

NEW GEOGRAPHIC DISTRIBUTION RECORDS OF ZARUDNY'S BENT-TOED GECKO, *Mediodactylus russowii zarudnyi* NIKOLSKY, 1899 (SAURIA: GEKKONIDAE) FROM IRAN

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Three new localities of *Mediodactylus russowii zarudnyi*, (Nikolsky, 1899) were recorded in Iran during field work in north eastern regions of the Iranian Central Desert. Specimens were collected from Tooran Protected Area in Semnan Province, eastern Iran in April 2011 and June 2012. This is the 3rd record of this species from Iran and also the first record of occurrence of *Mediodactylus russowii zarudnyi* from Semnan Province. The new localities of the species are situated about 350 km west of the old locality and also 670 km west of the type locality. As a result, the distribution range of *Mediodactylus russowii zarudnyi* has been extended.

Keywords: Zarudny's bent-toed gecko; Transcaspiian bent-toed Gecko; *Mediodactylus russowii zarudnyi*; *Cyrtopodion russowii*; *Mediodactylus*; Gekkonidae; new locality; distribution; Iran.

INTRODUCTION

The representatives of the gekkonid genus *Cyrtopodion* form one of the most diversified groups of Palearctic geckos (Cervenka et al., 2008; Szczerbak et al., 1986). The history of the delimitation of the genus *Cyrtopodion* and its unstable systematics includes many competing views and mirrors complex relationships among taxa involved. Briefly, the species of the genus were assigned to the cosmopolitan genus *Gymnodactylus* (e.g., Annandale, 1906; Smith, 1935) in the past. Underwood (1954) split the genus *Gymnodactylus*, and incorporated most of its Old World species into the genus *Cyrtodactylus*. His classification was not universally accepted and some European researchers still understood the genus *Gymnodactylus* in the original cosmopolitan (Cervenka et al., 2008). Based on Cervenka et al. (2008), Szczerbak and Golubev

(1977) moved the Eurasian species of the original genus *Gymnodactylus* into the subgenera *Cryptodactylus* and *Mediodactylus* differing in the presence of femoral pores in males, the number of subdigital lamellae and other characters of pholidosis. Kluge (1983) considered the genus *Cyrtodactylus* as defined by Underwood (1954) to be polyphyletic and separated the tropical species possessing the second ceratobranchial arch into the genus *Nactus*. Szczerbak and Golubev (1984) accepted the genus *Cyrtodactylus* as redefined by Kluge (1983). They separated the Palearctic species into the genus *Tenuidactylus* based on the differences in toe shape and other characters of pholidosis. Böhme (1985) and Kluge (1985) pointed out the priority of the name *Cyrtopodion* Fitzinger (1843) over its younger synonym, *Tenuidactylus*. Subsequent studies (e.g., Szczerbak and Golubev 1986; Anderson 1999) thus used the generic name *Cyrtopodion* (Cervenka et al., 2008). A variety of attempts to classify the more than 40 species of *Cyrtopodion* as so understood were undertaken. Szczerbak and Golubev (1984) divided the species of *Tenuidactylus* (now *Cyrtopodion*) into three subgenera (*Mediodactylus*, *Mesodactylus*, and *Tenuidactylus*). Certain species from the so-called Tibeto-Himalayan group were not classified into any subgenus. After the work of Böhme (1985) and Kluge (1985), they started to use the subgeneric names *Cyrtopodion* (= *Mesodactylus*)

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Fig. 1. *Mediodactylus russowii zarudnyi* in natural habitat. Photograph by Alireza Shahrdari Panah.

