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New Data on the Distribution of Mammals in the Mongolian People's Republic

[Pp. 1 — 11, pls. I—III, 1 text fig.]

Nowe dane o rozmieszczeniu ssaków w Mongolskiej Republice Ludowej

Новые данные о распространении млекопитающих в Монгольской Народной Республике

Abstract. Some contemporary mammals and their remains from owls' pellets were collected occasionally during the Polish palaeontological expeditions to the Gobi Desert in the years 1963—1965. The author offers the results of the study of this material, which provides some new data concerning the distribution of contemporary mammals in the Mongolian People's Republic. Some species of jerboas regarded very rare, e. g., *Cardiocranius paradoxus* and *Salpingotus kozłovi*, have turned out to be fairly numerous represented in the diet of owls.

In 1954 A. G. BANNIKOV published a monograph of the mammals of the Mongolian People's Republic based both on his own long studies and on the whole earlier literature. On account of the large area included in his study the data on the distribution of particular species were still poor in many cases. A few faunistic papers by Mongolian and Soviet-Union zoologists have appeared since BANNIKOV's monograph. As regards southern Mongolia, with which we are mainly concerned here, these are, for example, the papers by TSHUGUNOV (1959, 1962), TARASOV (1958) and ERDENDAGVA (1964). However, we are still far from the detailed knowledge of the distribution of mammals in the desert part of Mongolia.

In the years 1963—1965 three Polish-Mongolian paleontological expeditions to the Gobi Desert were organized, on the part of Poland, by the Institute of Palaeozoology, Polish Academy of Sciences (Head: Prof. Z. KIELAN-JAWOROWSKA). Some of the members of the expeditions occasionally collected also

mammals, above all, their remains from owls' pellets, which were found in large numbers in desert areas. In 1963 such specimens were gathered by Dr Andrzej SULIMSKI, in 1964 by the author of the present paper and in 1965 by Dr Henryk KUBIAK. I am greatly indebted to both my colleagues, who kindly provided me with the material collected by them for study. I also owe my gratitude to Dr I. M. GROMOV of the Zoological Institute, Academy of Sciences of the USSR, in Leningrad, who, having at his disposal rich comparative materials from Central Asia, checked part of my identifications and lavished valuable advice and remarks on me. I thank Dr Ryszard GRADZIŃSKI and Mgr Gwidon JAKUBOWSKI, who permitted me to reproduce the photographs taken by them.

The material used for the present study consists of incidental collections. Most of the material are remains from owls' pellets, which are well preserved and easy to find in the desert climate. It is not possible to determine the specific membership of the owls from which these pellets were derived. In addition, some specimens of small mammals and bony remains of larger species were collected and observations were made on the occurrence of some ungulates.

