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On the occurrence of *Eptesicus bobrinskoi* in the Middle East (Chiroptera: Vespertilionidae)

K výskytu netopýra turanského (*Eptesicus bobrinskoi*) na Blízkém východě (Chiroptera: Vespertilionidae)

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Abstract. A profound morphologic comparison of smaller representatives of the genus *Eptesicus* inhabiting the western Palaearctic (*E. bobrinskoi*, *E. gobiensis*, *E. nasutus*, and *E. nilssonii*) confirmed the occurrence of *Eptesicus bobrinskoi* in NW Iran. Although it was previously not fully accepted, a revision of the collection material as well as of specimens newly recorded in Iran brought evidence showing that the doubts were unjustified.

INTRODUCTION

The Bobrinskoy's serotine, *Eptesicus bobrinskoi* Kusjakin, 1935, was described on the basis of three individuals collected by S. P. Naumov in May and June 1928 in a region close to the north-eastern shore of the Aral Sea, central Kazakhstan, which were primarily assigned by Bobrinskoi (1931) to the form *Eptesicus caucasicus* (Satunin, 1901) [= *Hypsugo savii* (Bonaparte, 1837)]. Kusjakin (1935) characterised *E. bobrinskoi* to be in its external appearance close to *Eptesicus alashanicus* Bobrinskoj, 1926 [= *Hypsugo alashanicus*] but with a larger skull, although both forms were of similar body size. He mentioned *E. bobrinskoi* to be typical with its flattened braincase, a relatively small second upper incisor, and a very pale coloration of the pelage and naked parts. The Tjulek well in the Aral part of the Karakum Desert [= Priaralskye Karakumy D.], 65 km E of the town of Aral'skoe more [= Aral'sk], Kazakhstan, was designated as the type locality of this species (Kusjakin 1935, Rossolimo & Pavlinov 1979). Ellerman & Morrison-Scott (1951) provisionally arranged *E. bobrinskoi* as a subspecies of *E. nasutus* (Dobson, 1877) but this view has not generally been followed (see also Harrison 1963 and Hanák & Gaisler 1971). *E. bobrinskoi* remains the only bat species described from Kazakhstan (Butovskij et al. 1985).

The essential part of the distribution range of *E. bobrinskoi* covers the zone of colder deserts and semi-deserts of central Kazakhstan, between the Aral Sea in the west and the western Betpak-Dala Desert in the east (Strelkov 1980), i.e. between 45° 30' – 49° N and 59° – 70° 15' E

(Butovskij et al. 1985). About 90% of the records ascribed to this species come from this region (cf. Strelkov 1980, Strelkov & Šajmardanov 1983).

A few of records of *E. bobrinskoi* were described from outside this main range. Kuzjakin (1950) reported a young male specimen from the vicinity of Faskal, North Ossetia, northern slope of the Greater Caucasus Mts He also mentioned a female specimen deposited in the alcohol collection of the Zoological Institute of the Academy of Science [St. Petersburg] labelled "Jakutsk, Middendorf" suggesting its origin in Yakutia [= Sakha, northern Siberia, Russia]. These records seem to be unusual from the biogeographical point of view but have been largely considered rather correctly identified (Vereščagin 1959, Strelkov 1963, 1981, Tavrovskij et al. 1971). However, Kuzjakin (1965) labelled both records with question marks (?) and noted the preservation state of these specimens as not quite perfect and mainly, the age of the individuals as juvenile. In this way, Kuzjakin (1965) indirectly doubted his previous identifications. Therefore, these records were considered clearly doubtful by Hanák & Horáček (1986) who regarded them to be of juvenile individuals of *E. nilssonii* (Keyserling et Blasius, 1839). This view was followed by Nowak (1994), Borisenko & Pavlinov (1995), Pavlinov & Rossolimo (1998), Horáček et al. (2000), and Simmons (2005), but not by Koopman (1993, 1994) or Duff & Lawson (2004). Anyway, *E. bobrinskoi* has not recently been considered a member of the Yakutian bat fauna (Revin et al. 2004).

Strelkov (1980) described a finding of several individuals of *E. bobrinskoi* in the northern Caspian Region in western Kazakhstan (the Mus Tomb, 18–20 km W of Koščagyl, ca. 10 km S of the lower Emba River). Although geographically isolated, this record has been accepted beyond any doubt by later authors (Butovskij et al. 1985, Strelkov 1986, Rybin et al. 1989, Ilyin 2000). Moreover, a new record of *E. bobrinskoi* has been recently reported from a region close to the latter one (Davygora et al. 1998, Ilyin 2000), from a site 20–25 km S of Krasnojar, Novoalekseevka Dist., Aktjubinskaja Region, NW Kazakhstan. This record represents the northwesternmost verified spot of occurrence of this species in the Palaearctic, and because the Emba River is considered by some authors to be the Euro-Asian border in the region between the Caspian Sea and the Ural Mts, it is now appropriate to place *E. bobrinskoi* on the list of European bat species (Benda & Hutterer 2005).

The only record of *E. bobrinskoi* in the Middle East (and also outside the former USSR) was published by Harrison (1963) from north-western Iran. He reported a finding of seven dead individuals (four males, three females) in "the Sulphur caves at Guter-Su, north of Mt. Sabalan, […] Iranian Azerbaijan, 38° 10' N, 47° 40' E". Harrison (1963) supported this species identification by his observation of the typical morphologic characters according to Kuzjakin (1950), and also by a comparison with the collection material of *E. nilssonii* and *E. nasutus* which both markedly differed from the Guter-Su specimens in size and in all important cranial traits. The Harrison's (1963) identification was confirmed by Hanák & Gaisler (1971) who used his data in their broad comparison of the genus *Eptesicus*.

E. bobrinskoi was for a long time considered to be a part of the fauna of Iran (Lay 1967, Etemad 1969, Hanák & Gaisler 1971, Corbet 1978, DeBlase 1980, Allison & Gaisler 1982, Butovskij et al. 1985). However, Hanák & Horáček (1986) revised the series of skulls of *E. bobrinskoi* from the Guter-Su finding, which is deposited in the collection of the Natural History Museum, London (BMNH), under the Nos. 63.1186–1192. They concluded that: "(a) Alle untersuchten Stücke einschließlich der größten (Nr. 63 1189) sind diesjährige Jungen mit auffallend niedrigeren Werten der Schädelbreite, mit einer unvollendeten Ossifikation der Terminalränder des Processus coronoideus und mit einer unvollendeten Eruption der Zähne, u. ä. (b) Die metri-

schen Werte und proportionen des Rostrums, welche eher der Art *E. bobrinskoi* entsprechen, sind aus den oben angeführten Gründen wenig nachweisbar; nach wichtigsten anderen Merkmalen (Anwesenheit der Foramina cavernosa, Fellfährung) entspricht das Material vielmehr der Art *E. nilssoni*. (c) Aus den angeführten Tatsachen ergibt sich, daß dieses Material offensichtlich juvenile Stücke der zentralasiatischen Population *E. nilssoni* darstelt. […] (d) Die angeführte Interpretation des Fundes aus Guter-Su steht im Einklang mit der bisherigen Ansicht über die zoogeographischen Bewertung von *E. bobrinskoi*." According to this revision, *E. bobrinskoi* has no longer been regarded as a member of the bat fauna of the Middle East (although not absolutely, see e.g. Nowak 1994, Sharifi et al. 2000), and the Harrison's (1963) record has been considered to be of *E. nilssonii gobiensis* Bobrinskoj, 1926 (Koopman 1993, 1994, Borisenko & Pavlinov 1995, Pavlinov & Rossolimo 1998, Horáček et al. 2000, Duff & Lawson 2004, Simmons 2005, cf. Rybin et al. 1989, Rydell 1993, Benda & Horáček 1998, Albayrak 2003). However, based on a profound morphologic analysis, Strelkov (1986) showed the latter form to represent a separate species, *E. gobiensis*. This result has been widely accepted (Pavlinov & Rossolimo 1987, Rydell 1993, Borisenko & Pavlinov 1995, Bates & Harrison 1997, Roberts 1997, Pavlinov & Rossolimo 1998, Horáček et al. 2000, Šajmardanov 2001, Simmons 2005, etc.).

During a field trip to Iran in the late spring of 2006 we visited the abandoned sulphuric mines in the oriental thermal bath resort of Qutur Su (= Guter-Su by Harrison 1963). In these caverns we found several dead birds and three partly mummified cadavers of bats. We preliminarily identified these bats as small representatives of the genus *Eptesicus* Rafinesque, 1820, but differing from *E. nilssonii* or *E. gobiensis* by a shorter forearm in two individuals: LAt 34.4 and 36.7 mm (the third cadaver was without wings) in Qutur Su bats vs. 37–44 mm in *E. nilssonii* s. l. (Hanák & Horáček 1986). These bats thus well resembled *E. bobrinskoi* according to Harrison (1963).

