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## HAMSTERS COLLECTED BY THE AMERICAN MUSEUM ASIATIC EXPEDITIONS<sup>1</sup>

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The rodent family Cricetidae is represented in eastern Asia by a number of small species collectively known as hamsters. All of these are burrowers, more or less modified for ground living, in contrast therefore to the long-tailed forest-living *Peromyscus* of North America (belonging to the same family), but recalling the American genus *Onychomys*, which again is an open-country or desert type. Hamsters are apparently absent in China south of about latitude 32° where, presumably, conditions have not in recent times been suitable for them.

The Asiatic Expeditions under the leadership of Mr. Roy Chapman Andrews have now assembled a fine series of these handsome little mammals from various points in North China and the Gobi Desert, making possible a comparison of specimens from various parts of a species' range and an estimate of the amount of geographic variation shown. As in the case of many other mammals, the dry interior of the country is inhabited by paler representatives, while nearer the coast in Chili, or along the damper borders of southern Shensi, darker coloration prevails. Some seem to be wholly confined to the Gobi.

### ***Cricetulus andersoni* Thomas**

*Cricetulus andersoni* THOMAS, 1908, Proc. Zool. Soc. London, p. 642.

A small gray hamster with prominent ears, a tail of medium length, and white belly with slaty bases to the hairs. This was considered by Anderson to be the commonest small mammal in Shensi and Shansi, and it was found in abundance by Andrews at Kwei-hwa-ting and Heshuin in the latter province. In Mongolia a large series was also secured by Andrews at Artsa Bogdo, but not elsewhere except for a single skin at Ussuk and another forty miles south of Tsetsenwan. I am unable to see tangible differences between the Shansi and the Mongolian series,

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though the latter are the least bit paler. A small series from Chili Province, northeast of Peking, is, however, much darker with a greater amount of black in the upper surfaces. It may be distinguished as follows.

***Cricetulus andersoni nigrescens*, new subspecies**

TYPE.—Adult male, skin and skull, No. 56307, American Museum of Natural History, from Province of Chili, 100 miles northeast of Peking, China. March 1922. Third Asiatic Expedition.

DESCRIPTION.—Similar to *C. andersoni* but the dorsal surface of head and body much darkened by black hairs.

General color above, a buffy gray heavily lined with black particularly over the lower part of the back, with a tendency in some specimens to form an indistinct dark line medially. This general color is the result of a mixture of long, black-tipped hairs with the more numerous hairs that are slaty for their basal three-fourths, with a pale buff tip. At the sides of the body between fore and hind legs, the latter hairs predominate giving a nearly clear "light ochraceous buff." A small area behind each ear is similar. Upper side of tail dusky, with a few scattered white hairs. Ears blackish brown ("Natal brown"), their tips narrowly edged with white. Feet and under side of tail pure white to the roots of the hairs; upper lips and entire under surface of the body and limbs white with a distinct buffy wash on the chest, the bases of the hairs slaty.

The skull is not appreciably different from that of typical *andersoni*.

MEASUREMENTS.—None of the series of topotypes is accompanied by measurements, but the specimens do not seem to differ from typical *andersoni* in size except that the tail appears to be slightly shorter, about 30 instead of 38 mm.

The skull of the type measures: greatest length, 26 mm.; basal length, 22.5; palatal length, 12.5; diastema, 7.0; width of braincase, 11.7; interorbital width, 4.0; upper cheek teeth, 4.1; mandible, 14.3; lower cheek teeth, 4.0.

The series of twenty-three skins from 100 miles northeast of Peking is so very much darker than typical *andersoni* from near Taiyuenfu, central Shansi, as to be easily distinguishable on comparison. A series from northern Shansi, at Kwei-hwa-ting, is exactly intermediate between the pale typical animal and the Chili form, so that the subspecific standing of the latter is unquestionable. In addition to its darker back, the buffy wash on the chest seems distinctive.

***Cricetulus griseus* (A. Milne-Edwards)**

*Cricetus (Cricetulus) griseus* A. MILNE-EDWARDS, 1868-1874, 'Recherches Hist. Nat. Mammifères,' p. 133; Pl. xii, fig. 1; Pl. xiii, fig. 1-1h.

