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Mice of the Genus *Apodemus* in Jordan

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> Abstract

The present study provides additional data on the distribution of two species of the genus *Apodemus* in Jordan, the Eastern Broad-toothed Field Mouse, *A. mystacinus* and the newly recorded Yellow-necked Field Mouse, *A. flavicollis* and contributes to the taxonomy of the genus in Jordan. Distribution ranges with notes on habitat preference are provided for both species. Comparative external and cranial measurements as well as skull illustrations for both *Apodemus flavicollis* and *A. mystacinus* are provided. The status of *A.* "*hermonensis*" is briefly revised.

> Zusammenfassung

Die vorliegende Arbeit unterbreitet zusätzliche Daten über die Verbreitung von zwei Arten der Gattung *Apodemus* in Jordanien, *A. mystacinus* und der neu nachgewiesenen *A. flavicollis,* sowie zur Taxonomie der Gattung in Jordanien. Die Verbreitungsgrenzen und Bemerkungen zu den Habitatpräferenzen werden mitgeteilt. Von beiden Arten, *Apodemus flavicollis* und *A. mystacinus,* werden sowohl vergleichende Skelett- und Schädelmaße als auch Schädelabbildungen vorgestellt. Der Status von *A.* "*hermonensis*" *w*ird revidiert.

> Key words

Apodemus flavicollis, *A. mystacinus*, Jordan, Rodentia, Muridae.

Introduction

Members of the Genus *Apodemus* Kaup, 1829, are well spread in the temperate woodlands and fields of the Palaearctic region. The systematics, evolutionary history and taxonomy of the genus have been extensively studied throughout most of its range (Musser & Carleton, 2005).

In Jordan, the genus is represented by two species, namely *A. mystacinus* and *A. hermonensis* (reported as *A. witherbyi* by Musser & Carleton, 2005). The latter species has been only recently recorded from Ajlun Mountain, northern Jordan, relying on the biometrical analysis of two subadult female specimens (Benda & Sadlova, 1999). *Apodemus mystacinus* has been reported from several localities within the forested eastern mountains, including Dibbin, Ajlun, Salt, Dana and Zubya (Atallah, 1978; Harrison & Bates, 1991; Amr & Disi, 1988; Qumsiyeh, 1996; Amr, 2000; Yousef & Amr, 2005). All these habitats enjoy rich oak-dominated forests. Benda & Sadlova (1999) collected specimens of this species from Ajlun Mountain.

Here, we confirm the occurrence of the Yellow-necked Field Mouse, *Apodemus flavicollis* through morphological and cranial studies of specimens collected from northern Jordan. Skull, dental illustrations and craniometric measurements for *A. flavicollis* and *A. mystacinus* are presented.

Materials and methods

Specimens were collected from the northern Mediterranean region of Jordan from three locations (Fig. 1): Kufr Khall area (32° 22' N 35° 53' E), Dibbin Nature Reserve (32° 15' N 35° 50' E) and Birqish forests (32° 26' N 35° 44' E). These areas are dominated by

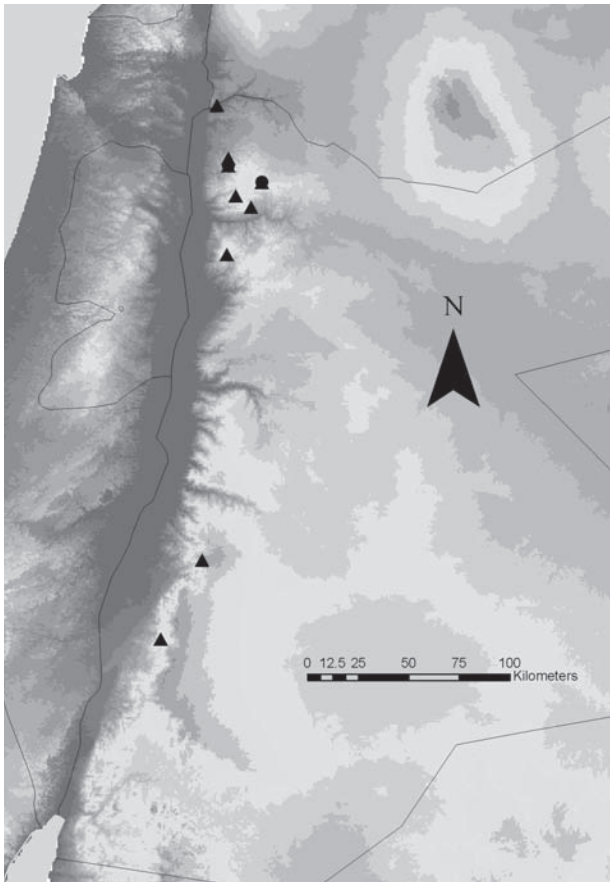

Fig. 1. Distribution of *Apodemus flavicollis* (■) and *Apodemus mystacinus* (▲) in Jordan.

oak (*Quercus calliprinos, Qu. ithaburensis*) and pistachio trees (*Pistacia palaestina*). Altitude ranges from 600 to 1000m a.s.l., annual rainfall reaches 600mm and *terra rosa* is the dominant soil type.

