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On a collection of small mammals from the People's Democratic Republic of Korea

Kolekcja drobnych ssaków z Koreańskiej Republiki Ludowo-Demokratycznej*

Abstract. Materials of small collection of small mammals from the People's Democratic Republic of Korea are described. The presence of *Neomys fodiens* (PENNANT, 1771) in the Korean Peninsula has been confirmed.

I. INTRODUCTION

The mammalian fauna of the People's Democratic Republic of Korea is relatively poorly known. The first fairly ample faunistic data, concerning besides the whole peninsula, appeared at the beginning of the 20th century (ALLEN and ANDREWS, 1913). Later on, a great contribution to the knowledge of the mammalian fauna was made chiefly by Japanese investigators (KURODA, 1917, 1934; KURODA and MORI, 1923; MORI, 1939; TOKUDA, 1941). J. K. JONES and D. H. JOHNSON carried out a detailed revision of the materials of small mammals of Korea (chiefly those of the Republic of Korea) in a number of studies (the most important ones by JONES and JOHNSON, 1960, 1965). In 1968 WON Hong Koo published the book „Animals of Korea” in the Korean language and described the Korean mammalian fauna in it, giving special attention to the mammals of the People's Democratic Republic of Korea. In this book, difficult of attainment, he describes 78 species of terrestrial mammals, providing each of them with a map of its distribution and in some cases with the outer and cranial measurements of a series of specimens from Korea. In his work WON included several species which had not as yet been recorded from that country in general surveys of the Palearctic mammalian fauna (ELLERMAN and MORRISON-SCOTT, 1951; CORBET, 1978). These are as follows: *Neomys fodiens* (PENNANT, 1771), *Sorex*

* Praca wykonana w ramach Problemu MR.II.3.

unguiculatus DOBSON, 1890, *Myotis macrodactylus* (TEMMINCK, 1840), *Myotis mystacinus* (KUHL, 1819), *Nyctalus noctula* (SCHREBER, 1774), *Vespertilio murinus* LINNAEUS, 1758, *Miniopterus schreibersi* (KUHL, 1819) and *Sicista caudata* THOMAS, 1907.

The present paper contains a description of small mammals collected in the People's Democratic Republic of Korea from 18 September to 31 October 1978 and from 18 May to 17 June 1980. All the materials described here are in the possession of the Institute of Systematic and Experimental Zoology, Polish Acad. Sci. in Cracow.

A list of localities where particular species were collected precedes their description, whereas a map showing their distribution is given in a paper by TOMEK (1983). Only the measurements of adult specimens are given in this paper. They are standard outer measurements (body length, tail length, length of hind foot and height of ear) and the following measurements of the skull: condylobasal length (CbL), brain-case length (BcL) (after GOULD and KREEGER, 1948), length of nasals (LN), diastema length (DL), maxillary tooth-row length (MxTRL), mandibular tooth-row length (MdTRL), brain-case breadth (BcB), zygomatic breadth (ZyB), inter-orbital constriction (IC), rostrum breadth (RB) and brain-case height between bullae (BcH). A description of the method of measuring particular elements on the skull can be found, among others, in a paper by RUPRECHT (1974). Means have been calculated and the extreme values of measurements are given in brackets.

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II. SURVEY OF SPECIES

Insectivora

Neomys iodiens (PENNANT, 1771)

Material: one skin of male, gift of the Zoological Institute, Korean Acad. Sci.

Locality: Samjiyon, 26 August 1965.

Measurements: body length: 72, tail length: 62, length of hind foot 18.5, ear height: 7.

Distribution in Korea

The northern water-shrew was found for the first time in Korea at Phungso (Yanggang-do Province). Next, in 1958, some specimens of this species were captured at Pukphothe-san, Samjiyon, Rimyongsu and Pujon

(Hamgyong-namdo Province) (WON, 1968). Seventeen specimens of *Neomys fodiens* had been caught in the above-mentioned provinces of the People's Democratic Republic of Korea by 1966. The first specimen was at first described as a new species, *Neomys limchinhunii* WON, 1954, but later the same author acknowledged those specimens as belonging to *N. fodiens orientis* THOMAS, 1914. In Korea the northern watershrew occurs only on streams, rivers, small water reservoirs in the mountainous regions up to 2600 m a.s.l. WON (1968) gives body and skull dimensions for 10 specimens (7 males and 3 females). So far *Neomys fodiens* has not been mentioned from the People's Democratic Republic of Korea in any general surveys of palearctic mammals (ELLERMAN and MORRISON-SCOTT, 1951 CORBET, 1978).

