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SHORT COMMUNICATION

The first record of the Southwest Asian Badger *Meles canescens* (Mammalia: Mustelidae) from Afghanistan

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The Eurasian badgers of the genus *Meles* (Carnivora: Mustelidae) are mustelids widely distributed in the Palaearctic, across Europe and Asia, from Ireland in the West to the Japan in the East (Neal & Cheeseman, 1996). Considered for long time as a unique species with several subspecies (e.g. Heptner, Naumov, Yurgenson, Sludskii, Chirkova, & Bannikov, 1967), recent phylogenetic analysis using nuclear and mitochondrial DNA (Del Cerro, Marmi, Ferrando, Chashchin, Taberlet, & Bosch, 2010; Tashima et al., 2011a, b) and craniological studies (Abramov & Puzachenko, 2013) have supported the existence of four full species of Eurasian badgers; the European Badger *Meles meles* (Linnaeus, 1758), the Northwest and Central Asian Badger *Meles leucurus* (Hodgson, 1847), the Southwest Asian Badger *M. canescens* (Blanford, 1845) and the Japanese Badger *M. anakuna* (Temminck, 1844). Results of cranial measurements of museum specimens supported the occurrence of the Southwest Asian badger in Azerbaijan, Georgia, Iran, Israel, Kyrgyzstan, Lebanon, Russia, Syria, Tajikistan, Turkey, Turkmenistan, and Uzbekistan (Abramov & Puzachenko, 2013; Ibiş, Tez, Özcan, Yorulmaz, Kaya, & Mohradi, 2015).

The presence of the Badger in Afghanistan has long been suspected without being indisputably documented (cf. Figure 1). Kullman (1965) reported that the species probably occurs in the vicinity of Maimana, Faryab province, in northern Afghanistan but admitted that no reliable records exist. Bobrinskii, Kuznetzov, and Kuzyakin (1965) proposed a distribution of the badger that included the northern part of Afghanistan, but it was based on the speculation that badgers must occupy similar regions in Afghanistan to those they inhabit across the Amu Darya River in southern Tajikistan. Niethammer cited in Habibi (2003) reported a pelt of badger said to have come from Badakhshan Province (north-east Afghanistan) and a live specimen brought to Kabul Zoo in 1970 was reported to have been perhaps collected in central Afghanistan (Naumann & Nogge, 1973). Finally Hassinger (1973) suggested that the range of the badger could include the north and northwest of Afghanistan, although he admitted that he knew of no confirmed specimen of badger from the country. We document here for the first time the badger from Afghanistan, discusses its possible distribution in the country and the taxonomic status of the collected specimen based on phenotype and cranial measurements.

On 16 September 2017 two shepherds from the Bamyan Plateau, Bamyan Province, Afghanistan, informed local community rangers managed by the Bamyan conservation project of the *Wildlife Conservation Society* (WCS) that they had captured and killed a medium-sized (compared to wolf), short-legged, short-eared and grey-coloured

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Figure 1. Distribution of the Southwest Asian badger *Meles canescens* in Afghanistan and adjacent countries as suggested by Abramov and Puzachenko (2013) (light grey) and area of possible presence in Afghanistan based on questionnaire surveys carried out in 2011–2012 (Moheb & Mostafawi, 2012; 2013) (dark grey). First confirmed record of badger in Afghanistan (star), and nearest museum collection records from Tajikistan, Turkmenistan and Uzbekistan (triangles) (Abramov & Puzachenko, 2013).

carnivore near their camp site. They explained that the animal had been cornered and captured during night by three of their guard dogs at a short distance from their herd of sheep and goats. The shepherds killed the injured animal and buried it. On 17 September the rangers exhumed the animal and brought it to WCS office in Band-e-Amir National Park (Figure 2). The species was confirmed from its teeth to be an adult carnivore. It had a brindled silvery-grey coat of coarse and loose hairs with short black legs ended by elongated black claws, and wide black longitudinal stripes on either sides of the head, running from the snout's tip over eye and ear, alternating with a pure white facial stripe. The snout, cheeks and ears' tips were white. It was a male badger, weighing 10 kg, with a head-body length of 83 cm and a tail length of 14 cm. The record site (35.0191N, 67.3832E) visited by WCS staff and rangers on 26 September was a high altitude (3,192 m a.s.l) dry mountain area covered with *Artemisia-Acantholimon* dwarf shrub cushion steppe communities and dispersed alpine meadow communities in those areas with higher water retention. The skull of the animal was prepared for morphological examination and 30 measurements were made according to Abramov and Puzachenko (2013) using a digital sliding caliper to the nearest 0.1 mm.

