



Contribution to taxonomy and karyology of *Meriones meridianus* (Pallas, 1773) and *Meriones crassus* Sundevall, 1842 (Rodentia: Gerbillinae) from Turkey

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VINOGRADOV and ARGYROPULO (1941), BOBRINSKY et al. (1965), LAY (1967), and HEPTNER (1975) included all sand deserts in central Asia, Ciscaucasia, northeastern Iran, northern Caucasian, Armenia, and Nakhichevan in the distribution area of *Meriones meridianus*. ELLERMAN and MORRISON-SCOTT (1951), HATT (1959), LAY (1967), ATALLAH (1977), CORBET (1978), and HARRISON and BATES (1991) suggested that the range of *M. crassus* extends from Syria to Iraq and Iran. The aim of this study is to contribute to distribution, taxonomy, and karyology of these species and also provide comparative material for further investigations.

Specimens were collected from the east and south-east of Turkey between 1991 and 1994. Karyologic studies were performed by using the colchicine hypotonic citrate technique (PATTON 1967). Twenty slides were prepared for each specimen to be karyotyped, and at least 30 well-spread metaphase cells from each preparation were analysed. Skins and skulls of specimens were deposited in the University of Ankara (Faculty of Science).

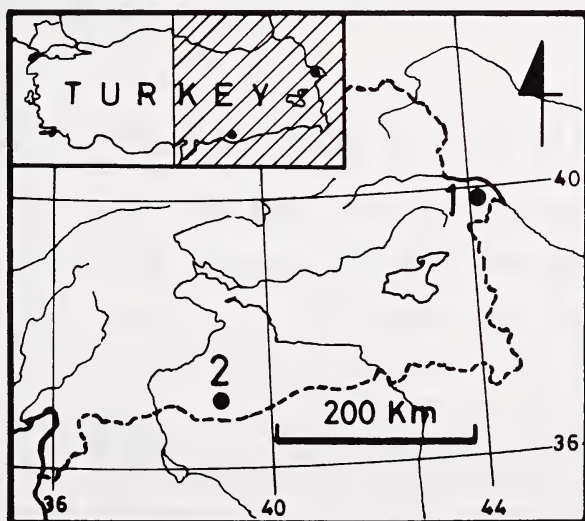


Fig. 1. Recorded localities of *M. meridianus* (1) and *M. crassus* (2) in Turkey

Meriones (Plassiomys) meridianus (Pallas, 1773) lives in burrows with 2–3 entrances below *Equisetum ramossimum* and *Atraphaxis billardieri* bushes in sandy areas of the Aralık province in the north of Ağrı mountain (Fig. 1). Maximum total length of this species is 265 mm, and the tail is about equal to the length of head and body. External and cranial characteristics were found to be the same as described by GAMPARYAN and PAPAN-

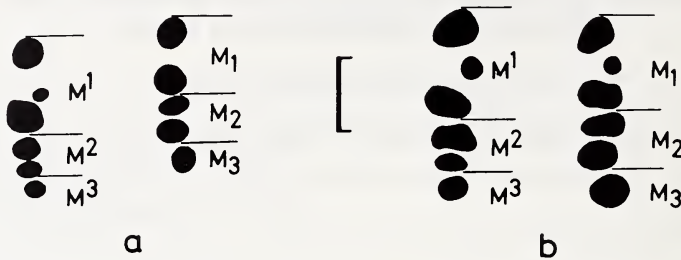


Fig. 2. Molar alveoli of *M. meridianus* (a) and *M. crassus* (b)



Fig. 3. Karyotype of a male *M. meridianus*, 2n = 50, FN = 78 (above) and a male *M. crassus*, 2n = 60, FN = 76 (below)

