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## MICROTINES COLLECTED BY THE ASIATIC EXPEDITIONS<sup>1</sup>

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The field work carried on by the Second and Third Asiatic Expeditions of The American Museum of Natural History under the able leadership of Mr. Roy Chapman Andrews has resulted in the accumulation of a splendid series of voles and other microtines including a large number from the highlands of western Yunnan (a locality that has lately yielded many novelties), series from near Peking, from localities in Shensi Province, and from central Mongolia. In working out the identifications of these specimens, one is impressed by the number of microtine types occurring in eastern Asia. These are, many of them, superficially much alike, although their dental characters at once mark them off into groups which are of greater or less superspecific value. These have usually been considered subgenera, but, partly for convenience, have by some authors been accorded full generic standing. The occurrence of various intermediate steps in details of tooth-pattern, together with their general external resemblances, leads me to prefer for the present the more conservative course of regarding most of these groups as subgenera, pending some future and comprehensive review.

Among the many interesting facts of distribution brought out by these collections, a few may be particularly noted. The moist uplands of Szechuan have a characteristic series of species whose range extends southward into the high country of Yunnan, where local forms may develop. The eastward extension of many types common in western Asia is brought out by the occurrence in the Mongolian high plateau of species of *Ellobius* and *Lagurus*, and representatives of *Microtus obscurus*, and a form of the subgenus *Alticola*. The great tongue of high desert extending across Mongolia forms an effective barrier to the further southward progress of certain species common farther north where there is a certain amount of sheltering forest—such, for example, as *Evotomys* and *Myopus*.

At the suggestion of Mr. Andrews, the complete list of species obtained is here given, together with a brief diagnosis as a help to those

<sup>1</sup>Publications of the Asiatic Expeditions of The American Museum of Natural History. Contribution No. 28.

who may have opportunity to do field work in the same country. High credit is due him for the abundance and excellent quality of the material he has brought back from this little-known area.

***Myopus saianicus* Hinton**

A short-tailed lemming with a dull-reddish back and slaty head, sides and belly. Specimens of this genus have been very rare in collections. Middendorff reported it nearly seventy-five years ago from the Okhotsk Sea, but his record was long believed to be erroneous since it had previously been known from northern Europe only. In 1912 HOLLISTER described *M. morulus* on the basis of a single specimen from the Altai Mountains; while another taken in the Syansk Mountains, one hundred miles west of Lake Baikal, has lately been made the basis of *M. saianicus* by Hinton. To the latter I have referred the fine series of fourteen taken at two different localities, fifteen miles north and forty-five miles northeast, respectively, of Urga, and four others from Sain Noin Khan. It seems likely that the Altai and the Syansk forms must be very closely related, and both perhaps hardly more than subspecies of *M. schisticolor* of Europe. The present series from the forest area bordering the northern Gobi establishes the occurrence of the genus in Mongolia and perhaps marks its southern limit of distribution in that country.

***Evotomys rutilus russatus* (Radde)**

This red-backed mouse was abundant in the wooded country forty-five miles northeast of Urga, Mongolia, where a large series was obtained. These differ from a series from the Altai referred to *rutilus* in their slightly brighter colors and in having the tails usually more or less reddish like the back instead of blackish as in these latter. Although no specimens of *rutilus* from the Obi region are available as topotypes, it is assumed that the Altai specimens are the same, and I have therefore applied Radde's name to the Mongolian series. His figures and description (1862, 'Reise Siberia,' I, p. 186, Pl. VII, figs. 2, 2 *a-e*) seem to indicate this animal clearly enough, even to the reddish tail, in spite of doubts that have been expressed on account of his rough outlines of the enamel pattern of the teeth.

***Evotomys rufocanus* (Sundevall)**

In addition to its cranial characters, this species can be distinguished from the preceding by its duller red back and the slaty muzzle, cheeks,

and sides. A good series was secured along the southern border of the forest at stations fifteen miles north and forty-five miles northeast of Urga, Mongolia, as well as at Sain Noin Khan to the westward. It seems to occur, therefore, in the same general localities as the smaller red-backed mouse. I have carefully compared this series with topotypes of *rufocanus* from Sweden and can find no tangible differences. Apparently, however, the species becomes more richly colored with more ochraceous flanks in Korea, a form to which the name *regulus* has been given. This should evidently be considered a subspecies, *Evotomys rufocanus regulus*. Mr. Andrews obtained a small series of this form in Korea during a previous expedition.

