

Some Taxonomical Characteristics of *Tadarida teniotis* (Mammalia: Chiroptera) in Turkey

Türkiye'deki *Tadarida teniotis*'in Bazı Taksonomik Karakterleri (Mammalia: Chiroptera)

Research Article

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ABSTRACT

This study is based on some records and observations concerning *Tadarida teniotis* obtained during the field works carried out between 1977 and 2012. Diagnostic characters, habitat, fur colour, measurements, karyology and collection localities of the specimens were recorded. Specimens were divided into two age groups as young and adult. Specimens were compared to the literature in terms of statistical data and fur colour and it was concluded that our specimens represented the nominative form, *T.t. teniotis*.

Key Words

Tadarida teniotis, European free-tailed bat, Molossidae, Turkey

ÖZET

Bu araştırma 1977 ve 2012 yılları arasında yapılan arazi çalışmaları sırasında *Tadarida teniotis*'le ilgili bazı kayıt ve gözlemlere dayanmaktadır. Bu türün diagnostik karakteri, habitatu, kürk rengi, ölçüleri, karyolojisi ve örneklerin kayıt yerleri verilmiştir. Örnekler genç ve ergin olmak üzere iki yaş grubuna ayrılmıştır. İstatistik veriler ve kürk rengi bakımından literatürle karşılaştırılmış ve örneklerin nominatif form, *T.t. teniotis*'i temsil ettiği sonucuna varılmıştır.

Anahtar Kelimeler

Tadarida teniotis, Avrupa serbest kuyruklu yarasa, Molossidae, Türkiye

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INTRODUCTION

Of 5416 mammalian species in the world, 1116 species belong to bats [1]. Up to date, it was determined that one species belonging to Megachiroptera and 35 species belonging to Microchiroptera live in Turkey [2]. These species are represented by the families of Pteropodidae, Emballonuridae, Rhinolophidae, Vespertilionidae and Molossidae. Of 13 species belonging to the family Molossidae, 7 species are distributed in the old world, 4 in Africa and Madagascar Island, 2 in Papua, New Guinea, Western and Southern Australia. The species of genus *Tadarida* are known as a free-tailed bats or guano bats.

Tadarida teniotis which is distributed in the old world has specialized habitat preference. Lewis and Harrison recorded *Tadarida teniotis rüppelli* from Erzurum and Lehmann the nominative form from Birecik near Urfa [3, 4].

T. teniotis was recorded from Artvin (with specimens) and Giresun, Ankara, Antalya, Konya, Burdur, Çanakkale, Sivas and Erzurum Provinces (with a detector recording bat sounds) [5]. Albayrak has detected *Tadarida teniotis* from Ağrı and Urfa Provinces and recorded some morphometric values [6]. Benda and Horacek gave the records of this

species from Erzurum, Eskişehir, Gümüşhane, Tokat, Kayseri, Hatay, Mersin and İzmir provinces (Figure 1) [7].

The purpose of this study is to determine some biological and taxonomical characteristics of *Tadarida teniotis* which has a discontinuous distribution in Turkey.

MATERIAL AND METHOD

This study is based on 13 *Tadarida teniotis* specimens and the status of its roost sites determined during the field works between 1977 and 2012. Specimens were caught by hand and using aerial net. Specimens were divided into two age groups as young and adult according to Anderson, Menzies, Young and Baagoe [8-11].

Weight, 18 external and 19 cranial measurements were taken from each specimens according to Ognev, Harrison and Çağlar [12-14]. Diagnostic characters, habitat, pelage colour, measurements, karyology and collection localities of *Tadarida teniotis* were given. The statistical values of specimens were compared to the literature and an assessment was made in subspecies level.