A short-tailed buffy species, with a narrow black stripe in the middle of the back. This is common in parts of northeastern China. A series from Peking are topotypes and a large number were secured at Shan-hai-kwan in the same province (Chili). The collection also includes a

number from Chimo, on the north coast of the Shantung peninsula collected by Paul D. Bergen. These are all very uniform in color, and the young are but little darker.

***Cricetulus griseus obscurus* (A. Milne-Edwards)**

*Cricetus (Cricetulus) obscurus* A. MILNE-EDWARDS, 1868-1874, 'Recherches Hist. Nat. Mammifères,' p. 136; Pl. XII, fig. 2; Pl. XIII, fig. 2-2c.

This is similar to the preceding but paler. Milne-Edwards' type came from Saratsi, northern Shansi, so that Andrews' series from Kwei-hwa-ting in that province are practically topotypes. These already show a sandier, paler tint than those to the eastward, though occasional specimens are hardly distinguishable. Following Thomas's suggestion, however, the name may be retained in a subspecific sense for the pale western animal of Shansi and Mongolia. In the latter region this hamster was obtained at Turin, Loh, Ussuk, Gun Burta, Tssetsenwan, Tsagan Nor, and Sain Noin Khan. Compared with the Kwei-hwa-ting series these are a perceptible shade paler, with in some specimens pronounced white tufts at the exterior base of the ears, and the dark line on the back sometimes less sharply defined. Possibly this race will be found to merge with *kozlovi* from Sa-chou.

***Cricetulus longicaudatus* (A. Milne-Edwards)**

*Cricetus (Cricetulus) longicaudatus* A. MILNE-EDWARDS, 1868-1874, 'Recherches Hist. Nat. Mammifères,' p. 136; Pl. XII, fig. 3; Pl. XIII, fig. 3-3a.

Resembles *C. andersoni* but the hairs of much of the lower surfaces are white to their bases. This seems to be rare or local, and was not secured except at Artsa Bogdo, Mongolia, where a single male was taken that seems referable to the species. Its vibrissæ are noticeably longer and more abundant than in *C. andersoni*, which apparently greatly outnumbered it at the same locality; the feet also are larger, and the skull has a more elongate rostrum.

***Cricetulus migratorius curtatus*, new subspecies**

TYPE.—Adult male, skin and skull, No. 57873, American Museum of Natural History, from Iren Dabasu, Mongolia. May 2, 1922. Third Asiatic Expedition.

DESCRIPTION.—A medium-sized hamster, uniform buffy gray above, feet and tail white, the latter very short, not exceeding the extended hind foot; belly white, the hairs with slaty bases except on skin, throat, forearms, and tail.

General color of the upper parts from the nose to root of tail, and laterally as far as the vibrissæ, cheeks, shoulder and lower thigh nearly "cinnamon buff" (Ridgway, 1912) faintly and evenly lined with fine black-tipped hairs. Half-way between

eye and ear an indistinct grayish-white bar extends upward from the white of the throat across the cheek on each side. A small tuft of white hairs is present at the anterior base of the ear, and an ill-defined pale buffy patch marks the posterior base. Outer surface of ears scarcely darker than the back, thinly covered with short whitish and dusky brown hairs. Lips (including the bases of the vibrissæ), the entire forearm and foot, and the hind leg from the lower part of the thigh, the tail, the sides and belly white, the hairs with slaty bases except on chin, upper throat, a narrow median area between the forelegs, the entire forearms, fore and hind feet, and the tail, which are white to the bases of the hairs. Vibrissæ and a narrow eye-ring black.

Immature specimens are "drab-gray" to "light drab" above with less of the pale cinnamon tint. The tail, though usually entirely white, may have a narrow line of scattered dark or blackish hairs mid-dorsally.

MEASUREMENTS.—The type was measured by the collector as follows: head and body, 115 mm.; tail, 18; hind foot [s. u.], 17; ear, 16. The hind foot with claw measures on the dry skin, 19 mm. The largest specimen has a head-and-body length of 128 mm.

The skull of the type measures: greatest length, 32.6 mm.; basal length, 31; palatal length, 17; diastema, 9.5; zygomatic width, 18; mastoid width, 13.5; width outside anterior molars, 7; upper cheek teeth, 4.9; lower cheek teeth, 4.8; mandible to condyle, 20.

