

Noteworthy records of *Myotis myotis* and *Myotis blythii* in Turkey (Chiroptera: Vespertilionidae)

Významné nálezy netopýra velkého (*Myotis myotis*) a netopýra východního (*Myotis blythii*) v Turecku (Chiroptera: Vespertilionidae)

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Abstract. Among 38 bat species recorded in Turkey, the greater mouse-eared bat (*Myotis myotis*) and the lesser mouse-eared bat (*Myotis blythii*) are the most common. They occur sympatrically in natural and anthropogenic roosts. Field trips aimed to evaluate the potential distribution range of these two taxa in all regions of Turkey were conducted in the period 2004–2008. Within this study, we determined the current distribution of *M. myotis* and *M. blythii* throughout Turkey and recorded new localities in Kırıkkale, Kilis, Gaziantep, and Batman.

Key words. Chiroptera, distribution, caves.

INTRODUCTION

According to BENDA et al. (2006), 38 bat species are present in Turkey. Of the genus *Myotis* Kaup, 1829, two southwestern Palearctic species are the most common species in Turkey, the greater mouse-eared bat, *Myotis myotis* (Borkhausen, 1797), and the lesser mouse-eared bat, *Myotis blythii* (Tomes, 1857) (ALBAYRAK 1990, 1993, ALBAYRAK & AŞAN 1998, 1999). *M. myotis* occurs in the moderate temperature and humid parts of the Mediterranean and Black Sea regions, while *M. blythii* is distributed in semiarid eastern and southeastern Anatolia (SPITZENBERGER 1996). In addition, four subspecies – *M. m. myotis* and *M. m. macrocephalicus* as well as *M. b. oxygnathus* and *M. b. omari* are recognised in Turkey according to many authors (FELTEN et al. 1977, HARRISON & BATES 1991, STEINER & GAISLER 1994; BENDA & HORÁČEK 1995a, b, 1998, SPITZENBERGER 1996, ALBAYRAK & AŞAN 1998, BENDA et al. 2006, AŞAN & ALBAYRAK in press). *M. myotis* and *M. blythii* are categorised as species of least concern in the IUCN Red List of Threatened Species (HUTSON et al. 2010a, b).

The aim of this study is to present the distribution of *Myotis myotis* and *M. blythii* in Turkey. During summer field trips (May–September), altogether 51 *Myotis myotis* (41 males, 10 females) and 41 *M. blythii* (33 males, 8 females) specimens were captured by mist net, aerial trap, and hand net in 2004–2008. The species were determined in the field using the characters provided by ALBAYRAK (1990, 1993), ARLETTAZ et al. (1991), and DIETZ & HELVERSEN (2004). Forearm length, ear length and shape, condylobasal length and length of the upper tooththrow, the ratio of tail to total body length, as well as baculum structure were used as diagnostic characters both in

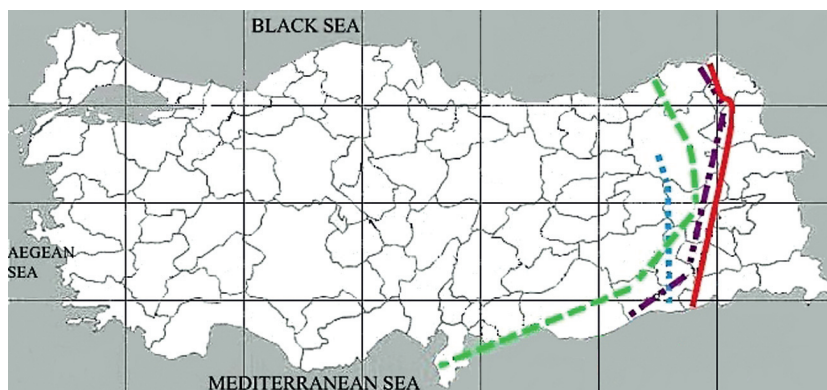


Fig. 1. Easternmost documented records of *Myotis myotis* according to SPITZENBERGER (1996) (blue line), BENDA & HORÁČEK (1998) (green line), BENDA et al. (2006) (violet line) and presented data (red line) in Turkey.