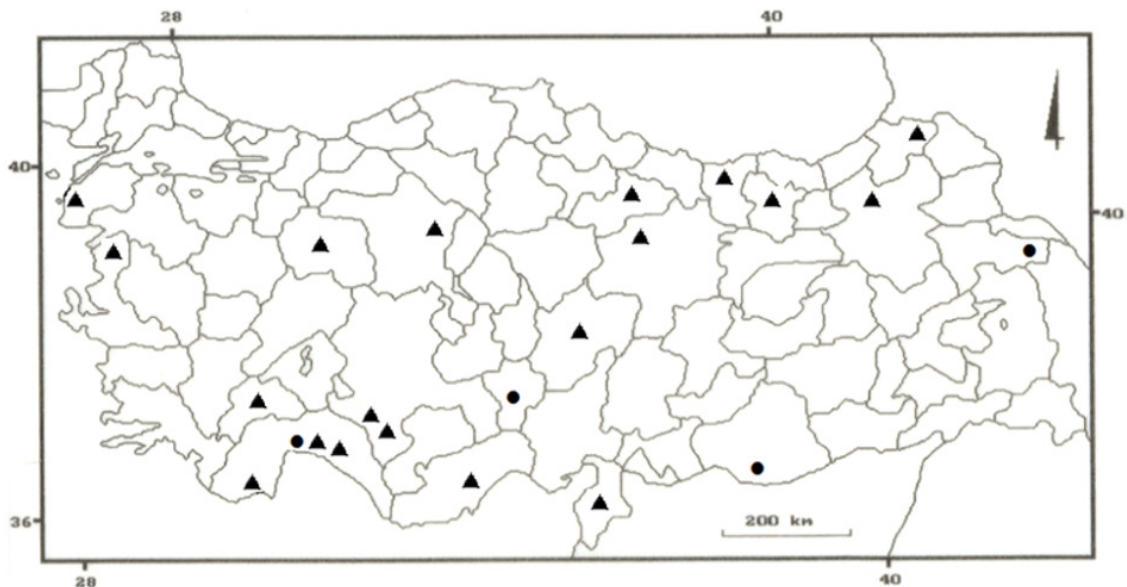


Figure 1. Map of Turkey showing the previous records of *Tadarida teniotis* (▲) and the localities of *Tadarida teniotis* (●) concerning this study

Table 1. Statistical data on weight external and cranial measurements of adult *Tadarida teniotis*: number of individuals (n), range (r), mean (m), standart deviation (\pm Sd).

Measurements	n	r	m	Sd
Total length	9	135-145	139.6	3.78
Total body length	9	90-100	94.9	3.52
Tail length	9	44-47	44.7	1.12
Hindfoot length	9	13-15	14.3	0.71
Ear length	9	33-37	34.4	1.33
Weight	9	25.5-33.0	28.8	3.08
Tragus length	9	4.4-6.1	5.6	0.50
Forearm length	9	54.7-60.0	57.4	1.86
Tibia length	9	15.7-17.0	16.3	0.43
2nd digit metacarpal length	9	53.1-58.5	56.0	1.67
3rd digit metacarpal length	9	56.5-62.4	59.5	2.21
3rd digit 1st phalanx length	9	20.3-23.6	22.1	1.05
3rd digit 2nd phalanx length	9	18.6-22.4	20.7	1.32
4th digit metacarpal length	9	53.5-59.6	56.6	2.00
4th digit 1st phalanx length	9	16.4-19.2	18.0	0.86
4th digit 2nd phalanx length	9	8.7-10.9	9.9	0.95
5th digit metacarpal length	9	31.2-34.5	32.9	1.08
5th digit 1st phalanx length	9	15.0-19.0	16.9	1.26
5th digit 2nd phalanx length	9	4.8-6.3	5.7	0.49
Greatest skull length	9	23.3-24.4	24.1	0.38
Total skull length	9	22.8-24.3	23.8	0.48
Condylbasal length	9	22.7-23.6	23.1	0.53
Basal length	9	20.4-21.6	21.1	0.49
Palatal length	9	7.5 -8.2	7.9	0.26
Rostrum length	9	4.6-5.2	4.9	0.17
Zygomatic breadth	9	13.6-14.5	14.1	0.36
Interorbital breadth	9	4.5-5.0	4.7	0.16
Braincase breadth	9	10.4-11.5	11.0	0.38
Mastoid breadth	8	12.4-12.8	12.7	0.15
Rostral breadth	9	5.7-6.3	6.0	0.23
Infraorbital breadth	9	4.7-5.5	5.1	0.28
Skull height	8	8.6-10.5	9.5	0.69
Maxillary toothrow length	9	8.7-9.3	9.0	0.21
Upper molar length	9	5.2-5.5	5.3	0.10
Tympanic bullae diameter	8	4.2-4.9	4.5	0.25
Mandibular toothrow length	9	9.3-10.0	9.7	0.21
Lower molar length	9	5.9-6.2	6.0	0.12
Mandible length	9	16.3-17.9	17.2	0.42
Lower molar length	9	5.9-6.2	6.0	0.12
Mandible length	9	16.3-17.9	17.2	0.42

