

A New Subspecies of *Meriones tristrami* Thomas, 1892 (Rodentia: Gerbillinae) From Kilis (Southeastern Turkey): *Meriones tristrami kilisensis* subsp. N.

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Abstract: In this study, seventeen specimens of *Meriones tristrami* from Kilis were compared with the specimens of *Meriones tristrami bodenheimeri* along with topotypes of *Meriones tristrami lycaon* close to those from Kilis. It was determined that the specimens from Kilis were distinguishable from *M.t. lycaon* by characters such as dorsal coloration, Tx100 / HB (ratio of tail length to head and body), zygomatic breadth, occipitonasal length, basal length, diastema length, occipital width, weight, baculum shape and fundamental number of chromosomes. Thus, the specimens of *M. tristrami* from Kilis were determined to be a new subspecies, *Meriones tristrami kilisensis* subsp. n.

Key Words: *Meriones tristrami kilisensis* subsp. n., Turkey.

***Meriones tristrami* Thomas, 1892 (Rodentia: Gerbillinae)'nin Kilis (Güneydoğu Türkiye)'den Yeni Bir Alttürü: *Meriones tristrami kilisensis* subsp N.**

Özet: Bu çalışmada, Kilis'ten yakalanan 17 *Meriones tristrami* örneği buraya yakın alttürler olan *Meriones tristrami bodenheimeri* örnekleri ve *M.t. lycaon* topotipleri ile karşılaştırıldı. Kilis örneklerinin dorsal kürk rengi, kuyruk uzunluğunun baş-beden uzunluğuna oranı (Tx100/HB), zygomatik genişlik, occipitonasal uzunluk, basal uzunluk, diastema uzunluğu, occipital genişlik, ağırlık, baculum şekli ve koromozomlarının temel sayısı gibi karakterlerle *M.t. lycaon*'dan ayrıldığı saptandı. Buna göre Kilis örnekleri *Meriones tristrami kilisensis* subsp. n. olarak yeni bir alttüre dahil edildi.

Anahtar Sözcükler: *Meriones tristrami kilisensis* subsp. n., Türkiye.

Introduction

Meriones tristrami Thomas, 1892, a polytypic species, is distributed in the Palearctic region (1). Of its subspecies, *Meriones blackleri blackleri* was described from Izmir (Karaman) by Thomas (2), *Meriones blackleri lycaon* from Karadağ (Karaman) by Thomas (3) and *Meriones blackleri intraponticus* from Tosya (Kastamonu) by Neuhäuser (4). On the basis of the specimens in several museums, Neuhäuser (4) stated that *Meriones blackleri bogdanovi* Heptner, 1931 lives in north-eastern Turkey. Later, *M. blackleri* was considered to be junior synonym of *M. tristrami* by Matthey (5), Baltazard et al. (6), Harrison (7) and Harrison and Bates (8). Additionally, Yiğit (9) gave the first record of *M.t. bodenheimeri*, and separation between three populations showed that the population from Kilis is a distinct taxon. The aim of this study was to review the taxonomic status of *M.t. lycaon*, *M.t. bodenheimeri* and the population from Kilis. Thus, the specimens from Kilis were treated as a new subspecies, *Meriones tristrami kilisensis*.

Material and Methods

In this study, 103 specimens of *M. tristrami* collected from Turkey between 1991 to 1995 were examined and compared with seventeen specimens from Kilis and 27 topotypes of *M.t. lycaon* based on morphological, external, cranial and karyological aspects. Four external measurements (mm) along with weight (g) were taken in the field. The hind foot includes the claw. The tail length (T) to body and head length (HB) was calculated by the formula Tx100/HB. External and cranial measurements and karyological preparations were performed according to Harrison and Bates (6) and Patton (10). A total of 20 slides were prepared for each karyotyped specimen (3♂, 2♀), and at least 10 spread metaphase cells from each preparation were analysed. The adults were compared after the ages of all the specimens were determined. Differences among populations were computed according to Mayr et al. (11) and a CD (coefficient of difference) value of characteristics over 70% was considered to be