Obr. 1. Nejvýchodnější dokumentované nálezy netopýra velkého (*Myotis myotis*) v Turecku podle SPITZENBERGEROVÉ (1996) (modrá čára), BENDY & HORÁČKA (1998) (zelená čára), BENDY et al. (2006) (fialová čára) a prezentovaných údajů (červená čára).

the field and in the laboratory. Sex, age, reproductive status, locality type and roost preferences were also recorded in the field. External and cranial measurements were obtained with a digital dial caliper according to HARRISON & BATES (1991). The voucher specimens are deposited in the Zoology Laboratory of the Department of Biology, University of Kırıkkale.

RECORDS

Myotis myotis (Borkhausen, 1797)

Adana: Düziçi, cave, 3 July 2006: 2 ad. females net. – **Ankara:** Kalecik, cave, 30 July 2006: 2 ad. females net. – **Antalya:** Limanağzı, cave, 30 June 2006: 2 ad. males net. – **Artvin:** Ardanuç, cave, 22 August 2004: 3 ad. males net. – **Batman:** Hasankeyf, artificial cave, 21 May 2005: 3 ad. males net. – **Bolu:** Gerece, cave, 25 June 2006: a nursery colony obs. – **Edirne:** Lalapaşa, castle ruins, 22 June 2004: 1 sad. male net. – **Elazığ:** Keban, cave, 25 August 2005: 1 sad. female net. – **Erzincan:** Tercan, cave, 23 August 2005: a colony obs. – **Eskişehir:** Alpu, cave, 15 June 2007: 2 ad. males net. – **Diyarbakır:** Ergani, cave, 17 May 2005: 3 ad. males net.; – Çermik, cave, 18 May 2005: 2 ad. males net. – **Gaziantep:** Gaziantep, artificial cave, 1 September 2004: a colony obs.; – Nizip, artificial cave, 2 September 2004: a colony obs. – **Gümüşhane:** Mescitli village, cave, 5 July 2008: 2 ad. males, 3 sad. females net. – **Hatay:** Narlıca village, cave, 5 July 2006: 3 ad. males net. – **Kayseri:** Bünyan, caravanserai, 15 July 2008: 1 ad. male net. – **Kilis:** Kilis, cave, 24 June 2008: 2 ad. males net. – **Kırıkkale:** Keskin, cave, 13 May 2005: 2 ad. males net.; – Kırıkkale, cave, 13 May 2005: 1 sad. male net. – **Kırklareli:** Demirköy, cave, 23 June 2004: 1 ad. male, 1 ad. female net. – **Kırşehir:** Kırşehir, 5 September 2006: 1 sad. male net. – **Mersin:** Tarsus, cave, 1 July 2006: 1 ad. male net. – **Neveşehir:** Avanos, cave, 1 September 2006: 2 ad. males net. – **Niğde:** Gümüşler village, cave, 20 July 2006: 2 ad. males net. – **Ordu:** Yaraşlı village, cave, 2 July 2007: 3 ad. males net. – **Şanlıurfa:** Birecik, castle ruins, 27 August 2004: 1 sad. male net. – **Sinop:** Boyabat, cave, 30 June 2007: 2 ad. males net. – **Tokat:** Pazar, cave, 17 August 2005: a colony obs. – **Trabzon:** Maçka, cave, 20 August 2004: 1 ad. female net. – **Yozgat:** Şefaati, cave, 25 July 2006: 1 sad. male net.

