obor; 7 – Kudun; 8 – Gryazi; 9 – Nizhnii Tsasuchei; 10 – Voronii Yar; 11 – Notsui.

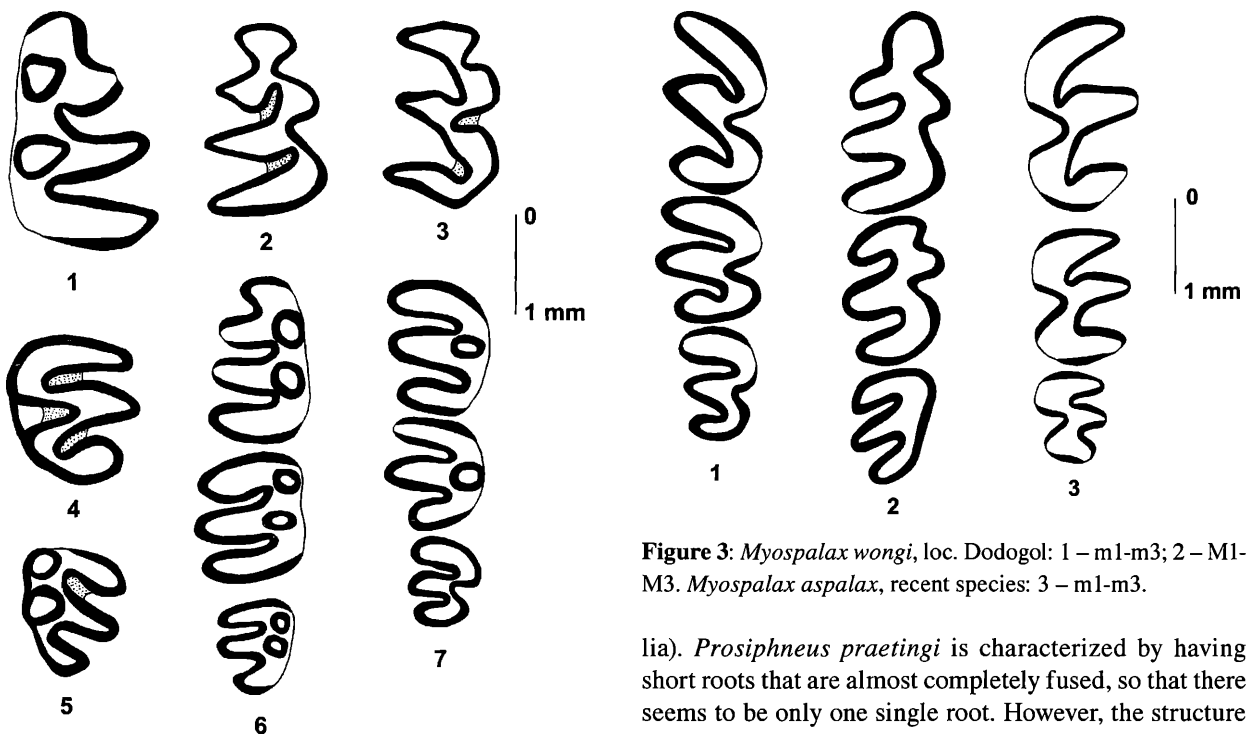


Figure 2: *Prosiphneus praetingi*, loc. Udunga: 1, 2 – M1; 3 – m1; 4 – m2; 5 – M3. *Prosiphneus yougi*, loc. Dodogol: 6 – M1-M3; 7 – m1-m3.

Figure 3: *Myospalax wongi*, loc. Dodogol: 1 – m1-m3; 2 – M1-M3. *Myospalax aspalax*, recent species: 3 – m1-m3.

lia). *Prosiphneus praetingi* is characterized by having short roots that are almost completely fused, so that there seems to be only one single root. However, the structure of the roots changes during the individual age of species. Young individuals have an open tooth root and teeth are hypsodont-like; in somewhat older individuals enamel cavities gradually close and root formation takes place.