This appears to be one of the *C. migratorius* group, the center of whose range is western Asia to the borders of western Europe, and is apparently another of the species of that area to have made its way through the Altai region into the eastern Gobi Desert. In addition to being apparently the most eastern member of the *migratorius* group yet discovered, it is also the shortest-tailed. The tail is stumpy and conical, barely reaching the tip of the extended hind foot, the hairs at its base noticeably longer than those at its tip. The pale buffy or cinnamon color is indicative of the dry desert habitat. In addition to specimens from the type locality, others apparently indistinguishable were taken at the following places in the Gobi Desert, Mongolia: Gun Burte (6800 feet altitude), Pang Kiang, Tsagan Nor, Ussuk, Loh, Turin.

#### ***Cricetulus triton* (de Winton)**

*Cricetus* (*Cricetulus*) *triton* DE WINTON, 1899, Proc. Zoöl. Soc. London, p. 575.

Ten skins from Chimo, near the coast of the Shantung peninsula, are practically topotypes of the large hamster of northeastern China, and are very uniform in their general buffy-gray appearance, slightly darker in the middle of the back. The largest of the series, though unaccompanied by collector's measurements, are apparently of nearly the same size as *C. nestor* Thomas from northeast of Seoul, Korea, and the two are doubtless closely related. Thomas has lately described a third race, a pale gray subspecies, *C. t. incanus*, from the dry inland country

along the edge of the Ordos Desert. The collections obtained by the Third Asiatic Expedition include a small series from near Peking, which differ uniformly from the Shantung specimens in having the base of the tarsus dark instead of white like the rest of the foot, while still another lot from the hills of southern Shansi and Shensi are the opposite of *C. t. incanus* in their darkened coloration correlated with the moister climate of this area. The descriptions of these two races follow.

***Cricetulus triton fuscipes*, new subspecies**

TYPE.—Adult male, skin and skull, No. 56792, American Museum of Natural History, from Peking, Chili Province, China. 1921. Third Asiatic Expedition.

DESCRIPTION.—Similar in general appearance to *C. triton*, but the ankles and basal part of the metatarsals dusky, instead of white like the distal part of the foot.

Entire dorsal surface of head and body a nearly uniform buffy, slightly darkened on the lower back by a greater admixture of long black hairs. Along the sides of the cheeks and flanks these black hairs are few or absent so that the color is here clearer, nearly "light ochraceous buff." The individual hairs of the back are of two sorts: some entirely black, others with a fine black tip, then a broad subterminal ring of "light ochraceous buff" and a slaty base. The ears are clothed with short brownish ("fuscous") hairs, with which are mingled a few grayish hairs, these latter more abundant at the extreme tip of the ear. The chin and a varying median area extending back from it, the hands and wrists are pure white to the roots of the hairs. The under side of the body and limbs is elsewhere white with the slaty-gray bases of the hairs showing through. The hind feet are white on the distal part of the metatarsals and on the toes, but the proximal third or half of the metatarsal area is contrastingly brownish ("fuscous"). The tail is thinly haired, dusky above and whitish below.

The skull is stoutly built, the orbits square-edged above, giving a less rounded appearance than in the smaller species of the genus.

MEASUREMENTS.—The skins are unaccompanied by measurements, but the hind foot of the type measures 23 mm., or practically as in typical *C. triton*. As made up, the tails of the Peking series seem longer than those from the Shantung peninsula.

The following skull measurements are of the type and a topotype (No. 56335): greatest length, 35+, 38 mm.; basal length, 35, 34.5; palatal length, 18.5, 18.8; diastema, 10.5, 10.7; zygomatic width,—, 19.4; width of braincase, 15.5, 15.4; upper cheek teeth, 5.5, 5.5; lower cheek teeth, 5.4, 5.5; mandible, 22, 21.8.

Seven specimens from Peking agree in having the basal portion of the hind foot dusky brown, whereas in the other races at hand it is entirely white. In other respects this race is not obviously different from typical *C. triton* unless the longer tails of the skins as prepared are not a result of difference in preparing the specimens.

***Cricetulus triton collinus*, new subspecies**

TYPE.—Adult female, skin and skull, No. 56389, American Museum of Natural History, from the base of Tai-pei-shan, Tsing-ling Mountains, Shensi Province, China. October 10, 1921. Third Asiatic Expedition.

