

The evaluation of biodiversity of mammals in the Baikalian region of Siberia シベリア・バイカル地域における哺乳類相のリスト作成およびその生物多様性の評価に関する研究調査

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Summary 要約

Lake Baikal and its watershed were recently included on the World Heritage List. The Baikalian Region situating in the centre of Eurasia is a part of Eastern Siberia. Within the limits of the present project the main attention has been drawn to surveying the fauna of the Republic of Buryatia (Western Transbaikalia), a key sub-region of Transbaikalia, to provide hard information about mammalian resources thereof. To date of our study, knowledge of the status and distribution of many of these species in Buryatia have been very scanty. The species of both East-Siberian and Central-Asian mammalian faunas (= zoogeographical complexes) are corroborated to inhabit this territory. In the framework of the present project, we have completed a taxonomic revision of the mammalian fauna of Buryatia, including surveying a status of key mammal species and refining their distribution. Additional data on the biology and ecology of key species have also been collected. As results of the performed study, a first and most complete annotated checklist of the mammalian fauna of the Republic of Buryatia was published. According to the up-today data, the mammalian fauna of Buryatia numbers 86 species, at least 25 of them are at risk and in need of devising workable conservation strategies.

バイカル湖およびその周辺の河川流域は、近年、世界遺産のリストにあげられている。ユーラシア大陸の中央に位置するバイカル地域はシベリア東部の一部でもある。本研究調査の目的は、特にバイカル湖のすぐ東側（トランスバイカリアともよぶ）にあるブリヤード共和国における動物相を明らかにし、哺乳類資源に関する情報を提供することである。これまでに、ブリヤード共和国における哺乳類の状況や分布に関する情報はほとんど報告されていなかった。本研究調査では、ブリヤード共和国のバイカル湖周辺においてフィールド調査を行い、東シベリアおよび中央シベリアの哺乳類相にみられる種が、ブリヤード共和国に生息していることを立証した。さらに、キースピーシーズの分布および生態調査により、それらの哺乳類に関して分類学的記載を再検討した。本研究調査の結果として、ブリヤード共和国の哺乳類相に関する最初で、かつ、完全に近いチェックリストを出版することができた（報告書と共に提出済み）。その哺乳類相は86種で構成され、少なくとも25種は危機的状況にあるため、その保全対策を考案する必要がある。

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The Baikalian Region situating in the centre of Eurasia, being a part of Eastern Siberia. Traditionally, it is divided into Cisbaikalia (north-westward of Lake Baikal) and Transbaikalia (south-eastward of Lake Baikal). Three administrative units of Russia are situated in this area: Irkutsk Province (Cisbaikalia), Republic of Buryatia and Chita Province (both in Transbaikalia). The Baikalian region is known to be a mountain country (elevations up to 1,000 - 3,000m above sea level), with the main systems being the Baikal Mts (ridges surrounding Baikal Lake), the East Sayan Mts, the Vitim Plateau and Selenga Srednegorie (hill-lands). The southern and south-eastern parts of Transbaikalia are covered with steppe landscapes similar to the steppes of Eastern Mongolia and North - Eastern China.

Vegetation cover of the Baikalian Region create to a great extent of those unique beauty, for which the landscapes surrounding Lake Baikal are famous. There are a lot of relic and endemic plant species (ca. 10% of the extant flora) and unique plant communities in this area. The most dry and warm western shore of Lake Baikal is occupied by the pine and larch forests and steppes, whereas the dark coniferous forests of *Pinus sibirica* and *Abies sibirica* with a few Siberian spruce predominate on the eastern shore. High-mountains are covered with the mountain stony shrubby-lichen or shrubby-moss tundra, in association with the Siberian dwarf-pine (*Pinus pumilla*) elfin wood and sub-alpine bushes. Besides, subalpine and alpine meadows can be found in the high-mountains of the Khamar-Daban and Barguzin Mt. Ranges. The steppe vegetation occurs in Selenga Srednegorie. The well-marked mosaic structure of vegetation and landscapes in the Baikalian Hollow provides unique conditions for co-existing of different animal communities on comparatively small plots of land.