West Transbaikalian Pliocene and Pleistocene small mammal biochronology				
Geologic period		Age (Ma)	MN/MQ	Small mammal associations
Holocene		0.01		Recent faunas
Pleistocene	Late	0.125	MQ 25-26	<i>Sorex</i> sp., <i>Lepus tolai</i> , <i>L. timidus</i> , <i>Ochotona daurica</i> , <i>Marmota sibirica</i> , <i>Allactaga sibirica</i> , <i>Spermophilus undulatus</i> , <i>Cricetulus barabensis</i> , <i>Meriones unguiculatus</i> , <i>Ellobius tancrei</i> , <i>Lagurus lagurus</i> , <i>Lasiopodomys brandti</i> , <i>Microtus gregalis</i> , <i>M. oeconomus</i> , <i>M. fortis</i> , <i>M. maximoviczi</i>
	Middle	0.78	MQ 21-24	<i>Ochotona daurica</i> , <i>O. gureevi</i> , <i>Marmota sibirica</i> , <i>Spermophilus gromovi</i> , <i>Allactaga sibirica transbaikalica</i> , <i>Ellobius tancrei</i> , <i>Eolagurus simplicidens</i> , <i>Lagurus transiens</i> , <i>Meriones unguiculatus</i> , <i>Lasiopodomys brandti</i> , <i>Microtus gregalis</i> , <i>M. oeconomus</i> , <i>M. mongolicus</i> , <i>Cricetulus barabensis</i> , <i>Myospalax wongi</i>
	Early	1.8	MQ19-20 MN18	<i>Crocidura</i> sp., <i>Ochotona tologoica</i> , <i>O. zasuchini</i> , <i>O. bazarovi</i> , <i>Spermophilus tologoicus</i> , <i>Prolagurus pannonicus</i> , <i>P. ternopolitanus</i> , <i>Lagurodon arankae</i> , <i>Terricola hintoni</i> , <i>Myospalax omegodon</i> , <i>Prosiphneus</i> cf. <i>youngi</i> , <i>Allophaiomys pliocaenicus</i> , <i>Borsodia laguriformes</i>
Pliocene	Late	2.6	MN 17	<i>Spermophilus itancinicus</i> , <i>Ochotona</i> cf. <i>nihewanica</i> , <i>Clethrionomys kretzoi</i> , <i>Villanyia klochnevi</i> , <i>Cromeromys</i> sp., <i>Marmota</i> sp., <i>Allactaga</i> sp., <i>Cricetulus</i> cf. <i>barabensis</i> , <i>Prosiphneus youngi</i>
	Middle	3.6	MN 16	<i>Petenya hungarica</i> , <i>Beremendia fissidens</i> , <i>Hypolagus multiplicatus</i> , <i>H. transbaikalicus</i> , <i>Ochotonoides complidens</i> , <i>Ochotona gromovi</i> , <i>O. intermedia</i> , <i>O. sibirica</i> , <i>Marmota tologoica</i> , <i>Cricetinus varians</i> , <i>Kowalskia</i> sp., <i>Gromovia daamsi</i> , <i>Villanyia eleonorae</i> , <i>Mimomys minor</i> , <i>Promimomys gracilis</i> , <i>P. stehlini</i> , <i>Orientalomys sibirica</i> , <i>Prosiphneus praetingi</i>

In the adult stage the roots are closed. The other Middle Pliocene taxon – *Prosiphneus* aff. *lyratus* – is known from Tologoi 1.1 and is represented by a sole specimen of a rather adult stage.

The next stratigraphic stage is represented by the Late Pliocene localities of Klochnevo 1.1, Klochnevo 1.2 and Zasukhino 1. In these faunas *Prosiphneus praetingi* is replaced by *Prosiphneus youngi*, a rooted species. However, compared to *P. praetingi*, the root formations began at an older individual age. The teeth crowns are more hypsodont than in *P. praetingi*.

The Early Pleistocene faunas comprise species *Prosiphneus youngi*, which is here more advanced form than the one from the Late Pliocene. It differs from the latter by its slightly larger size and higher teeth crown, and by its very small roots which appeared at the latest individual stage. This morphotype is known from the localities of Tologoi 2.2, Kudun, Zasukhino 2 and 3, Dodogol 1 and 2, Ust'-Obor, but the fossil remains in these localities are not numerous. At the end of the Early Pleistocene the first appearance of the rootless zokors of the genus *Myospalax*

occurs in Dodogol 2. Here *Myospalax omegodon* coexisted with the latest rooted form of *Prosiphneus youngi*.