The results of this study show that some small jerboas, such as *Cardio-*

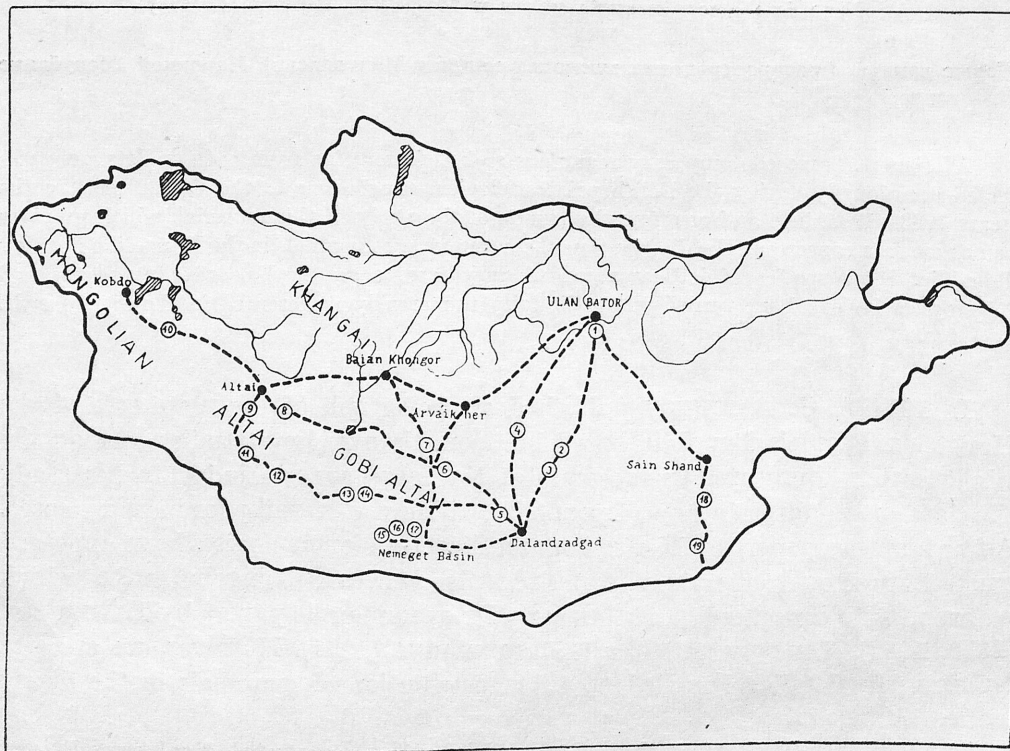


Fig. 1. Route of the Polish-Mongolian palaeontological expeditions in 1963—1965. The numbers indicate the places in which specimens of recent mammals were collected (further explanations in the text).

cranius paradoxus and *Salpingotus kozlovi*, known hitherto from several specimens only and considered to be extremely rare, occur in large numbers in owls' pellets. This indicates that the scarceness of these animals in collections has been due to the fact that they are hard to catch by the methods used to capture rodents in desert areas.

The map in Fig. 1 shows the routes of the palaentological expeditions in 1963—1965 and the places where specimens of mammals were collected. These last are, as follows:

1. Ulan Bator, 10 km south of the town, in a steppe. Material collected by K. KOWALSKI.
2. On the way from Mandal Gob to Dalandzadgat, in a desert steppe. Collector: H. KUBIAK.
3. Ruins of the Oldakhu Khid monastery between Mandal Gob and Dalandzadgat, in a desert steppe. Collector: K. KOWALSKI.
4. Near Delger Khangai, in a steppe. Collector: H. KUBIAK.
5. Bayn Dzak (Sharabakh Usu) near Bulgan, on the border between a desert and a desert steppe. It is a classical locality of occurrence of Cretaceous mammals and reptiles, where the Central Asiatic Expeditions of the American Museum of Natural History in New York also camped and collected specimens of contemporary mammals. Collectors: A. SULIMSKI and K. KOWALSKI.
6. Khung Kureh, north of Baga Bogdo Mts., in a desert steppe. Collector: H. KUBIAK.
7. Shand Gol (Hsanda Gol in American publications), between the Gobi Altai Mts. and the Khangai Mts., a desert steppe. Collector: H. KUBIAK.
8. Begger Noor, SW of Yessen Bulak (Altai), in a desert steppe. Collector: H. KUBIAK.
9. 20 km S of Yessen Bulak (Altai), in desert steppe. Collector: K. KOWALSKI.
10. Altan Teli, at the foot of the Mongolian Altai, in a steppe. Collector: H. KUBIAK.
11. Atch Bogdo Mts. (3761 m a. s. l.), in a highland steppe at a high of about 3000 m a. s. l. Collector: K. KOWALSKI.
12. Dzahooy Somon, an oasis in the desert. Collector: K. KOWALSKI.
13. In the vicinity of Bayn Gob, S of the Ikh Bogdo Mts., in a desert. Collector: K. KOWALSKI.
14. Near Bayan Leg, in a desert. Collector: K. KOWALSKI.
15. Naran Bulak and Tsagan Khushu, at the W end of the Nemeget Basin, in a desert. Collectors: K. KOWALSKI, H. KUBIAK, A. SULIMSKI.
16. Altan Ula in the Nemeget Basin, in a desert at the foot of mountains. Collector: H. KUBIAK.
17. At the foot of the Nemeget Mts. in the Nemeget Basin, in a desert. Collector: K. KOWALSKI.
18. Bayn Shireh, S of Sayn Shand, the East Gobi, in desert. Collector: A. SULIMSKI.
19. Ergelyeenn Dzo, the East Gobi, in a desert. Collector: A. SULIMSKI.