The aim of this paper is to compare our specimens from Qutur Su with those identified as *E. bobrinskoi* by Harrison (1963) as well as with representative samples of *E. bobrinskoi*, *E. nasutus*, *E. nilssonii*, and *E. gobiensis*, to identify and/or revise our and Harrison's (1963) findings and thus, to contribute to the knowledge of smaller *Eptesicus* bats in the Middle East.

THE RECORD

The three bats were found in two small abandoned sulphuric mines above the village of Qutur Su (قوطورسو [qwtwr sw]), ca. 20 km ESE of Meshgin Shahr (مشگین شهر [mšgin šhr]), Province of Ardabil, 38° 20' N, 47° 51' E; 2545 m a. s. l. (Fig. 1). Although slightly differing in the geographical coordinates given, this site is undoubtedly identical with the locality of Guter-Su reported by Harrison (1963). The site is situated on the northern slope of the main peak of the Sabalan Range (کوه سبلان [kwh sblan]) which rises to the altitude of 4811 m from the flat steppe plateau of about 1100 m a. s. l. The village and mines lie in the zone of alpine meadows at the altitude of about 2500 m (Fig. 2). In these small artificial rocky caverns, which act as a natural trap being filled by an unbreathable atmosphere, the bat cadavers were found under smaller stones covering the mine floor.

MATERIAL AND METHODS

For a morphologic comparison of the newly collected bats in Qutur Su, we used museum material of all smaller species of the genus *Eptesicus* occurring in the western Palaearctic; viz. *E. bobrinskoi* Kusjakin, 1935 (11 specimens) from central Kazakhstan (i.e. from its "topo-type" area), *E. nasutus* (Dobson, 1877) (18) from the Middle East, including all currently recognised subspecies [*E. n. nasutus* from Afghanistan

Figs. 1, 2. Qutur Su, NW Iran. 1 – Abandoned sulphuric mines, the only site of (repeated) finding of *E. bobrinskoi* in Iran (above). 2 – Alpine meadows at the altitude of ca. 2500 m surrounding the site of Fig. 1, situated on the northern slope of Mount Sabalan (4811 m a. s. l., in the background) (below).
Obr. 1, 2. Qutur Su, SZ Iran. 1 – Opuštěné sirné dobývky, jediná lokalita (opakovaného) nálezu netopýra turanského (*E. bobrinskoi*) v Iranu (nahoře). 2 – Alpinské louky v nadmořské výšce zhruba 2500 m obklopující lokalitu na obr. 1, ležící na severním svahu hory Sabalan (4811 m n. m., v pozadí) (dole).

and from Persian Baluchestan, *E. n. matschiei* (Thomas, 1905) from SW Arabia, *E. n. pellucens* (Thomas, 1906) from Mesopotamia, and *E. n. batinensis* Harrison, 1968 from Oman], *E. nilssonii* (Keyserling et Blasius, 1839) (24) from Central Europe, *E. gobiensis* Bobrinskoj, 1926 (6) from northern Kirghizia, as well as the BMNH series of seven bats from Qutur Su identified by Harrison (1963) as *E. bobrinskoi* and by Hanák & Horáček (1986) as *E. nilssonii*. Since Hanák & Horáček (1986) found the Qutur Su series to be partially composed of immature individuals, we used also sets mixed from adult and subadult individuals for dimensional comparisons. For the data associated with the specimens see the Appendix.

For comparative purposes we used mainly skulls, from external dimensions we took only the forearm length (LAt). The specimens were measured in a standard way using mechanical or optical callipers. We evaluated 38 dimensions in each skull (17 measurements in skull and maxillar tooth-rows, 7 measurements in the mandible and mandibular tooth-rows, see also Abbreviations) including 14 indices that described the skull shape. The baculum was extracted with the use of a 4% solution of NaOH and coloured by the Alizarin red. Statistical analyses were performed using the Statistica 6.0 software.

ABBREVIATIONS

Collections. BMNH = Natural History Museum, London, United Kingdom; CUP = Department of Zoology, Charles University, Praha, Czech Republic; JOC = private collection of Ján Obuch, Blatnica, Slovakia; NMP = National Museum (Natural History), Praha, Czech Republic; ZIN = Institute of Zoology of the Russian Academy of Science, Sankt Peterburg, Russia.
Measurements. LAt = forearm length; LCr = greatest length of skull; LCb = condylobasal length of skull; LaZ = zygomatic width of skull; LaI = width of interorbital constriction; LaInf = rostral width between the foramina infraorbitalia; LaN = neurocranium width; LaM = skull width at the mastiodal processes; ANc = neurocranium height; ACr = skull height (incl. the tympanic bullae); CC = rostral width between the canines (incl.); P^4P^4 = rostral width between the upper premolars (incl.); M^3M^3 = rostral width between the third upper molars (incl.); IM^3 = length of upper toothrow between the first incisor and the third molar, I^1M^3 (incl.); CM^3 = length of upper toothrow between the canine and the third molar, CM^3 (incl.); P^4M^3 = length of upper toothrow between the premolar and the third molar, P^4M^3 (incl); M^1M^3 = length of upper toothrow between the first and third molars, M^1M^3 (incl.); CP^4 = length of upper toothrow between the canine and the premolar, CP^4 (incl.); LMd = condylar length of mandible; ACo = height of the coronoid process; IM_3 = length of lower toothrow between the first incisor and the third molar, I_1M_3 (incl.); CM_3 = length of lower toothrow between the canine and the third molar, CM_3 (incl.); P_4M_3 = length of lower toothrow between the second premolar and the third molar, P_4M_3 (incl.); M_1M_3 = length of lower toothrow between the first and the third molar, M_1M_3 (incl.); CP_4 = length of lower toothrow between the canine and the second premolar, CP_4 (incl.).
Others. m = male; f = female; ind. = individual of undetermined sex; a = adult; s = immature; A = alcohol preparation; B = skin (balg); S = skull; Sk = skeleton.

RESULTS AND DISCUSSION

The two series of bats from Qutur Su, that published by Harrison (1963) and that newly collected, are very similar in dimensions (Table 1) and seem to comprise very close or even identical morphotypes. To mention the most important characters, these specimens have similar forearm lengths, lengths of skull and tooth-rows and mainly, similar heights of braincase (ANc, ACr). Therefore both sets of specimens from Qutur Su were compared as one group of samples.

Unlike Hanák & Horáček (1986), we found a part of the Harrison's (1963) samples to be adult individuals, which was also true for two of the newly collected bats (see Table 1). From the whole set of the Qutur Su bats, at least five specimen bear signs of adult age on their skulls; i.e. a fully ossified basilar suture in the skull base (the connection between basioccipital and basisphenoidal bones) and moreover, a noticeable teeth abrasion. Thus, skulls of these specimens

Table 1. Dimensions of *E. bobrinskoi* collected at Qutur Su, NW Iran. For dimension abbreviations see the text. Forearm lengths (LAt) of the BMNH specimens were taken from DeBlase (1980)

Tab. 1. Rozměry jedinců *E. bobrinskoi* nalezených v Qutur Su, SZ Iran. Vysvětlivky zkratek rozměrů viz text. Délky předloktí (LAt) jedinců z londýnské sbírky (BMNH) byly převzaty z přehledu DeBlaseova (1980)

No.	sex	age	LAt	LCr	LCb	LaZ	LaI	LaInf	LaN	LaM	ANc	ACr	CC	M^3M^3	CM^3	M^1M^3	CP^4	LMd	ACo	CM_3	M_1M_3	CP_4
BMNH, 21 August 1961																						
63.1186	m	a	35.0	14.67	14.35	–	3.92	4.37	7.42	7.77	4.52	5.51	3.74	5.61	5.08	3.47	1.82	10.29	3.00	5.67	3.68	2.07
63.1187	m	s	35.4	14.82	14.28	–	4.11	–	7.82	8.05	4.28	5.81	–	–	5.07	3.35	1.81	–	–	–	–	–
63.1188	f	s	35.1	skull broken																		
63.1189	m	a	35.1	15.17	14.87	8.38	4.19	4.28	7.64	7.91	4.34	5.48	3.90	5.78	5.28	3.57	1.96	10.51	2.91	5.62	3.85	1.84
63.1190	f	a	35.7	15.07	14.53	–	4.08	4.48	7.87	8.22	4.47	–	3.79	5.94	5.38	3.55	2.12	–	3.12	–	–	–
63.1191	f	s	33.9	skull broken																		
63.1192	m	s	34.7	skull entire but crushed																		
NMP, 5 June 2006																						
90890	f	a	36.7	15.24	14.88	9.56	4.14	4.86	7.95	8.11	4.74	5.88	4.32	6.04	5.21	3.38	1.91	10.75	3.14	5.61	3.64	1.79
90891	f	s	34.4	–	–	–	4.02	4.31	–	–	–	–	3.88	5.63	5.07	3.37	1.88	10.14	2.81	5.48	3.76	1.90
90892	m	a	–	14.57	14.43	–	3.95	4.48	7.16	7.90	4.61	5.88	4.00	5.88	5.02	3.39	1.87	10.29	2.86	5.42	3.78	1.91

(BMNH 63.1186, 1189, 1190, NMP 90890, 90892) were available for a relevant morphologic comparison.