Notes

In the Far East the northern water-shrew occurs sporadically, although it was reported from the coast of the Sea of Okhotsk as early as the second half of the 19th century (MIDDENDORF, 1875). The Korean specimens belong to the subspecies *N.f.orientis* THOMAS, 1914, which inhabits East Asia from the Ob River to the coast of the Sea of Okhotsk, Sakhalin and Primorsk (STROGANOV, 1957; GUREEV, 1979).

Lagomorpha

Ochotona alpina (PALLAS, 1773)

Material: 1 adult male, MF/5642; skull somewhat damaged; gift of the Zoological Institute, Korean Acad. Sci.

Locality: Pegam, 1 September 1965

Measurements: body length: 186, length of hind foot: 28, ear height: 21, CbL: 41.6, BcL: 29.4, DL: 10.5, MxTRL: 7.9, MdTRL: 7.7, RB: 7.7.

Distribution in Korea

The first three Korean specimens of the northern pika were described from Chair-bong (JONES and JOHNSON, 1965). KISHIDA and MORI (1930) and subsequently WON (1961) informed about the occurrence of this species in the northern mountainous regions of the country. Now it is known that the northern pika is fairly common in three northern provinces: Chagang-do, Yanggang-do and Hamgyong-pukto. WON (1968) and HO and RIM (1975) mention it, among other species, from Samjiyon, Pektu-san, Rimyong-su, Photheri, Pukphoto-san, Sobek-san, Kvanmo-bong, Mutu-bong and Puksubek-san. Living in colonies, this species inhabits the mountainous regions from piedmont to alpine zone. It occurs in woodless stony areas but is also met with in woods and thickets, most frequently close to water (GUREEV, 1964). Earlier the specimens from Korea were regarded as the subspecies *O. hyperborea coreana* ALLEN et

ANDREWS, 1913, but recently they have more often been included in *O. alpina hyperborea* PALLAS, 1811.

Notes

ELLERMAN and MORRISON-SCOTT (1951) and BOBRINSKI et al. (1965) treat *Ochotona alpina* and *Ochotona hyperborea* (PALLAS, 1811) as separate species, whereas other authors unite them in one species *Ochotona alpina* (GUREEV, 1964, CORBET, 1978).

Rodentia

Tamias sibiricus (LAXMANN, 1769)

Material: 6 specimens, M/5636—5640, 5663

Localities: Sokvang-sa (1 adult female and 1 juvenile male), Taesong-san (2 adult males), Peke-bong (1 adult female), Kumgang-san (1 subadult male).

Measurements of 4 adults: body length: 140 (137—144), tail length: 106 (100—111), length of hind foot: 36 (34—38), ear height: 16 (15—17), CbL: 22.4 (22.0—23.0), LN: 10.7 (10.5—11.0), DL: 9.0 (8.5—9.5), MxTRL: 6.7 (6.4—6.9), MdTRL: 6.4 (6.0—6.9), BcB: 16.8 (16.3—17.2), ZyB: 20.5 (20.0—21.5), IC: 9.7 (9.5—10.2), BcH: 13.2 (12.6—13.7).

Description of material: All the specimens have P³, although in most cases it is strongly reduced.

Distribution in Korea

Under the generic name of *Eutamias* JONES and JOHNSON (1965) give from Korea two subspecies, *E. sibiricus barberi* JOHNSON et JONES 1955; inhabiting the central and southern part of the country, and *E. s. orientalis* (BANHOTE, 1899) encountered in the part of Korea situated farthest to the north. Having included all the specimens of these ground-squirrels examined in *E.s. orientalis*, WON (1968) considers it to be one of the commonest rodents in the country. This species is particularly frequent in forests and thickets throughout the Korean Peninsula.

Notes

The systematics of the chipmunks is not as yet set in order. Many authors are inclined to distinguish two genera: *Tamias* ILLIGER, 1811, containing one species *T. striatus* (LINNAEUS, 1758), which occurs in the eastern part of North America, and *Eutamias* TROUESSART, 1880, with one Palearctic and 16 North-American species (HALL and KELSON, 1959; MOORE, 1959). This division has been made chiefly on the basis of the presence of P³ in *Eutamias* and its lack in *Tamias* s.str. Other characters, 10 altogether concerning mainly the colouration of the back and the structure of the skull, are also taken into consideration (WHITE,

1953). More and more data justifying the inclusion of all the species in the genus *Tamias* have been appearing recently. Studies carried out by JONES (1960) in Korea show that there occur specimens that have no P^3 and, in addition, a strong reduction of this tooth takes place in a large number of specimens. A chromosome study has proved that there are no grounds for distinguishing two genera (NADLER et al., 1969).