Myotis blythii (Tomes, 1857)

Adana: Düziçi, cave, 3 July 2006: 2 ad. females net. – **Adıyaman:** Kuyucak village, cave, 1 August 2008: 1 ad. male net. – **Ankara:** Kalecik, cave, 30 July 2006: 1 ad. female net. – **Antalya:** Limanağzı, cave, 30 June 2006: 2 ad. males net. – **Artvin:** Ardanuç, cave, 22 August 2004: 2 ad. males net. – **Bitlis:** Bitlis, caravanserai, 27 July 2008: 3 ad. males net. – **Bolu:** Gerede, cave, 25 June 2006: a colony obs. – **Diyarbakır:** Ergani, cave, 17 May 2005: 1 ad. male net. – **Edirne:** Lalapaşa, cave, 22 June 2004: 1 ad. male net. – **Elazığ:** Keban, cave, 25 August 2005: 1 ad. male net. – **Eskişehir:** Alpu, cave, 15 June 2007: 1 ad. male net. – **Erzincan:** Tercan, cave, 23 August 2005: a colony obs. – **Erzurum:** İspir, cave, 24 August 2005: 1 ad. male net. – **Hatay:** Narlıca village, cave, 5 July 2006: 1 ad. male net. – **Kayseri:** Kocasinan, cave, 16 July 2008: 1 ad. male net. – **Kilis:** Kilis, cave, 24 June 2008: 2 ad. males net. – **Kırkkale:** Kırkkale, cave, 13 May 2005: 2 ad. males net.; – Keskin, cave, 13 May 2005: 2 ad. males net. – **Kırşehir:** Kırşehir, 5 September 2006: 2 ad. males net. – **Mersin:** Tarsus, cave, 1 July 2006: 1 ad. male net. – **Muş:** Sütlüce village, cave, 20 July 2008: 2 ad. females net. – **Niğde:** Ulukışla, caravanserai, 20 July 2006: 1 ad. male net. – **Ordu:** Yaraşlı village, cave, 2 July 2007: 2 ad. males net. – **Tokat:** Pazar, cave, 17 August 2005: a colony obs. – **Trabzon:** Maçka, cave, 20 August 2004: 1 ad. male net. – **Van:** Van, castle ruins, 25 August 2008: 3 ad. males, 3 ad. females net. – **Yozgat:** Şefaattli, cave, 25 July 2006: 2 ad. male net.

DISCUSSION

Myotis myotis is one of the most common bat species in Turkey. SPITZENBERGER (1996) stated that Diyarbakır is the easternmost documented location of the species. In addition, BENDA & HORÁČEK (1998) mentioned that *M. myotis* was absent east of the Rize – Erzurum – Diyarbakır – Antakya line. More recently, BENDA et al. (2006) determined the distribution margin as an approximate line Artvin – Diyarbakır – Şanlıurfa. We recorded *M. myotis* in the Hasankeyf district, Batman province (37° 42' N, 41° 24' E) in 2007. With this record, the known distribution range of *M. myotis* in Anatolia has enlarged to the Artvin – Erzurum – Batman – Şanlıurfa line (Fig. 1).

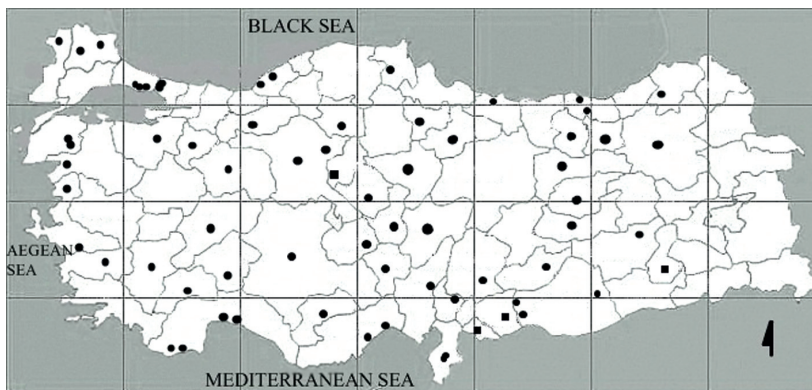


Fig. 2. Distribution of *Myotis myotis* in Turkey. (●) published records (KAHMANN & ÇAĞLAR 1960, ÇAĞLAR 1969, FELTEN et al. 1977, ALBAYRAK 1985, 1990, 1993, 2003, SPITZENBERGER 1996, BENDA & HORÁČEK 1998, ALBAYRAK & AŞAN 1998, 1999, AŞAN 2001, BENDA et al. 2006), (■) new records.

