

First record of *Apathya cappadocica muhtari* (Eiselt, 1979) (Sauria: Lacertidae) in Iran with its natural history and distribution

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Abstract - The first record of the lacertid lizard *Apathya cappadocica muhtari* from Iran is presented based on five specimens (four males and one female) collected from June to August 2011 from 40 km southwest of Bane, Kurdistan province, western Iran. The specimens were examined based on morphometrics, color pattern and pholidotic characters. The most distinguishing characters of *A. c. muhtari* are the presence of an undivided and single preanal plate and six longitudinal rows of ventral shields.

Key words. *Apathya cappadocica muhtari*, *A. c. urmiana*, First record, Kurdistan Province, Iran, natural history

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Introduction. The lacertid lizard *Apathya cappadocica* (Lantz and Suchow 1934) (= *Lacerta cappadocica*, Werner 1902) is distributed in eastern and south-eastern Turkey, north-eastern Iraq and northwestern Iran (Arnold et al. 2007). *Apathya cappadocica* consists of five subspecies: *A. c. cappadocica* (Werner 1902); *A. c. muhtari* (Eiselt 1979); *A. c. schmidlerorum* (Eiselt 1979); *A. c. urmiana* (Lantz and Suchow 1934); *A. c. wolteri* (Bird 1936) (Leviton et al. 1992; Baran and Atatür 1998; Anderson 1999). *Apathya. c. muhtari* (Eiselt, 1979) was originally described from 26 km southwest of Bitlis, eastern Turkey by Eiselt in 1979. The main characteristics of *A. cappadocica* (Lantz and Suchow 1934) are as follow: ventrals in six or eight longitudinal rows; 52-75 dorsal scales at mid body; femoral pores 18- 27; no massetric shield; two or three postnasals; usually five, rarely six supralabials in front of subocular; subdigital lamellae keeled; pattern and coloration differences present in subspecies (Baran and Atatür 1998). Prior to this study, only *A. c. urmiana* (Lantz and Suchow 1934) was recorded in Iran. In this paper, we present the first record and description of *Apathya cappadocica muhtari* (Eiselt 1979) from Kurdistan Province, western Iran.

Methods. During field work on the herpetofauna of western Iranian Plateau from June to August 2011, five specimens of *Apathya cappadocica* (Lantz and Suchow, 1934) [including one adult female (RUZM-LL100.1), one adult male (RUZM-LL100.2), and three subadult males (RUZM-LL100.3-5)] were collected from Boleh Keh village, 40 km southwest of Bane county (35° 52' N45° 45' E), Kurdistan province, western Iran (Fig. 1). The air temperature was between 30°C to 37°C. The specimens were collected under the stones and in rock crevices at an elevation of 1270-1280 m above sea level. The main metric and meristic characters of the specimens were

recorded. The specimens were preserved in 75% ethanol and deposited in the Razi University Zoological Museum (RUZM) with the museum number RUZM-LL100. 1-5. Morphometric measurements were taken by digital calipers to the nearest 0.01 mm. The terms used in the study conform to Eiselt (1979), Anderson (1999) and Nilson et al (2003).



Fig. 1. Map of Iran and surrounding countries showing two locality records of *Apathya cappadocica muhtari*: the red triangle, this papers record from Kurdistan province in Iran; the red square, nearest previous locality, Tajika (=Taieka), northern Iraq (recorded by Eiselt, 1979).