Animals were live-trapped using Sherman traps (23×9×7.5 cm) baited with oatmeal and peanut butter. Specimens were identified using external and cranial features and measurements. Four external measurements: Head-body length (HB), Total length (TL), Tail length (T), Hind foot length (HF) and Ear length (E). As well as fifteen cranial measurements: Greatest skull length (GSL), Condylobasal length (CBL), Basal length (BL), Braincase breadth (BB), Interorbital constriction (IC), Zygomatic breadth (ZB), Diastema length (DL), Maxillary tooth row length (MXT), Anterior palatal foramen (APF), Posterior palatal foramen (PPF), Tympanic bullae length (TBL), Tympanic bullae width (TBW), Mandibular diastema (MD), Mandible length (M) and Mandibular tooth row length (MDT), and body weight (Wt) were measured.

Cranial measurements were taken by a dial caliper (to the nearest 0.01 mm) and drawings of skulls and dentition were done under a dissecting microscope using a camera lucida. Morphological identification was based mainly on cranial and dental characters given by FILIPPUCCI *et al*. (1996)

Results

Between 1999 and 2004, a total of 88 specimens belonging to the genus *Apodemus* were collected from the study areas. 19 specimens were identified as *Apodemus flavicollis* and 69 as *A. mystacinus*. Measurements were taken for only adult specimens. All specimens were deposited at the Field Museum of Natural History (FMNH) in Chicago, USA.

Apodemus flavicollis (Melchior, 1834) Yellow-necked Field Mouse

FMNH 179099, 27 NOV 1999, m, sno, Kufr Khall; FMNH 179100, 1 DEC 1999, m, ssl, Kufr Khall; FMNH 179101, 31 MAR 2003, f, ssl, Kufr Khall; FMNH 179083, 25 APR 2004, f, ssk, Kufr Khall; FMNH 179084, 25 APR 2004, f, ssk, Kufr Khall; FMNH 179085, 25 APR 2004, f, ssk, Kufr Khall; FMNH 179086, 25 APR 2004, f, ssk, Kufr Khall; FMNH 179087, 25 APR 2004, f, ssk, Kufr Khall; FMNH 179088, 25 APR 2004, m, ssk, Kufr Khall; FMNH 179089, 2 MAY 2004, f, ssk, Kufr Khall; FMNH 179090, 2 MAY 2004, f, ssk, Kufr Khall; FMNH 179091, 2 MAY 2004, f, ssk, Kufr Khall; FMNH 179092, 2 MAY 2004, m, ssk, Kufr Khall; FMNH 179093, 2 MAY 2004, f, ssk, Kufr Khall; FMNH 179094, 2 MAY 2004, m, ssk, Kufr Khall; FMNH 179095, 2 MAY 2004, m, ssk, Kufr Khall; FMNH 179096, 2 MAY 2004, f, ssk, Kufr Khall; FMNH 179097, 13 JUN 2004, m, alc, Berqish; FMNH 179098, 13 JUN 2004, f, alc, Berqish. (m: male; f: female; sno. skin only, ssl. skull only, ssk. skin and skull, alc. specimen preserved in alcohol).

This species is relatively small in size, with head-body length between 89 and 106 mm and skull length of 25–27mm in adult specimens (Table 2). The skull and cheek-teeth are very similar in structure but smaller than those of *A. mystacinus* (Fig. 2); collected specimens exhibited a large tympanic bulla, ranging between 4.81 and 5.3mm (Table 2, Fig 5). Anterior palatal foramina are long 4.33–5.4mm (Table 2), APF exceeded the posterior line connecting the anterior margins of the M_1 alveoli in 8 specimens and was exactly on the line in 7 specimens. Posterior margin of the palatine and its passages into the medial pterygoid plates is rounded and narrow. The connecting ridges between the anterior and second cusp row on M_1 are missing in all specimens (see Fig. 2).