The only Palearctic species, *T. sibiricus*, is characterized by its very poorly marked clinal variation (GROMOV et al., 1965) and according to some authors, this variation does not exist at all (ZUBCHANINOVA, 1962). Lately, TIUNOV (1979, 1980) devoted a comprehensive study to the external differences and the differences in the structure of the skull and dentition between various populations within the continuous range of this species and pointed out that the population of north-eastern Asia (region of the Indigirka River) is marked for a number of archaic characters and drew the conclusion that this area is the cradle of chipmunks, from where they spread in Asia and further, via Beringia, on North America, differentiating markedly in consequence of the presence of a great many ecological niches (NADLER et al., 1969).

Cricetulus triton (de WINTON, 1899)

Material: 1 juvenile, MF/5645, only the skull

Locality: Taesong-ho

Measurements: body length: 147, tail length: 68, length of hind foot: 23, ear height: 19, CbL: 32.1, BcL: 20.4, LN: 11.3, DL: 9.4, MxTRL: 5.9, MdTRL: 5.0, BcB: 13.2, ZyB: 16.5, IC: 4.6, RB: 6.8, BcH: 11.3.

Distribution in Korea

This species was first recorded from the north-eastern outskirts of Korea (KURODA, 1934) and next from the central part of the country (JONES and JOHNSON, 1965). WON (1968) mentions the greater long-tailed hamster from the western provinces: Pyongan-namdo (Sunchon) and Pyongan-pukta (Chorsan). It seems to be fairly common in suitable habitats all over the country. The main habitat in which this rodent is encountered are dry grassy or bushy hills, but it also occurs at the edge of cultivated fields and, exceptionally, in woods (LOUKASHKIN, 1944). The form living in Korea is the subspecies *C.t. nestor* THOMAS, 1907.

Notes

The greater long-tailed hamster was first described from Korea under the name of *Cricetulus nestor* THOMAS, 1907; next, while studying specimens from the Ussurinsk region (OGNEV 1914) isolated a distinct species *Tscherskia albipes* OGNEV, 1914. ARGIROPULO (1933) carried out a revision of the Palearctic hamsters and recognized *albipes* and

nestor as synonymous, placing the Far-East forms in *Tscherskia triton nestor* (THOMAS, 1907). ELLERMAN and MORRISON-SCOTT (1951) shared that opinion and a chromosomal study conducted lately has confirmed the view that *T. albipes* and *C. triton* are synonyms of one and the same form; however, the opinions still differ as to whether this species is to be included in the numerous genus *Cricetulus* MILNE-EDWARDS, 1867, or whether, because of fairly great differences, the generic name *Tscherskia* OGNEV, 1914, should be maintained (TSUCHIYA and WON, 1976; KARTAVTZEVA et al. 1980).

Clethrionomys rutilus (PALLAS, 1779)

Material: 20 specimens, some of the only skins, M/5689—5708

Localities: Samjiyon (3 adult and 7 subadult females, 5 subadult males, 2 juveniles), Pektu-san (1 female and 2 male adults)

Measurements of 6 adults: body length: 110 (104—115, tail length: 39 (33—42), length of hind foot: 18 (17—20), ear height: 12 (11—13), CbL: 24.5 (23.9—25.2), BcL: 15.6 (15.4—16.0), LN: 7.5 (7.1—7.8), DL: 7.8 (7.5—8.1), MxTRL: 5.3 (4.9—5.6), MdTRL: 5.1 (4.8—5.4), BcB: 11.5 (11.2—11.7), ZyB: 13.2 (12.5—13.8), IC: 4.1 (4.0—4.4), RB: 4.9 (4.8—5.1), BcH: 9.5 (9.0—10.2).

Description of material

The characters of the specimens identified as *C. rutilus* are as follows: complicated structure of M^3 ; mostly 3 enamel folds on each, external and internal, side; roots of molars appearing relatively early in the animal's life; upper tooth-row not more than 6 mm in length; bony crests on the frontale of adult specimens missing or hardly distinguishable; in comparison with *C. rufocanus* the hair of *C. rutilus* is lighter russet on the back and less grey on the belly and flanks, and then the contrast between the dorsal and the ventral part of its body is greater.

Distribution in Korea

In the People's Democratic Republic of Korea the northern red-backed vole has hitherto been reported from Chairbong (MORI, 1939), Kwanmo-bong (TOKUDA, 1941), Nongsa-dong (JONES and JOHNSON, 1965) and Samjiyon (WON, 1968). It lives in taiga in the mountainous regions only in the northern part of the country, generally sympatric with *Clethrionomys rufocanus*. Its subspecific membership is not definitively determined and the Korean specimens are reckoned in *C.r. hintoni* VINOGRADOV, 1936, or in *C.r. amurensis* SCHRENK, 1858.