NOTES ON PARTICULAR SPECIES

Erinaceus auritus GMELIN, 1770

I found a spine of the Long-eared Hedgehog in owl pellets from Naran Bulak (15). In 1965 H. KUBIAK often observed hedgehogs in the camp of the expedition at the foot of the Nemeget Mts. (17). According to BANNIKOV (1954), this species occurs throughout the desert zone of Mongolia.

Crocidura suaveolens (PALLAS, 1811)

I found one skeleton of the Lasser White Toothed Shrew on the surface of ground in Naran Bulak (15). There are several records of this species from the desert zone of Mongolia; all the specimens have hitherto been collected north of the Gobi Altai.

Eptesicus nilssonii (KEYSERLING et BLASIUS, 1839)

A skull of the Northern Bat was found at Shand Gol (7). This seems to be the most numerous species of bats in the Gobi.

We observed fairly large numbers of bats flying in the desert, everywhere in the vicinity of water. Once I saw a bat flying in the desert, at a distance of 50—100 km from the nearest water.

Vulpes vulpes (LINNAEUS, 1758)

We collected Fox skulls in places marked on the map by No. 3, 13, 15 and 16. We also often came across foxes both in steppe and in desert areas. The measurements of the fox skulls collected are as follows:

Locality	3	13	15 (No. 1)	15 (No. 2)
Measurement				
Condylbasal length	131.6	139.9	130.5	139.3
Zygomatic breadth	70.0	72.3	—	—
Mandible length	100.0	109.2	101.5	106.5
Maxillary tooth-row	75.3	—	75.7	77.0
Mandibular tooth-row	75.0	—	76.2	76.0

According to BANNIKOV (1954), the fox is common throughout Mongolia and represented by two subspecies, *V. v. daurica* OGNEV, 1931 and *V. v. ochroxantha* OGNEV, 1926. The latter form is said to occur in the southern part of the country.

Vulpes corsac (LINNAEUS, 1768)

I found one skull in the ruins of the Oldkhu Khid monastery (3).

Equus hemionus PALLAS, 1775

The Asiatic Wild Ass seems to be already rare in Mongolia. I saw a single specimen only in a desert in the eastern part of the Nemeget Basin in June 1965.

Cervus elaphus LINNAEUS, 1758

We observed several specimens of the Red Deer several kilometres south of Ulan Bator, in small wooded areas on the border of the steppe zone.

Gazella subgutturosa (GULDENSTAEDT, 1780)

The Goitred Gazelle is still a fairly frequent inhabitant of the desert and semidesert areas of Mongolia. We met some herds of several animals each in the Nemeget Basin, south of the Gobi Altai Mts. and in the Shand Gol region. I also collected 3 skulls in the Nemeget Basin.

Capra sibirica MEYER, 1794

The Siberian Ibex occurs numerously in the mountains of the desert part of Mongolia. I saw herds, which ran up to 20 animals, in the Altan Ula, the Nemeget and the Goorvan Saikhan Mts., and also collected some skulls of dead specimens.

Ovis ammon LINNAEUS, 1758

We observed the Argali in the Altan Ula Mts., the Nemeget Mts., the range of Sumon Khaikhan Uul, the Mongolian Altai Mts., at Atch Bogdo and north of Shand Gol. Besides, I collected one skull of the Argali.

It is interesting that the Siberian Ibex and the Argali occupy distinct environments in the Mongolian mountains. The Argali is rather met with in badlands at the foot of mountains, amidst desert vegetation, whereas the Siberian Ibex lives higher, on the slopes and ridges of mountain ranges, where vegetation is more abundant. Both these species are still fairly numerous in the regions visited by us.

Ochotona pallasii (GRAY, 1867)

Large numbers of Pallas's Pikas inhabit the alpine steppes of Atch Bogdo (11), where I collected 3 specimens. Another specimen was taken south of Yessen

Bulak (9), in one of the ranges of the Mongolian Altai. The specimens from owls' pellets come from Tsagan Khushu (15). This species of pikas is common in all mountains of Mongolia.