Characters (mm)	M. tristrami kilisensis				M. tristrami lycan				M. tristrami bodenheimeri			
	n	Mean	Min-Max	±SD	n	Mean	Min-Max	±SD	n	Mean	Min-Max	±SD
Total length	17	277	250-300	13	26	276	235-325	22	49	270	240-307	15
Tail length	17	144	125-160	9.4	26	135	115-155	10	49	134	114-154	9.3
Hind foot	17	35	32-38	1.6	27	37	34-40	1.4	49	32	30-36	1.7
Ear	16	20	10-21	0.7	27	21	18-23	1.5	49	18	17-21	1.0
Weight (g)	17	65	44-80	11	27	94	61-130	19	49	74	42-130	3.9
Tx100/HB	17	109	100-124	6.7	26	95	83-106	4.9	49	100	86-113	7.4
Zygomatic breadth	16	19	18.1-20.8	0.8	27	22	18.9-23.3	1.4	49	20	18-22.2	1
Occipitonasal length	15	36	33.6-37.4	1	27	39	35.1-42.3	2.2	49	37	33.8-39.5	1.4
Basal length	15	31	28.2-32.5	1.1	27	33	28.9-36.6	2.1	49	31	28.1-33.5	1.4
Nasal length	15	14	13.4-15.3	0.5	27	16	13.4-17.8	1.3	49	15	13.3-17.3	0.8
Diastema	16	9.4	8.2-10.3	0.6	27	11	9.4-12.6	0.9	49	9.6	8.5-11.5	0.6
Occipital width	14	15	14.0-15.4	0.5	26	16	14.6-16.7	0.6	49	15	14.1-15.8	0.4
Palatal length	16	16	14.3-17.5	0.8	27	18	15.5-19.8	1.2	49	16	14.6-18.3	0.7
Height of tympanic bullae	16	11	10.8-11.7	0.4	27	11	9.4-11.8	0.5	49	11	8.7-11.5	0.7
Length of mandible	17	19	17.4-20.7	0.9	27	20	18.2-22.7	1.3	49	19	17.2-21.1	0.8
Maxillary tooth row*	17	6	5.8-6.4	0.2	27	5.9	5.6-6.5	0.3	49	5.7	5.1-6.2	0.3
Mandibular tooth row*	17	6.1	5.9-6.3	0.1	27	6.1	5.7-6.7	0.3	49	5.8	5.3-6.7	0.3

* From alveolus

taxonomically important. Holotype, paratypes and other specimens examined along with karyological preparations were deposited in the Department of Biology, Faculty of Sciences, University of Ankara. Measurements (in mm) of the holotype: Total length, 277; tail length, 144; hind foot, 35; ear, 20; weight, 65; Tx100/HB, 109; zygomatic breadth, 19; occipitonasal length, 36; basal length, 31; nasal length, 14; diastema, 9.4; occipital width, 15; palatal length, 16; height of tympanic bullae, 11; length of mandible, 19; maxillary tooth row, 6; mandibular tooth row, 6.1.

Results

Meriones tristrami kilisensis

Holotype: AFFBB 109, adult male, from 15 km north-east of Kilis (37°N-39°E) on 24 September 1995 by Nuri YIĞİT, Department of Biology, Faculty of Sciences, University of Ankara.

Paratypes: 15, north of Kilis, 1995, 10, 6. The results of the paratypes presented in Table 1.

Other material: Nizip, Kilis, August 1995, 4, 6.

Comperative material: *Meriones tristrami lycan*: Karadağ (Kilbasan), Karaman 27 (Topotypes).

Meriones tristrami bodenheimeri: Ceylanpınar, Urfa

19: Harran, Urfa 20; Meydankapı köyü, Harran, Urfa 10.

Measurements (in mm) of the holotype: Total length, 277; tail length, 144; hind foot, 35; ear, 20; weight, 65; Tx100/HB, 115; zygomatic breadth, 19; occipitonasal length, 36.1; basal length, 31; nasal length, 14.4; diastema, 10; occipital width, 15.2; palatal length, 16.6; height of tympanic bullae 11.1; length of mandible, 18.9; maxillary tooth row, 6.4; mandibular tooth row, 6.1.

Diagnosis: The dorsal fur is bright brownish yellow. The tail is longer than the head and body. The fundamental number is 78.