Dorsal fur coloration is pale buffy-brown to fulvous yellowish brown (Fig. 3), Hair basis is grey. Ventral colour is white with an orange fulvous to yellowish brown small spot on the neck. Chest spots varied in size; however no specimen showed a complete collar (Fig. 3). Young and immature specimens exhibit light yellow spot around the throat. Hind foot length aver-

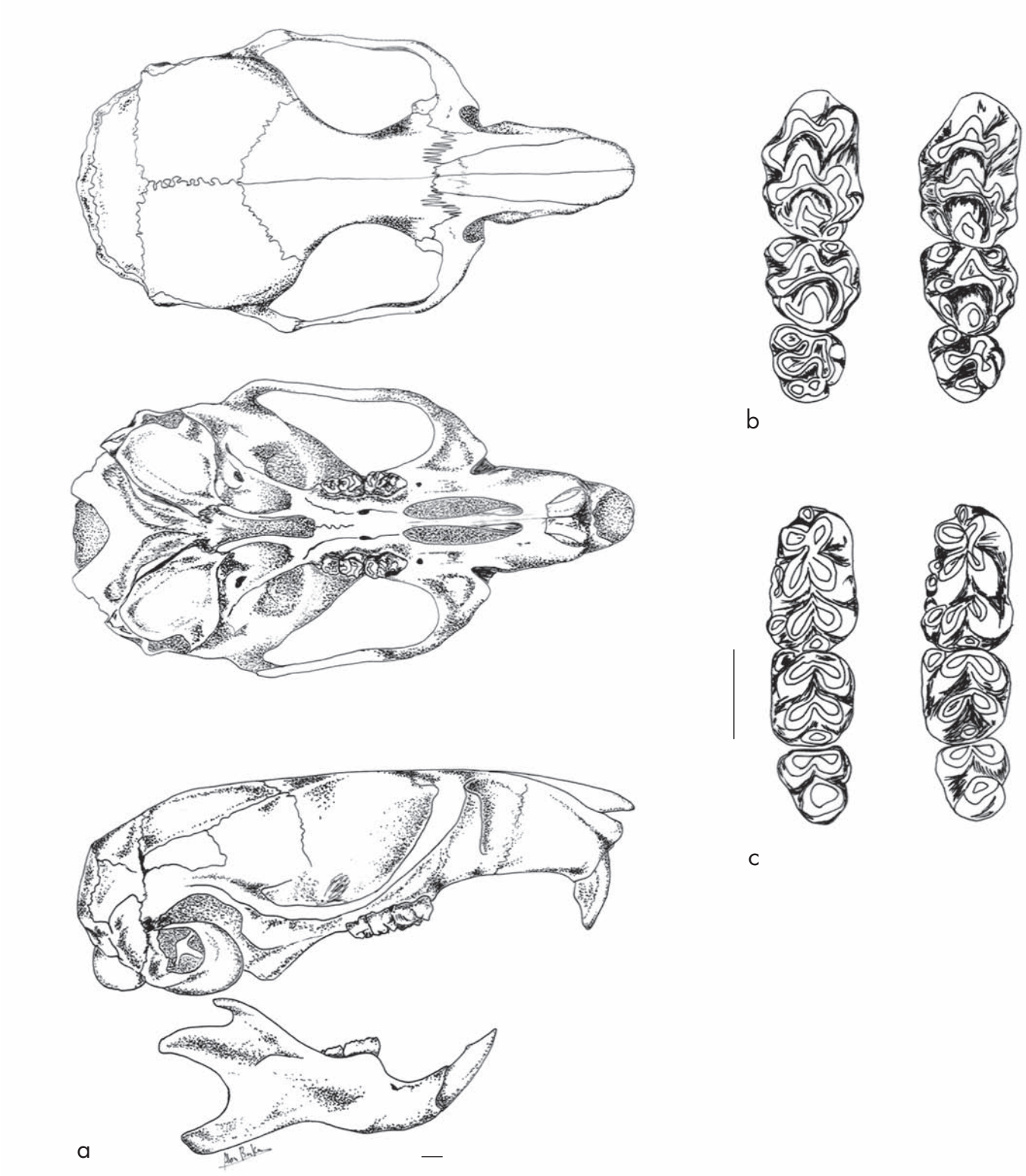

Fig. 2. **a**. Dorsal, ventral and lateral views of a skull and a lower jaw of *Apodemus flavicollis* from Jordan (specimen no. FMNH17 9101), **b**. maxillary and **c**. mandibular tooth row. Scale bar 1mm.

aged 22.8mm. Tail is longer than head and body length in ten specimens (same length or absent in the rest of the specimens).

A. flavicollis was trapped around Jarash and Berqish areas in some disconnected forest patches consisting of *Quercus calliprinos*, *Pistacia palaestina*, *Poterium spinosum* and *Cistus* sp. It was found to coexist with *A. mystacinus* at higher altitudes, where tree-cover is less thicker. Its burrows were identified on open soils, under bushes of *Cistus* sp. or rocks. Juveniles were collected in May.

Fig. 3. *Apodemus flavicollis* collected from Bergish area, north of Jordan. On upper right side showing variation in size of pectoral spot.