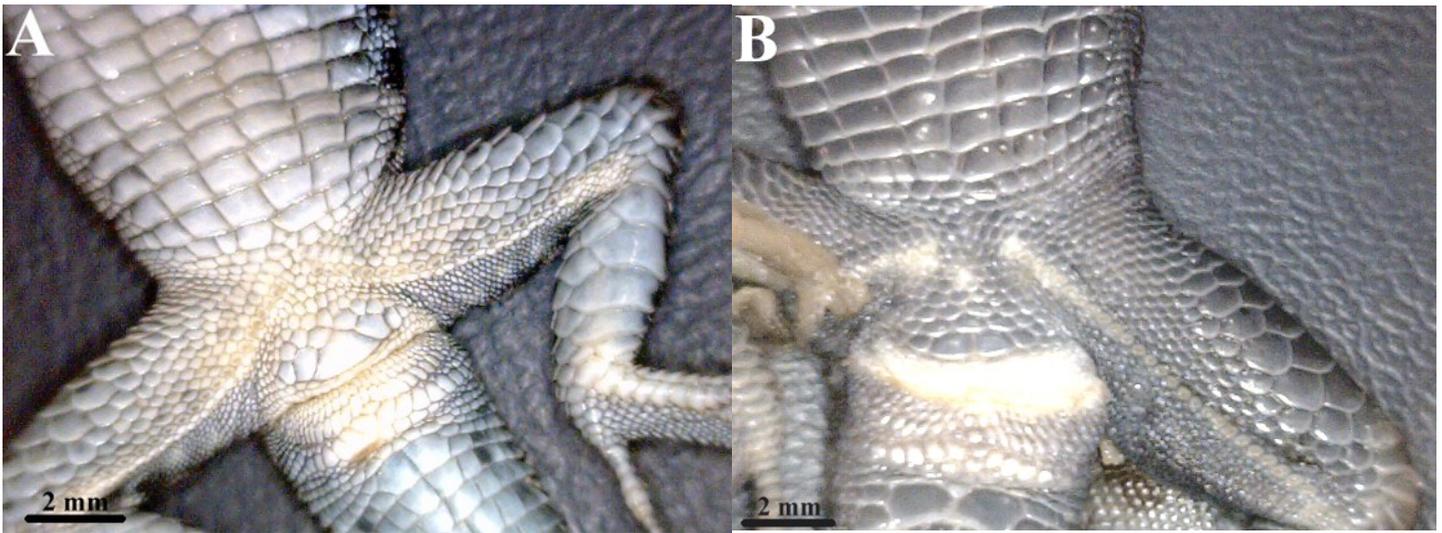


Fig. 2. Comparison of preanal plate in *Apathya cappadocica*: (A) *Apathya c. muhtari*, (B) *Apathya c. urmiana*. Image Rasoul Karamiani.

Results. The main morphological characters of the examined specimens of *Apathya cappadocica muhtari* (Eiselt 1979) and their basic data are presented in Table (1).

Pholidotic characters

The subspecies *A. c. muhtari* is distinguished by having six longitudinal rows of ventral plates and an undivided pre-preanal plate (against the presence of eight longitudinal rows of ventral plates and a divided pre-preanal plate in *A. c. urmiana*) (Figure 2, Table 2); *A. c. muhtari* is distinguished from *A. c. wolteri* by differences in color pattern, dorsal scales, supraciliary granules, number of gular scales, number of femoral pores. It is distinguished from *A. c. cappadosica* by supraciliaries, number of dorsal and gular scales and femoral pores. Finally, *A. c. muhtari* separated from *A. c. schmidlerorum* by number of supraciliary granules and femoral pores (Eiselt 1979). Considering (Eiselt 1979), *A. c. muhtari* is characterized by having a combination of the following characters: A relatively small-sized lacertid, maximum SVL = 47-60 mm, TL = 90-110 mm; dorsals smooth, 53-54 across mid-body; supranasal scales in contact; two postnasals; six longitudinal rows of ventral plates arranged in 30-31 transverse series from gular to preanal

region; 28-30 gulars on midline from the level of the third pair of chin shields to collar; 16-18 granules between supraciliaries and supraoculars; collar weakly serrated, consisting of 10-11 scales; 24- 26 keeled lamellae under the fourth toe; and 16-25 femoral pores; eight supraciliary scales; 13 supra- and 10 infralabials; five pairs of submaxillary shields which the fourth pair is the largest.

Coloration and color pattern. Dorsal surface of head uniformly olive-brown; dorsal surface brownish-olive, with distinct dark dots and blotches arranged in almost a zigzag pattern on the vertebral region with irregular edges, dorsolateral region with dark longitudinal strip containing light ocelli, caudal region uniformly bluish-green, venter whitish, gular region whitish to reddish, dorsal surface of limbs brownish-olive with light large spots (Figure 3).