In the Middle Pleistocene the rooted zokors *Prosiphneus* have disappeared from the faunas and *Myospalax omegodon* is replaced by *Myospalax wongi*. The latter species is known from the localities of Tologoi 2.4 and 2.5, Dodogol 3 and 4 in Western Transbaikalia and Nizhnii Tsasuchei in Eastern Transbaikalia. Few fossil remains are known from other localities, where they are classified as *Myospalax* sp.

In the Late Pleistocene, the zokors, mainly *Myospalax* cf. *aspalax*, are scarce in faunas from Western Transbaikalia and slightly less scarce in the faunas from Eastern Transbaikalia (Voronyi Yar, Notsui, a.o.). However, they are never abundant. The zokors inhabited in the past a larger area compared to their modern distribution, which is restricted from the south of Eastern Transbaikalia to the boundary of North-East Mongolia. It is possible to suppose that with climatic changes and deteriorations of favourable biotopes and vegetations, zokors adapted to undersurface habitats, reducing their area of distribution.

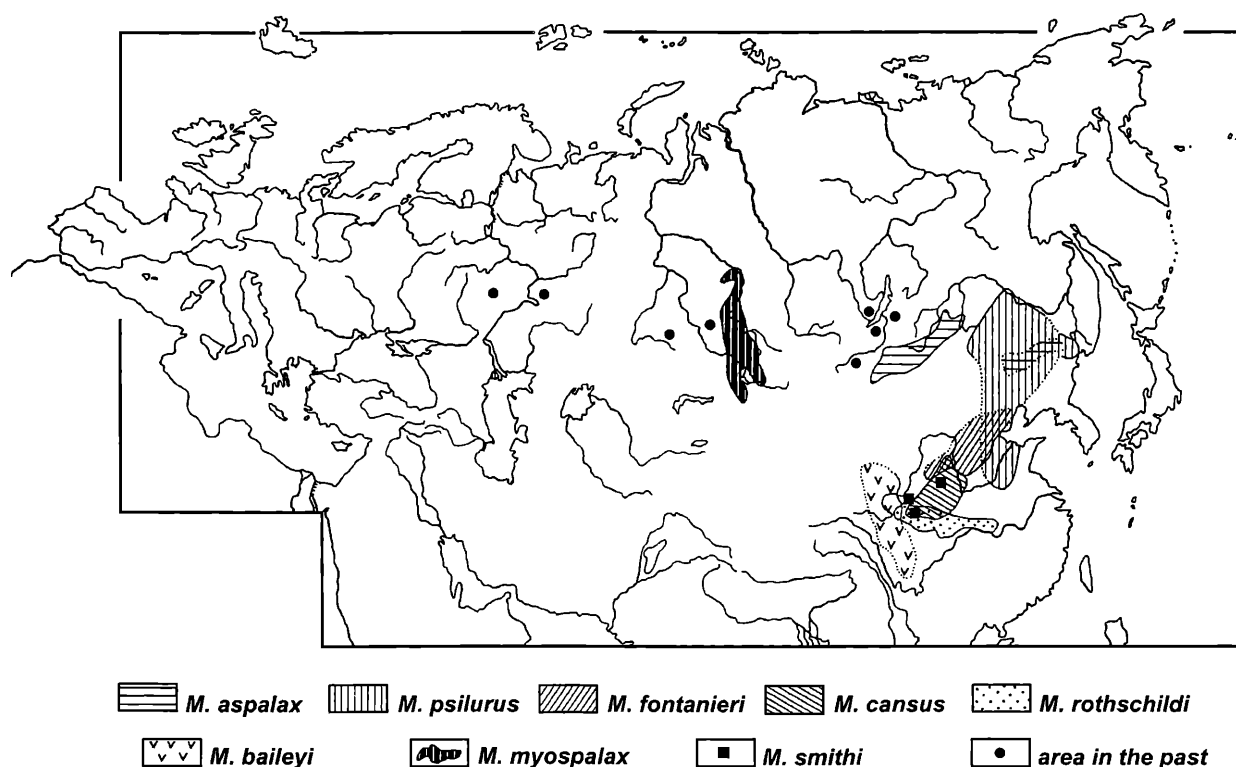


Figure 4: Distribution area of the modern zokors (genus *Myospalax*) and past distribution of the genera *Prosiphneus* and *Myospalax* on the territory of Russia.

3. Acknowledgements

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