As pointed out in Introduction, the Qutur Su bats are typical with relatively short forearms (LAt 33.9–36.7 mm). In this character they are very close to the samples of *E. bobrinskoi* from Kazakhstan (LAt 34.0–36.7 mm) and overlap also with the samples of *E. nasutus* (LAt 35.5–39.9 mm). On the other hand, the Qutur Su bats clearly differ in their forearm lengths from the samples of *E. nilssonii* and *E. gobiensis* (Table 2).

Based on the comparison of skull dimensions, the skulls of the Qutur Su bats are most similar to the samples of *E. bobrinskoi*; they broadly overlap in all measurements taken (Table 2), although the Kazakh samples are on average slightly larger. The Qutur Su bats also partly overlap in their skull lengths (LCr, LCb, CM^3, P^4M^3, M^1M^3, LMd, CM_3, P_4M_3, M_1M_3) and widths (LaZ, LaI, LaInf, LaN, LaM, M^3M^3) with *E. nilssonii* and slightly also with *E. gobiensis*, but clearly differ from both sample sets in skull heights (ANc, ACr). However, the Qutur Su bats clearly exceed in their skull lengts all samples of *E. nasutus* but overlap them in the skull heights. These relations are shown also in Fig. 3; the Qutur Su bats are identical in skull size (represented by its condylobasal length, LCb) with Kazakh samples of *E. bobrinskoi* and very similar to the samples of *E. nilssonii* and *E. gobiensis*. Concerning skull height (represented by neurocranium height, ANc), the Qutur Su bats are identical with the samples of *E. bobrinskoi* and also of *E. nasutus*. The samples of the latter species, however, completely differ by their skull lengths. In this comparison the samples from Qutur Su and from Kazakhstan create one

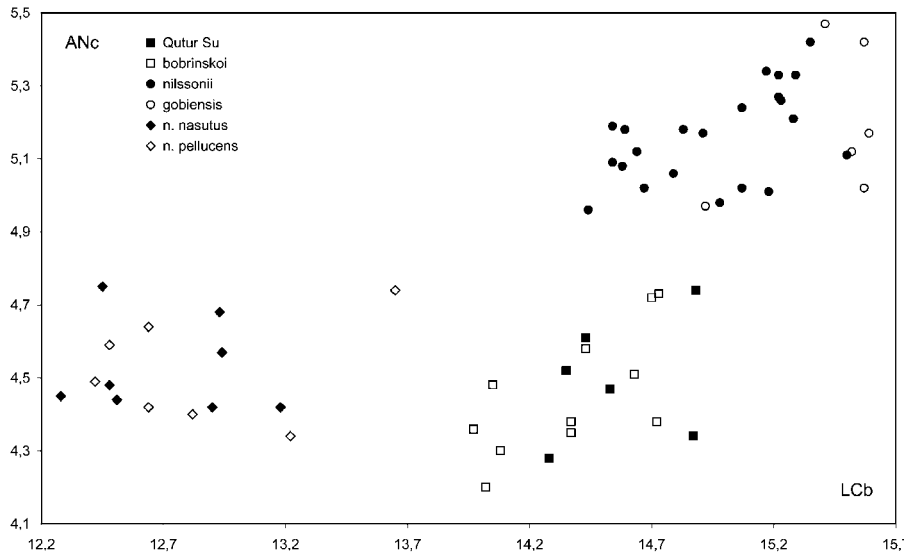

Fig. 3. Scatter plot of the condylobasal length of skull (LCb) against the height of neurocranium (ANc) in the compared samples of smaller *Eptesicus* species of the western Palaearctic; adopted from Strelkov (1986). Data in millimetres.

Obr. 3. Srovnání kondylobasální délky lebky (LCb) proti výšce neurokrania (ANc) jedinců malých druhů rodu *Eptesicus* západní Palearktidy; podle Strelkova (1986). Rozměry v milimetrech.

Table 2. Basic biometric data on the comparative samples of small representatives of the genus *Eptesicus* of the western Palaearctic (see Appendix). For dimension abbreviations see the text.
Tab. 2. Základní biometrické údaje srovnávacích vzorků malých zástupců rodu *Eptesicus* západní Palearktidy (viz Appendix). Vysvětlivky zkratek rozměrů viz text

	E. bobrinskoi NW Iran					*E. bobrinskoi* C Kazakhstan					*E. gobiensis* N Kirghizia				
	n	**M**	min	max	SD	n	**M**	min	max	SD	n	**M**	min	max	SD
LAt	9	**35.11**	33.9	36.7	0.799	10	**35.19**	34.0	36.7	0.909	6	**42.22**	40.2	43.5	1.202
LCr	6	**14.92**	14.57	15.24	0.277	11	**14.76**	14.42	15.27	0.313	6	**15.75**	15.17	16.04	0.317
LCb	6	**14.56**	14.28	14.88	0.260	11	**14.37**	13.97	14.73	0.300	6	**15.43**	14.92	15.59	0.258
LaZ	2	**8.97**	8.38	9.56	0.834	11	**9.54**	9.20	9.86	0.228	5	**10.09**	9.61	10.28	0.276
LaI	7	**4.06**	3.92	4.19	0.100	11	**3.94**	3.68	4.08	0.137	6	**4.11**	3.92	4.28	0.136
LaInf	6	**4.46**	4.28	4.86	0.212	11	**4.55**	4.33	4.88	0.180	6	**4.96**	4.75	5.11	0.148
LaN	6	**7.64**	7.16	7.95	0.303	11	**7.75**	7.58	7.98	0.108	6	**8.07**	7.82	8.42	0.216
LaM	6	**7.99**	7.77	8.22	0.164	10	**8.23**	7.93	8.56	0.199	6	**8.59**	8.27	8.81	0.201
ANc	6	**4.49**	4.28	4.74	0.170	11	**4.45**	4.20	4.73	0.169	6	**5.20**	4.97	5.47	0.207
ACr	5	**5.71**	5.48	5.88	0.200	11	**5.73**	5.52	5.94	0.126	6	**6.47**	6.32	6.68	0.121
CC	6	**3.94**	3.74	4.32	0.208	11	**4.21**	4.08	4.39	0.120	6	**4.64**	4.52	4.83	0.110
P^4P^4	6	**4.73**	4.49	5.01	0.222	11	**5.12**	4.96	5.27	0.115	6	**5.45**	5.31	5.61	0.108
M^3M^3	6	**5.81**	5.61	6.04	0.172	11	**6.13**	6.00	6.23	0.078	6	**6.63**	6.47	6.78	0.116
I^1M^3	7	**6.08**	5.94	6.27	0.126	11	**6.12**	5.95	6.27	0.104	6	**6.63**	6.47	6.74	0.105
CM^3	7	**5.16**	5.02	5.38	0.134	11	**5.21**	5.08	5.35	0.089	6	**5.58**	5.38	5.71	0.115
P^4M^3	7	**4.16**	3.97	4.34	0.121	11	**4.32**	4.20	4.48	0.091	6	**4.54**	4.41	4.64	0.094
M^1M^3	7	**3.44**	3.35	3.57	0.090	11	**3.54**	3.41	3.73	0.100	6	**3.67**	3.58	3.77	0.061
LMd	5	**10.40**	10.14	10.75	0.238	11	**10.36**	10.00	10.76	0.272	6	**11.15**	10.67	11.46	0.278
ACo	6	**2.97**	2.81	3.14	0.137	11	**3.25**	3.02	3.48	0.157	6	**3.41**	3.29	3.52	0.095
I_1M_3	5	**6.49**	6.41	6.58	0.072	10	**6.46**	6.27	6.68	0.134	6	**6.95**	6.74	7.09	0.138
CM_3	5	**5.56**	5.42	5.67	0.105	11	**5.63**	5.47	5.83	0.133	6	**6.09**	5.93	6.28	0.116
P_4M_3	5	**4.40**	4.34	4.47	0.048	11	**4.51**	4.42	4.74	0.095	6	**4.70**	4.12	4.93	0.298
M_1M_3	5	**3.74**	3.64	3.85	0.083	11	**3.85**	3.70	4.02	0.094	6	**4.10**	4.02	4.17	0.061
CM^3/LCb	6	**0.355**	0.35	0.37	0.008	11	**0.363**	0.36	0.37	0.004	6	**0.361**	0.35	0.37	0.009
LaInf/LCb	5	**0.308**	0.29	0.33	0.014	11	**0.316**	0.30	0.33	0.010	6	**0.321**	0.31	0.34	0.012
LaN/LCb	6	**0.512**	0.49	0.53	0.014	11	**0.526**	0.51	0.54	0.009	6	**0.512**	0.50	0.52	0.009
LaM/LCb	6	**0.549**	0.53	0.57	0.013	10	**0.571**	0.55	0.59	0.011	6	**0.557**	0.54	0.57	0.009
ANc/LCb	6	**0.309**	0.29	0.32	0.011	11	**0.310**	0.30	0.32	0.009	6	**0.337**	0.32	0.35	0.012
ACr/LCb	5	**0.392**	0.37	0.41	0.016	11	**0.399**	0.39	0.41	0.006	6	**0.419**	0.41	0.43	0.008
M^3M^3/LCb	5	**0.400**	0.39	0.41	0.010	11	**0.427**	0.41	0.44	0.009	6	**0.429**	0.42	0.44	0.005
CC/CM^3	6	**0.762**	0.70	0.83	0.045	11	**0.807**	0.76	0.85	0.025	6	**0.833**	0.80	0.87	0.024
M^3M^3/CM^3	6	**1.124**	1.09	1.17	0.033	11	**1.176**	1.13	1.20	0.020	6	**1.189**	1.15	1.23	0.029
LaInf/LaI	6	**1.102**	1.02	1.17	0.052	11	**1.155**	1.08	1.23	0.043	6	**1.206**	1.15	1.30	0.059
M^3M^3/LaI	6	**1.436**	1.38	1.49	0.040	11	**1.558**	1.49	1.66	0.050	6	**1.612**	1.52	1.70	0.061
LaM/LaI	6	**1.967**	1.89	2.01	0.045	10	**2.076**	1.98	2.17	0.054	6	**2.090**	2.00	2.21	0.080
LaM/LaN	6	**1.047**	1.02	1.10	0.029	10	**1.061**	1.04	1.08	0.018	6	**1.064**	1.04	1.10	0.027
ACo/LMd	5	**0.283**	0.28	0.29	0.008	11	**0.314**	0.30	0.33	0.011	6	**0.306**	0.29	0.33	0.013