***Evotomys rufocanus shanseius* (Thomas)**

In this race the back is less rufous, the sides more ochraceous, with a resulting paler, yellowish-brown appearance. It was originally described as a full species, *Craseomys shanseius*, type from the spruce forest, one hundred miles northwest of Tai-yuan-fu, Shansi, but the series now at hand including ten from Kwei-hwa-ting, Shansi, and five from one hundred miles northeast of Peking, indicates that its range passes into that of *rufocanus* on the eastward, although separated from it on the north by the Gobi plateau and Ordos Desert in Mongolia. Indeed, Thomas has referred a single specimen from sixty miles east of Peking to *regulus*, but the additional skins from that region secured by the Asiatic Expeditions of The American Museum of Natural History are quite indistinguishable from the pale form, *shanseius*. These two forms should be regarded as geographic subspecies of *E. rufocanus*.

***Microtus (Eothenomys) melanogaster confinii* (Hinton)**

Externally this is a small dark vole with blackish slaty belly; many of the long hairs on sides and belly have burnished tips. The type locality is the Kiuchiang-Salween divide in latitude 28° north, altitude 11,000 feet. This is the southern representative of *melanogaster* of Szechuan and occurs on the mountains of southern Yunnan at altitudes from 6000 feet (Salween drainage) to over 10,000 feet (Pei-tai Mountain, south of Chung-tien). A series secured by the Second Asiatic Expedition includes two which, as noted by the collector, contained on February 8, 1917, one and two embryos respectively, a number correlated no doubt with the reduced number of mammæ.

***Microtus (Eothenomys) fidelis* (Hinton)**

The largest, known member of the subgenus, a very reddish-looking vole with large skull and hind foot. The type came from the Li-chiang range, Yunnan, in latitude 27° 30' north. A fine series was secured from the same area by the Second Asiatic Expedition, as well as others from Chunglu, Siao-ke-la, Chiangwei and Yangtsien, on the Mekong River between altitudes of 6000 and 9000 feet; Ha-pa (north of Taku), 10,000 feet; Yangpi River (Tengyueh road) at 5000 feet; Tali Lake, 6500 feet; and other localities. The entire series is very uniform in its characters. In two cases, three embryos were found in specimens captured the first week in October, and two in a female taken October 30, 1916. These are not only late litters but, as in the case of the preceding species, indicate a correlation between the small number of young per litter and the reduced number (four) of mammæ. It is possible also that the breeding season extends over a longer period than in some other microtines.

***Microtus (Eothenomys) proditor* (Hinton)**

Externally like *M. (E.) fidelis* but the tail and hind foot smaller; the tooth pattern is slightly more complicated (especially  $m^3$ ) and somewhat transitional between that of *fidelis* and the species of the subgenus *Anteliomys*. The type came from the Li-chiang range, Yunnan, at 13,000 feet altitude, and the series of ten specimens brought back by the Second Asiatic Expedition is from the same range, at the following localities: Ssu-shan-chong, 9000 feet; Peswi, 10,000 feet; Ssu-shan (Snow Mountain), 12,000 feet; timber-line, 13,000 feet. Evidently it is a species of high levels.

***Microtus (Eothenomys) olitor* Thomas**

A small dark grayish-brown species with a very small skull. Three specimens were secured at an elevation of 7000 feet on the Mucheng-Salween drainage, western Yunnan. The type locality is Chao-tung-fu, Yunnan. This species is apparently the least common of the members of the subgenus in Yunnan. Its small size is at once distinctive, while the tooth pattern is interesting in its resemblance to that of *Anteliomys* in the increasing complexity and form of the third upper molar and the elimination of the postero-internal angle of the first upper molar.

