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New record and range extension of the Persian gecko *Hemidactylus persicus* Anderson, 1872 (Sauria: Gekkonidae) from Kermanshah Province, western Iran

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The genus *Hemidactylus* Oken, 1817 includes about 158 species of the family Gekkonidae distributed in the tropical and subtropical regions of the world and continental and oceanic islands (Carranza & Arnold, 2006; Hosseinzadeh *et al*., 2014; Uetz *et al*., 2019). This genus contains four species in south to southwestern of Iran: *H. robustus* Heyden, 1827 in Hormozgan and Sistan and Baluchistan Provinces; *H. flaviviridis* Rüppell, 1840; *H. persicus* J. Anderson, 1872 in Ilam, Lorestan, Khuzestan, Fars, Bushehr, Hormozgan, and Sistan and Baluchistan Provinces, and *H. romeshkanicus* Torki, 2011 only in Romeshkan area of Lorestan Province (Anderson, 1999; Torki *et al*., 2011; Šmíd *et al*., 2014; Hosseinzadeh *et al*., 2014).

Hemidactylus persicus occurs in Iran, Iraq, Pakistan, India, northeast Saudi Arabia, Kuwait and Bahrain, northern Oman (Castilla *et al*. 2013). During a study of the herpetofauna of the western Iranian plateau from March 2018 to September 2019, we collected three specimens of *Hemidactylus persicus* from 5 km east of Qasr-e-Shirin (34°30' N 45°43' E), in Kermanshah Province, western Iran (Fig. 1); Individuals were found on walls and ceiling of a ruined brick oven (Fig. 2), syntopic with *Asaccus elisae* (Werner, 1895) and *Laudakia nupta* (De Filippi, 1843). We kept specimens 10 minutes in the freezer after which they were fixed with 96% ethanol, and later kept in 70% ethanol. The collected specimens were deposited in the Razi University Zoological Museum (RUZM) under RUZM- GH10.5, to RUZM- GH10.7. Morphometric measurements were taken by digital calipers to the nearest 0.01 mm, and for meristic characters using a stereo microscope. The terms used in the study conform to Anderson (1999) and Karamiani *et al*., (2012) as following: Snout-vent length (SVL), Head length (HL), Head width (WH), Eye diameter (EYD), Interorbital distance IOR, Eye to snout distance (ESD), Ear opening ventricle length (EVL), Length of cloaca (LC), Length of Axilla to groin (LAG), Length of fourth toe (LFT), Length of forelimb (LFo), Length of hindlimb (LHi), supralabials scales (SL), infralabials scales(IL), number horizontal scaled of venter(HV), dorsal number scales (DS), number of longitudinal or transverse scales of venter (VV), Subdigital lamellae under the fourth toe (SDLT), preanal pores (PP).