Clethrionomys rufocanus (SUNDEVALL, 1846)

Material: 14 specimens, some of them being skins, M/5709—22

Localities: Samjiyon (1 female and 3 male adults, 2 female and 5 male subadults, 1 juvenile), Pektu-san (1 subad. male), Hyesan (1 subad. male).

Measurements of 4 adults: body length: 106 (102—112); tail length: 36 (33—38); length of hind foot: 18 (17—18); ear height: 13 (11—13); CbL: 25.5 (24.3—26.4); BcL: 16.5 (15.7—17.0); LN: 7.5 (7.2—7.9); DL: 7.6 (7.1—8.1); MxTRL: 6.1 (6.1—6.2); MdTRL: 6.1 (5.8—6.2); BcB: 12.0 (11.3—12.5); ZyB: 14.9 (14.5—15.6); IC: 4.0 (3.7—4.2); RB: 5.4 (5.3—5.4); BcH: 9.9 (9.4—10.4).

Description of material

The characteristics of the specimens of *C. rufocanus* collected are as follows: simple structure of M^3 (two enamel folds on each, external and internal, side), roots appearing very late in the animal's life and well seen only in old specimens, upper tooth-row generally more than 6 mm in length, two bony crests distinctly seen on the frontale of adult specimens, in comparison with *C. rutilus* the hair is darker russet and the belly more grey, which diminishes the contrast in colour between the dorsal and the ventral side of body.

Distribution in Korea

This species occurs only in the furthest to the north situated part of the country, along the boundary with Manchuria (JONES and JOHNSON, 1965), which is confirmed by the materials described in this paper. The grey red-backed vole lives in this area sympatrically with *Clethrionomys rutilus*, but this last species reaches farther to the south. *C. rufocanus* from Korea is reckoned in the subspecies *C.r. arsenjevi* (DUKELSKI, 1928).

Notes

So far the systematics of *Clethrionomys rufocanus* from East Asia is not decidedly established. In this genus ELLERMAN and MORRISON-SCOTT (1951) included many forms which in the light of recent studies belong to different species or even genera. According to CORBET (1978), it is undoubtful that the Korean specimens described under the name of *C. rufocanus regulus* (THOMAS, 1907) should be placed in the genus *Eothenomys*, because there are no roots at all on its molars. This stand-points has also been assumed in the present paper.

cf. *Eothenomys regulus* (THOMAS, 1907)

Material: 7 specimens, M/5723—29

Localities: Sokvang-sa (1 female and 2 male adults, 2 juveniles), Kumgang-san (2 male adults)

Measurements of 5 adults: body length: 108 (100—112); tail length: 43 (38—45); length of hind foot: 19 (18—20); ear height: 13 (12—13); CbL: 25.6 (25.1—26.1); BcL 16.7 (16.4—17.1); LN: 7.5 (7.1—7.7); DL: 7.6 (7.4—7.8); MxTRL: 6.2 (5.9—6.4); MdTRL: 6.0 (5.7—6.3); BcB: 12.5 (12.3—12.7); ZyB: 14.9 (14.5—15.5); IC: 4.2 (4.1—4.4); RB: 5.5 (5.2—5.7); BcH: 9.8 (9.5—10.2).

Description of material

Both in morphology and in cranial dimensions *E. regulus* much resembles the species *Clethrionomys rufocanus*, in which it is besides often numbered (JONES and JOHNSON, 1965; WON, 1968). The lack of roots on the teeth of even quite adult specimens of *Eothenomys* is the essential difference between these forms (CORBET, 1978). Moreover, M³ has generally a more complicated structure than it has in *C. rufocanus*. Its hair on the flanks of the body is yellowish-brown, whereas is the grey red-backed vole it is distinctly grey, and its tail is somewhat longer.

Distribution in Korea

Owing to systematic obscurities, the distribution of this species is not well known. *Eothenomys regulus* occurs commonly all over the southern and central regions of Korea (JONES and JOHNSON, 1965). Its occurrence in the northern part still calls for elucidation.

Microtus fortis BÜCHNER, 1889

Material: 2 specimens (males), M/5643—44, gift of the Zoological Institute, Korean Acad. Sci.

Localities: Both specimens come from Korea but it is very hard to make out the names of localities given on original labels.

Measurements: body length: 139, 131; tail length: 56, 51; length of hind foot: 23, 22; ear height: 13.5, 13; CbL: 30.6, 29.2; BcL: 19.2, 18.6; LN: 8.7, 8.3; DL: 9.5, 9.1; MxTRL: 7.3, 7.1; MdTRL: 6.9, 6.6; BcB: 13.0, 12.8; ZyB: 17.2, 16.6; IC: 4.1, 4.0; RB: 5.9, 5.6; BcH: 13.0, 12.5.

