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A New Species of Racerunner Lizard (Lacertidae: *Eremias*) from Iran

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A new species of lacertid lizard, *Eremias kavirensis* sp. nov., is described from Isfahan Province in central Iran. The new species differs from all other known Iranian *Eremias* by having a subocoluar scale that does not reach the mouth, fringed toes, scales on flank distinctly larger than those of back, two rows of tibial scales, and its coloration. The known distribution of this distinctive new species is restricted to the Maranjaab sand dunes, Kavir Desert (Dasht-e-Kavir), Isfahan Province, Iran.

KEYWORDS: *Eremias kavirensis*, Maranjab, Kavir Desert, Dahst-e-Kavir, sand dunes

The lacertid genus *Eremias* consists of 37 species endemic to Eurasian Palearctic deserts (Anderson, 1999; Rastegar-Pouyani and Rastegar-Pouyani, 2006). Seventeen species of *Eremias* are known from Iran, five of which are restricted to this country (*E. andersoni* Darevsky and Szczerbak, 1978; *E. lalezharica* Moravec, 1994; *E. montanus* Rastegar-Pouyani and Rastegar-Pouyani, 1999; *E. nigrolateralis* Rastegar-Pouyani and Nilson, 1998; *E. novo* Rastegar-Pouyani and Rastegar-Pouyani, 2006). We report and describe a sixth endemic species of *Eremias* from Iran. This distinctive new species is presently known from a single locality, the Maranjab sand dunes of the Kavir Desert (Dasht-e-Kavir), Isfahan Province (Fig. 1).

INSTITUTIONAL ABBREVIATIONS.— CAS, The California Academy of Sciences, San Francisco, California, USA; MMTT, Muze-ey Meli-ey Taarikh-e Tabiei (Tehran Natural History Museum), Tehran, Iran.

DESCRIPTION

Eremias Fitzinger, 1834

Eremias kavirensis Mozaffari and Parham, sp. nov.

Figure 2.

ETYMOLOGY.— According to Arnold et al. (1978), "*Eremias* is a Greek noun meaning solitary devotee, and is related to *Eremia*, signifying an isolated place or desert." The epithet *kavirensis* is derived from the collection locality of the new species, the Kavir Desert (Dasht-e-Kavir), and the Latin '-*ensis*,' meaning 'from' or 'belonging to.'

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FIGURE 1. On the left, a map showing the localities of restricted-range species of *Eremias* endemic to Iran. 1(star): *Eremias kavirensis* sp. nov.; 2: *E. andersoni*; 3: *E. lalezharica*; 4: *E. montanus*; 5: *E. nigrolateralis*; 6: E. *novo*. On the right, habitat at the type locality of *Eremias kavirensis* sp. nov.

MATERIAL EXAMINED.—HOLOTYPE: (MMTT/AHI 1008) CAS 238636 [♂], 83 mm SVL, collected 22 June 2006; PARATYPES: (MMTT/AHI 1003) CAS 238641 [♀], 61 mm SVL, collected 22 June 2006; (MMTT/AHI 1004) CAS 238640 [♂], 61 mm SVL, collected 22 June 2006; (MMTT/AHI 1005) CAS 238639 [♀], 60 mm SVL, collected 22 June 2006; (MMTT/AHI 1006) CAS 238638 [♀], 62 mm SVL, collected 22 June 2006; (MMTT/AHI 1007) CAS 238637 [♂], 81 mm SVL, collected 22 June 2006; CAS 228522 [juvenile], 47 mm SVL, collected October 2002; (JFP 495) CAS 238642 [juvenile], 42 mm SVL, collected October 2002; (JFP 496) CAS 238643 [juvenile], 31 mm SVL, collected October 2002.

All material was collected from the type and only known locality, Iran: Isfahan Province: Maranjab sand dunes, 34°17′51″N, 51°50′57″E, (Fig. 1, 2A); AHI 1003–1008 were collected by the senior author (OM) and Esmaeil Saeedi; JEP 495–496 were collected by OM.

DIFFERENTIAL DIAGNOSIS.—Iranian *Eremias* can be assigned to four morphologically-defined subgenera (Szczerbak 1974; Anderson 1999). Although the monophyly of these subgenera remains to be tested with molecular data, they are useful morphological groupings for comparing our distinctive new form. By virtue of the subocular scale not reaching the mouth, *E. kavirensis* can be excluded from the subgenera *Eremias* and *Rhabderemias*. By virtue of having fringed toes, *E. kavirensis* can be excluded from the subgenus *Ommat-eremias*. Within the Iranian members of the subgenus *Scapteria*, *E. kavirensis* can be differentiated from *E.*

grammica by having enlarged tibial scales and from *E. acutirostris* by having scales of the flank larger than those of the back as well as having two rows of enlarged tibial scales instead of one.

Description of Holotype.— A large-sized *Eremias* with snout-vent length of 83 mm (largest known specimen of the type series). In life, the background color of the dorsum was sandy, yellowish-brown, and broken by grey transverse bars that are sometimes bordered with darker brown margins (Fig. 2A). There are dark brown spots on the head that are larger on the posterior head scales. The dorsal side of the limbs has enlarged light spots that, on the tibia especially, merge into semi-transverse stripes.