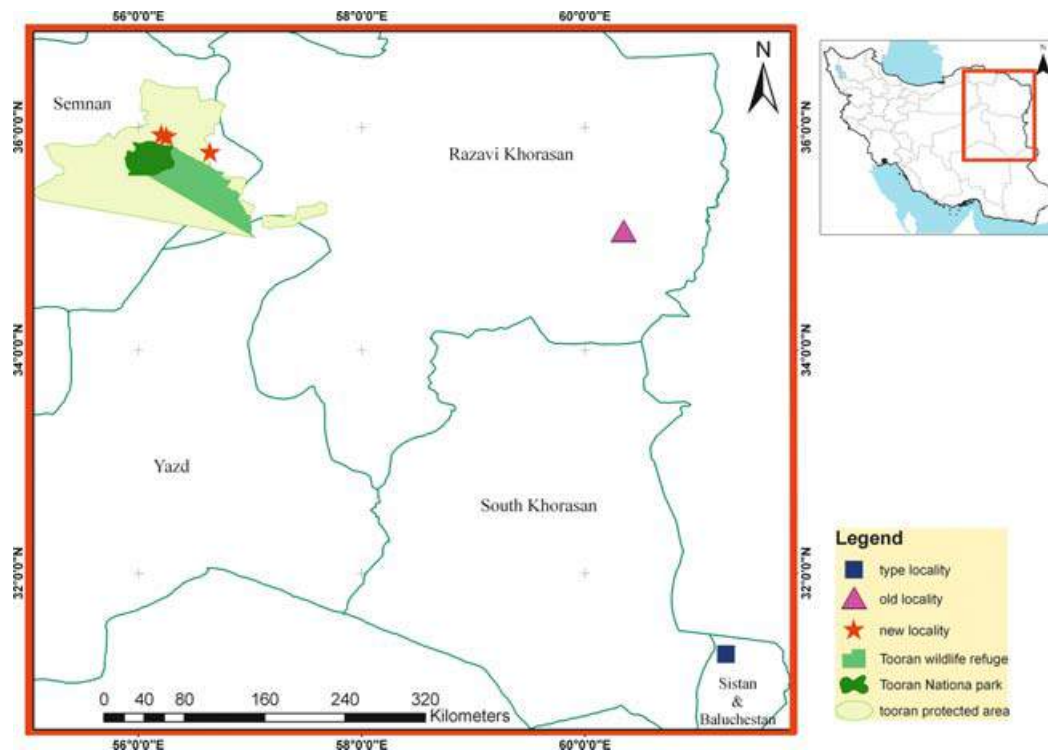


Fig. 2. The localities of *Mediodactylus russowii zarudnyi* from Iran: ■, type locality; ▲, old locality (Anderson, 1999); ★, new localities.