Ochotona daurica (PALLAS, 1776)

A skull of the Daurian Pika was found south of Ulan Bator (1), another specimen, from an owl's pellet, was collected at Ergelyeenn Dzo (18). According to BANNIKOV (1954), this species occurs nearly all over Mongolia, in steppe and semidesert areas.

Lepus capensis LINNAEUS, 1758

In the desert zone of Mongolia we often observed the Tolai Here in the Nemeget Basin, where its remains from owls' pellets were also found in Naran Bulak (15) and Altan Ula (16). Further remains of this species come from Ergelyeenn Dzo (19). In Bayn Dzak (5) we saw hares many a time, and I have the skull of a specimen shot at this locality. In BANNIKOV'S (1954) opinion, the steppe zone of Mongolia is inhabited by *Lepus tolai* PALLAS, 1778, and the desert zone, where our specimens were collected, by *Lepus tibetanus* WATERHOUSE, 1841. According to ELLERMANN and MORRISON-SCOTT (1951), both these forms are only subspecies of *Lepus capensis* LINNAEUS, 1758. On the basis of our material I could not establish which of these two subspecies is represented by our specimens.

Citellus undulatus (PALLAS, 1778)

Long-tailed Siberian Sousliks live in large numbers in high-mountain steppes of Atch Bogdo (11), where the three skulls that I have in my collection were also taken. On the map of distribution of this species BANNIKOV (1954) did not mark its occurrence in the massif of Atch Bogdo, but points at its presence only in the northern and western areas of Mongolia as well as in the main ranges of Mongolian and Gobi Altai.

Citellus erythrogenys pallidicauda (SATUNIN, 1903)

The specimens of mandibles of this species, identified by I. M. GROMOV, were found in Khung Kureh (6) and at the foot of the Nemeget Mts. (17). According to BANNIKOV (1954), this form has a wide distribution in the zone of steppes and semideserts of Mongolia. ELLERMANN and MORRISON-SCOTT (1951) consider it to be a distinct species, *C. pallidicauda*.

Marmota bobak (MÜLLER, 1776)

The Bobak is common inhabitant of Mongolian steppes and mountains. I observed many specimens of this species in the mountains of Khangai and Atch Bogdo and I found two skulls in this last range.

Cardiocranius paradoxus SATUNIN, 1902

The presence of Satunin's Pygmy Jerboas was ascertained in owls' pellets from Bayn Dzak (25 lower jaws and many skull fragments), Naran Bulak (3 lower jaws), Bayn Shireh (4 lower jaws) and Ergelyeenn Dzo (8 lower jaws). This species has hitherto been known from only 4 specimens of which one (holotype) was derived from the Chinese area and three from Mongolian Peoples' Republic: from Bayn Dzak and the region situated north of Dalandzadgat. Recently its occurrence has also been reported from the U.S.S.R territory (I. M. GROMOV et al., 1963). Our data indicate that this species ranges widely in the desert zone of Mongolia and is not so rare as was supposed; probably it is only hard to catch.

Salpingotus cf. *crassicauda* VINOGRADOV, 1924

Three mandibles and a skull fragment were found in Bayn Dzak and other 3 mandibles in Ergelyeenn Dzo. Two species of the genus *Salpingotus* VINOGRADOV, 1922 are known from Mongolia. *S. kozlovi* VINOGRADOV, 1922 was hitherto been recorded on the basis of 2 specimens found in Inner Mongolia and one collected south of the Gobi Altai Mts. in the Mongolian People's Republic. *S. crassicauda* is known from 2 specimens from south-eastern Mongolia and from the adjoining areas of China and the U. S. S. R. I have been informed by I. M. GROMOV that the cranial characters of our specimen rather indicate *S. crassicauda*, though both these forms may well represent one and the same species.

Allactaga bullata ALLEN, 1925

One specimen was taken near Bayn Leg (14). According to BANNIKOV (1954), this species is distributed all over the desert part of Mongolia.