Table 2. (continued)
Tab. 2. (pokračování)

	E. nilssonii C Europe					*E. n. nasutus* Baluchestan					*E. n. pellucens* Mesopotamia				
	n	**M**	min	max	SD	n	**M**	min	max	SD	n	**M**	min	max	SD
LAt	11	**40.09**	38.3	42.7	1.448	9	**38.09**	35.7	39.9	1.205	3	**36.27**	35.5	37.2	0.862
LCr	25	**15.35**	14.87	15.92	0.312	8	**13.05**	12.65	13.39	0.255	6	**13.24**	12.88	13.95	0.393
LCb	24	**14.99**	14.44	15.50	0.320	8	**12.71**	12.28	13.18	0.317	6	**12.91**	12.48	13.65	0.443
LaZ	19	**10.04**	9.51	10.44	0.238	6	**8.79**	8.53	8.98	0.151	5	**8.87**	8.39	9.83	0.564
LaI	25	**4.05**	3.71	4.28	0.173	8	**2.99**	2.75	3.13	0.123	6	**2.89**	2.69	3.13	0.165
LaInf	25	**4.91**	4.62	5.27	0.194	8	**4.30**	4.02	4.43	0.131	6	**4.40**	4.02	5.09	0.396
LaN	25	**7.91**	7.57	8.38	0.229	8	**6.30**	6.17	6.42	0.075	5	**6.34**	6.00	6.64	0.269
LaM	25	**8.54**	8.21	8.84	0.210	8	**6.90**	6.75	7.08	0.105	6	**7.15**	6.91	7.54	0.249
ANc	25	**5.19**	4.96	5.54	0.151	8	**4.53**	4.42	4.75	0.127	6	**4.52**	4.34	4.74	0.158
ACr	24	**6.64**	6.23	6.88	0.161	8	**5.68**	5.49	5.87	0.139	6	**5.57**	5.36	5.82	0.169
CC	25	**4.84**	4.51	5.11	0.153	8	**4.24**	3.95	4.40	0.167	6	**4.34**	4.04	4.74	0.258
P^4P^4	25	**5.50**	5.26	5.86	0.160	8	**4.85**	4.68	4.94	0.101	6	**4.98**	4.66	5.47	0.274
M^3M^3	25	**6.39**	6.02	6.63	0.191	8	**5.90**	5.68	6.17	0.175	6	**6.01**	5.68	6.58	0.319
I^1M^3	25	**6.63**	6.36	6.88	0.142	8	**5.61**	5.23	5.84	0.210	6	**5.69**	5.42	6.12	0.271
CM^3	25	**5.54**	5.21	5.74	0.120	8	**4.88**	4.42	5.13	0.227	6	**4.81**	4.64	5.18	0.209
P^4M^3	25	**4.40**	4.02	4.61	0.129	8	**4.00**	3.63	4.16	0.175	6	**4.00**	3.82	4.39	0.211
M^1M^3	25	**3.57**	3.38	3.73	0.082	8	**3.38**	2.97	3.64	0.209	6	**3.40**	3.27	3.74	0.181
LMd	25	**11.05**	10.73	11.44	0.208	8	**9.31**	8.64	9.59	0.300	6	**9.53**	9.11	10.32	0.421
ACo	24	**3.30**	3.03	3.57	0.139	8	**3.20**	3.08	3.37	0.098	6	**3.28**	3.17	3.43	0.105
I_1M_3	25	**6.98**	6.61	7.28	0.162	8	**5.64**	5.21	5.91	0.233	6	**5.69**	5.42	6.29	0.340
CM_3	25	**5.97**	5.65	6.31	0.150	8	**5.13**	4.64	5.40	0.252	6	**5.16**	4.82	5.76	0.347
P_4M_3	25	**4.67**	4.42	4.92	0.118	8	**4.13**	3.72	4.45	0.225	6	**4.16**	3.93	4.61	0.263
M_1M_3	25	**3.96**	3.75	4.22	0.111	8	**3.58**	3.33	3.78	0.163	6	**3.59**	3.35	4.03	0.238
CM^3/LCb	24	**0.370**	0.36	0.39	0.006	8	**0.384**	0.36	0.40	0.012	6	**0.372**	0.37	0.38	0.006
LaInf/LCb	24	**0.328**	0.30	0.35	0.011	8	**0.339**	0.33	0.35	0.007	6	**0.341**	0.32	0.37	0.020
LaN/LCb	25	**0.515**	0.49	0.53	0.010	8	**0.483**	0.47	0.50	0.009	5	**0.478**	0.47	0.49	0.009
LaM/LCb	24	**0.570**	0.55	0.59	0.008	8	**0.543**	0.53	0.56	0.010	6	**0.554**	0.53	0.57	0.013
ANc/LCb	24	**0.346**	0.33	0.36	0.008	8	**0.356**	0.34	0.38	0.014	6	**0.351**	0.33	0.37	0.015
ACr/LCb	23	**0.444**	0.43	0.47	0.009	8	**0.447**	0.42	0.47	0.015	6	**0.432**	0.42	0.45	0.009
M^3M^3/LCb	24	**0.427**	0.41	0.45	0.009	8	**0.464**	0.45	0.48	0.013	6	**0.466**	0.45	0.48	0.012
CC/CM^3	25	**0.875**	0.83	0.92	0.026	8	**0.868**	0.84	0.89	0.019	6	**0.904**	0.85	0.95	0.036
M^3M^3/CM^3	25	**1.153**	1.11	1.21	0.027	8	**1.209**	1.17	1.29	0.035	6	**1.251**	1.20	1.29	0.039
LaInf/LaI	25	**1.213**	1.09	1.33	0.062	8	**1.442**	1.37	1.60	0.082	6	**1.525**	1.40	1.67	0.102
M^3M^3/LaI	25	**1.577**	1.45	1.75	0.067	8	**1.977**	1.85	2.24	0.127	6	**2.085**	1.97	2.23	0.093
LaM/LaI	25	**2.111**	1.97	2.34	0.086	8	**2.310**	2.23	2.48	0.091	6	**2.480**	2.40	2.63	0.087
LaM/LaN	25	**1.081**	1.04	1.13	0.020	8	**1.095**	1.08	1.13	0.017	5	**1.123**	1.07	1.15	0.030
ACo/LMd	24	**0.299**	0.27	0.32	0.012	8	**0.344**	0.33	0.36	0.009	6	**0.344**	0.33	0.37	0.012

cluster differing from the cluster of specimens of *E. nasutus* and the cluster of samples of *E. nilssonii* and *E. gobiensis*.