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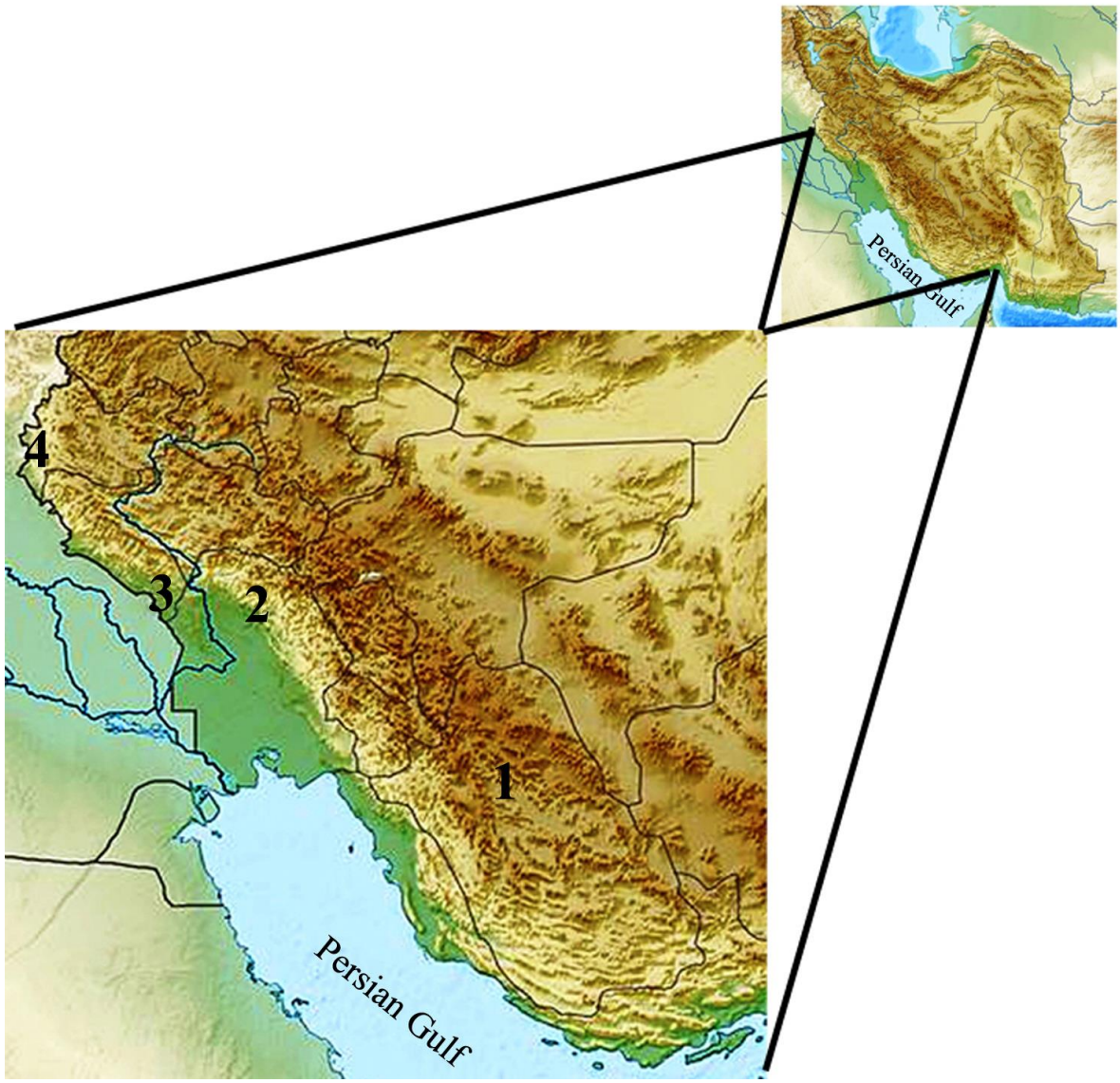

FIGURE 1. Distribution of *Hemidactylus persicus* in Iran.1- the first-time record from Shiraz in Fars Province according to Smith 1935 (Anderson, 1999), 2- the subsequent record by Anderson 1999; 3- Dehloran Township on gypsum foothills from Ilam Province (Fathnia *et al*., 2009); 4- New records (treated here).

FIGURE 2. Habitat of *Hemidactylus persicus*, ruined brick oven in 5 Km east border of the Qasr-e- Shirin, western of, Kermanshah Province, western Iran (about 480 m elevation).

The main morphological characters of the studied specimens of *Hemidactylus persicus* are as follows: 12 pairs of lamellae under basal expanded portion of fourth toe, 2 pair postmental; 12 supralabials; 10 infralabials; males with 12 preanal pores. The snout-vent length (SVL) 76.39 mm for adult male examined, 73.74 mm for largest adult female; all specimens have regenerated tail. The main metric characters and range of meristic characters of *Hemidactylus persicus* are shown in Table 1. Our specimens' body background is light brown dorsally, with irregular pattern of white and dark brown tubercles; venter whitish (Fig. 3).