Allactaga sibirica (FORSTER, 1778) = *A. saltator* (EVERSMANN, 1848)

We collected some specimens of the Mongolian Five-toed Jerboa in the vicinity of Mandal Gob and in the ruins of the Oldakhu Khid monastery (7). This species occurred in owls' pellets from Bayn Dzak (5), Naran Bulak (15) and Ergelyeenn Dzo (19). In BANNIKOV's (1954) opinion, it is present throughout the steppe and semidesert zone of Mongolia up to the Mongolian and Gobi Altai ranges inclusive on the south.

Alactagulus acontion (PALLAS, 1758) = *A. pumilis* (KERR, 1792)

Sixteen mandibles and some skull fragments of this species were collected from owls' pellets in Naran Bulak (15). BANNIKOV (1954) described this species from only two localities in the Mongolian People's Republic, both situated north of the Altai Mts. Our data also suggest that it is rare here.

Dipus sagitta (PALLAS, 1773)

The Northern Three-toed Jerboa (a skull and 2 specimens of the tarso-metatarsus) was found only in the material obtained from owls' pellets from Naran Bulak (15). BANNIKOV (1954) writes that this species is common throughout the desert and semidesert zone of Mongolia.

Scirtopoda andrewsi (ALLEN, 1925)

It was found in owls' pellets from Bayn Dzak (5) (8 mandibles, 1 skull fragment), Altan Teli (10) (skull fragments), Naran Bulak (15) (17 mandibles, skull fragments, tarso-metatarsal bones), Bayn Shireh (18) (1 mandible, 1 skull fragment) and Ergelyeenn Dzo (19) (5 mandibles, skull fragments). According to BANNIKOV (1954) this species is known from a few specimens from the Mongolian semidesert zone. Our finds extend its range towards the south. On account of the rare occurrence of this species I give the length of the complete specimens of the tarso-metatarsi from Naran Bulak (their specific identification has been checked by I. M. GROMOV): 29.7; 30.7; 31.5; 32.4; 32.6 mm.

Meriones unguiculatus (MILNE-EDWARDS, 1867)

Three specimens of the Clawed Jird were collected in the neighbourhood of Delger Khangai (4) and its skull in Bayn Dzak (5). This species is widely distributed in the steppe and semidesert zone of Mongolia.

Meriones meridianus (PALLAS, 1773)

One specimen was taken in Bayn Dzak (5). Besides, the presence of remains of the Little Chinese Jird was ascertained in owls' pellets from Bayn Dzak (5), Khung Kureh (6), Altan Teli (10), Naran Bulak and Tsagan Khushu (15). It lives all over the desert zone of Mongolia.

Rhombomys opimus (LICHTENSTEIN, 1823)

Two specimens of the Great Gerbil were collected in Bayn Dzak (5). In addition, its remains were found in large numbers in owls' pellets from Bayn Dzak (5) and Naran Bulak (15). It occurs throughout the Mongolian desert zone.

Cricetulus eversmanni (BRANDT, 1859)

Bones of Eversmann's Hamsters were found in owls' pellets in Bayn Dzak (5) and Altan Teli (10). According to BANNIKOV (1954), it is present in the whole semidesert zone of Mongolia.

Cricetulus ex. gr. *barabensis* (PALLAS, 1770) — *longicaudatus* (MILNE-EDWARDS, 1868)

Remains of a small hamster, which, according to the information from I. M. GROMOV, belong to one of the above-mentioned species, were found in owls' pellets in Bayn Dzak (5) and Ergelyeenn Dzo (19). Both these species are known from the region of Bayn Dzak, but neither of them has hitherto been recorded from the area in which Ergelyeenn Dzo lies.

Phodopus roborovskii (SATUNIN, 1902)

One specimen of the Desert Hamster was taken in Begger Noor (8). Besides, some specimens from owls' pellets were derived from Bayn Dzak (5), Naran Bulak (15), Altan Teli (10) and Ergelyeenn Dzo (19). The species is known from a few specimens from the desert zone of Mongolia and, in addition, from the adjoining areas of China and the U. S. S. R.

Alticola argentatus (SEVERTZOV, 1879)

A skull of this species was found in an owl's pellet near Ulan Bator (1). This rodent occurs throughout the steppe zone of Mongolia.