Apodemus mystacinus (Danford & Alston, 1877) Eastern Broad-toothed Field Mouse

FMNH 179147, 27 NOV 1999, m, ssl, Kufr Khall; FMNH 179148, 27 NOV 1999, f, ssl, Kufr Khall; FMNH 179149, 1 DEC 1999, f, ssl, Kufr Khall; FMNH 179150, 1 DEC 1999, f, ssl, Kufr Khall; FMNH 179151, 1 DEC 1999, m, ssl, Kufr Khall; FMNH 179152, 1 DEC 1999, m, ssl, Kufr Khall; FMNH 179153, 2 APR 2001, m, ssl, Hemmah, Yarmouk river bank; FMNH 179154, 18 OCT 2003, f, ssl, Zubya; FMNH 179155, 18 OCT 2003, f, ssl, Zubya; FMNH 179156, 18 OCT 2003, f, ssl, Zubya; FMNH 179157, 18 OCT 2003, f, ssl, Zubya; FMNH 179158, 18 OCT 2003, m, ssl, Zubya; FMNH 179159, 18 OCT 2003, m, ssl, Zubya; FMNH 179160, 18 OCT 2003, f, ssl, Zubya; FMNH 179161, 18 OCT 2003, m, ssl, Zubya; FMNH 179162, 18 JUN 2003, f, slo, Dibbin Nature Reserve; FMNH 179163, 18 JUN 2003, f, ssl, Dibbin Nature Reserve; FMNH 179164, 18 JUN 2003, m, ssl , Dibbin Nature Reserve; FMNH 179165, 18 JUN 2003, f, slo, Dibbin Nature Reserve; FMNH 179166, 18 JUN 2003, m, ssl, Dibbin Nature Reserve; FMNH 179167, 18 JUN 2003, m, ssl, Dibbin Nature Reserve; FMNH 179168, 18 JUN 2003, f, ssl, Dibbin Nature Reserve; FMNH 179169, 18 JUN 2003, f, ssl, Dibbin Nature Reserve; FMNH 179170, 2 APR 2001, m, ssl, Hemmah, Yarmouk river bank; FMNH 179171, 13 MAR 2003, f, ssl, Kufr Khall; FMNH 179172, 13 MAR 2003, f, slo, Kufr Khall; FMNH 179103, 25 MAR 2004, m, ssk, Berqish; FMNH 179104, 25 MAR 2004, f, ssl, Berqish; FMNH 179105, 25 MAR 2004, m, ssk, Berqish; FMNH 179106, 25 MAR 2004, f, ssl, Berqish; FMNH 179107, 25 MAR 2004, m, ssl, Berqish; FMNH 179108, 25 MAR 2004, m, ssk, Berqish; FMNH 179109, 25 MAR 2004, m, slo, Berqish; FMNH 179110, 26 MAR 2004, f, ssk, Berqish; FMNH 179111, 26 MAR 2004, f, ssk, Berqish; FMNH 179112, 26 MAR 2004, m, ssk, Berqish; FMNH 179113, 2 MAY 2004, m, ssk, Kufr Khall; FMNH 179114, 2 MAY 2004, f, ssk, Kufr Khall; FMNH 179115, 2 MAY 2004, m, ssk, Kufr Khall; FMNH 179116, 2 MAY 2004, m, ssk, Kufr Khall; FMNH 179117, 25 MAR 2004, f, ssk, Berqish; FMNH 179118, 25 MAR 2004, f, ssk, Berqish; FMNH 179119, 25 MAR 2004, f, ssk, Berqish; FMNH 179120, 25 MAR 2004, f, ssk, Berqish; FMNH 179121, 25 MAR 2004, m, ssk, Berqish; FMNH 179122, 25 MAR 2004, f, ssk, Berqish; FMNH 179123, 25 MAR 2004, f, alc, Berqish; FMNH 179124, 31 MAR 2003, m, alc, Kufr Khall; FMNH 179125, 31 MAR 2003, m, alc, Kufr Khall; FMNH 179126, 31 MAR 2003, m, alc, Kufr Khall; FMNH 179127, 31 MAR 2003, f, alc, Kufr Khall; FMNH 179128, 13 JUN 2004, m, alc, Berqish; FMNH 179129, 13 JUN 2004, m, alc, Berqish; FMNH 179130, 13 JUN 2004, f, alc, Berqish; FMNH 179131, 13 JUN 2004, f, alc, Berqish; FMNH 179132, 13 JUN 2004, m, alc, Berqish; FMNH 179133, 13 JUN 2004, f, alc, Berqish; FMNH 179134, 13 JUN 2004, f, alc, Berqish; FMNH 179135, 13 JUN 2004, m, alc, Berqish; FMNH 179136, 13 JUN 2004, f, alc, Berqish; FMNH 179137, 13 JUN 2004, m, alc, Berqish; FMNH 179138, 13 JUN 2004, f, alc, Berqish; FMNH 179139, 13 JUN 2004, m, alc, Berqish; FMNH 179140, 13 JUN 2004, m, alc, Berqish; FMNH 179141, 13 JUN 2004, f, alc, Berqish; FMNH 179142, 15 JUN 2004, m, alc, Dibbin Nature Reserve; FMNH 179143, 15 JUN 2004, f, alc, Dibbin Nature Reserve; FMNH 179144, 15 JUN 2004, f, alc, Dibbin Nature Reserve; FMNH 179145, 15 JUN 2004, m, alc, Dibbin Nature Reserve; FMNH 179146, 15 JUN 2004, f, alc, Dibbin Nature Reserve. (m: male; f: female; sno. skin only, ssl. skull only, ssk. skin and skull, alc. specimen preserved in alcohol).