RESULTS

Family Molossidae is represented one species, *Tadarida teniotis* and nominate form, *Tadarida teniotis teniotis*.

Species:

Tadarida teniotis (Rafinesque, 1814) (European free-tailed Bat)

1814. *Cephalotes teniotis* Rafinesque, Préc. Des Découv. Semiol, 12.

Type locality: Sicily

1951. *Tadarida teniotis*, Ellerman and Morrison-Scott, Checklist of Palaearctic and Indian Mammals 1758-1946. Brit. Mus. (Nat. Hist.), London, 134 [15].

Subspecies:

Tadarida teniotis teniotis (Rafinesque, 1814)

1922. *Tadarida teniotis teniotis*, Thomas, Ann., Mag. Nat. Hist., 10:392.

Diagnostic characters:

Auricles extends forward from forehead, more than half of the tail is outside the membrane and free, premaxilla are fused to each other, incisors in mandibula have three cusps, greatest length of skull ranges from 23,3 to 24,4 mm.

Habitat:

In nature, they live as colonies inside the broken rocks blocks of wide and horizontal surfaces on slopes of river valleys. This species was also found in the cavities at the bottom of a bridge built on a river as small colonies.

Pelage colour:

Dorsal colour in adults varies from pale grayish brown to somewhat light brown. Ventral colour is light brownish grey. The general colour of young resembles the adults.

Measurements:

No statistical significant differences were found between the measurements of adult males and females. Statistical data of adult *Tadarida teniotis* specimens are given in Table 1.

Karyology:

In this species the diploid number was 48, the fundamental number 80, and the number of

autosomal arms 76 [16].

Specimen examined.

Total number, 13 from following localities: Ağrı Province, the town of Hamur, Hamur river valley, 9; Urfa Province, Birecik Bridge, 4.

DISCUSSION

According to the records of Harrison, *Tadarida midas* differs from other *Tadarida* species with its mandibular incisives with two cusps, greatest length of the skull being between 2.26 mm to 2.28 mm and its dorsal colour being light reddish brown [13]. When the data of our specimens were compared to data given by Miller for nominate populations in Portugal, Italy and Greece, no statistically significant difference was found [17]. Lehmann described the colour of four female specimens from Birecik near Urfa province and he compared these specimens' coloration to *Tadarida teniotis* in China, Bukhara, Azerbaijan, Uzbekistan and Tajikistan without taking into account *T.t.rüppelli* [4]. In addition, he reported that the dorsal colour of specimens from Turkey was pale brown and this specimens represented the nominate form.

Dysopes rüppelli which was described from Egypt by Temminck for the first time, was recorded as *T.t.rüppelli* by Ellerman and Morrison-Scott [18, 15]. Lewis and Harrison have stated that the samples obtained from Egypt, Lebanon, Iran, Iraq and Turkey represents *T.t.rüppelli* on the basis that they were much more gray colour [3]. Corbet recorded that *T.t.rüppelli* is synonym of nominate form [19].

The data about 9 adult specimens obtained from this study coincide with Lehmann's data [4]. It also confirms the assessment of Corbet and shows that our samples represent the nominate subspecies [19].

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