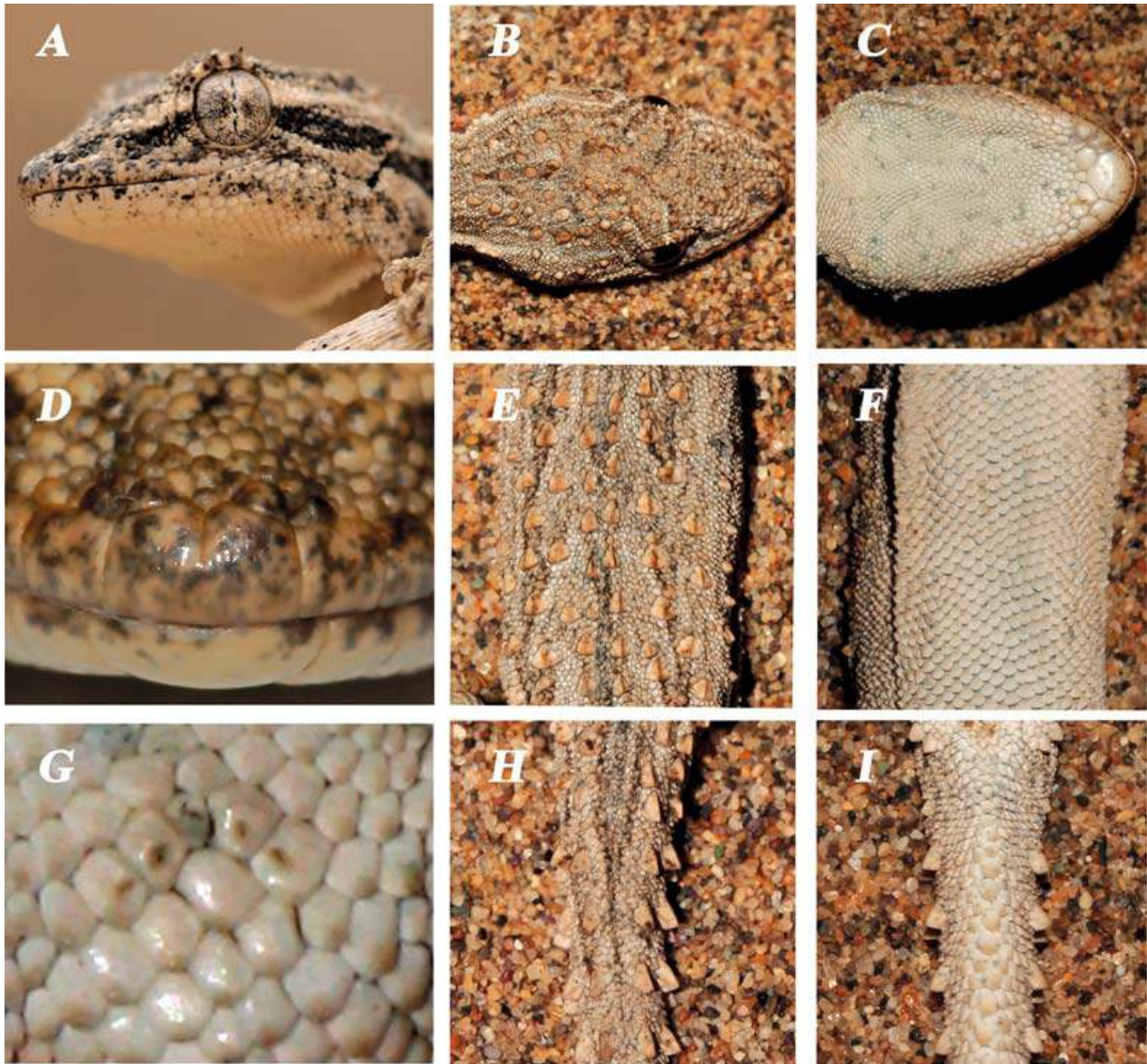


Fig. 3. *Mediodactylus russowii zarudnyi*: A, head from the side; B, dorsal view of head; C, chin; D, nasal scales; E, dorsal scales; F, belly; G, preanal pores; H, tail from above; I, tail from below. Photograph by Barbod Safaei Mahroo.

lus), *Mediodactylus* and *Tenuidactylus* (Szczerbak and Golubev, 1986). Szczerbak (1988) elevated the individual subgenera to generic level (Cervenka et al., 2008). This taxonomical modification is generally not followed and all species are still assigned to the single genus *Cryptopodion* (Anderson, 1999; Uetz and Hallermann, 2007; Rastegar-Pouyani et al., 2008). Nevertheless, cladistic analysis of allozymic data revealed high divergence of the subgenus *Mediodactylus*, and thus supported its generic status (Macey et al., 2000; Cervenka et al., 2008).

The principal range of this species is the desert zone in Middle Asia and Kazakhstan from the eastern shores of the Caspian Sea, to the northwest of China (Szczerbak, 2003; Ananjeva et al., 2006) (Fig. 6).

During the Pars Herpetologists Institute fieldworks in Semnan Province from March 9 to April 17, 2011 and also from June 7 to June 15, 2012, three specimens of *Mediodactylus russowii zarudnyi* were collected. This is the 3rd record of this species from Iran and also the first record of occurrence of *Mediodactylus russowii zarudnyi* from Semnan Province. The new localities of the species



Fig. 4. *Mediodactylus russowii zarudnyi* color pattern. Photograph by Barbod Safaei Mahroo.

are situated about 350 km west of the old locality and also 670 km west of the type locality (Fig. 2).

MATERIAL AND METHODS

Three specimens were collected from three localities as follows: 35°56'14.76" N 56°12'30.13" E (♂), 35°46'40.61" N 56°38'32.94" E (♀) and 35°55'15.48" N 56°15'10.43" E (♂). This area is situated in Tooran protected area in Semnan Province in Eastern Iran (Fig. 2).

The following morphometric measurements were taken with calipers (to the nearest 0.1 mm): snout-vent length (SVL; from tip of snout to vent), tibia length

TABLE 1. Main Metric and Meristic Characters of Three *Mediodactylus russowii zarudnyi* Used in This Study

Characters	Male	Female	Male
SVL	39.2	36.6	27.9
TBL	8.4	8.0	6.2
TL	4.6	46.4	18.0
TW	6.6	4.8	3.5
HW	8.7	7.8	6.0
TVe	25	25	24
LVe	117 ± 1	118 ± 1	117 ± 1
PPo	3	—	5
SLa	9 – 9	10 – 10	10 – 10
ILa	7 – 7	8 – 8	7 – 8
SdT	12	12	12

Notes. Character abbreviations as explained in the text. All measurements in millimeter.

(TBL; from base of heel to knee), tail length (TL; from vent to tip of unregenerated tail), tail width (TW; measured at base of tail), width of head (HW: from widest part). Meristic characters were recorded by stereomicroscope in the Pars Herpetological Institute Lab. Meristic characters: number of transverse ventral scales (TVe; across midbody), number of longitudinal ventral scales (LVe; between mental and cloaca), number of active pre-cloacal pores (PPo; in male only), number of supralabials (SLa), number of infralabials (ILa) and number of scales around dorsal tubercles (SdT).

RESULTS

24 – 25 scales across abdomen; 9 – 10 supralabial scales; 7 – 8 infralabial scales; 118 – 119 longitudinal ventral scales, between mental and cloaca; 24 – 25 ventral scales across midbody; 12 smaller scales surround each dorsal tubercle; 3 – 5 preanal pores in males (Fig. 3G). Tail longer than body. Main metric and meristic measurements are presented in Table 1.