Ecological remarks. All specimens were observed in nature and were found in rocky and mountainous areas with scattered oaks (*Quercus sp.*). The specimens were collected in the afternoon (00-02 PM), in sunny and relatively warm conditions (Figure 4).



Fig. 3. *Apathya cappadocica muhtari* from Kurdistan province, Iran. Image Zahed Bahmani.

Table 1- The main morphometric and meristic characters and basic statistical data of morphological characters of *Apathya cappadocica muhtari* specimens used in this study. All measurements in millimeter.

Characters	RUZM-LL100.1	RUZM-LL100.2	RUZM-LL100.3	RUZM-LL100.4	RUZM-LL100.5
Snout-vent length, mm	59.75	47.99	40.17	32.32	34.63
Tail length, mm	93.36	107.86	91.00	71.89	74.73
Dorsal numbers	54	54	54	53	53
Ventral plates rows	6	6	6	6	6
Ventral plates series	30	30	30	30	30
Submaxillary pairs	5	5	5	5	5
Supralabials	13	13	13	13	13
Infralabials	10	10	10	10	10
Supraciliaries	8	8	8	8	8
Supraciliary granulae	18	16	17	17	17
Gulars	30	28	30	30	30
Collar numbers	10	11	10	10	10
Femoral pores	16	20	25	19	19
Postnasals	2	2	2	2	2
Subdigital lamellae	26	24	25	24	24
Pre-preanal plates	Undivided	Undivided	Undivided	Undivided	Undivided



Fig. 4. The natural habitat of *Apathya cappadocica muhtari* from 40 km southwest of Baneh city in Blake River, 1287 m elevation, west of Kurdistan province, Iran. Image Zahed Bahmani.

Table 2: The comparison of morphological characteristics in *Apathya cappadocica muhtari* and *Apathya cappadocica urmiana*.

Characters	<i>A. c. muhtari</i>	<i>A. c. urmiana</i> *
Dorsal numbers	53- 54	51- 68
Ventral plates rows	6	8
Supraciliaries	8	6- 10
Supraciliary granules	16-18	9- 27
Gulars	28- 30	25- 34
Femoral pores	16- 25	25
Subdigital lamellae	25- 26	24- 30
Pre-preanal plates	Undivided	Divided

* (Eiselt 1979; Anderson 1999; Rastegar-Pouyani et al. 2008).

Discussion. The record presented here is the first record of the subspecies *Apathya cappadocica muhtari* in Iran. The locality of our specimens is approximately 200 km south-east of the closest previously known locality in northern Iraq (37° 03' N43° 16' E; Eiselt 1979). From the closest record of *Apathya cappadocica urmiana* (Sarv Abad County, Kurdistan Province) to our new locality (Baleh Keh village, 40 km southwest of Bane County) for *Apathya cappadocica muhtari* it is about 130 km in which neither of the two subspecies has been recorded so far. Our record is the easternmost limit for the distribution of *A. c. muhtari*. The occurrence of *A. c. muhtari* in Iran could be significant from a biogeographic point of view, as areas from which the subspecies has previously been reported in Turkey, and the recent localities in Iraq are contiguous, forming part of the same biogeographic Iranian-Anatolian Plateau and this indicative of range expansion of *A. c. muhtari* towards eastern and southeastern regions in the Zagros Mountains. As mentioned before, only the subspecies *A. c. urmiana* has been reported from Iran in western Azerbaijan, Kurdistan, Kermanshah and Ilam provinces (Rastegar-Pouyani et al. 2007; 2008). On the other hand, prior to this study, *A. c. muhtari* occurs from east of the Euphrates to the Lake Van in eastern Turkey to northern Iraq (Leviton et al. 1992). Further study and field work in the areas of *A. c. muhtari* distribution would shed more light on various aspects of biology and natural history of this species in Iran.

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