Lagurus luteus (EVERSMANN, 1840)

Remains of the Yellow Steppe Lemming were collected from owls' pellets in Bayn Dzak (5), Naran Bulak (15), at the foot of the Nemeget Mts. (17) and Altan Ula (16). Hitherto, it has been known from a few localities in the semidesert and desert areas of Mongolia (BANNIKOV, 1954).

Microtus brandti (RADDE, 1861)

Two specimens of Brandt's Voles were caught in the neighbourhood of Ulan Bator (1), other six specimens were taken in a steppe south of Mandal Gob (2). This last locality lies close to the southern border of the range of this species. The Brandt's Vole is frequent in the steppes of north-eastern and central Mongolia, where it lives in large colonies. My observations indicate that the activity of this rodent occurs almost exclusively in the daytime.

Ellobius talpinus (PALLAS, 1770)

The Northern Mole-vole was found in owls' pellets from Khung Kureh (6), at the foot of the Nemeget Mts. (17) and in Bayn Dzak (5). According to BANNIKOV (1954) it occurs all over the desert and semidesert zone of Mongolia.

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STRESZCZENIE

Autor opracował zbiory ssaków współczesnych zrobione przygodnie w czasie polsko-mongolskich wypraw paleontologicznych na pustynię Gobi w latach 1963—1965. Zbiory obejmowały kilkadziesiąt okazów drobnych ssaków oraz znaczną ilość zrzutek sów. Mapa (ryc. 1). wskazuje punkty, z których pochodzą zebrane okazy. Łącznie zebrano lub obserwowano 33 gatunki ssaków. Dla niektórych z nich uzyskano dane rozszerzające znany dotychczas areal rozszedlenia.

Interesujące jest, że drobne ssaki, zwłaszcza zaś gatunki: *Cardiocranius paradoxus*, *Salpingotus* cf. *crassicauda* i *Scirtopoda andrewsi*, które były bardzo rzadkie w dawniejszych kolekcjach ssaków z Mongolii, spotyka się licznie w zrzutkach sów. Należy przypuszczać, że nie są one tak nieliczne jak dotąd sądzono, lecz przy dotychczas stosowanych metodach odłowu rzadko tylko udaje się je schwytać.

Dalsze zbiory zrzutek sów mogłyby dać cenne materiały dla rozsiedlenia ssaków w pustynnej strefie Mongolii.

РЕЗЮМЕ

Автор обработал сборы современных млекопитающих, эпизодически осуществленные во время работы польско-монгольской палеонтологической экспедиции в пустыню Гоби в 1963—1965 гг. Сборы содержат несколько десятков экземпля-

ров мелких млекопитающих и значительное количество погадок сов. Карта (рис. 1) показывает пункты, из которых происходит собранный материал. В общей сложности было собрано или наблюдалось в природе 33 вида млекопитающих. Для некоторых из них указываются данные, позволяющие расширить известный до настоящего времени ареал.

Весьма интересно, что тушканчики, в особенности *Cardiocranius paradoxus*, *Salpingotus cf. crassicauda* и *Scirtopoda andrewsi*, столь редкие в коллекциях млекопитающих Монголии, в значительном числе встречаются в погадках сов. Следует полагать, что их численность не так низка, как до сих пор считалось. Однако применяемые методы добычи не давали удовлетворительных результатов их отлова.