The zoogeography of the Baikalian Region is rather peculiar, as species from two large Palaearctic mammalian faunas (East-Siberian and Central-Asian) co-inhabit here. A preliminary list of the mammals of the whole Baikalian Region accounts to about 100 species from six orders (12 - Insectivora, 10 - Chiroptera, 15 - Carnivora, 10 - Artiodactyla, 50 - Rodentia, 1 - Pinnipedia). Type localities of many Siberian species lie in the Baikalian Region, e.g. those of *Sorex isodon* (Turov 1924), *Mesechinus dauuricus* (Sundevall 1842), *Otocolobus manul* (Pallas 1776), *Capra sibirica* (Pallas 1776), *Procapra gutturosa* (Pallas 1777), *Spermophilus undulatus* (Pallas 1778), *Marmota sibirica* (Radde 1862), *Ochotona dauurica* (Pallas 1776). Some of mammals were introduced from other regions for either the hunting purposes (the American mink, the muskrat, the brown hare, the beaver), or by accident (the black rat, the common vole).

With regard to the mammalian fauna, Cisbaikalia, which is mainly represented by Irkutsk Province, has been better studied. A list of the mammals and the «Red Data Book of Irkutsk Province» (Durnev *et al.*, 1996; Litvinov, 2000) has recently been published. The knowledge of the mammalian fauna of Transbaikalia in general and of the Republic of Buryatia in particular were known to be much more scanty. Within the limits of the present project sponsored by the «PRO NATURA FUND», a complete revision of the mammals of Buryatia has been performed, for which purpose we have gathered own data and observations gained during the last decade (some new information was obtained during the summer expedition of 2001), the materials of many Russian scientific museums, data from the hunting organisations, results of questioning local people and the literature-derived data. As a result of such wide-scaled survey, a first and most complete checklist of the mammalian fauna of the Republic of Buryatia has been compiled and published (2001). This checklist contains detailed data on a taxonomic status, distribution, habitat, diet and natural history of every mammal species registered in Buryatia. According to these up-to-day data, the mammalian fauna of the Republic of Buryatia accounts to 86 species.

The Republic of Buryatia lies almost in the center of Eurasia, in the zone of moderate-continental Siberian climate (severe cold winters and hot dry summers) and in between the vast areas of East Siberian taiga and Mongolian steppes, and covering the area of about 351,300km². Because of this, zonal and landscape diversity thereof is known to be extremely high. By its topography, Buryatia can be subdivided into 2 large sub-regions: mountain-taiga areas (western and northern parts) and mountain steppe and forest-steppe areas (southern and south-eastern parts).

Steppe and forest-steppe communities of mammals are especially rich and diverse, with the typical species being the Siberian jerboa, the mandarin vole, the Siberian ground squirrel, the Daurian pika, the Siberian marmot, the badger and the steppe polecat.

One of the key-species of the Transbaikalian steppe landscapes is the Daurian pika, *Ochotona dauurica* (Pallas 1776), of which range clearly corresponds to the outlines of the area of occurrence of the steppe biocenoses. This small lagomorph lives in open, forestless spaces in southern Buryatia (northward up to Ivolga and Tarbagatai Districts), with typical habitats like intermontane lows and ravines occupied by the bushy vegetation (*Caragana* spp., *Achnatherum splendens* stands); sometimes, the pika occurs in river valleys and lake hollows, as well as along margins of old ploughed lands.

The Daurian pika lives in colonies (family groups) and digs rather extended and complex burrows. On the strength of our long-term observations on the populations of individually marked animals in south-western Transbaikalia (Borisova *et al.* 2001), ecological features of this species have been ascertained. The pikas feed largely on the gramineous and leguminous plants, sedges, wormwoods, palmates and young twigs of *Caragana*. Breeding continues throughout March-May, first litters appear at the end of April, the last ones in August; female produces 2-3 litters a year of 2 to 8 young each. The population size of the Daurian pika demonstrates considerable fluctuations (in average, over 3-year cycle). For instance, in the course of our observations of 1998-2000 in the eastern part of Selenga hill-land the population size was rather high, 6-8 specimens/ha; whereas during observations of 2001 (environs of Lake Gusinoe and Borgoiskaya steppe), only 1-2 specimens per 1 ha were registered.

The current taxonomic studies of the Transbaikalian population of *Ochotona dauurica* has revealed

its closer relationships to the pikas from Northern and Central Mongolia rather than to those from the west part of the species range (Tuva, Khangai Mt. Range). The Transbaikalian population belongs to the nominal subspecies *O. d. dauurica* and differs from both the Tuvian (*O. d. latibullata*) and Western Mongolian (*O. d. murzaevi*) subspecies in having the narrower skull and the relatively narrow rostral part.