Distribution in Korea

KURODA (1934) described the first Korean specimens of the reed vole from the Unggi region. From the same area (Manpho) JONES and JOHNSON (1965) mentioned it under the name *M.f. pelliceus* THOMAS, 1911. They found another subspecies, *M.f. uliginosus* JONES and JOHN-

SON, 1965, in a limited area between the towns of Kumhva and Chorvon in the central part of the Korean Peninsula. Now the reed vole is known also from the northern provinces, Yanggang-do (e.g. the Pektu-san region) and Hamgyong-namdo, and also from the region of Pyongyang and other localities (WON, 1968; HO and RIM, 1975). This species seems to be much more frequent in Korea than was believed. It occurs in meadows, rather in lowlands, is closely associated with water and lives in small, more or less isolated colonies (JONES and JOHNSON, 1965).

Notes

GEPTNER and SCHVETSOV (1960) called in question the specific isolation of *M. fortis*, including this species in *M. maximoviczii* (SCHRENK, 1859) (= *M. ungurensis* KASTSCHENKO, 1913). However, caryological studies showed that they are two distinct species which differ in the number of chromosomes (MEYER et al., 1967), do not produce hybrids and bear a number of small but distinct morphological differences (ORLOV et al., 1974; MEYER, 1978).

Apodemus agrarius (PALLAS, 1771)

Material: 18 specimens, M/5647—62, 5664—65

Localities: Hyesan (1 female adult), Taesong-ho (2 adult and 2 subadult males), Sokvang-sa (1 male subadult), Kumgang-san (3 male adults, 4 female and 2 male subadults, 3 juveniles)

The measurements of the adult female from Hyesan compared with the measurements of 5 adults from the other localities: body length: 110, 120 (112—129); tail length: 75, 81 (68—90); length of hind foot: 20, 30 (21—24); ear height: 11, 14 (12—15); CbL: 23.5, 24.9 (24.2—25.6); BcL: 12.5, 14.3 (13.0—16.0); LN: 9.3, 10.5 (10.0—11.0); DL: 7.3, 7.6 (7.4—7.7); MxTRL: 4.1, 4.4 (4.1—4.7); MdTRL: 3.9, 4.3 (4.2—4.4); BcB: 11.0, 11.4 (11.2—12.0); ZyB: 11.9, 12.3 (11.8—13.1); IC: 3.8, 4.5 (4.3—4.7); RB: 5.2, 5.4 (5.1—5.6); BcH: 8.2, 9.6 (8.8—10.2).

Description of material

The measurements of the adult specimens indicate that the female captured at Hyesan is distinctly smaller than the other specimens and it should be included in *A.a. mantchuricus* (THOMAS, 1898). The remaining specimens belong probably to *A.a. coreae* THOMAS, 1908. The black streak, running across the middle of the back, is poorly visible in most specimens except the female from Hyesan and one specimen from Kumgang-san. None of the specimens examined has mesolabial cusp t3 on M².

Distribution in Korea

According to JONES and JOHNSON (1965), 4 subspecies of *Apodemus agrarius* occur in the Korean Peninsula and two of them can be met with in the People's Democratic Republic of Korea. The subspecies *A.a. manchuricus* occurs only in the part of the country situated farthest to the north, whereas *A.a. coreae* lives in the remaining area. The first of them has a distinct dark streak running across the middle of the back, this streak being less distinct in *A.a. coreae*. An increase is also observed in body and cranial dimensions from north to south. The striped field mouse is one of the most common rodents in Korea (WON, 1968). It inhabits open grasslands and fields and is particularly frequent near human settlements.

Apodemus peninsulae (THOMAS, 1906)

Material: 11 specimens, M/5670—80

Localities: Hyesan (1 female adult, 1 male subadult), Sokvan-sa (2 female and 1 male adults, 1 female and 1 male subadults), Suyang-san (2 female subadult, 1 male adult)

Measurements of 5 adults. Body length: 113 (100—126); tail length: 100 (90—111), length of hind foot: 24 (23—26); ear height: 16 (14—17); CbL: 26.0 (24.2—27.0); BcL: 15.7 (15.0—16.1); LN: 10.9 (9.9—11.4); DL: 8.8 (8.6—9.2); MxTRL: 4.3 (4.1—4.5); MdTRL: 4.1 (4.0—4.2), BcB: 11.4 (10.9—11.8); ZyB: 13.2 (12.2—14.0); IC: 4.8 (4.6—5.0); RB: 5.7 (5.5—6.0); BcH: 9.4 (8.5—10.2).