Obr. 2. Rozšíření netopýra velkého (*Myotis myotis*) v Turecku. (●) publikované nálezy (KAHMANN & ÇAĞLAR 1960, ÇAĞLAR 1969, FELTEN et al. 1977, ALBAYRAK 1985, 1990, 1993, 2003, SPITZENBERGER 1996, BENDA & HORÁČEK 1998, ALBAYRAK & AŞAN 1998, 1999, AŞAN 2001, BENDA et al. 2006), (■) nové nálezy.

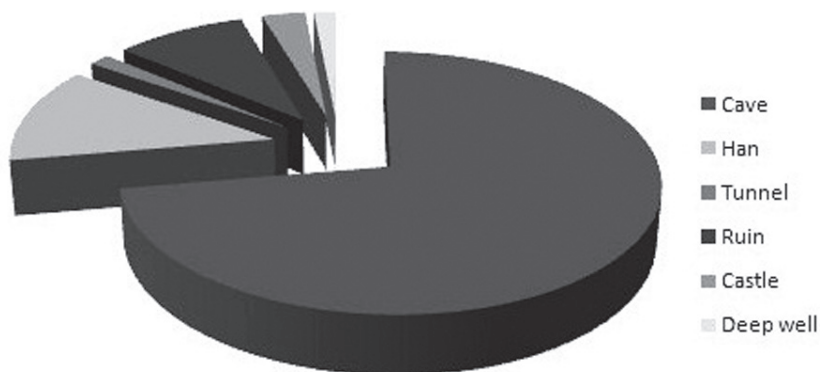


Fig. 3. Roost preference of *Myotis myotis* in Turkey.
 Obr. 3. Úkrytové preference netopýra velkého (*Myotis myotis*) v Turecku.

According to previous (KAHMAN & ÇAĞLAR 1960, ÇAĞLAR 1969, FELTEN et al. 1977, ALBAYRAK 1985, 1990, 1993, 2003, SPITZENBERGER 1996, BENDA & HORÁČEK, 1998, ALBAYRAK & AŞAN 1998, 1999, AŞAN 2001, BENDA et al. 2006) and new data, the geographical distribution of this species covers Thrace; western, southern, and central Anatolia, and the eastern Black Sea regions of Turkey (Fig. 2). In this study we recorded that *M. myotis* still prefers mostly large karstic

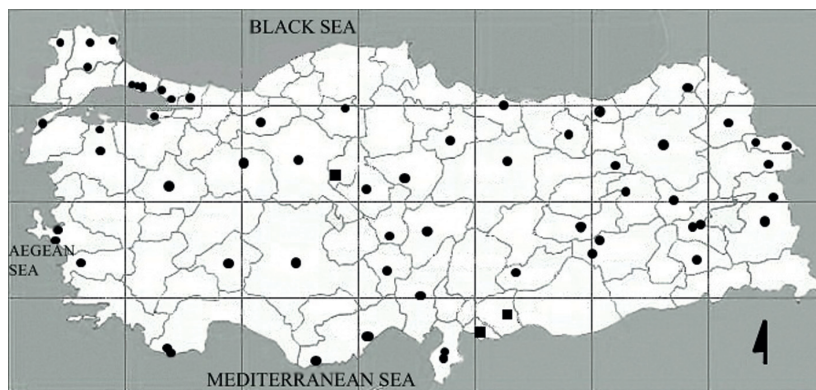


Fig. 4. Distribution of *Myotis blythii* in Turkey. (●) published records (KAHMANN & ÇAĞLAR 1960, ÇAĞLAR 1969, FELTEN et al. 1977, ALBAYRAK 1985, 1990, 1993, 2003, SPITZENBERGER 1996, BENDA & HORÁČEK 1998, ALBAYRAK & AŞAN 1998, 1999, AŞAN 2001, BENDA et al. 2006), (■) new records.
 Obr. 4. Rozšíření netopýra východního (*Myotis blythii*) v Turecku. (●) publikované nálezy (KAHMANN & ÇAĞLAR 1960, ÇAĞLAR 1969, FELTEN et al. 1977, ALBAYRAK 1985, 1990, 1993, 2003, SPITZENBERGER 1996, BENDA & HORÁČEK 1998, ALBAYRAK & AŞAN 1998, 1999, AŞAN 2001, BENDA et al. 2006), (■) nové nálezy.