The same or very similar results were obtained also by the comparisons of skull indices (Figs. 4, 5). Two indices describing the shape of braincase (relative width, LaN/LCb, vs. relative height, ANc/LCb) grouped the compared samples into three clusters (Fig. 4); (1) Qutur Su bats and *E. bobrinskoi* (relatively low and wide braincase), (2) *E. nilssonii* and *E. gobiensis* (relatively high and wide braincase), and (3) *E. nasutus* (relatively high and narrow braincase). Two indices describing the shape of rostrum (relative length, I^1M^3/LCb, vs. relative width, CC/CM^3) grouped the samples into two main clusters (Fig. 5); (1) Qutur Su bats, *E. bobrinskoi* and *E. gobiensis* (relatively short and narrow rostrum), and (2) *E. nasutus* and *E. nilssonii* (relative long and wide rostrum). However, the Qutur Su bats, having a relatively shortest and narrowest rostrum within the compared samples, showed to be most similar to the samples of *E. bobrinskoi* (together making the only dimensional overlap), while the other samples displayed a relatively much wider and mostly also longer rostrum.

Finally, the analysis of principal components (PCA) showed very similar results as the above mentioned comparisons (Fig. 6). The PCA of all 38 skull dimensions (PC1 56.84% of variance, PC2 20.42%) selected a group of dimensions with a higher significance for variance (>70%) within the compared set of samples; all measurements (except for ACo) and the folowing indices: LaInf/LCb, ANc/LCb, ACr/LCb, CC/CM^3, M^3M^3/LaI, LaM/LaI, and ACo/LMd. The PCA of these 28 dimensions (PC1 65.85% of variance; PC2 19.00%) clearly separated three clusters of samples (Fig. 6); (1) Qutur Su bats and *E. bobrinskoi* (PC2>0.55), (2) *E. nasutus* (PC1< –0.5), and (3) *E. nilssonii* and *E. gobiensis* (PC1>0.1; PC2<0.55).

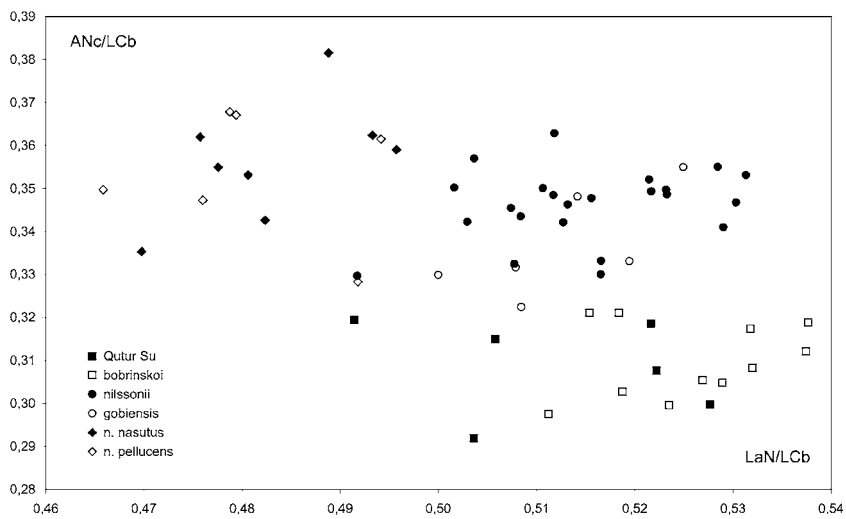

Fig. 4. Scatter plot of the relative width of neurocranium (LaN/LCb) against the relative height of neurocranium (ANc/LCb) in the compared samples of smaller *Eptesicus* species of the western Palaearctic.
Obr. 4. Srovnání relativní šířky mozkovny (LaN/LCb) proti relativní výšce mozkovny (ANc/LCb) jedinců malých druhů rodu *Eptesicus* západní Palearktidy.

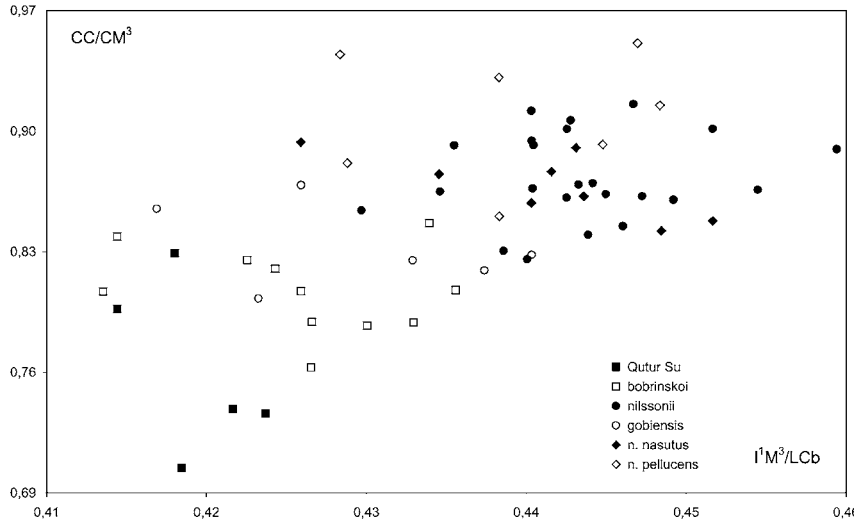

Fig. 5. Scatter plot of the relative length of rostrum (I^1M^3/LCb) against the relative width of rostrum (CC/CM^3) in the compared samples of smaller *Eptesicus* species of the western Palaearctic.
Obr. 5. Srovnání relativní délky rostra (I^1M^3/LCb) proti relativní šířce rostra (CC/CM^3) jedinců malých druhů rodu *Eptesicus* západní Palearktidy.

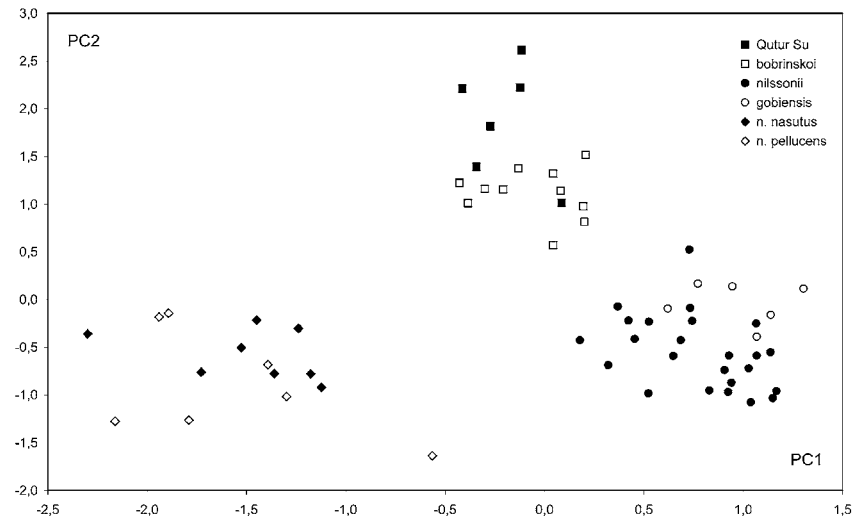

Fig. 6. Results of the principal component analysis of skull dimensions in the compared samples of smaller *Eptesicus* species of the western Palaearctic. For details see Results.
Fig. 6. Výsledky analysy hlavních proměnných lebečních rozměrů jedinců malých druhů rodu *Eptesicus* západní Palearktidy.

All presented morphometric comparisons showed the Qutur Su bats to be very similar in their skull characters to the samples of *E. bobrinskoi* from central Kazakhstan, and clearly distinguished them from all other comparative samples of *Eptesicus* from the western Palaearctic.

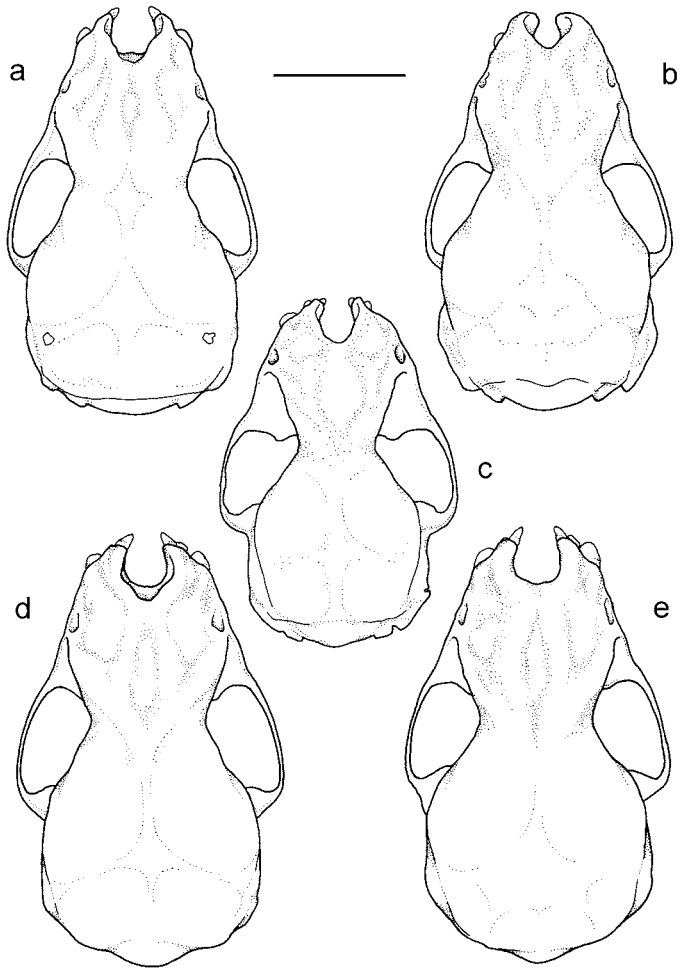

Fig. 7. Skulls of small representatives of the genus *Eptesicus* of the western Palaearctic; in dorsal views. Scale bar = 5 mm.
Obr. 7. Lebky malých zástupců rodu *Eptesicus* západní Palearktidy; v dorsálním pohledu. Měřítko = 5 mm.
Legend / legenda: a – *E. bobrinskoi* (NMP 90890, female, Qutur Su, NW Iran); b – *E. bobrinskoi* (ZIN 61694, male, Aryskumy Desert, C Kazakhstan); c – *E. nasutus* (NMP 48404, female, Pir Sohrab, Baluchestan, SE Iran); d – *E. gobiensis* (CUP CT84/25, female, Ala-Arča NR, N Kirghizia); e – *E. nilssonii* (NMP 91122, female, Vrbno near Blatná, SW Bohemia, Czech Republic).