External characteristics: Fur on dorsal aspect is bright brownish yellow. The tail is ventrally light, dorsally dark. The tuft on the tip of the tail is well-developed. Fur on dorsal turns light yellow toward sides. The line of demarcation along the flanks is distinct. The underparts are pur white. The heels of the hind feet and fore feet are naked, soles covered with white hairs. The nails are dark-pigmented.

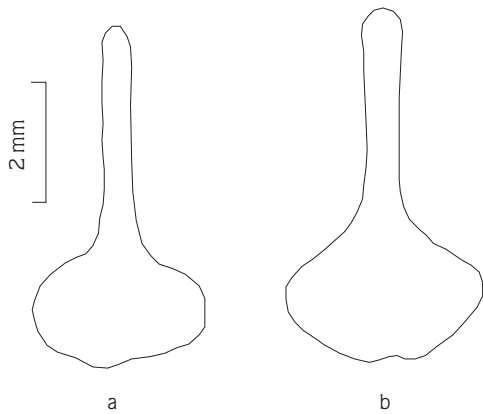


Figure 1. The bacula of *M. tristrami kilisensis* subsp. n. (a) and *M. tristrami lycaon* (b).

the manubrium of malleus is readily visible in the meatus. The supraoccipital condyles do not exceed the mastoid part of the tympanic bullae. The suprimeatal triangle is partly large and its posterior end is closed.

Baculum: Baculum consists of distal and proximal parts. The distal part was removed in preparation. The shaft of the proximal part is stick-shaped and its base is disk-shaped and expanded to the back with a concavity in the dorsal aspect (Fig. 1.a).

Karyology: The diploid number of chromosomes (2n) is 72, the fundamental number (FN) is 78 and the number of autosomal arms (NFa) is 74. The karyotype consists of 66 acrocentrics and 6 meta/submetacentrics. The X chromosome is large submetacentric, the Y chromosome is medium-size submetacentric (Fig. 2).