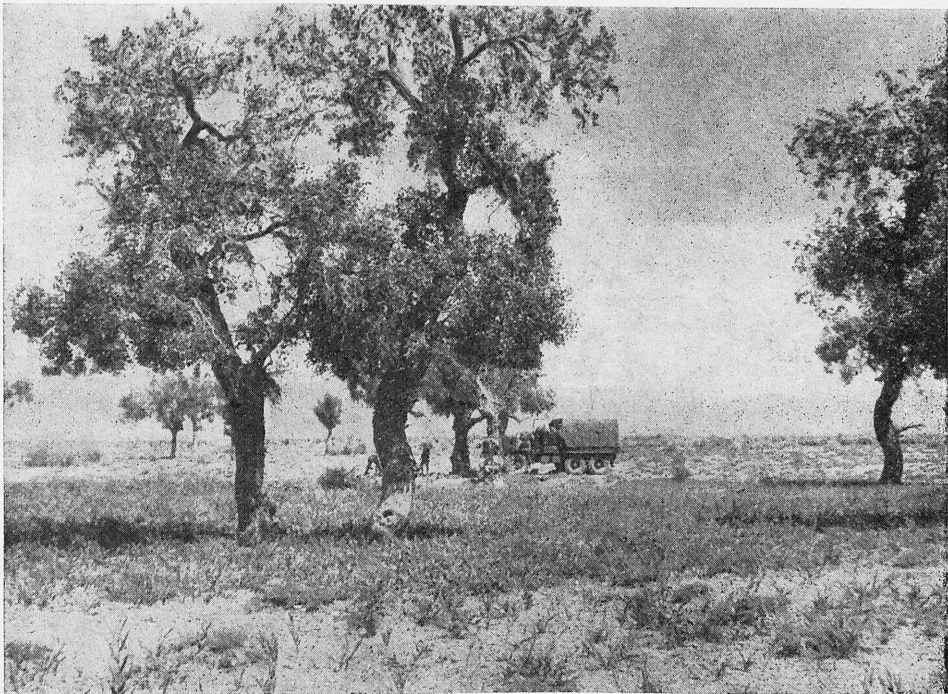
Дальнейшие сборы погадок сов, без сомнения, могут доставить ценные материалы для познания распространения млекопитающих в пустынной зоне Монголии.

Plate I

- Fig. 1. A typical scenery of the Gobi Desert. The Nemeget Basin. Phot. K. KOWALSKI, 1964.
Fig. 2. Dzahooy Somon, an oasis with trees *Populus diversifolia* in the Gobi Desert. Phot. K. KOWALSKI, 1964.



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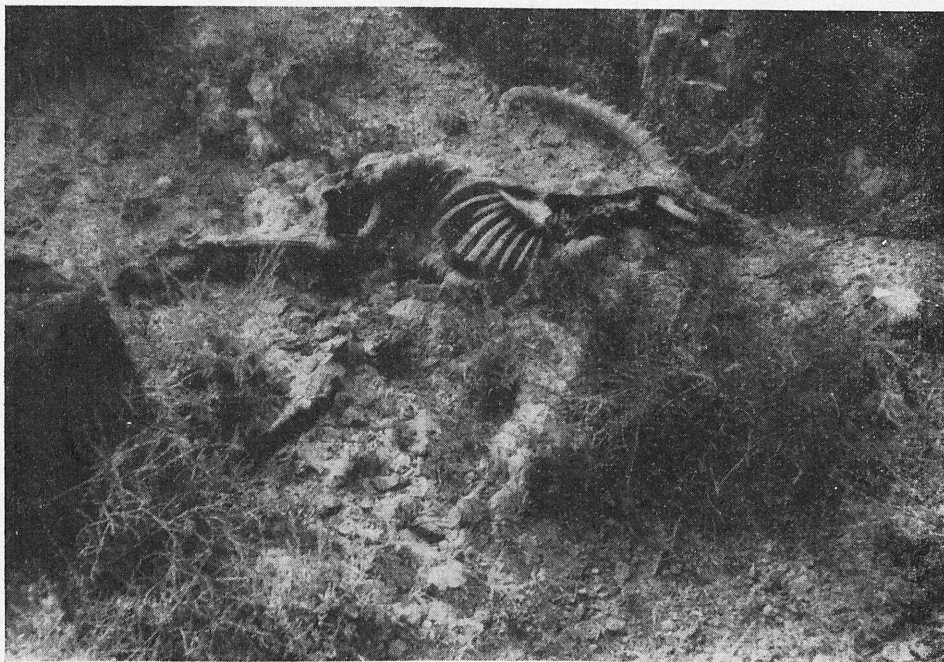