**Microtus (Antellomys) custos** Thomas

This species bears much resemblance to *M. (E.) fidelis* and *proditor* in its general appearance and reddish-brown coloration, but the belly is usually much grayer, and the tooth characters are distinctive. The posterior edge of the palate usually shows two slight projections, one on either side of the mid-line, which in *M. (A.) chinensis* meet to form a short median spine. It is an alpine species and was described from specimens taken at A-tun-tsu, northwestern Yunnan, at over 11,000 feet altitude. The Second Asiatic Expedition secured a series at To-mulang, 10,000 feet, and at the same altitude at Tu-gan-sha, both localities near Chung-tien. Others were taken at Ying-pan-kai and La-chu-mi, 9000 feet. One specimen (No. 44141) has an incipient postero-internal cusp on the two anterior upper molars, reminiscent of their fuller development in certain species of the subgenus *Eothenomys*. On the Li-chiang range this species is represented by an allied form, rather sharply marked off by the peculiarities of the nasal and intermaxillary bones, and may be described as follows.

**Microtus (Antellomys) custos rubellus**, new subspecies

TYPE.—Adult female, skin and skull, No. 44001, American Museum of Natural History, from Ssu-shan (Snow Mountain), Li-chiang range, at timber line, 13,000 feet. October 13, 1916. R. C. Andrews and Edmund Heller.

DESCRIPTION.—Similar in general to *M. custos* but slightly more reddish above, the belly clearer gray, lacking the decided brownish wash. The skull differs notably in that the nasals are exceeded by the premaxillaries in their backward extension.

General coloration above, a dull rusty brown, nearly uniform, though slightly clearer along the flanks. The individual hairs are slaty at base, with an ochraceous terminal portion that becomes more rufous near the tip which is black. At the sides this minute black tip is often lacking, producing the clearer effect. Entirely black hairs are scattered throughout the pelage. Entire lower surface of the body gray or bluish gray, sometimes with a very faint wash of brownish on the chest. Feet and tail dusky above, the latter paler (grayish) below.

The skull appears to average a little larger than in typical *M. custos*. The most noticeable difference is in the relations of the nasals and the premaxillæ. In *M. custos* the posterior extension of the nasals exceeds that of the premaxillæ, whereas in *M. c. rubellus* they are uniformly shorter and do not (or rarely) extend even as far back as the terminal border of the premaxillæ. The palate, instead of ending in a median spine (as in *M. chinensis*), has a slightly projecting edge with usually two small blunt points. The teeth are essentially as in *M. custos*.

MEASUREMENTS.—The collector's measurements of the type are: head and body, 100 mm.; tail, 41; hind foot, 18.5. Four other adults (topotypes) measured as

follows: head and body, 100, 100, 102, 105; tail, 44, 39, 40, 32; hind foot, 18.5, 18, 19, 17. The average of five adults of typical *M. custos* from the Chung-tien district is: head and body, 93.6; tail, 44; hind foot, 17.9.

The skull of the type measures: greatest length, 24.5 mm.; condylobasal length, 24.4; palatal length, 13.1; interorbital width, 3.7; zygomatic width, 14.2; mastoid width, 11.0; occipital depth including bulla, 8.0; upper molars (alveoli), 6.1; lower molars (alveoli), 5.9; tip of mandible to condyle, 15.2. These measurements are a very little larger than the average of adult *M. custos*.

This representative of *M. custos* (type from A-tun-tsu, 11,500 to 12,500 feet), like many other of the small mammals from the snow peak of the Li-chiang range, is sufficiently different to be worth recognizing as a distinct local race. It is much paler underneath, practically lacking the brownish wash so conspicuous in *M. custos*, and the body is a very little redder. In series, *M. custos* shows a slight contrast between the dull reddish tint of the head and the brownish of the back, whereas in *M. c. rubellus* there is less contrast, and the general tone is redder. The difference in the relations of the nasals and the premaxillæ is striking and fairly uniform in a large series. Apparently the larger species, *M. (Anteliomys) chinensis*, is not represented here, but reaches its southern limit on the divides northwest of A-tun-tsu, whence, under the name *wardi*, a form has been described by Thomas and again recorded by Hinton.

#### **Microtus (Caryomys) aquilus** (G. M. Allen)

A series of fifteen skins of this dark-brown, long-tailed vole from Tai-pei-shan, Tsing-ling range, southern Shensi, 10,000 feet, is apparently the same as the species I described in 1912 as *Craseomys aquilus*, which proves to be one of the *Caryomys* group with closed triangles in the first lower molar. This in turn may be found inseparable from *M. (C.) alcinous* Thomas, from Wei-chow, western Szechuan, but in the absence of typical specimens for comparison may at present stand. Probably *M. (C.) eva* (from Kansu) is one of the same group, and the others should be treated as subspecies of it.