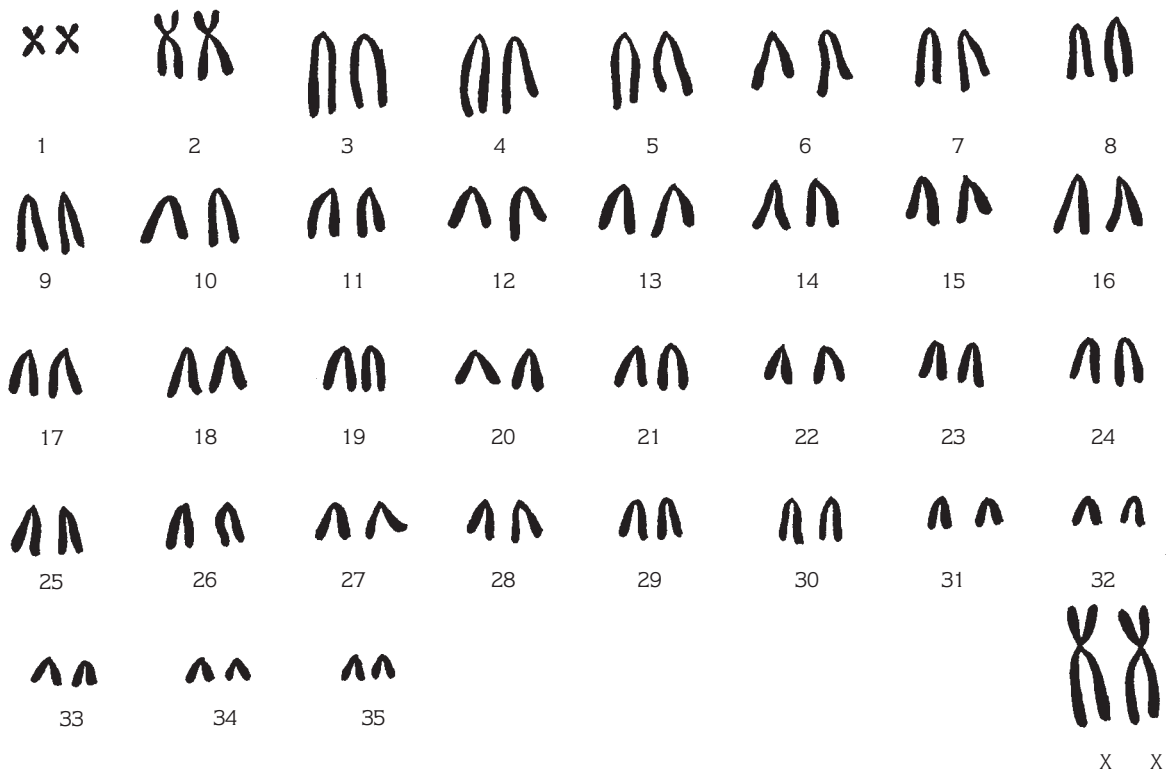


Figure 2. Karyotype of female *M. tristrami kilisensis* subsp. n. 2n=72, NF=78, NFa=74.

Cranial characteristics: The skull has the traits of the species. The rostrum is of slender build and narrow. The zygomatic arches are not laterally expanded in the maxillar and molar areas. The braincase is posteriorly curved in the interparietal region of the skull. The squamosal portion of the zygomatic arches is not connected to the anterior end of the meatus. There is a bony downgrowth from the tympanic annulus; therefore,

Discussion

Thomas (3) distinguished *M.t. lycaon*, based on specimens from Karadağ (Karaman), by its reddish dorsal coloration. In the present study, a comparison of 27 topotypes of *M.t. lycaon* with 17 specimens from Kilis showed the two groups do differ in dorsal coloration. In addition, *M.t. bodenheimeri*, which was recorded by Yiğit