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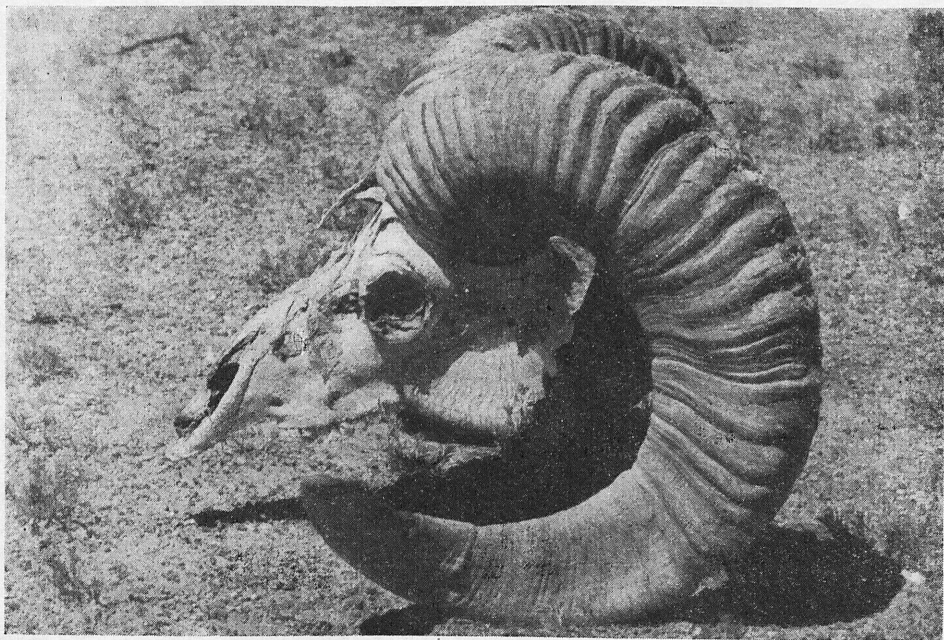
Plate II

Fig. 1. A skeleton of *Capra sibirica* in the Nemeget Mts. Phot. K. KOWALSKI, 1964.

Fig. 2. A skull of *Ovis ammon* found in the Nemeget Mts. Phot. G. JAKUBOWSKI, 1964.



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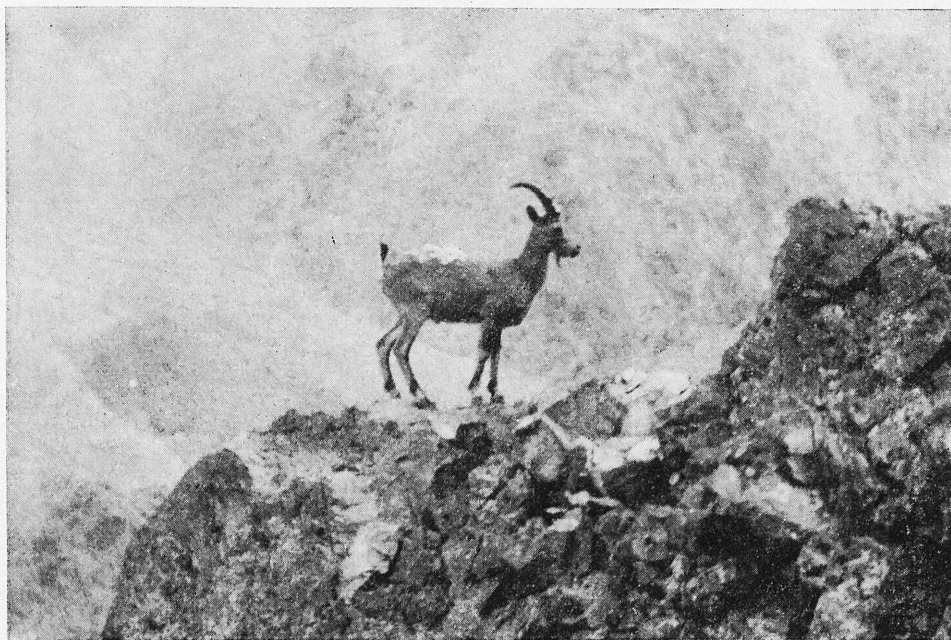


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Plate III

Fig. 1. *Capra sibirica* in the Nemeget Mts. Phot. G. JAKUBOWSKI, 1964.

Fig. 2. *Allactaga bullata* in the vicinity of Bayn Leg in the Gobi Desert. Phot. R. GRADZINSKI
1964.



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