#### **Microtus (Alticola) worthingtoni semicanus**, new subspecies

TYPE.—Adult male, skin and skull, No. 57805, American Museum of Natural History, from Sain Noin Khan, Mongolia. June 5, 1922. Third Asiatic Expedition.

DESCRIPTION.—Similar to *worthingtoni* but with larger skull, longer tooth rows and with a buff lateral line and buff wash over the lower surfaces.

General color above a buffy gray slightly darkened with scattered black hairs. The individual hairs are slaty at base with a broad subterminal band of white which

passes into pale buff for a very short distance below the minute blackish tip. Sides of nose, front and back of ears nearly "pinkish buff." Entire under parts, including the upper lips, lower cheeks, sides of neck, as well as the feet, legs and tail all around, buffy white, the hairs on legs and body with dark bases. The mixed gray of the back is sharply defined at the sides of head and body and the buff is here clearer and brighter, forming an indistinct lateral line (about "pinkish buff"). Vibrissæ very long, the longest about 50 mm., some black, some white.

The skull is larger throughout with longer tooth rows than in typical *worthingtoni*, with which it shares the well-defined first outer re-entrant angle of the last upper molar. The first lower molar, in addition to the posterior transverse loop, has two completely closed triangles on each side and an anterior trefoil, the inner loop of which is slightly larger than the outer.

MEASUREMENTS.—The collector's measurements of the type are: head and body, 110 mm.; tail, 30; foot, 19; ear, 20. The skull measures: greatest length, 29.1 mm.; condylobasal length, 28.7; palatal length, 15.0; zygomatic width, 16.7; mastoid width, 14.4; diastema, 9.0; tip of mandible to condyle, 18.0; upper cheek teeth (alveoli), 6.7; lower cheek teeth (alveoli), 6.5.

This is undoubtedly a close relative of *Alticola worthingtoni* of the Tian-shan, nearly a thousand miles to the westward. In color, the two are closely similar except that the Mongolian animal is distinctly buffy instead of clear white below, and the ears and sides of the flanks are even clearer buff. The much larger size of the skull and teeth are further distinctive, and distinguish it from the subspecies *subluteus* of Yarkand as well. From *albicauda*, the species is apparently quite distinct, as pointed out by Miller, while the Altai species, *strelzovi*, is smaller and grayer with a much more flattened skull.

The fine series of this large gray microtine extends the known range of the subgenus northeastward into central Mongolia, which may be near the limit of its distribution in this direction. In addition to some twenty-seven specimens from the type locality, others were secured at Hurum-tu, 7000 feet, Gun Burte, 6800 feet, and forty miles south of Tzetzenwan.

#### ***Microtus (Lasiopodomys) brandti* (Radde)**

A pale sandy-colored vole with long claws on both fore and hind feet. A large series was secured by the expeditions of 1919 and 1922 in the northern part of Mongolia at distances of from eighty to one hundred and forty miles southeast of Urga and at Hurum-tu (7000 feet), Tzetzenwan and vicinity, Sain Noin Khan and on the Ongin River. Radde's type series came from localities on the Mongolian high steppe and near Tarei Nor, so that these may be considered typical. So far as may be judged from the description, *Microtus warringtoni* Miller from Tabool, Mongolia, is quite the same. The latter was supposed to be larger than

typical *brandti*, but the comparisons were made with Büchner's figures and description of specimens obtained by Prjevalski in northeastern Tibet. Many of the specimens from southeast of Urga exceed *M. warringtoni* in size of skull. Possibly there is a decrease in size westward. A brood of four very young mice was found June 24 near Urga.

***Microtus mandarinus* (A. Milne-Edwards)**

A buffy-brown short-tailed vole with unusually long silky fur which almost hides the small round ears. The original specimen was secured by Père David in "la Mongolie chinoise avec les espèces précédentes," that is, in Shansi, probably near Saratsi, whence came several other species described from the same collections. A series of eleven specimens collected near Kwei-hwa-ting in the same province, are therefore practically topotypes, as the localities are hardly fifteen miles apart. These specimens agree well with Milne-Edwards's description and figure, even to the white of the throat. The whitish belly is usually slightly tinged with buffy. The rediscovery of this species in northern Shansi is noteworthy in connection with Thomas's suggestion that the original specimens may have come from southern Shensi. The Kwei-hwa-ting series is apparently somewhat larger but otherwise very similar to *M. johannes* (from Ko-lan-chow, Shansi), which is at most but a subspecies of *mandarinus*. In addition to this lot, a second series of fourteen was secured in Chili Province, one hundred miles northeast of Peking, which differ in the generally darker color, especially of the under side as compared with those of the drier interior. They seem to be a well-marked subspecies, and may be described as follows.