Figs. 7, 8 show examples of skulls of the five compared *Eptesicus* populations and/or taxa. The differences among the morphotypes resulting from the above analyses are well observable also in these drawings. Besides the distinctions in dimensions (Table 2), the particulars in the shapes of braincase and rostrum in the Qutur Su bats and *E. bobrinskoi* (an extremely low braincase, a distinct areal ratio between frontal and parietal parts of the braincase, a relatively small external auditory orifice, flattened frontal bones, narrow zygomatic arches, relative slender teeth, a flattened facial part of the skull, a relatively very narrow mesial part of the rostrum, shapes of supraorbital ridges, shapes of orbital processes of the zygomata) clearly differ from other compared bats. *E. nasutus* is most distinct, in comparison with the previous morphotype it has relatively much wider zygomatic arches but a much narrower braincase with smaller frontal and larger parietal bones, much narrower zygomata, a more massive lambda, more massive teeth (and of course, a unicuspidal first upper incisor) and a very short and high ante-orbital part of the rostrum with distinct supracanine swellings. Some of these differences were also observed by Harrison (1963), see this paper also for distinctions in some external features. The skulls of two very similar morphotypes, *E. nilssonii* and *E. gobiensis*, differ from the Qutur Su bats and *E. bobrinskoi* mainly in the relatively and absolutely much higher braincase and rostrum, distinct frontal concavities, a relatively large external auditory orifice, relatively wider mesial

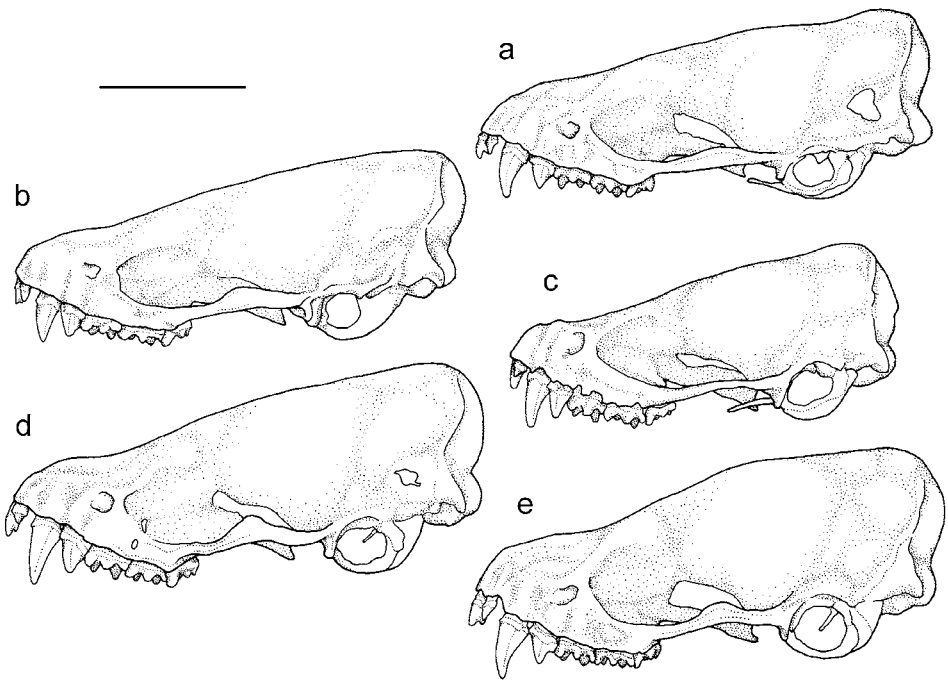

Fig. 8. Skulls of small representatives of the genus *Eptesicus* of the western Palaearctic; in lateral views. Scale bar = 5 mm. For legend see Fig. 7.
Obr. 8. Lebky malých zástupců rodu *Eptesicus* západní Palearktidy; v laterálním pohledu. Měřítko = 5 mm. Legenda viz obr. 7.

parts of the rostrum, more developed orbital processes of the zygomata and more massive teeth (Figs. 7, 8). As stressed above, these two pairs of morphotypes also clearly differ in their lengths of forearm (Table 2).

A baculum was extracted (Fig. 9a) from the only male among the newly collected Qutur Su bats (NMP 90892). It is a small bone, having a shape of a 'cognac bottle' in the dorsal aspect, 0.70 mm long and 0.45 mm broad in most wide (proximal) part; the constriction of the 'bottle--neck' is 0.17 mm broad. The baculum of the Qutur Su series was earlier described by HARRISON (1963: 307) [No. 5] and HILL & HARRISON (1987: 296) [BMNH 63.1187], however, drawings of these descriptions differ. The newly prepared baculum rather corresponds in its shape and size to that depicted by HILL & HARRISON (1987), and also to one of the preparations of *E. bobrinskoi* from central Kazakhstan published by STRELKOV (1986, 1989) (Fig. 9). STRELKOV (1989) gave the following length and width ranges of baculum in *E. bobrinskoi*: 0.62–0.72 mm, and 0.37–0.50 mm, respectively. However, the bacula of the Qutur Su bats (HARRISON 1963, HILL & HARRISON 1987, own data) as well as of *E. bobrinskoi* (STRELKOV 1986, 1989) resemble in their

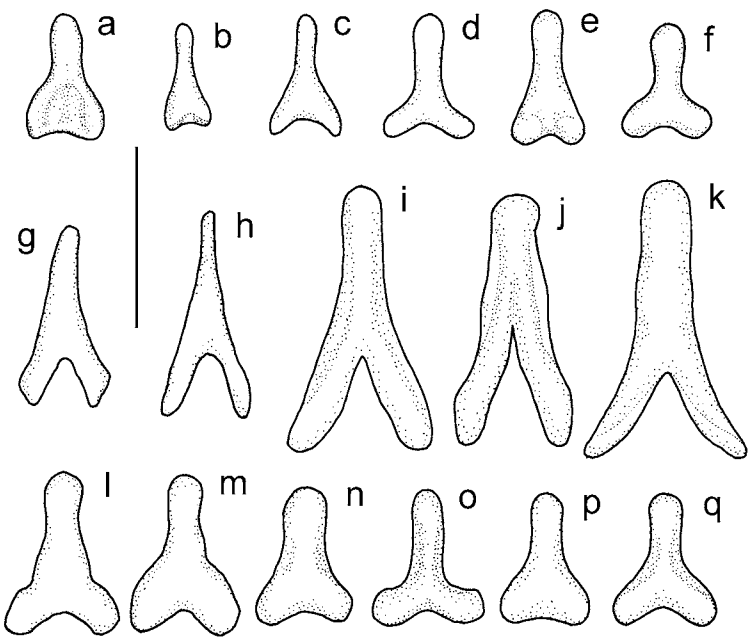

Fig. 9. Bacula of small representatives of the genus *Eptesicus* of the western Palaearctic; in dorsal views. Scale bar = 1 mm. a – original, b – after HARRISON (1963), c, g – after HILL & HARRISON (1987), d–f and h–q – after STRELKOV (1989).

Obr. 9. Bakula malých zástupců rodu *Eptesicus* západní Palearktidy; v dorsálním pohledu. Měřítko = 1 mm. a – originál, b – podle HARRISONA (1963), c, g – podle HILLA & HARRISONA (1987), d–f, h–q – podle STRELKOVA (1989).