Description of material

The specimens caught at Sokvang-sa have white patches of hair devoid of pigment on the flanks of the body and partly on the back. The patches are particularly well developed on the flanks behind the fore legs and in front of the hind ones. In one specimen (M/5677) the white patches form a stripe which behind the fore legs nearly joins on the back, forming a closed band. The populations from Hyesan and Suyang-san have no white patches.

Distribution in Korea

This species is very common throughout the Korean Peninsula, living everywhere in suitable habitats (WON, 1968). It inhabits chiefly thickets in the proximity of crags situated in forests (JONES and JOHNSON, 1965).

Notes

The systematic position of *Apodemus peninsulae* was a controversial issue till a short time ago. ELLERMAN and MORRISON-SCOTT (1951)

included different subspecies of this form in *Apodemus flavicollis* (MELCHIOR, 1843) or *Apodemus silvaticus* (LINNAEUS, 1758), while other authors (e.g. ARGIROPULO, 1940) regarded it as a subspecies of *Apodemus speciosus* (TEMMINCK, 1845). On the other hand, ZIMMERMANN (1962) treated *A. peninsulae* and *A. speciosus* as separate species, placing them in one subgenus, *Alsomys* DUKELSKI, 1928. Recently, KOBAYASHI and HAYATA (1971) have found the sympatric occurrence of *A. peninsulae* and *A. speciosus* in Hokkaido and chromosomal studies also confirmed the separate character of these forms (VORONTSOV et al., 1977).

Rattus norvegicus (BERKENHAUT, 1769)

Material: 6 specimens, M/5683—88

Localities: Samjiyon (1 male adult), Myohyang-san (2 female and 1 male subadult), Taesong-ho (1 juvenile), Kumgang-san (1 juvenile)

Cranial measurements of the adult male from Samjiyon: CbL: 43.3; BcL: 27.4; LN: 17.2; DL: 13.2; MxTRL: 7.2; MdTRL: 7.0; BcB: 18.0; ZyB: 23.3; IC: 6.6; RB: 9.1; BcH: 15.7.

Description of material

All the specimens captured except one are young or very young. The relatively short tail and the shape of bony ridges on the brain-case indicate that they belong to *R. norvegicus*. This species was collected near or in buildings and only the specimen from Taesong was captured at a distance from human settlements.

Distribution in Korea

The common rat is common throughout Korea and is usually counted in the subspecies *R.n. caraco* (PALLAS, 1778), which is widely distributed in north-eastern China, Manchuria, eastern Siberia and Hokkaido (JONES and JOHNSON, 1965).