YAN (1964), and HEPTNER (1975). But, in contrast to these descriptions, the tail of a few specimens was dull yellowish to light brown with a less well-developed terminal tuft. However, there is usually a well-developed terminal black tuft on the tail. Additionally, one specimen had a black terminal tuft with a white tip. Molars are weakly hypsodont. M_1 , M^2 , and M_2 bear two roots, M_3 and M^3 one, and M^1 three (Fig. 2 a). The base of the proximal baculum resembles an irregular pentagon, and the length of the proximal baculum varies from 3.9 mm to 4.1 mm in adult specimens. GAMPARYAN and PAPANYAN (1964) pointed out that *M. m. dahli* was the darkest subspecies of *M. m. meridianus* in coloration, and noted that the tail was shorter than the head and body length. The characteristics given by VINOGRADOV and ARGYROPULO (1941), GAMPARYAN and PAPANYAN (1964), and CORBET (1978) are consistent with Turkish specimens. Only when characteristics given by these authors as well as geographic proximity are taken into account, it can be stated that Turkish specimens of *M. meridianus* are identical to *M. m. dahli*, even if there are variations of tail hairs, base of belly hairs, and soles of hind feet. The diploid number of chromosomes ($2n$) in *M. meridianus* is 50, and the fundamental number (FN) is 78. The karyotype shows 28 meta-submetacentric and 22 acrocentric chromosomes. X and Y chromosomes are both submetacentric (Fig. 3). VORONTSOV and KOROBITSINA (1970) described a karyotype of $2n = 50$, FN = 77 for male and FN = 78 for female *M. meridianus* with 26 meta- and submetacentrics and 22 acrocentrics. According to HEPTNER (1975), there are 10 metacentrics, 16 submetacentrics and 22 acrocentrics in the karyotype of *M. meridianus* ($2n = 50$; FN = 78). He also stated that there might be a resemblance in the autosomal chromosomes and variations in Y chromosomes among subspecies of *M. meridianus*. A comparison of these data with the karyotype of Turkish populations showed that our karyological findings are consistent with the karyotype given by HEPTNER (1975).

Meriones (Meriones) crassus Sundevall, 1842 is distributed on virgin pastures and steppe areas in the Şanlıurfa province near the border to Syria (Fig. 1). *M. crassus* is also a small species like *M. meridianus*; its total length approaches 246 mm. The tail is shorter than the head and body. External and cranial characteristics are consistent with the description given by HARRISON and BATES (1991). Teeth roots are the same as in *M. meridianus*, except that M_1 bears 3 roots (Fig. 2 b). The proximal baculum is also similar to *M. meridianus*, but its base is triangle-shaped with a very slight dorsal concavity. The average length of the proximal baculum is 2.6 mm, and its length varies from 2.3 mm to 2.9 mm in adult specimens. THOMAS (1919) described the subspecies *M. c. charon*, originating from Iran near the south-east border to Turkey. This was confirmed by LAY (1967). The morphological characteristics and measurements of this subspecies are consistent with Turkish specimens, except for the tail length. OSBORN and HELMY (1980) mentioned a bicolour-tail in 78% of Egypt specimens; this colour variation was mostly seen in Turkish specimens. Although CORBET (1978) reported that the suprameatal triangle was closed in *M. crassus*, THOMAS (1919), CHAWORTH-MUSTERS and ELLERMAN (1947), and HARRISON and BATES (1991) stated that it was open in this species (except for *M. c. longifrons*). In our Turkish specimens this triangle was similarly open. Therefore these specimens were assigned to *M. c. charon*.

The diploid number of chromosomes and the fundamental number are 60 and 76, respectively. The karyotype is composed of 44 acrocentric and 16 bi-armed chromosomes. X and Y chromosomes are submetacentric (Fig. 3). However, diploid and fundamental number were specified being 60 and 74 by MATTHEY (1957) from animals of Iran, Syria, and Algeria by BENAZZOU et al. (1982) from those of Morocco, and by QUMSIYEH et al. (1986) from Jordan. NADLER and LAY (1967) described specimens from Iran and Egypt with diploid and fundamental numbers of 60 and 72, respectively. According to this, the diploid number of chromosomes seems stable among populations and also in Turkish specimens, whereas the fundamental number shows differences in both, Turkish and the other popu-

lations mentioned. These differences originate from the number of acrocentric and bi-armed chromosomes. In this respect, the fundamental number of Turkish specimens is original to *M. crassus*.

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