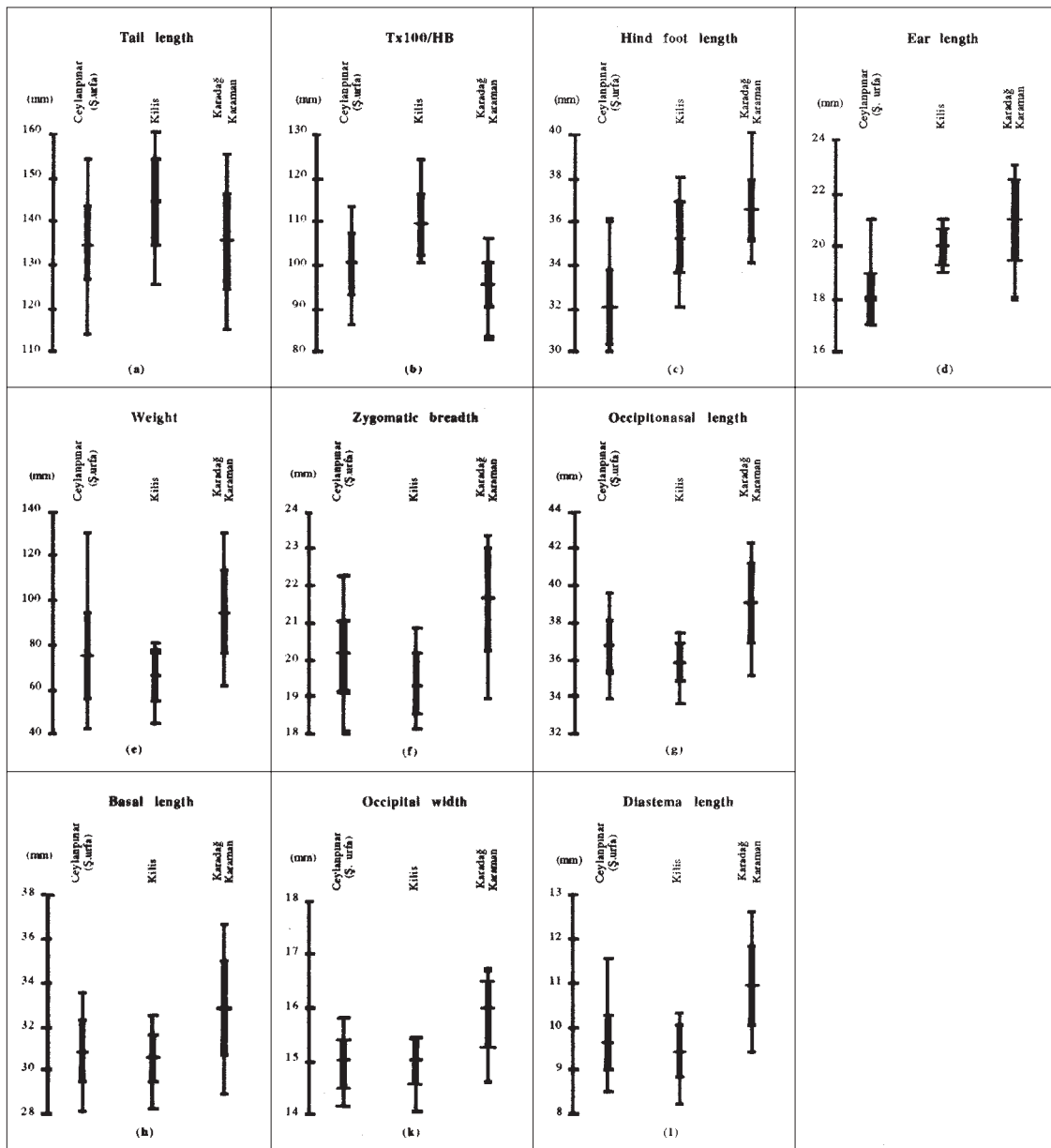


Figure 3. Population-range diagrams of *M.t. bodenheimeri* (Ceylanpınar/Şanlıurfa), *M.t. kilisensis* subsp.n. (Kilis) and *M.t. lycaon* (Karadağ/Karaman).

(9) from Şanlıurfa, is darker in dorsal aspect than the specimens from Kilis. According to Neuhäuser (4), there are no significant differences in external and cranial measurements between *M.t. blackleri*, *M.t. lycaon* and *M.t. intraponticus*. However, Yiğit (9) distinguished *M.t. bodenheimeri* from *M.t. lycaon* by its hind foot (32.5 mm) and ear (18.8 mm). In contrast, these measurements are 35.2 mm and 20mm, respectively in the specimens from Kilis. Although there are not many distinguishing characteristics between the Ceylanpınar (Şanlıurfa) and

Kilis populations, they can still be clearly distinguished by dorsal coloration, fundamental number, hindfoot (CD: 0.96, 83%), ear (CD: 1.17, 88%) and Tx100/HB (CD: 0.64, 73%) (Fig. 3). Furthermore, while Yiğit (9) has shown Tx100/HB to be 100 in *M.t. bodenheimeri*, it is 109 in the specimens from Kilis. In this study, we compared topotypes of *M.t. lycaon* with specimens from Kilis and found Tx100/HB (CD: 1.20, 88%) to be 95 in *M.t. lycaon*. Certain cranial characteristics such as zygomatic breadth (CD: 1.04, 85%), occipitonasal length

(CD: 1, 84%), basal length (CD: 70, 75%), diastema (CD: 1, 84%), occipital width (CD: 0.72, 76%) as well as weight (CD: 0.97, 81%) are considerably smaller than in *M.t. Iycaon* (Table 1). There is also a slight recess in the back of the base of the proximal baculum of *M.t. Iycaon*, but not in the specimens from Kilis (Fig. 1a, b).

In *M. tristrami*, the diploid number of chromosomes was found to be 72 in Iraq (5), Iran (12) and Jordan (13) specimens. Qumsiyeh et al. (13) recorded that FN was 74, 82 in Iraq and Iran and 76,80 in Jordan. Yiğit (9) found that both *M.t. bodenheimeri* and *M.t. Iycaon* have 72 chromosomes. In this study, five specimens of *M.t.*

Iycaon were karyotyped, and the diploid number of chromosomes and FN were found to be 72 and 82, respectively, similar to *M.t. bodenheimeri*. The karyotype of *M.t. Iycaon* consists of 10 submetacentrics and 62 acrocentrics, whereas in the specimens from Kilis, the diploid number of chromosomes and FN were found to be 72 and 78, respectively. This showed that *M.t. kilisensis* subsp. n. is karyologically different from *M.t. bodenheimeri* and *M.t. Iycaon*. The distinct characters determined between these taxa showed the specimens from Kilis to be a distinct taxon *M.t. kilisensis* subsp. n.

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