Tab. 1. Body and cranial measurements for specimens of *A. mystacinus* from Jordan (measurements in mm).

	average	STDV	min	max	number
TL	224.60	14.23	200	259	47
HB	106.43	7.36	92	121	51
T	117.52	9.38	103	139	48
HF	25.20	1.02	23	27	51
E	18.27	1.77	14	20	51
WT	30.80	5.56	21	45	51
GSL	30.27	0.98	28.2	32.2	26
CBL	29.45	1.07	27.13	31.7	26
BL	24.99	0.99	22.92	27.4	26
BB	13.38	1.11	12.6	18.6	26
IC	4.58	0.16	4.3	5	28
ZB	15.09	0.66	13.9	16.7	25
DL	7.92	1.03	6.8	12.6	27
MXT	4.68	0.16	4.33	5	28
APF	6.06	0.32	5.3	6.62	28
PPF	0.65	0.11	0.4	1	28
TBL	5.03	0.24	4.42	5.5	28
TBW	4.27	0.33	3.7	4.9	27
MD	3.72	0.24	3.2	4.29	27
M	15.47	0.77	14	16.9	27
MDT	4.70	0.13	4.52	5	25

This species is readily distinguished from other members of the genus by its robust size. Head-body length exceeding 92 mm (Table 1). The tail is slightly long, totalling 103–139 mm. Dorsal fur colour is dark greyish with faint brownish tinges on the sides of older individuals. Ventral side is white, with no chest spot; the dorsal-ventral line of demarcation is distinctly sharp. Ears are large. The skull is larger than those of the other representatives of the genus (Fig. 4), Skull length exceeds 28mm (28.2–32.2). The anterior palatal foramen is wide open, while the tympanic bulla is moderately large (Fig. 4).

A. mystacinus occurs throughout the natural forests of the Mediterranean mountains of Jordan, extending from the Yarmouk River area southwards to the Dana Nature Reserve and Petra, south east of the Dead Sea. It was found to prefer dense humid oak forests with or without the presence of pistachio trees or pines. High numbers of *A. mystacinus* were collected in thick-covered wadis in Zubya and Berqish areas (both on the ground and on trees). Burrows of this species were found under small rocky boulders or under piles of rocks, empty oak acorns always marked their openings. Open nests were also seen inside caves. Females showing perforated vagina were collected in October, while sub-adults were collected in July.

Discussion

In the southern Asiatic coasts of the eastern Mediterranean, the genus is represented mainly by three species, namely *Apodemus flavicollis*, *A. witherbyi* and *A. mystacinus*. Except for the problematic *A.* "*hermonensis*", the other three species fall into the subgenus *Sylvaemus* group (Musser & Carleton, 2005). Musser & Carleton (2005) excluded *A. sylvaticus* from the fauna of the Middle East and considered the three species (*A. flavicollis*, *A. mystacinus* and *A. witherbyi*) as the only members of the genus *Apodemus* in the area. Distinguishing individuals from sympatric populations of three species according to external features has been stated as difficult and challenging by many authors as they show close resemblance in their morphological characters (Michaux *et al*., 2001). Filippucci *et al*. (1996) used morphological features of the skin, skull and dentition to prove the occurrence of five species in western Anatolia. They demonstrated the usefulness of using crown lengths of upper molars and bulla lengths in distinguishing populations from western Anatolia (Filippucci *et al*., 1996). Body size, dorsal coloration and skull length were used by Harrison & Bates (1991) and Qumsiyeh (1996) to differentiate between three species of the genus that are known to coexist in the area (*A. sylvaticus*, *A. flavicollis* and *A. mystacinus*).