***Microtus mandarinus fæceus*, new subspecies**

TYPE.—Adult male, skin skull, No. 56358, American Museum of Natural History, from Chili Province, 100 miles northeast of Peking, China. March, 1922. Third Asiatic Expedition.

DESCRIPTION.—Similar to *M. mandarinus* but darker above, with a clear slaty throat, and slaty belly heavily washed with buffy.

General color above a nearly uniform "hair brown" rather than the brighter "wood brown" of typical *mandarinus*, a result of the greater admixture of black hairs and of the narrower subterminal ochraceous rings of the parti-colored hairs. The general effect is of a much darker, less buffy pelage. The flanks are a slightly clearer buff, deeper in tone than in the typical form, "warm buff" instead of "light ochraceous buff." The ventral surface is very different in the two. In typical *mandarinus* it is grayish or whitish throughout, with a light wash of "pale ochraceous buff" over the chest and belly. In *fæceus*, the whitish is lacking so that the slaty bases of the hairs are not concealed; the chin and throat are therefore dark slaty gray, and the chest and belly similar, strongly washed with "warm buff," which, being confined to

the extreme tips of the hairs, does not conceal their dark bases. Feet covered with short dusky and silvery hairs, the former more in evidence on the basal portion and metapodial area. Tail bicolor, its upper surface like the back, lower surface buffy. Ears small, concealed in the fur. Feet averaging slightly larger and longer than in the typical form, 19 to 21 mm., against 17 or 18 in the latter.

No field measurements or skulls accompany the Chili series.

This darker form of *mandarinus* is readily distinguishable on account of its lack of whitish-tipped hairs below, resulting in a contrasting dark slaty throat and a slaty belly washed heavily with buffy, whereas the typical form is gray-bellied, with or without a light buffy tint over the chest and abdomen, and is less dark above.

#### ***Microtus (Neodon) irene* Thomas**

Externally a rather grayish-brown vole, with white hind feet, a bicolor tail, and blue-gray belly. Some individuals have a slight tinge of buff below. The first lower molar has but four closed triangles. A small series was secured in northern Yunnan near Pei-tai, a locality some thirty miles south of Chung-tien. Here, at 13,000 feet, about the summit of Ho-shan, it was evidently common, and perhaps at its southern limit, for none was obtained in spite of careful trapping on the Li-chiang range to the southward. Its chief distribution, so far as known, is in Szechuan Province, whence came the original specimens (at Ta-t sien-lu). It now appears, also, that the series secured by Zappey at Ramala Pass (16,000 feet) and Shuowlow (13-15,000 feet) on the Tibetan border of Szechuan are this species and not *M. mandarinus* as I recorded in 1912.

#### ***Microtus (Stenocranius) angustus* Thomas**

A pale, almost buffy vole, with rather small ears and short tail; the skull is of the long, narrow type (*Stenocranius*). This is evidently an abundant species of the grass-lands over much of the Mongolian plateau. It was described from specimens obtained by Anderson at its extreme southeastern border, about one hundred miles northwest of Kalgan, Chili Province, after his expedition had topped the southern escarpment and descended slightly to the tableland. The Asiatic Expeditions under Mr. Roy C. Andrews, continuing on the same caravan route, secured a large series on the way to Urga. The localities are: 140 miles southeast of Urga; 120 miles, 60 miles, and 40 miles southeast of the same place in successive stages of the journey, and again some 45 miles northeast of that center. To the westward, it was found in numbers at Sain Noin Khan and a single one was secured at the Ongin River. Partly grown young were caught during July.