Color pattern. The upper surface of head is covered with small dark spots and also brown tubercles. On the sides of the head there is a dark longitudinal stripe with light edges that continues on to the sides of the neck and in one of the specimens the stripe continues onto the body (Fig. 1). Light grayish dorsal background with 6 indistinct traverse bars, limbs with broad dark bars, seven on tail. Regenerated part of the tail has light gray background with black stripe pattern. One of the specimen's dorsum was yellowish and two specimens had whit ventral surface (Ventral surfaces yellow or whitish).

Distribution and habitat. The main range is situated east of the Caspian Sea in Middle Asia and Kazakhstan to northwestern China; to the south it occurs in northeastern



Fig. 5. Habitat of *Mediodactylus russowii zarudnyi* in Tooran Protected Area, Semnan Province, Iran. Photograph by Barbod Safaei Mahroo.

and eastern Iran. There is one known find in the Precaucasus Region (Szczerebak et al., 1986) (Fig. 6).

According to Szczerebak (1981), Szczerebak and Golubev (1986, 1996) and also Anderson (1999), this species is restricted to flatland desert areas. Where it occurs in sand deserts and semi deserts (Turkmenistan, southern Tajikistan) it lives on the trunks of saxaul (*Haloxylon*) and other shrubs and trees. In clay deserts and loess foothills (in the northerly part of its range), it is common on cliffs in river and ravine plains, under rocks and on walls of inhabited and abandoned buildings.

One of the specimens was found in sandy plain with scattered vegetation, one hour before sunset when air temperature was from 12 to 19°C. The vegetation at the site is dominant by *Tamarix* (Fig. 5). Two specimens were collected at night on surfaced roads. The specimens were observed at 1183 m a.s.l.

Other syntopic reptiles were *Crossobamon eversmanni*, *Cyrtopodion caspium*, *Eremias grammica*, *Eremias persica*, *Phrynocephalus mystaceus*, *Ph. scutellatus*, *Trapelus agilis*, *Boiga trigonata*, *Spalerosophis diademata*, *Lytorhynchus ridgewayi*.

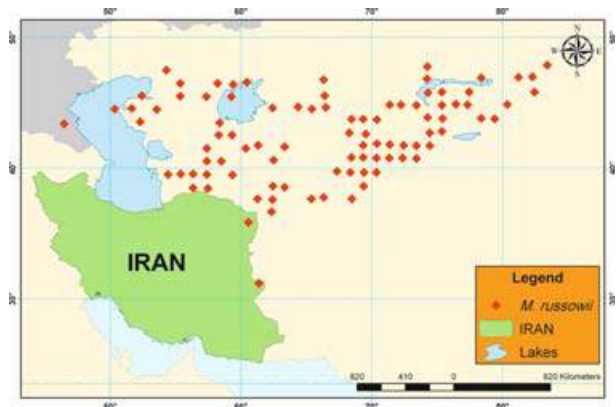


Fig. 6. Global distribution of *Mediodactylus russowii* (Sindaco and Jeremčenko 2008).

DISCUSSION

While *Mediodactylus russowii* is a common and abundant species outside the northeastern border of Iran, it has only two prior published records in Iran. The Zardny's bent-toed gecko *Mediodactylus russowii zarudnyi* (Nikolsky, 1899), was first described as *Gymnodactylus*

lus zarudnyi Nikolsky, 1900, from Neizar in Sistan Province, in Southeastern Iran (Fig. 2). The first record was an adult male from Neizar in Sistan (Anderson, 1999; Szczerbak et al., 1986) and the other specimen was found in eastern Khorasan (Anderson, 1999). In this study, we added new localities to the distribution range of this species on the southwestern side of its distribution (Fig. 2).

The inclusion of *Cyrtopodion russowii* in the Iranian fauna was based on Chernov's (1959) assignment of *Gymnodactylus zarudnyi* Nikolsky to the synonymy of this widely distributed Central Asian gecko. Bannikov (1977) included northeastern and eastern Iran in its distribution. Szczerbak and Golubev (1986) recognize *zarudnyi* as a subspecies of *C. russowii*. *Cyrtopodion russowii* occurs to the Iranian border in Turkmenistan and *C. r. zarudnyi* is known only from eastern Khorasan and Sistan in Iran. The distribution of the species as a whole extends across the central Asian Republics, north to the latitude of the northern extent of the Aral Sea and east to northwestern China (Anderson, 1999).

According to Szczerbak (2003), this species inhabits tree trunks, loess precipices, scree slopes, walls, fences, ruins, and buildings at elevations up to 900–1200 m (and even 2000 m at the eastern end of its range) above sea level. One of the specimens was found in sandy plain with scattered vegetation and two specimens were collected at night on surfaced roads at elevation 1183 m a.s.l.

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