Many recent studies have focused on the systematic, phylogenetic and morphometric analysis of the genus throughout its range (e.g. Filippucci *et al*., 1996, 2002; Kryštufek & Stojanovski, 1996; Musser *et al*., 1996; Orlov *et al*., 1996; Mezhzherin, 1997; Zagorodnyuk *et al*., 1997; Chelomina, 1998; Michaux *et al*., 1998; 2002; 2004; Bellinvia *et al*., 1999; Serizawa *et al*., 2000; Macholán *et al*., 2001; Vohralík *et al*., 2002; Barèiová & Macholán, 2006). Despite that, questions on the phylogenetic relationships within the *Sylvaemus* group remain unresolved (Barèiová & Macholán, 2006). Allozymic and biometric analyses of species of the genus *Apodemus* resulted in the description of a new species, *Apodemus hermonensis* from Mount Hermon in the upper Golan Heights (Filippucci *et al*., 1989). The authors considered the new species to be morphologically and genetically closely related to *A. flavicollis*, which it displaces on Mt Hermon. Qumsiyeh (1996) considered *A. hermonensis* as a younger synonym of *A. flavicollis*, he considered the degree of genetic differentiation as insufficient to distinguish two separate species. Kryštufek (2002) showed that *A. hermonensis* is predated by several names, of which *Apodemus sylvaticus iconicus* Heptner, 1948 may represent the oldest name. This name was later replaced by another possible senior synonym (*Mus sylvaticus witherbyi* Thomas, 1902 from Iran) as the oldest avail-

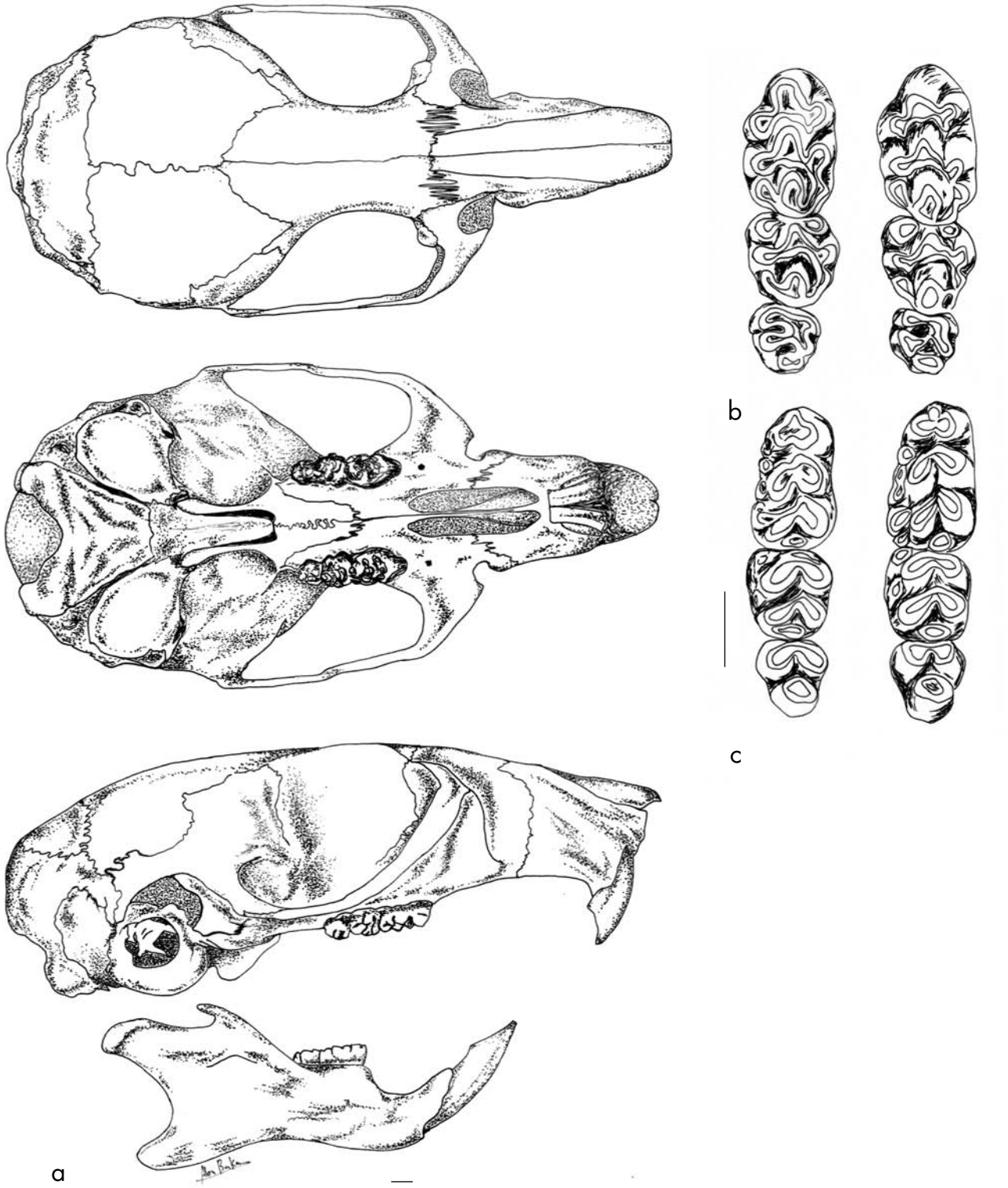

Fig. 4. **a**. Dorsal, ventral and lateral views of a skull and a lower jaw of *Apodemus mystacinus* from Jordan (specimen no. FMNH 179158), **b**. maxillary and **c**. mandibular tooth row. Scale bar 1mm.