**Microtus poljakowi** Kastchenko

A very small dark vole, with small hind foot (16 mm.), short bicolor tail, and whitish belly. The even admixture of black and buffy-tipped hairs above gives a uniform "pepper-and-salt" effect. The skull is barely 23 mm. in greatest length. This species is based on the *Arvicola gregalis* of Radde who found it in the Apple Mountains, Dauria, Baikal region. The Asiatic Expeditions obtained it near Urga, at stations 15 and 45 miles northeast and 40 miles south of that center. Elsewhere on the Mongolian plateau it was not met with.

**Microtus mongolicus** (Radde)

A medium-sized species with coarse dark brownish fur, and a general ochraceous or buffy tint that appears especially on the lower edge of the cheeks, the end of the muzzle and faintly over the belly. This was described by Radde "aus den daurischen Hochsteppen, von dem Umgegenden des Tarei-nor," and is evidently a common and characteristic vole of the northern part of Mongolia. A large series was secured at localities 35 and 45 miles northeast, and 15 miles north of Urga, but it was not found to the westward.

**Microtus obscurus** (Eversmann)

A species closely resembling *M. mongolicus* but distinguished by the blue-gray belly, pale instead of dark-brown feet, and by the absence of the buffy tint of the under surface and the patch about the vibrissæ and cheeks, which are blue-gray instead. It apparently occurs with *mongolicus* in certain localities, possibly, however, with some difference in habits or choice of situation. A large series was secured at points 15 miles north and 45 miles northeast of Urga as well as at Sain Noin Khan, to the westward. These have been compared with a series from the Altai Mountains, the type locality, but no tangible differences were made out, though the skulls seem a little larger in the Mongolian specimens. It is apparently another of the Altai species that has extended eastward into northern Mongolia.

**Microtus calamorum superus** Thomas

A large, long-tailed species with the dark coloring of the common field-vole. Four specimens from 45 miles south of Fengsiangfu are practically topotypes of this slightly smaller race of the Yangtze Valley meadow-mouse. As suggested by Thomas, it resembles *Arvicola* in having but five instead of six plantar tubercles, and in the long tail

(slightly more than half the length of head and body). It lacks the quality of fur found in the water-voles of Europe, however, and so more nearly resembles the American species of this subgenus.

***Lagurus przewalskii* (Büchner)**

A pale yellowish mouse with very small ears, minute tail, and well-clawed feet with hairy soles. This microtine has become so modified both exteriorly and in the shape of the skull with its enlarged auditory region, that it seems deserving of full generic standing as Thomas has advocated. Its adaptations seem to fit it for a life in sandy deserts. The Third Asiatic Expedition secured specimens at Tsagan Nor, Loh, Ussuk, and Artsa Bogdo, on the Mongolian Plateau. These, although from stations nearly 800 miles from the type locality (Gass, Zaidam, Tibet), seem to agree closely with Büchner's description and plate, thereby serving to extend considerably the known range of the species.

***Ellobius larvatus*, new species**

TYPE.—Adult male, skin and skull, No. 57886, American Museum of Natural History, from Artsa Bogdo, Sain Noin, Mongolia, altitude 6500 feet. August 21, 1922. Third Asiatic Expedition.

DESCRIPTION.—Face from the upper lips to a line half-way between the eye and the ear, and on the forehead to a transverse line at the same level, contrastingly dark, "clove brown," passing rather abruptly into the color of the back, which from the lower half of the cheeks and the occiput to the root of the tail is clear "cinnamon buff," through which the slaty bases of the hairs appear faintly. Feet thinly covered with short white hairs which form a stiff fringe at the sides. The entire under surface, the limbs and flanks are dull gray, the individual hairs with short white tips and conspicuous slaty bases (near "blackish mouse gray"). The very short tail is clothed with cinnamon-buff and clove-brown hairs, with a very small terminal tuft of white. A few whitish hairs are also present about the ears.

The skull is smaller than in *E. tancrei* and *E. albicatus* of the Altai and Hami Mountains respectively, which it resembles in its narrow strap-shaped interparietal; but it differs in having the supraoccipital ridge bowed forward instead of directly transverse along the posterior border of the interparietal. The upper incisors are strongly inclined forward. The crown outline of the posteriormost upper molar is like that of a figure 8 with the anterior and posterior edges flattened so as to be nearly transverse, while each side is strongly concave.