Another typical steppe dweller is the Siberian marmot, *Marmota sibirica* (Radde, 1862). The Siberian marmot has formerly inhabited all the steppe and mountain steppe landscapes of Transbaikalia. This large rodent has been one of main subject of hunting by indigenous people of Transbaikalia and Mongolia for a long time. Unlimited hunting (catching with nooses and shooting) and extermination, as well as extinctions caused time to time by the plague, as well as natural replacement of the steppe biotopes by forest-steppe ones (e.g. in Kyakhta District), damaged the marmot populations' density. Nowadays, the marmots are rather rare in the Baikalian region and their populations are restricted to the southern part of Transbaikalia (near the frontier of Mongolia). Its range in Transbaikalia consists of three main parts: the mountain steppes of Tunka District (western Buryatia), the low mountain steppes of Selenga River basin (right up to the middle reaches of Menza, Chikoi and Khilok rivers, northward up to south border of Ivolga Hollow and the foothills of Khambinsky and Malyi Khamar-Daban Mt. Ranges), and the upland steppes of the south-eastern part of Chita Province (northward almost to the basis of Onon River and westward to Mogotui Mt. Range). From the formerly large range, only small, separated populations of the Siberian marmot have remained, of which number continues to decrease. In the northern part of Tunka Hollow, the most part of which is now ploughed and used for agricultural purposes, we found only solitary marmots' colonies. At present, the situation is quite anxious, that is why this species is offered for including into the new «Red Data Book of Buryatia».

The next, very characteristic dweller of the steppe and forest-steppe landscapes of Transbaikalia is the badger (*Meles*). In Buryatia, the badger is most common in the forest-steppe part of Selenga Srednegorie (Kyakhta, Selenga, Ulan-Ude, Bichura and Dzhida Districts) and preferring the sparse forest tracts and river valleys. It also occurs in the bushy steppe hollows and ravines, on slopes of river valleys and around lakes. We have never found its settlements in dense taiga forests. In the central part of Selenga Srednegorie (Hollow of Lake Gusinoe), the badger lives in the ravines overgrown by the pine forest with underbrush of the dogroses, *Caragana* spp. and sparse grass cover. The number of borrows in each settlement varies from 1 to 3 (seldom more). In Transbaikalia, the badgers forage largely for insects (beetles, grasshoppers and ground wasps) and, to less extent, for mammals (mainly voles) and plants (roots, berries and seeds).

The taxonomic status of the Siberian badger (and that from Transbaikalia, in particular) has been the subject of much controversy among experts. Russian systematists were of the opinion that Siberia is inhabited by several subspecies of the badger: *sibiricus* (occurs in Western Siberia), *altaicus* (in the Altai Mts.), *radde* (Transbaikalia), *amurensis* (in the Russian Far East). To elucidate a taxonomic status of the Transbaikalian badger, we have performed a comparative analysis of craniological and exterior characters of the badgers from different regions of Siberia, as well as those from the European part of Russia (Leningrad Province) and Japan. A multivariate approach has revealed significant craniological differences between the studied populations (Abramov, 2001). The Siberian badgers are distinguishable from European and Japanese ones by the bigger bulla auditus and the elongated (but rather narrow) molars. The Asian (= Siberian) and European badgers also differ in head coloration. The Siberian specimens have a narrow blackish brown (sometimes completely black) stripe running from the snout's end through eye area. This stripe is going above the ear and tapering behind the eye. The light (yellow-white) median band narrow and short; usually, not reaching back of the head and blending into neck and back coloration already on the crown. A different type of coloration is described for the European badgers: black stripes on the snout are wide and long, running across the ears and enveloping them from above and from below; the median band reaching back of the head and then going on the neck.

There are contradictive opinions on the species composition in the genus *Meles*. Some of systematists treat all the Eurasian badgers as belonging to a single species, whereas others consider the European and Asian badgers different ones. On the basis of own detailed studies, we came to the opinion that significant differences between the European and Asian badgers in coloration, proportions of teeth and skulls (Abramov 2001), the size and number of roots of Pm2, the degree of

reduction of Pm1 and Pm1, the structure of morphotypes of Pm4, M1 and ÑM1 (Baryshnikov & Potapova 1990), structure of the os malleus (Abramov & Baryshnikov 1995) and the baculum (Baryshnikov & Abramov 1997) make it possible to treat them as separate species: the European badger *Meles meles* (L. 1758), distributed Europe (to the east up to Volga River), the Caucasus and southern regions of Middle Asia, and the Asian badger *Meles leucurus* (Hodgson 1847), distributed to the east of Volga River and throughout continental Asia. The Japanese Islands are probably inhabited by the separate species, *Meles anakuma* Temminck, 1844. The recent data on the cytochrome *b* sequence variation in badgers from Japan also demonstrated differences between the Japanese, Siberian and European populations (Kurose *et al.* 2001). According to our up-to-day data, whole Siberia, including Transbaikalia, is dwelled by the Siberian subspecies of badger, *Meles leucurus sibiricus* (= *altaicus*, *raddei*). Another subspecies, *Meles leucurus amurensis* (= *melanogenys*) occurs in the Russian Far East and the Korean Peninsula.