Legend / legenda: a–c – *E. bobrinskoi* (Qutur Su, Iran); d–f – *E. bobrinskoi* (Kazakhstan); g, h – *E. nasutus* (Oman, 'Near East'); i–k – *E. nilssonii* (Russia, Mongolia); l–q – *E. gobiensis* (Mongolia, East Turkestan, Tajikistan).

shape (but not in size) also those of *E. gobiensis* (Strelkov 1986, 1989), for which Strelkov (1986) gave the dimension ranges 1.20–1.60 mm and 0.72–0.90 mm, respectively. On the other hand, the bacula of *E. nilssonii* and *E. nasutus* completely differ both in their size and shape from the above taxa (Topál 1958, Hill & Harrison 1987, Strelkov 1989; Fig. 9).

It seems to be clear from the above gathered arguments that the series of the Qutur Su bats, both that published by Harrison (1963) and that newly collected by us, belong to the only morphotype. Moreover, this morphotype was found to be identical in many aspects with that of the samples of *E. bobrinskoi* from central Kazakhstan. The original identification of the Qutur Su bats as *E. bobrinskoi* by Harrison (1963) appears to be proved as well as the occurrence of this species in the Middle East.

However, the most important argument from the findings by Hanák & Horáček (1986) (see Introduction) remains, considering the geographical isolation of the region of NW Iran from the core distribution area of *E. bobrinskoi*, i.e. the western and central parts of Kazakhstan (e.g. Strelkov 1980). The shortest distance between Qutur Su and the westernmost Kazakh site (near Kosčagyl, which is, however, 400 km west of the core area, see above) is about 1100 km, taken across the Caspian Sea. Taken round this lake, the distance can be some 1800 km along its eastern coast or 1400 km along the western coast. However, no records of *E. bobrinskoi* are known either in the similar landscape of eastern Azerbaijan on the western coast or in the deserts of Turkmenistan on the eastern coast (Strelkov et al. 1978, Rahmatulina 2005).

It should be mentioned that the habitats of these distant regions are quite different. The Kazakh habitats of occurrence of *E. bobrinskoi* are situated in the zone of northern lowland deserts and semi-deserts (Butovskij et al. 1985), while the Persian locality lies in the high montane zone of alpine meadows in the altitude of around 2500 m (Figs. 1, 2). These regions represent quite distinct landscape types, sharing only some general features as the absence of trees and presumably also a harsh continental climate. The occurrence of one species in two restricted regions differing by their habitats remains enigmatic. A profound faunal investigation in the areas between them, i.e. in the northern parts of the Middle East as well as in Transcaucasia and West Turkestan, is needed to shed light on this phenomenon.

However, several isolated records assigned to the smaller species of *Eptesicus* from the Middle East and adjacent areas have been discussed and/or doubted in the literature (see Hanák & Horáček 1986, Nader & Kock 1990). It is possible that some of these records may pertain to *E. bobrinskoi*.

Only two records of *E. nilssonii* are known from Transcaucasia*; both were published by K. A. Satunin at the end of the 19th century and were tentatively assigned to *E. n. nilssonii* by Hanák & Horáček (1986). The closer record to Qutur Su comes from the approximately 70 km distant Viljaž-Čaj River near Lenkoran in south-eastern Azerbaijan, where *E. nilssonii* was found in 1888 (Satunin 1910). Although this record has been widely considered beyond any doubt (Ognev 1927, 1928, Kuzjakin 1950, 1965, Vereščagin 1959, Strelkov 1963, Hanák & Horáček 1986, Rahmatulina 1990, 2005), it may well be a misidentified specimen. The regions of south-eastern Azerbaijan are covered by similar habitat types as the adjacent parts of Iran, and even by hot deserts in the lowland areas of the lower Kura River. Although

* Ševčenko & Zolotuhina (2005) mentioned a third record of *E. nilssonii* from Transcaucasia: adult male, Georgia, Teberda, 5 July 1978, leg. E. Javrujan. However, the site Teberda lies on the northern slope of the Greater Caucasus in the Kabardino-Balkarskaja Republic, Russia, and not in Georgia. Thus, this record belongs to the main distribution range of *E. nilssonii* in the Caucasus Region (see Hanák & Horáček 1986) and not to the Transcancasianone.

E. nilssonii, rather a boreal bat species, rarely occurs in the Greater Caucasus Range (see the review by Hanák & Horáček 1986), south-eastern Transcaucasia belongs to a distinct faunal zone isolated by semi-deserts and steppes from the north (Rakhmatulina 1995). The second Transcaucasian specimen of *E. nilssonii* was reported by Satunin (1896) from Tiflis (= Tbilisi, Georgia), however, this isolated record seems to be more probable from the zoogeographical point of view than the former one. Since both individuals are kept in scientific collections, see Bukhnikashvili et al. (2004) and Rahmatulina (2005), these records could be revised and their species identification confirmed or disproved, respectively. In question of a possible confusion still remains also the isolated record assigned to *E. nilssonii gobiensis* (= *E. gobiensis*) by Lay (1967) and DeBlase (1980), collected at Sama in the Elborz Mts, N Iran. According to DeBlase (1980), this specimen has a relatively large skull (LCr 15.9 mm) but a relatively short forearm (LAt 37.7 mm), i.e. ratio of these dimensions in a state close to that found in *E. bobrinskoi* (see above). However, this record was accepted by Hanák & Horáček (1986) under DeBlase's (1980) species affiliation.

Nevertheless, a real example of confusion of species identification in the genus *Eptesicus* in the Middle East is a report of '*Eptesicus nilssoni nilssoni*' by Hatt (1959) from Baghdad, Iraq, i.e. from a semi-desert lowland region of Mesopotamia. This record was accepted under Hatt's (1959) species affiliation by several authors (Al-Robaae 1966, Lay 1967, Allison & Gaisler 1982, Hanák & Horáček 1986, Rydell 1993, Duff & Lawson 2004, Simmons 2005), although Harrison (1972) re-identifed the respective specimen as *E. bottae* (Peters, 1869) (see also Nader & Kock 1990 and Harrison & Bates 1991). Similarly, Pocock (1935: 442) determined a small individual of *Eptesicus* from Shanna, Saudi Arabia, as "a specimen apparently referable to *Eptesicus hingstoni* [= *E. bottae hingstoni* Thomas, 1919]", while later on this bat was re-examined as *E. nasutus* (Nader & Kock 1990, Harrison & Bates 1991, this paper). An individual of *E. anatolicus* Felten, 1971 from Mala-i-Mir (= Izeh), SW Iran, was first reported by Thomas (1906) under the name "*Vespertilio* sp., near *V. serotinus*". Later on, it was considered to pertain to *E. bottae* by Lay (1967) and Etemad (1969) and to *E. serotinus shiraziensis* (Dobson, 1871) by Gaisler (1970). Finally, it was correctly identified by DeBlase (1980); see also the analysis by Benda et al. (2006). Other examples of confusion in species identification within the genus *Eptesicus* are mentioned by DeBlase (1980) and Nader & Kock (1990).

In conclusion, we have confirmed the occurrence of *E. bobrinskoi* in Iran, which seems to be isolated from the main distribution range of the species for the time being. However, the extent of this isolation may prove to be smaller after all specimens available are revised and/or more profound faunal explorations are made in the areas filling the geographical gap in between these isolated spots.

SOUHRN

Netopýr turanský (*Eptesicus bobrinskoi* Kusjakin, 1935) je obyvatelem především stepí a polopouští severní části Turanské nížiny mezi Aralským jezerem a Hladovou pouští (zvanou též Betpak-Dala) ve středním Kazachstanu (Butovskij et al. 1985) – z této oblasti pochází asi 90 % všech nálezů druhu. Několik nálezů tohoto netopýra bylo však hlášeno i z jiných oblastí: ze Severní Osetie (severní svah Velkého Kavkazu) a z Jakutska (Kuzjakin 1950), ze severozápadního Iranu (Harrison 1963) a ze západního a severozápadního Kazachstanu (Strelkov 1980, Davygora et al. 1998). Zatímco poslední (kazašské) nálezy jsou bez výhrad akceptovány, zpochybněn byl kavkazský, jakutský a perský nález, přičemž bylo souzeno – většinou zřejmě právem – že se jedná nejspíše o juvenilní jedince netopýra severního, *E. nilssonii* (Keyserling et Blasius, 1839) (Hanák & Horáček 1986).

Autorům se podařilo v červnu 2006 navštívit lázeňské letovisko Qutur Su (38° 20' N, 47° 51' E; 2545 m n. m) v severozápadním Iranu, jedinou známou lokalitu sběru *E. bobrinskoi* v Iranu a na Blízkém východě. Jedinci zde sebraní v roce 1961 jsou uloženi v londýnském Přírodovědeckém museu, jejich nález a určení bylo zveřejněno Harrisonem (1963); později však byli přeurčeni jako mladí jedinci *E. nilssonii* (Hanák & Horáček 1986). Autoři tohoto příspěvku na téže lokalitě nalezli tři mrtvé kusy drobných netopýrů rodu *Eptesicus*, zjevně však nikoli *E. nilssonii*. Proto byli jedinci určení Harrisonem (1963), jakož i nově nalezení, zevrubně porovnáni se srovnávacím materialem všech malých netopýrů rodu *Eptesicus*, obývajících západní Palearktidu: *E. bobrinskoi*, *E. nilssonii*, *E. gobiensis* a *E. nasutus*. Z tohoto srovnání jasně vyplynulo, že zmíněné dvě serie (celkem 10 kusů) netopýrů z Qutur Su představují nepochybně jedince *E. bobrinskoi*.