able name for this species (KRYŠTUFEK & MOZETIČ FRANCKY, 2005). MUSSER & CARLETON (2005) considered *A. hermonensis* as a junior synonym of *Apodemus witherbyi* (THOMAS, 1902). KRYŠTUFEK & MOZETIČ FRANCKY (2005) are in support of the hypothesis that *A. sylvaticus* (LINNAEUS,1758) is absent from the Asiatic coasts of the eastern Mediterranean, being represented instead by the newly described *A. hermonensis* FILIPPUCCI, SIMSON & NEVO, 1989.

Our findings of *A. flavicollis* represent the first record of this species from Jordan. The morphology of collected specimens compare well with previous reports from the Middle East and western Anatolia (HARRISON & BATES, 1991; FILIPPUCCI *et al*., 1996). They are

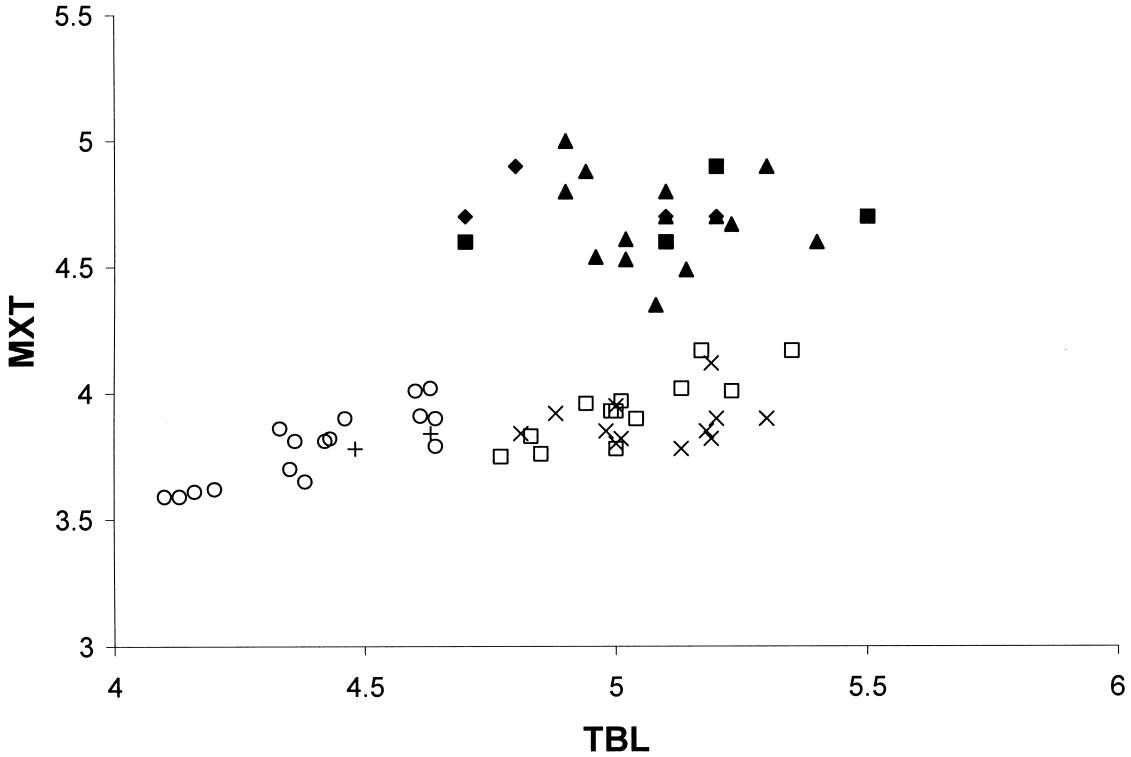

Fig. 5. Scattered diagram of cranial measurements (maxillary tooth-tow, MXT against tympanic bullae length, TBL) for populations of the genus *Apodemus* from Jordan compared with *A. hermonensis* (+) reported by Benda and Sadlova (1999), *A. hermonensis* (○) after Filippucci *et al*. (1996), *A. flavicollis* (□) after Filippucci *et al*. (1996). Specimens from Jordan also refer to; *A. mystacinus* collected from Kufr Khall (♦), Dibbin Nature Reserve (■) and Birqish (▲) and *A. flavicollis* collected from Kufr Khall and Birqish (x). Measurements in mm.

distinguished from *A. mystacinus* by both external characters and smaller cranial measurements and from *A. witherbyi* by their larger tympanic bulla (Fig. 5). In Europe *A. flavicollis* is characterized by a yellowish red complete collar, while in southern Europe and the Middle East it is reduced to a pectoral spot (Filippucci *et al*., 1989). Mendelssohn & Yom-Tov (1999) stated that the throat spot of specimens classified as *A. flavicollis* is more similar to that shown by European *A. sylvaticus* than to the collar shaped spot reported for European *A. flavicollis*; as a consequence they suggested that these specimens should be referred to as *A. sylvaticus*