Some of the rare, vulnerable or threatened species of mammals inhabit the steppe regions of Transbaikalia, for instance, the Pallas's wild cat *Otocolobus manul* (Pallas 1776), which is known from the mountain steppes of Buryatia and Chita Province. Everywhere the Pallas's wild cat is quite rare. Therefore, this species is listed in the «Red Data Book of Russia» and «Red Data Book of Buryatia» and considered a species at risk of extinction. In Buryatia, *Otocolobus manul* is distributed in the steppes and forest-steppes of Selenga Srednegorie (Zakamensk, Kyakhta, Selenga, Ulan-Ude, Bichura, Mukhorshibir' and Dzhida Districts) from the Mongolian frontier, northward up to Ulan-Ude. In 1976, the cat was even recorded from the northern part of Barguzin Hollow and recently from Western Buryatia (Tunka Hollow, Irkut River basin and surrounding mountains). According to Shvetsov *et al.* (1984), this species lives near Lake Gusinoe and in Tugnuiskaya Hollows, but during our expeditions to both areas in 1998-2001 no tracks of the Pallas's wild cat were found. More often wild cats are to be found in the Borgoiskaya steppe and the interfluvium of Selenga-Chikoi-Khilok Rivers. There is the second area of distribution of this rare species in Eastern Transbaikalia (Chita Province), between Shilka and Argun' Rivers, westward to Ingoda River. It is very likely that both areas of distribution of this species in Transbaikalia are connected over the Khilok River valley (Kirillyuk & Puzanskii 2000), but available data are yet incomplete.

The north-eastern limits of distribution of the another rare and threatened felid species, the snow leopard *Uncia uncia* (Schreber 1776), are also registered in the Baikalian Region. This vulnerable species is included into the «IUCN List of Globally Threatened Species» and the «Red Data Book of Russia». It has been speculated for a long time that the snow leopard does not constantly occur on the territory of the Baikalian Region, only occasional visits from the Western Sayan Mts and Mongolia took place (Matyushkin 1981). However, newly gained data are evidence of its continually inhabiting in southern and western Transbaikalia (Medvedev 2001). Since 1994, the snow leopard has repeatedly been recorded in Tunka District (western Buryatia); some occurrences in the Khamar-Daban and Dzhida Mt. Ranges have been registered as well. Recently, this species was reported from Krasnyi-Chikoi, Petrovsk-Zabaikal'sk, Kyra and Akshin Districts of Chita Province. All these records make it possible to suspect existing of two areas of permanent inhabiting of this rare cat in the Baikalian Region, viz. in Eastern Sayan Mts and southern Transbaikalia.

The south-eastern part of Transbaikalia is the terra typica of the Mongolian gazelle, *Procapra gutturosa* (Pallas 1777). Yet at the beginning of the XX century, the Mongolian gazelle was a common hunting object here. At the first half of the XX century, the regular occurrence of *Procapra gutturosa* in southern Buryatia (Selenga River valley in the Kyakhta District) was registered. Now, this species has disappeared from the most territory of Transbaikalia and remains only in the Daurian steppes (south-eastern part of Chita Province). No more than a few dozens of the gazelle live in the Daurian Natural State Reserve (near Lake Barun-Torei). Some growth of the gazelle population has been documented in the territory of Russia and North-Eastern Mongolia in recent years. During the winters 1999-2000 and 2000-2001 mass migrations (herds of several thousands specimens) of the Mongolian gazelle from the North Kherulen population (Mongolia) to Chita Province were recorded.

A considerable part of northern and central Buryatia is covered with taiga forests of the Siberian type. The common species of these environments are the sable, the brown bear, the lynx, the mountain hare, the roe deer, the red squirrel, the flying squirrel, the chipmunk, the red voles.