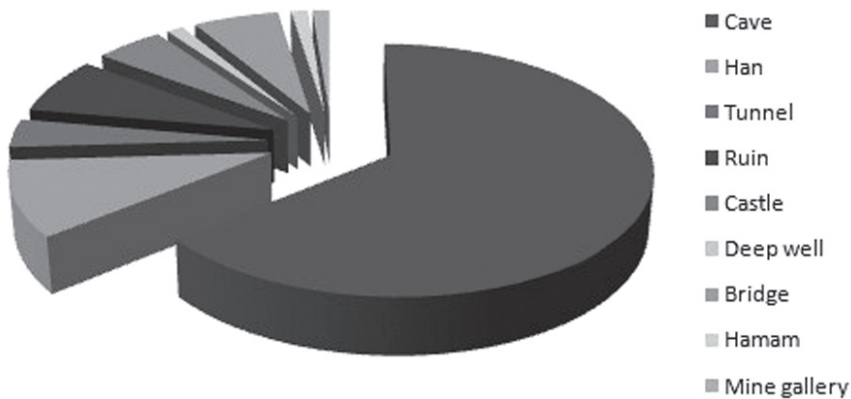


Fig. 5. Roost preference of *Myotis blythii* in Turkey.

Obr. 5. Úkrytové preference netopýra východního (*Myotis blythii*) v Turecku.

caves as summer roosts in Turkey. The other roost types include hans, ruins, tunnels, castles, and deep wells, as recorded by ALBAYRAK (1990, 1993) and BENDA & HORÁČEK (1998) (Fig. 3).

Myotis blythii also ranks among the most common bat species in Turkey. It prefers the inland/continental climate more than *M. myotis*. In contrast, the localities of *M. myotis* in the Mediterranean and Black Sea climate are more numerous than those of *M. blythii*. Furthermore, in Kırklareli, Kırıkkale, Ankara, Gaziantep, and Diyarbakır, having a continental climate, and Balıkesir, having a Marmara climate (SENSOY et al. 2009), *M. myotis* and *M. blythii* cohabit in the roosts. Furthermore, the distribution ranges of *M. myotis* and *M. blythii* overlap in 20 provinces (Figs. 2–4). *M. blythii* also prefers mostly large karstic caves during summer. The other roost types include ruins, bridges, mine galleries, hans, Turkish hamams, tunnels, castles and deep wells, as mentioned by ALBAYRAK (1990, 1993) and BENDA & HORÁČEK (1998) (Fig. 5).

To summarise, *Myotis myotis* and *M. blythii* are still widespread, stable, and abundant species in Turkey, which is in accordance with the IUCN Red List of Threatened Species (HUTSON et al. 2010a, b). In our opinion, further studies should reveal new localities of these two species and also other bat species distributed throughout Turkey.

SOUHRN

Netopýr velký (*Myotis myotis*) a netopýr východní (*Myotis blythii*) patří k nejhodnějším z dosud známých 38 druhů netopýrů Turecka. Vyskytují se sympatricky v přirozených i umělých úkrytech. V období let 2004–2008 byly podniknuty terénní výzkumy s cílem zhodnotit potenciální areál rozšíření obou druhů ve všech oblastech Turecka. V předložené studii jsme zhodnotili současné rozšíření druhů *Myotis myotis* a *M. blythii* v celém Turecku a nově zaznamenali výskyt na lokalitách v krajích Kırıkkale, Kilis, Gaziantep a Batman.

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