External and cranial measurements of *A. flavicollis* specimens were found in agreement with those reported by Filippucci *et al*. (1996) for the same species (Fig. 2 and 5). For the same measurements, *A. hemonensis* specimens collected by Benda & Sadova (1999) fits with those reported by Filippucci *et al*. (1996) for that species. Evidently, *A. flavicollis* from Jordan has larger measurements in all aspects than those reported for *A. hemonensis* by Benda & Sadova (1999) and Filippucci *et al*. (1996), however, they lay within the same range for *A. flavicollis* collected elsewhere from Syria, Iraq and western Anatolia (Harrison & Bates, 1991, Filippucci *et al*., 1996), see Fig. 2, 5 and Table 2.

The records of *A. mystacinus* from the Dana Nature Reserve and Petra represent the actual southern distribution limit of the genus in Jordan (Yousef & Amr, 2005). In Jordan, this is the most common wood mouse in terms of distribution and abundance in a particular area.

Further investigations are needed to confirm the presence of the third species, *A. witherbyi*, in Jordan, since earlier records were based on cranial characters of only two subadult specimens. Additional specimens from Ajlun area should be collected and compared with *A. mystacinus* and *A. flavicollis* from surrounding populations. Additional material from Jordan should be included in future molecular studies especially in areas that represent its most southern range of distribution.

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Tab. 2. Descriptive Statistics (range, mean, standard deviation and sample size) of external and cranial measurements of populations of *A. flavicollis* and *A. hermonensis* from the Middle East.

	Harrison and Bates 1991		Filippucci et al., 1989		Benda and Sadlova 1999		Filippucci et al., 1996		Filippucci et al., 1996		Present study	
	(*A. flavicollis*)		(*A. hermonensis*)		(*Apodemus* sp.)		(*A. hermonensis*)		(*A. flavicollis*)		(*A. flavicollis*)	
	Range (average)	N	Range (average)	N	Range (average)	N	Range (average)	N	Range (average)	N	Range (average)	N
TL	182-221 (199.6)	8									179-220 (197.75)	12
HB			77-93 (86)	11	85-88 (86.5)	3	76-103	52	77-107	57	89-106 (97.69)	13
T	94-123 (106.1)	8	81-99 (92)	7	92-93 (92.5)	3	83-115	52	85-120	57	89-116 (100.42)	12
HF	21-26 (22.9)	8	20.2-21.5 (20.7)	11	20.7-21.7 (21.2)	3	20-23.5	52	21-25	57	22-25 (22.82)	13
E	16-17 (16.9)	8	14.3-16.7 (15.3)	11	16.4-16.7 (16.57)	3					13-17 (15.72)	13
W			13.4-24.8 (18.6)	11	17-18 (17.5)	3					17-28 (23.54)	12
GSL	25.9-28.5 (27.3)	8			24.3-24.36 (24.33)	3					25-26.99 (26.21)	10
CBL	23.5-26.2 (24.9)	8	22.02-23.5 (22.89)	9	21.71-22.13 (21.92)	3	22.59-24.37 (23.07)	52	22.02-26.7 (23.77)	57	24.1-26.61 (25.73)	10
BB	11.7-12.6 (12.1)	8	11.3-12.04 (11.53)	8	11.37-11.43 (11.4)	3					11.17-12.19 (11.67)	12
IC	3.9-4.6 (4.2)	8	3.88-4.4 (4.1)	11	3.74-3.85 (3.79)	3					3.76-4.13 (4)	12
ZB	13-14.7 (14)	7	11.7-13.06 (12.6)	10	12.2-12.43 (12.32)	3					13-14.2 (13.56)	12
DL			6.14-7.18 (6.62)	11							5.95-7.03 (6.65)	12
APF			4.6-5.42 (4.91)	11			4.67-4.94 (4.82)	52	4.83-5.45 (5.08)	57	4.33-5.4 (4.85)	12
TBL							4.33-4.64 (4.37)	52	4.94-5.17 (5.01)	57	4.81-5.3 (5.07)	12
MXT	3.7-4.3 (4.1)	8	3.8-4.33 (4.11)	11	3.82-4.02 (3.92)	3	3.65-3.9 (3.8)	52	3.75-4.17 (3.96)	57	3.78-4.12 (3.88)	12
M	16.3-18.2 (17.2)	8			13.85-14.13 913.99)	3					12.55-14.24 (13.45)	12
MDT	3.6-4.1 (3.9)	8	3.5-3.83 (3.71)	11	3.78-3.86 (3.83)	3					3.73-4.1 93.89)	11