One of the most common taiga species is the Barguzin sable, *Martes zibellina princeps* (Birula 1922), being well-known by its beautiful and valuable dark fur. Due to over-hunting, at the beginning of the XX century the population of this animal had been reduced to almost to the verge of extinction, and its range represented a few small isolated areas. A further restoration of the sable's population was aided by a number of special efforts: a total prohibition of hunting, introduction, organizing reserves, etc. One of the oldest Russian reserves, Barguzin Natural State Reserve, was specially founded in the north-western part of Buryatia in 1916 for protecting the Barguzin sable and, as a result, the sable's population had been restored in full measure until the middle of the XX century. Nowadays, the sable inhabits all the ranges surrounding Lake Baikal, also occurs on the Khamar-Daban and Dzhida Mt. Ranges, in valleys of Khilok and Chikoi Rivers and southward to Khentei Massif in Mongolia. This is still an important object for fur hunting.

Another typical and widespread forest dweller and the biggest carnivore here is the brown bear, *Ursus arctos* (L. 1758), who constantly lives in the forest belt of mountains of the Baikalian Region. A highest density of the bear's population is recorded in the *Pinus sibirica* forests of Eastern Sayan Mts., the northern macro-slope of Khamar-Daban Mt. Range, as well as in the Verkhneangarsk, Ikatskii, Baikalskii, Menzinskii, Chikoi and Malkhanskii Mt. Ranges. It is rather common but with a lower population size in the eastern shore of Lake Baikal, e.g. on the Morskoi, Ulan-Burgasy, Golondiskii and Kurbinskii Mt. Ranges. In the central and southern Buryatia (Selenga Srednegorie and Dzhida Mt. Range), the bear is quite rare. The life style of the brown bears occupying mountains surrounding Lake Baikal depends on this large lake. At May or the beginning of June, the main bear's diet is known to include larvae and imago of the Baikalian caddis flies (Trichoptera), as well as remains of the Baikalian seal. During this period, five to seven bears might be met on the distance of about 10km on the shoreline (Ustinov 1993). A total population size of bears in Buryatia is now evaluated as some 2,000 individuals.

A single regional representative of pinnipeds is the Baikalian ringed seal, *Phoca sibirica* Gmelin, 1788, an endemic of the Lake Baikal. The seals are unevenly distributed over the Lake Baikal that depends on a season. Almost a whole year they stay far off shores, during the summer time the rookeries of seals usually occur on shores, islands and large separate rocks near the shoreline. In the autumn (October-November), animals migrate to the bays and coves of the eastern shore of Baikal (Proval, Barguzin, Chivyrkui Gulfs, etc.). After a final freezing-over they disperse over deep-water areas of the lake. In spring, the seals migrate to the north following the receding ices; and at the beginning of summer, the greater part of their population is gathered in the north-eastern part of Baikal Lake. Formerly, the Baikalian seal was numerous and common over the whole lake and was an object of intensive hunting. By 30th years, its population size had decreased due to over-hunting and the seal turned out to be restricted to the northern and north-eastern bays of Baikal Lake, where it primarily occurs now. A partial prohibition of hunting at the late 40th was conducive to restoration of the seal's population, of which size is now assessed at 60,000 of individuals. Recent trends are towards increasing the seal's population even in the southern part of Baikal Lake, in the area of the so-called Small Sea. At present, hunting on the seals is officially restricted, but actually exists due to the valuable fur of pups; in some regions up to 90% of young are perished due to illegal hunting. During the summer expedition of 2001, on the eastern shore of Baikal Lake (Barguzin District), we recorded remains of 2-3 young specimens over 1km of shoreline.

According to data of the hunting organisations of the Republic of Buryatia, the population sizes of some large forest ungulates, such as the moose *Alces alces*, the red deer *Cervus elaphus* and the musk deer *Moschus moschiferus*, has been decreasing during last years. Main reasons are destruction of habitats caused by deforestation and forest fires, as well as by poaching.

Generally, the mammalian fauna of Buryatia is impacted by human activities in many ways. For instance, intensive poaching causes over-hunting and decreasing of populations of such species as the musk-deer and the Siberian marmot. Forest fires caused by human are especially dangerous and are a real disaster elsewhere in Siberia and Transbaikalia in particular. During our summer expedition of 2001 (the whole route over Buryatia was about 3,500km), we observed considerable forest areas destroyed by fires. A complete restoration of forest ecosystems in such areas will require 50-70 years or more, provided no further fires take place (but this seems to be hardly a case). At the same time, a present day weakening of agricultural activity and management, especially an obvious decrease of using pesticides, has resulted in quick restoration of natural

steppe landscapes and hence their animal communities.