This record represents the first record of the *Hemidactylus persicus* from the western Iranian Plateau. The range extension is approximately more than 170 km northwest from the closest previously known locality on gypsum foothills in Dehloran from Ilam Province (Fathnia *et al*., 2009), and about 1000 km from type locality from Shiraz in Fars Province (Smith, 1935; Anderson, 1999); this is also now the known westernmost limit for species *H. persicus*, the new locality continues the distribution in the Zagros Mountains from southwestern to west in Iran. According to SVL measurements, our specimens were larger than previously measured specimens from Khuzestan (Anderson, 1999) and all specimens had been studied by Hosseinzadeh *et al*. (2014); Moreover, their color patterns are different from previously studied specimens.

TABLE 1. The basic statistics data of morphological characters of the adult *Hemidactylus persicus* Anderson, 1872 specimens used in this study.

	Male (n=1)	Female (n=2)	
Characters		**Range**	**Mean**
SVL	76.39	60.55-73.74	67.15±9.33
HL	19.73	16.90-20.47	18.69±2.52
WH	13.69	11.35-13.53	12.44±1.54
EYD	5.42	3.67-4.58	4.13±0.64
IOR	8.44	6.50-7.68	7.09±0.83
ESD	9.39	6.57-9.56	7.91±1.90
EVL	1.88	1.88-2.75	2.32±0.62
LC	8.85	6.80-8.30	7.55±1.06
LAG	35.12	26.78-32.87	29.83±4.31
LFT	5.55	4.80-5.65	5.23±0.60
LFo	17.4	13.45-15.75	14.60±1.63
LHi	22.65	19.00-23.57	21.29±3.23
SL	12	12	-
IL	10	10	-
HV	42	34-42	-
DS	13	14	-
VV	155	145-150	-
SDLT	12	12	-
PP	12	0	-

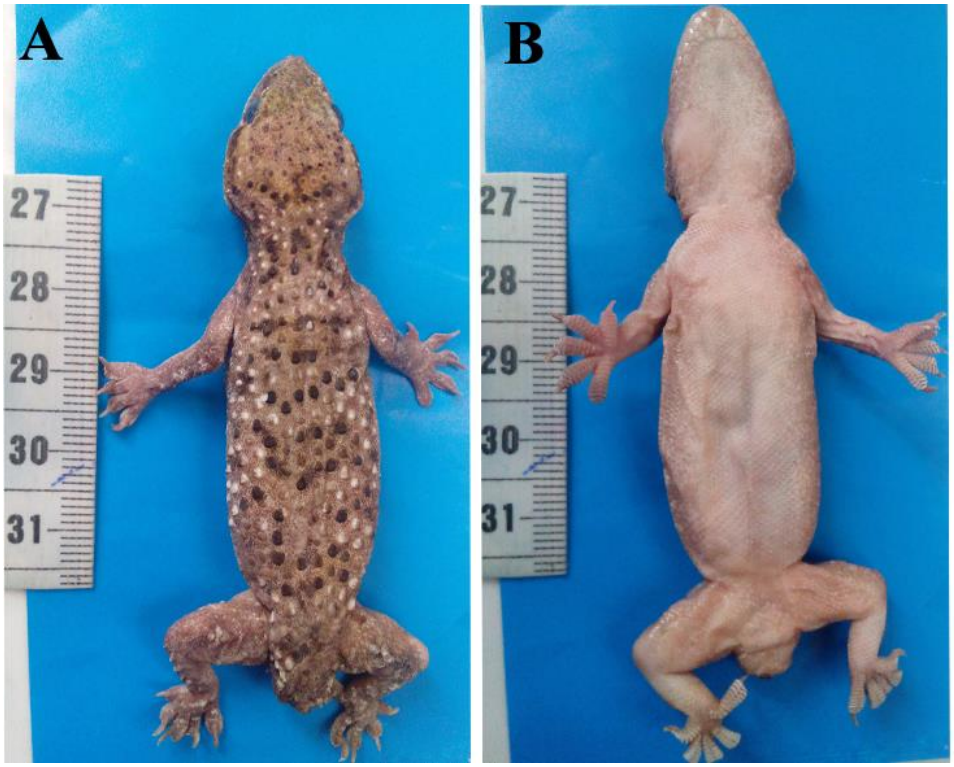

FIGURE 3. Dorsal view (A) and ventral view (B) of *Hemidactylus persicus* Anderson, 1872 in laboratory.

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