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REFERENCES

- ALLEN, J. A., ANDREWS, R. C., 1913. Mammals collected in Korea. Bull. Amer. Mus. Nat. Hist., New York, 32: 427—436.
- ARGIROPULO, A. I., 1933 (1932). АРГИРОПУЛО, А. И., 1933 (1932). Роды и виды хомяков (*Cricetidae*) Палеарктики. Тр. Зоол. ин-та АН СССР, Москва, 1 (3—4): 239—248.
- ARGIROPULO, A. I., 1940. АРГИРОПУЛО, А. И., 1940. Фауна СССР. Млекопитающие. Изд-во АН СССР, Москва—Ленинград, 3 (5): 102—105.
- BOBRINSKI, N. A., KUZNETSOV, V. A., KUZYAKIN, A. P., 1965. БОБРИНСКИЙ, Н. А., КУЗНЕЦОВ, В. А., КУЗЯКИН, А. П., 1965. Определитель млекопитающих СССР. Изд-во „Просвещение“, Москва, 358 с.
- CORBET, G. B., 1978. The Mammals of the Palearctic Region: a taxonomic review. British Mus. (Nat. Hist.), Cornell Univ. Press, London and Ithaca, 314 pp.
- ELLERMAN, J. R., MORRISON-SCOTT, T. C. S., 1951. Checklist of Palearctic and Indian mammals 1758 to 1946. London, 810 pp.
- GEPTNER, V. G., SCHVETSOV, YU. G., 1960. ГЕПТНЕР, В. Г., ШВЕЦОВ, Ю. Г., 1960. О видовом тождестве восточной *Microtus fortis* BÜCHNER и унгурской *Microtus maximoviczii* SCH. полевок. Изд. н-и противочумн. ин-та Сибири и Дальнего Востока, Иркутск, 23: 117—132.
- GOULD, H. N., KREEGER, F. B., 1948. The skull of the Louisiana muskrat (*Ondarta zibethica rivalicia* BANGS). I. The skull in advanced age. Journ. Mammal., Lawrence, 29 (2): 138—149.
- GROMOV, I. M., BIBIKOV, A. I., KALABUKHOV, N. I., MEYER, M. N., 1965. ГРОМОВ, И. М., БИБИКОВ, А. И., КАЛАБУХОВ, Н. И., МЕЙЕР, М. Н., 1965. Фауна СССР. Млекопитающие. Наземные белчьи (*Marmotinae*). Изд-во „Наука“, Москва—Ленинград, 3 (2): 467 с.
- GUREEV, A. A., 1964. ГУРЕЕВ, А. А., 1964. Фауна СССР. Млекопитающие. Зайцеобразные (*Lagomorpha*). Изд-во „Наука“, Москва—Ленинград, 3 (10): 276 с.
- GUREEV, A. A., 1979. ГУРЕЕВ, А. А., 1979. Фауна СССР. Млекопитающие. Насекомоядные (*Mammalia, Insectivora*). Изд-во „Наука“, Ленинград, 4 (2): 502 с.
- HALL, E. R., KELSON, K. R., 1959. The Mammals of North America. The Ronald Press Comp., New York, Vol. I and II, 1078 pp.
- HO, H., RIM, Ch. J., 1975. Studies on species of Birds and Mammals in the Region of Pektu-san. Publ. Acad. Sci., Phyongyang, 187—199 (in Korean).
- JONES, J. K. Jr., 1960. Absence of third upper premolar in *Eutamias*. Journ. Mammal., Lawrence, 41: 268—269.
- JONES, J. K. Jr., JOHNSON, D. H., 1960. Review of the Insectivores of Korea. Univ. Kansas Publ., Mus. Nat. Hist., Lawrence, 9 (22): 549—578.
- JONES, J. K. Jr., JOHNSON, D. H., 1965. Synopsis of the Lagomorphs and Rodents of Korea. Univ. Kansas Publ., Mus. Nat. Hist., Lawrence, 16 (2): 357—407.
- KARTAVTZEVA, I. V., BORISOV, YU. M., LYAPUNOVA, E. A., VORONTSOV, N. N., KORABLEV, V. P., 1980. КАРТАВЦЕВА, И. В., БОРИСОВ, Ю. М., ЛЯПУНОВА, Е. А., ВОРОНИЦОВ, Н. Н., КОРАБЛЕВ, В. П., 1980. Добарочные хромосомы у крысвидного хомячка (*Tscherskia triton*) и его систематическое положение. Зоол. Журн., Москва, 59 (6): 899—904.

- KISHIDA, K., MORI, T., 1930. Summer pelage of the Korean piping hare, *Ochotona coreana*. Lunsania, 2: 49—53 (in Japanese).
- KOBAYASHI, T., HAYATA, I., 1971. Revision of the genus *Apodemus* in Hokkaido. Ann. zool. Japan, Tokyo, 44 (4): 236—240.
- KURODA, N., 1917. A small collection of mammals from Korea and Manchuria. Dobutsugaku Zasshi, 29: 355—364 (in Japanese).
- KURODA, N., 1934. Korean mammals preserved in the collection of Marquis Yamashina. Journ. Mammal., Lawrence, 15: 229—239.
- KURODA, N., MORI, T., 1923. Two new and rare mammals from Korea. Journ. Mammal., Lawrence, 4: 27—28.
- LOUKASHKIN, A. S., 1944. The giant rat-headed hamster, *Cricetulus triton nestor* THOMAS, of Manchuria. Journ. Mammal., Lawrence, 25: 170—177.
- MEYER, M. N., 1978. МЕЙЕР, М. Н., 1978. Систематика и внутривидовая изменчивость серых полевок дальнего востока (*Rodentia, Cricetidae*). Сист. и Морф. Млекопитающих. Тр. Зоол. Инст., Ленинград, 75: 3—62.
- MEYER, M. N., JORDAN, M., WALKNOWSKA, J., 1967. A karyosystematic study of some *Microtus* species. Folia biol., Kraków, 15 (3): 251—264.
- MIDDENDORF, A., 1875. Reise im äussersten Norden und Osten Sibiriens. St.-Petersburg.
- MOORE, J. C., 1959. Relationships among living squirrels of the *Sciurinae*. Bull. Amer. Mus. Nat. Hist., New York, 118 (4): 153—206.
- MORI, T., 1939. On the birds and mammals collected from Mt. Shazitsuho. Chosen Nat. Hist. Soc., 27: 1—4 (in Japanese).
- NADLER, C. F., HOFFMANN, R. S., LAY, D. M., 1969. Chromosomes of the Asian chipmunk *Eutamias sibiricus* LAXMANN (*Rodentia: Sciuridae*). Experimentia, Basel, 25 (8): 868—869.
- ORLOV, V. N., SCHVETZOV, J. G., KOVALSKAYA, J. M., KUTASCHEVA, T. S., STUPINA, A. G., 1974. ОРЛОВ, В. Н., ШВЕЦОВ, Ю. Г., КОВАЛЬСКАЯ, Ю. М., КУТАШЕВА, Т. С., СТУПИНА, А. Г., 1974. Диагноз и распространение в Забайкалье полевок *Microtus maximoviczii* и *M. fortis* (*Rodentia, Cricetidae*). Зоол. Журн., Москва, 53 (9): 1391—1396.
- OGNEV, S. I., 1914. ОГНЕВ, С. И., 1914. Млекопитающие низовья р. Туман-Гана (Южная часть Приморской области). По сборам А. И. Черского летом 1913 г. Ч. 1. Грызуны (*Rodentia*). Дневник зоол. отд. Импер. о-ва любит. естествозн. антропол. и этногр. Нов. сер., Москва, 2 (3): 101—128.
- RUPRECHT, A. L., 1974. Cranometric Variations in Central European Populations of *Ondatra zibethica* (LINNAEUS, 1766). Acta theriol., Białowieża, 19 (31): 463—507.
- STROGANOV, S. U., 1957. СТРОГАНОВ, С. У., 1957. Звери Сибири. Насекомоядные. Изд-во Акад. Наук СССР, Москва, 267 с.
- TIUNOV, M. P., 1979. ТИУНОВ, М. П., 1979. Изменчивость некоторых морфологических признаков географических популяций бурундука. Экология, Свердловск, 3: 47—54.
- TIUNOV, M. P., 1980. ТИУНОВ, М. П., 1980. К истории становления современного ареала бурундука (*Tamias sibiricus*) на территории Евразии. Зоол. Журн., Москва, 59 (2): 261—265.
- TOKUDA, M., 1941. A revised monograph of the Japanese and Monchou-Korean Muridae. Trans. Biogeogr. Soc. Japan, Tokyo, 4 (1): 1—155.
- TOMEK, T., 1983. Materials to the Breeding Avifauna of the People's Democratic Republic of Korea. Acta zool. cracov., Kraków, 27 (2): 19—46.
- TSUCHIYA, K., WON, P. H., 1976. Karyotype of *Cricetulus triton nestor* (*Rodentia, Cricetidae*). Journ. Mammal. Soc. Japan, Tokyo, 6 (5—6): 218—223.