Many mammals are perished on highways beneath wheels of cars. For instance, during the summer expedition to Buryatia of 2001, in some areas (Khilok River valley and Tugnuiskaya Hollow) we recorded 1-2 road-killed Siberian ground squirrels (*Spermophilus undulatus*) on a distance of ca. 1km. Even the Daurian hedgehogs (*Mesechinus dauuricus*), the species listed in the Red Data books of Buryatia and of Russia, was registered to be often victims of road traffic.

A notable contribution to maintaining mammalian populations and conservation of particular species in the Buryatia goes with protected natural territories. Nowadays, there are three large Natural State Reserves (Barguzin, Baikalskii and Dzherginskii) and two national parks (Tunka National Park and Transbaikalian National Park) on the territory of republic. A total square of these strictly protected territories is 20,700km², or nearly 6% of the whole territory of Buryatia. Besides, there are 28 special hunting reserves, where particular mammal and bird species of hunting importance are bred. Unfortunately, no special steppe reserve is yet organized to conserve the environment of such rare and vulnerable species as the Daurian hedgehog (*Mesechinus dauuricus*), the Pallas's wild cat (*Otocolobus manul*), the mandarin vole (*Lasiopodomys mandarinus*), the mountain weasel (*Mustela altaica*), the desert hare (*Lepus capensis tolai*), and others. The «Red Data Book of Buryatia» (published in 1988) lists 28 mammal species being threaten or at risk (3 species of insectivores, 1 hare, 7 rodents, 5 carnivores and 3 ungulates), of which almost a half (13 species) are dwellers of the steppe habitats. A new edition of the «Red Data Book of Buryatia» is now under preparation. All newly gained and up-to-day data on distribution and population sizes of rare and threatened species, including the most recent information we collected and published in framework of the present project, will be taken into consideration in the new edition of the Red Data Book.

Within the limits of the project «The evaluation of biodiversity of mammals in the Baikalian region of Siberia», a comprehensive paper collection «Fauna and ecology of the mammals of Transbaikalia» has been compiled, edited and published in 2001. This volume contains 12 papers completed by scientists from St. Petersburg and different scientific organisations of the Baikalian Region (from Ulan-Ude, Irkutsk, Chita and Novosibirsk), who are recognized experts in their areas. These works are devoted to modern faunistic, ecological and systematic studies on the mammals of the Baikalian Region and contain the most up-to-date data on the state of populations of key and threatened species of Transbaikalia. A number of papers deal with the exact data gained in the framework of the present project sponsored by the «PRO NATURA FUND» (see below).

Below is a list of publications resulted from carrying out the project «The evaluation of biodiversity of mammals in the Baikalian region of Siberia», all of them acknowledge that the study was conducted under the subsidy of the «PRO NATURA FUND»:

References

- Abramov A.V., Borisova N.G. (eds.). 2001. Fauna and ecology of the mammals of Transbaikalia. St.-Petersburg. 246 pp. (Proceedings of the Zoological Institute Russian Academy of Sciences, Vol. 288).
- Borisova N. G., Abramov A. V., Starkov A. I., Boronoeva G. I., Dagdunova A. A. 2001. Mammal fauna of the Republic of Buryatia. Proceedings of the Zoological Institute Russian Academy of Sciences, Vol 288: 3-95.
- Abramov A. V. 2001. The mammals of the Mogoito locality (Buryatia). Proceedings of the Zoological Institute Russian Academy of Sciences, Vol 288: 126-135.
- Abramov A. V. 2001. Notes on the taxonomy of the Siberian badgers (Mustelidae: *Meles*). Proceedings of the Zoological Institute Russian Academy of Sciences, Vol 288: 221-233.
- Kurose N., Kaneko Y., Abramov A. V., Siriaronrat B., Masuda R. 2001. Low genetic diversity in Japanese populations of the Eurasian badger *Meles Meles* (Mustelidae, Carnivora) revealed by mitochondrial cytochrome *b* gene sequences. Zoological Science, 18:1145-1151.

Appendix



Studying of skull specimens of the bardger



The valley of Chikoi River (southern Buryatia)



The camp of expedition in the taiga zone



The sand-dunes are very typical in southern Buryatia



The forest-steppe hills of Dzhida River Valley. The opening slopes of these hills inhabited by the mandarin vole, Siberian jerboa, the striped hamster



The remains of Baikalian seals on the eastern shore of Baikal Lake



Preparation of the reed vole (*Microtus fortis*) for collection



The relic steppe areas of the Barguzin Valley (northern Bryatia) situated far to north from main steppe regions of Transbaikalia and Mongolia, and separated from them by taiga forests