Potvrzení výskytu netopýra turanského, který představuje zejména faunový prvek nížinných stepí a polopouští, v severozápadním Iranu, navíc na lokalitě ležící v alpinském velehorském pásmu, je velmi překvapivý. Lokalita nálezu v Iranu je nejméně 1400 km vzdálená od nejbližšího místa potvrzeného nálezu *E. bobrinskoi* v Kazachstanu. V příspěvku je diskutována možnost nesprávných určení některých nálezů rodu *Eptesicus* v oblasti vyplňující tuto mezeru (Satunin 1896, 1910, Lay 1967). V případě, že některé z nich ve skutečnosti představují nález netopýra turanského, jeho známý výskyt v Iranu by nemusel být natolik isolován, výskyt druhu v alpinské poloze velehor však záhaným zůstává nepochybně.

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APPENDIX
List of the material examined

Eptesicus nilssonii (Keyserling et Blasius, 1839)

Czech Republic (19). 1 ma (NMP 91133 [S]), Dlouhá Ves, Franz-Franz Mine, Šumperk Dist., 30 January 1959, leg. V. Hanák (cf. Gaisler & Hanák 1972); – 1 fa (NMP 91144 [S+B]), Malé Karlovice, Tísňavy, school attic, Vsetín Dist., 5 June 1973, leg. V. Bejček (cf. Bejček 1975); – 3 ma, 1 ms, 2 fa, 1 fs (NMP 91136, 91138, 91139 [S+B], 91123, 91124, 91126, 91127 [S]), Mariánská Hora, gallery near the Bílá Desná Dam, Jablonec nad Nisou Dist., 24 February 1958, 13 February 1962, 2 December 1964, leg. V. Hanák (cf. Nevrlý 1963, Gaisler & Hanák 1972); – 1 ma (NMP 91128 [S]), Mikulov, Teplice Dist., 13 March 1958, leg. V. Hanák (cf. Gaisler & Hanák 1972); – 1 ma (NMP 91146 [S+B]), Orlické Záhoří, Rychnov nad Kněžnou Dist., 10 February 1977, leg. P. Rybář (cf. Bárta et al. 1981); – 1 fa (NMP 91152 [S]), Pohorská Ves, Žofín, Český Krumlov Dist., 16 June 1973, leg. V. Vohralík (cf. Anděra & Hanák

2004); – 1 fa (NMP 91140 [S]), Rokytnice v Orlických horách, Hanička Fortress, Rychnov nad Kněžnou Dist., 22 January 1965, leg. J. Sklenář (cf. Sklenář 1969, Gaisler & Hanák 1972); – 1 ma (NMP 91132 [S+B]), Suchá Rudná, mine, Bruntál Dist., 30 January 1959, leg. V. Hanák (cf. Souček 1970); – 1 ind. a (NMP 91151 [S]), Šumava Mts (SW Bohemia), leg. J. Červený; – 2 fa (NMP 91121, 91122 [S+B]), Vrbno near Blatná, Strakonice Dist., 4 and 5 June 1956, leg. V. Hanák (cf. Hanák 1959); – 1 ma, 1 ms (NMP 91130, 91131 [S]), Zlaté Hory, Poštovní Mine, Bruntál Dist., 29 January 1959, leg. V. Hanák (cf. Gaisler & Hanák 1972).
Slovakia (5). 2 fa (NMP 91135 [S+B], 91134 [S]), Demänovská Dolina, Dračia jaskyňa [= Demänovská Ice Cave], Liptovský Mikuláš Dist., 14 February 1961, leg. V. Hanák (cf. Gaisler & Hanák 1972); – 1 ma, 1 ms (NMP 91142, 91143 [S+B]), Dobšiná, Dobšinská Ice Cave, Rožňava Dist., 16 February 1968, leg. V. Hanák (cf. Gaisler & Hanák 1972); – 1 ma (NMP 91145 [S+B]), Tatranská Javorina, Muránska jaskyňa Cave, Poprad Dist., 13 December 1973, leg. J. Gaisler & V. Hanák (cf. Zukal & Gaisler 1991).

***Eptesicus gobiensis* Bobrinskoj, 1926**

Kirghizia (6). 6 fa (CUP CT84/24–29 [S+A]), Ala-Arča Nature Reserve, 1990–2000 m a. s. l., ca. 40 km S of Biškek, 30 June 1984, leg. J. Červený & I. Horáček.

***Eptesicus bobrinskoi* Kusjakin, 1935**

Iran (10). 3 ma, 2 ms, 2 fa, 3 fs (BMNH 63.1186–1192, NMP 90890–90892 [S+A]), Qutur Su (N slope of the Mt. Sabalan, 2545 m a. s. l.), ca. 20 km ESE of Meshgin Shahr, Ardabil Prov., 21 August 1961, leg. Aberystwyth University Expedition (cf. Harrison 1963), 5 June 2006, leg. P. Benda & A. Reiter.
Kazakhstan (11). 1 ma (ZIN 61694 [S+B]), Aryskumy Desert, 27 km SSE of Mustafa, 160 km N of Kzyl-Orda, Kzyl-Ordinskaja Region, 25 July 1974, leg. I. I. Stogov (cf. Strelkov 1980); – 1 fa (ZIN 62247 [S+B]), 10 km NW of Čelkar, Aktjubinskaja Region, 18 June 1975, leg. P. P. Strelkov (cf. Strelkov 1980); – 1 ma, 1 fa (ZIN 65104, 65121 [S+B]), between Džilandy and Kense, Sarysu River, Žetykanur Desert, 120 km SSE of Džezkazgan, Džezkazganskaja Region, 13 June 1977, leg. P. P. Strelkov (cf. Strelkov 1980); – 1 ma (ZIN 68618 [S+B]), Karakum Meteorologic Station, Bokdok Valley, 180 km N of Džusaly, Džezkazganskaja Region, 21 June 1980, leg. P. P. Strelkov (cf. Strelkov & Šajmardanov 1983); – 6 fa (ZIN 62240–62242, 62244–62246 [S+B]), Žetybaj well, 150 km N of Kzyl-Orda, Kzyl-Ordinskaja Region, 5 & 8 June 1975, leg. P. P. Strelkov (cf. Strelkov 1980).

***Eptesicus nasutus* (Dobson, 1877)**

Afghanistan (1). 1 ma (BMNH 68.475 [S+B]), Bisut, nr. Jalalabad, 34° 26' N, 70° 25' E, 7 April 1967, leg. J. Gaisler (cf. Gaisler 1970).
Iran (11). 3 m (BMNH 5.10.4.2, 5.10.4.4 [holotype of *Vespertilio matschiei pellucens* Thomas, 1906], 5.10.4.6 [S+B]), Ahwaz, Karun River, Arabistan [= Khuzestan Prov.], 220 ft, 28 March 1905, leg. R. Woosnam (cf. Thomas 1906); – 1 ma, 2 fa (NMP 48437, 48438 [S+A], JOC [pb1722] [Sk]), 15 km E of Dehbarez, ca. 22 km W of Manujan, Kerman Prov., 17 April 2000, leg. P. Benda & A. Reiter; – 1 ma, 4 fa (NMP 48404–48408 [S+A]), Pir Sohrab, ca. 60 km NE of Chabahar, Baluchestan-ve-Sistan Prov., 12 April 2000, leg. P. Benda & A. Reiter.
Iraq (2). 1 fa (BMNH 19.3.1.2 [S+A]; holotype of *Eptesicus walli* Thomas, 1919), Basra, leg. F. Wall (cf. Thomas 1919); – 1 m (BMNH 36.4.14.13 [S+B]), Zubier, Mesopotamia, 2 March 1921, leg. R. E. Cheesman (cf. Harrison 1964).
Oman (1). 1 fa (BMNH 68.1356 [S+B]; holotype of *Eptesicus nasutus batinensis* Harrison, 1968), Harmul, 10 mls N of Sohar, 26 March 1967, leg. C. Seton-Browne (cf. Harrison 1968);
Saudi Arabia (2). 1 ma (BMNH 48.350 [S+B]), nr. Jedda, 200 ft., 4 July 1948, leg. G. B. Popov (cf. Harrison 1964); – 1 ind. a (BMNH 34.8.8.1 [S+A]), Shanna, Arabia, [22 February], leg. J. Philby (cf. Pocock 1935).
Yemen (1). 1 m (BMNH 99.11.6.19. [S+B]; holotype of *Vespertilio matschiei* Thomas, 1905), Jimel, W. Aden, 850 m, 16 August 1899, leg. W. Dodson (cf. Thomas 1905).