This is the first confirmed record of the Badger from Afghanistan. Biodiversity surveys carried out in 2011 and 2012 by WCS in Darwaz, the northernmost district of Afghanistan, Badakhshan Province, also supported, without confirming, that this species could belong to northern montane habitats of Afghanistan (Moheb & Mostafawi, 2012; 2013). The present record comes from a location further to the south than so far anticipated (Annex 1), if we except the approximate distribution proposed by Abramov and Puzachenko (2013) and the specimen perhaps collected in central Afghanistan (Naumann & Nogge, 1973). However, it is likely that the lack of verified records of



Figure 2. An adult male Southwest Asian badger (*Meles canescens*) with a brindled silvery-grey coat and a facial mask with alternating black-and-white stripes similar to *M. m. taxus*. Bamyan Province, Afghanistan, 17 September 2017.

badger in the north and northwestern provinces where this relatively discrete and largely nocturnal species is likely to occur, results to some extent from the difficulties in surveying these insecure provinces, in contrast with Bamyan Province which is relatively more secure (Smallwood et al., 2011).

The phenotype and cranial measurements of the specimen found in Bamyan corresponded to the most recent description for *M. canescens* (Abramov & Puzachenko, 2013). Although the grey colouration and the facial mask with alternating black-and-white stripes resembled that of *M. meles* it was markedly different from the colourations both of *M. leucurus* and *M. anakuma*, which vary extensively, from yellowish-grey with facial stripes reduced to dark ‘spectacles’, to entirely black with pale cheeks (Heptner et al., 1967; Abramov, 2003). Furthermore the specimen differed from *M. m. taxus*, which is parapatric in SW Asia (Abramov & Puzachenko, 2013), in a combination of cranial and dental characters. The second lower premolar Pm₂ was large, and one-rooted (usually small and with two roots in *M. meles*) and the lower first premolars Pm₁ were absent (such as the upper Pm¹). The specimen sampled in Afghanistan had a shorter rostrum and mandible, and low crania such as reported for *M. canescens*, all 30 cranio-dental measurements were within the range reported for 86 specimens of *M. canescens*, whereas 9 (30%) measurements were below the minimum value reported for 192 specimens of *M. m. taxus* (Annex 2) (Abramov & Puzachenko, 2013).

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No potential conflict of interest was reported by the authors.

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Supplementary Material

Table S1 is given as a Supplementary Annex, which is available via the “Supplementary” tab on the article’s online page (<http://dx.doi.org/10.1080/09397140.2018.1442303>).

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Supplementary Material to:
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Table S1. Cranial measurements (in mm) of the badger specimen *Meles* spp. found in Bamyan Province in September 2017. Minimum (min), and maximum (max) of the skull characters for Palearctic badgers occurring in west and central Asia, *M. canescens* and *M. meles taxus*, are provided for comparison (Abramov & Puzachenko, 2013, after correction provided by authors). *Measurements below the minimum value for *M. m. taxus*.

	Bamyan specim.	<i>M. canescens</i> , n=86		<i>M. m. taxus</i> , n=192	
		min	max	min	max
Condylobasal length	117.7*	110.7	132.1	119.0	140.1
Neurocranium length	60.2*	59.6	71.0	62.5	76.6
Viscerocranium length	71.4*	65.0	87.4	72.5	93.7
Palatal length	67.1	61.0	74.3	67.0	79.7
Maxillary tooth-row length	38.3*	36.0	46.2	39.6	47.6
Length of upper carnassial tooth Pm ⁴	7.5*	6.7	9.5	7.6	10.0
Greatest length between anterior border of the auditory bulla and posterior border of the occipital condyle	33.0*	31.7	39.1	33.6	41.9
Length of the auditory bulla	25.3	23.0	29.9	24.4	32.9
Zygomatic width	70.5	62.9	84.0	67.6	89.4
Mastoid width of skull	57.7	53.5	65.4	55.6	69.6
Postorbital width	23.5	19.1	26.1	20.7	28.6
Interorbital width	31.2	23.9	34.7	27.0	34.2
Width of rostrum	30.5	25.3	32.6	27.0	35.1
Greatest palatal width	41.0	35.7	44.0	36.9	46.2
Width of the auditory bulla	20.7	19.4	25.3	19.0	25.7
Width of upper molar M ¹	12.2	9.6	13.0	9.9	13.3
Cranial height	46.9	42.6	56.0	45.0	60.0
Total length of the mandible	80.2*	75.8	91.1	82.2	97.0
Length between the angular process and infradentale	80.6*	75.7	93.7	83.1	97.7
Mandibular tooth-row length	45.9*	43.0	53.2	47.7	54.6
Length of lower carnassial tooth M ₁	15.1	13.7	17.3	14.5	17.7
Height of the vertical mandibular ramus	35.5	29.1	41.7	33.3	43.1
Minimum palatal width	16.1	13.4	17.8	13.7	18.4
Length of upper molar M ¹	14.3	12.0	16.1	11.9	16.5
Length of lower premolar Pm ₂	4.1	3.2	5.0	3.8	5.7
Length of lower molar M ₂	5.3	4.7	7.0	4.4	7.2
Width of lower molar M ₂	7.4	6.4	8.0	6.1	8.2
Talonid length of lower carnassial tooth M ₁	7.8	6.3	8.9	6.0	8.9
Length of upper canine	6.9	6.0	9.2	6.7	9.8
Width of upper canine	5.1	4.5	6.7	4.9	7.3