- VORONTSOV, N. N., BEKASOVA, T. S., KRAL, B., KOROBITSINA, K. V., IVANITSKAYA, E. YU., 1977. ВОРОНЦОВ, Н. Н., БЕКАСОВА, Т. С., КРАЛ, Б., КОРОБИЦЫНА, К. В., ИВАНИЦКАЯ, Е. Ю., 1977. О видовой принадлежности азнатских лесных мышей рода *Apodemus* Сибири и Дальнего Востока. Зоол. Журн., Москва, 56: 437—449.
- WHITE, J. A., 1953. Genera and subgenera of chipmunks. Univ. Kansas Publ. Mus. Nat. Hist., Lawrence, 5: 543—561.
- WON, P. O., 1961. Land mammals of Korea. In: Avi-mammalian fauna of Korea. Inst. Agric., Suwon, Korea, 36—64.
- WON, H. K., 1968. Animals of Korea. Publ. Acad. Sci., Pyongyang, 407 pp (in Korean).
- ZIMMERMANN, K., 1962. Die Untergattungen der Gattung *Apodemus*. Bonn. zool. Beitr., Bonn, 13: 198—208.
- ZUBCHANINOVA, E. V., 1962. ЗУБЧАНИНОВА, Е. В., 1962. О географической изменчивости бурундуков (*Eutamias sibiricus* LAXM.) СССР. Научн. докл. высш. шк., Биол. науки, Москва, 4: 41—45.

STRESZCZENIE

Praca zawiera opis materiałów niewielkiej kolekcji następujących gatunków drobnych ssaków z Koreańskiej Republiki Ludowo-Demokratycznej: *Neomys fodiens*, *Ochotona alpina*, *Tamias sibiricus*, *Cricetulus triton*, *Clethrionomys rutilus*, *Clethrionomys rufocanus*, *Eothenomys regulus*, *Microtus fortis*, *Apodemus agrarius*, *Apodemus peninsulae* i *Rattus norvegicus*. Dla każdego gatunku podano standardowe pomiary zewnętrzne i czaszki osobników dorosłych. Przedyskutowano ich rozmieszczenie na Półwyspie Koreańskim i pozycję systematyczną. Na podstawie trudno dostępnej książki w języku koreańskim WON Hong Koo z 1968 roku podano informację o występowaniu w Korei 8 gatunków dotychczas nie wykazywanych z tego kraju w ogólnych opracowaniach dotyczących Palearktyki.

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