MEASUREMENTS.—The collector's measurements of the type and three other specimens from the same locality are:

No.	Head and Body	Tail	Hind Foot	Sex
57881	110 mm.	13	23	♀
57883	110	10	24	♀
57885	108	12	24	♀
57886 (type)	105	11	23	♂

The skull of the type measures: greatest length, 32 mm.; condylobasal length, 29.8; palatal length, 8.0; diastema, 11.8; zygomatic breadth, 21; mastoid breadth, 14; interorbital breadth, 5.6; upper tooth row (alveoli), 8.0; tip of mandible to condyle, 22; lower tooth row (alveoli), 7.5; interparietal,  $6.6 \times 2.5$ .

A series of seven adults from the type locality is fairly uniform in its pale cinnamon-buff color above with dark facial mask and white-tipped belly-hairs. A young one taken August 22 is a uniform gray all over with darker muzzle.

This is a smaller, paler species than *E. tancrei* of the Altai, or *E. albicatus* of Chinese Turkestan, some 600 miles to the westward. From the latter it differs further in its shorter tail and in having the supra-occipital ridge bowed forward at the center. *E. cænosus* of the Tian-shan is a larger, darker species with squared, instead of strap-shaped, interparietal, and with a buffy belly. The relationships of this new species may prove to be with *E. fusciceps* and its dark subspecies *ursulus* of northwestern Dzungaria, which it resembles in size. The discovery of this species considerably extends the known range of the group into the Mongolian region.

#### ***Ellobius orientalis*, new species**

TYPE.—Adult male, skin and skull, No. 57893, American Museum of Natural History, from Iren Dabasu, eastern Mongolia. April 25, 1922. Third Asiatic Expedition.

DESCRIPTION.—Smallest of the known species of the genus, with bright cinnamon back, white belly, and reduced dark facial area.

The dark face-patch is much less extensive than in the previous species, and covers the forehead from the muzzle to or including the eye, at the level of which it merges with the general dorsal coloration. The face-patch itself is nearly "fuscous" (Ridgway, 1912). The rest of the upper surface, from the eyes to and including the tail, as well as the sides of the face from the muzzle backward as high as the level of the eye, is uniform clear "pinkish cinnamon"; this color, however, hardly reaches the flanks, which with the entire lower surfaces are dull white, with the dark slaty bases of the hairs showing through everywhere. The feet are sparsely clothed with short whitish or silvery hair. The character of the pelage is quite different from that of *E. larvatus*, not loose and fluffy showing the dark bases above, but shorter and closer, helping to produce a more uniform clear coloration. There is a minute tuft of whitish hair springing from the front of each ear and one at the extreme tip of the tail. The latter has a few coarse dark hairs interspersed with the cinnamon.

The skull compared with that of *larvatus* is much smaller but of the same general shape, with the white upper incisors strongly thrown forward. The interparietal, however, is less narrow though not square, the audital bullæ are obviously more flattened, and the mesopterygoid fossa is relatively much shorter. The squamosal and the zygomatic process of the maxillary in *E. larvatus* do not quite meet, but a small portion of the jugal intervenes, whereas in *E. orientalis* the jugal lies wholly dorsal to these two bones which meet below its posterior end.

The last upper molar instead of being shaped like a flattened figure 8 is nearly a triangle with concave sides and blunted angles, the inner anterior of which is produced conspicuously inward, obviously exceeding the outer anterior angle in length.

MEASUREMENTS.—The collector's measurements of the type and three other specimens are respectively: head and body, 108, 100, 95, 95 mm.; tail, 10, 9, 9, 8; foot, 21, 20, 19, 19.

The skull of the type measures: greatest length, 28.5 mm.; condylobasal length, 26.5; palatal length, 16; diastema, 10; zygomatic breadth, 19; mastoid breadth, 13; interorbital breadth, 5.2; upper tooth row (alveoli), 6.4; tip of mandible to condyle, 20; lower tooth row (alveoli), 6.8; interparietal, 6.5×4.

This appears to be a perfectly distinct species from *E. larvatus*, and, occurring at a locality some 500 miles farther to the eastward, not only extends the known range of the genus to the eastern part of the Mongolian plateau but constitutes its easternmost record. Compared with the latter species it is not only much smaller and brighter-colored, with noticeably shorter and weaker feet, but the last upper molar is much reduced and the jugal is excluded from the lower margin of the zygoma by the meeting of the maxillary process with the squamosal.