DESCRIPTION.—A large hamster, similar to *C. triton* but much darker and with slightly longer tail.

General color of the upper parts from nose to tail between "drab" and "mouse-gray," the individual hairs either entirely black, or with minute black tip and a broad subterminal band of "warm buff," the latter predominating at the sides of the head and body, so that these portions are slightly brighter. Inner and outer sides of ears thinly covered with short blackish-brown hairs, except that the extreme edge is white. Feet and wrists, the chin, and a small median spot on the throat, clear white to the bases of the hairs; the lower surfaces elsewhere are clothed with whitish hairs whose slaty-gray bases everywhere show through and darken the general grayish tone. Tail thinly covered with short appressed hairs, blackish brown (near "sepia"), with many whitish hairs on the lower side. Vibrissæ blackish brown or whitish, short.

The skull hardly differs from that of *C. t. fuscipes*, except that the incisive foramina in adults tend to be longer, reaching about to the level of the cheek teeth. The interparietal in the latter also differs in that the anterior corners are produced forward so that the border is brace-shaped instead of V-shaped.

MEASUREMENTS.—The collector's measurements of the type are: head and body, 155 mm.; tail, 72; ear, 22; the hind foot measures 24 mm.

The skull of a topotype (No. 56388) measures: greatest length, 37.5 mm.; basal length, 34.6; palatal length, 17.6; diastema, 10.2; zygomatic width, 19; width of braincase, 15.3; interorbital width, 4.7; upper cheek teeth, 5.2; mandible, 21.6; lower cheek teeth, 5.2.

The series of nine specimens from the base of Tai-pei-shan, Tsing-ling Mountains, comes from the northwestern border of the damp forested area of which Szechwan may be considered the center. The saturate or darkened appearance of this form of *C. triton* is therefore what might be expected in contrast to the very pale *C. triton incanus* from the edge of the Ordos Desert, or the pale-buffy *C. triton* from Shantung. A single specimen from the northern edge of the Tsing-ling range, about 45 miles south of Fengsiangfu, Shensi, is also referable to *C. t. collinus*, and probably represents nearly its northern limit. The altitude of this point is about 3600 feet. Two other similar specimens were taken at He-shuin, in southern Shansi. The discovery of a representative of *C. triton* in this southern part of Shensi is apparently a considerable extension of its known range, and it seems unlikely that it will be found to penetrate much farther southwestward.

### ***Cricetiscus campbelli* (Thomas)**

*Cricetulus campbelli* THOMAS, 1905, Ann. Mag. Nat. Hist., (7) XV, p. 322.

For these dwarf hamsters with shortened tail, black dorsal line, and with the white of the lower side extending up on the flanks to form a convex area on neck, body, and hip, Thomas has lately proposed the generic name *Cricetiscus*. The skull differs from that of *Cricetulus* in its

more spreading zygomata and in having the dorsal profile distinctly more bowed. The type of *campbelli* was from northern Chili near the southern edge of the Mongolian plateau. The Second and Third Asiatic Expeditions, under Mr. Roy Chapman Andrews, secured specimens at various places on the great plateau, namely, at Urga, and at localities along the caravan route 60, 80, 120, and 140 miles to the southeast, as well as at Ussuk, Turin, 30 miles to northeast of Tsetsenwan, and 40 miles southwest of there, as well as a single one on the Tola River 80 miles west of Urga. It seems to be a characteristic species of the tableland, but is represented by a similar and darker form in the Altai region, "*Phodopus*" (= *Cricetiscus*) *crepidatus* Hollister.

***Phodopus bedfordiæ* (Thomas)**

*Cricetulus bedfordiæ* THOMAS, 1908, December 22, Abstract Proc. Zool. Soc. London, p. 45.

A short-tailed dwarf hamster, pale buff above, pure white below. This was described from Yulinfu, Shensi, on the edge of the Ordos Desert. Three specimens were secured by the Third Asiatic Expedition at Tsagan Nor, and a fourth 160 miles southeast of Sain Uṣu, Mongolia, thus considerably extending its known range. These four do not differ appreciably from a topotype in the Museum of Comparative Zoölogy.