Cranial scalation (Fig. 2 B–D): Four pairs of submaxillary shields, with the first three pairs in contact, the fourth pair widely separated; first pair of submaxillary shields in contact with the men-

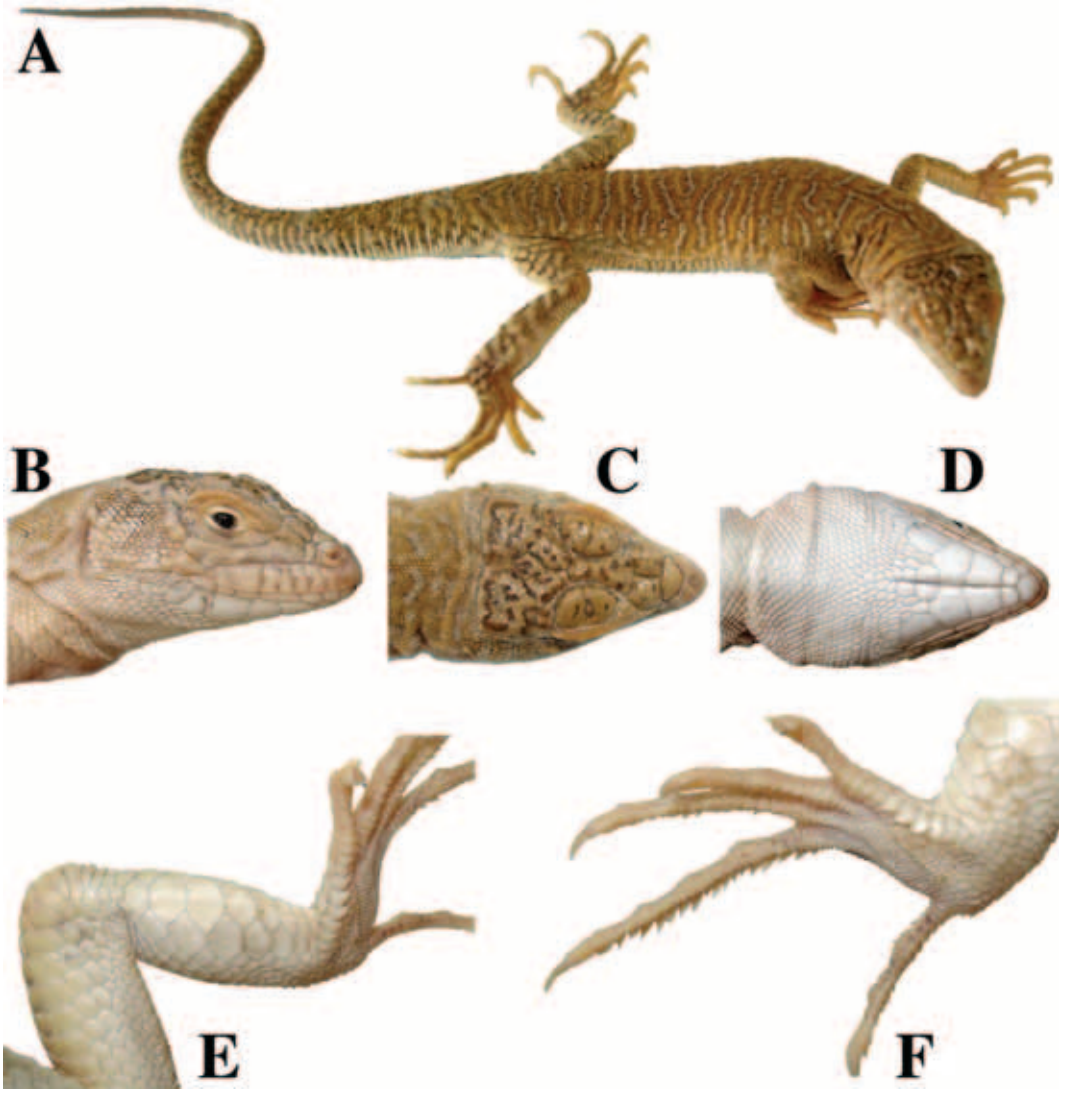

Figure 2. Morphology of *Eremias kavirensis* sp. nov. (MMTT/AHI 1008 = CAS 238636). A: Dorsal view of adult specimen showing coloration; B: Lateral view of head; C: Dorsal view of head; D: Ventral view of head; E: Ventral view of left hind limb; F: Ventral view of right hind foot.

tal scales anteriorly, with first and second infralabials laterally; the fourth sabmaxillary pair each in contact with the third pair anteriorly, surrounded by five granular scales laterally and posteriorly; seven sublabials; eight supralabials, seven of which are anterior to the subocular; subocular not bordering the mouth; three nasals, two of which are in contact with the rostral scale anteriorly; lower nasal resting on first and second supralabials as well as the frontonasal and first loreal posteriorly; the single fronotonasal is broader than long and laterally in contact with the first loreal and posteriorly with the prefrontals; dorsal head scales of adults are slightly convex; two prefrontals are in contact and almost as long as broad; prefrontals laterally contact the first and second loreals and posteriorly contact the frontal and supraocular; supraocular region, between the supraoculars and frontal, without any granules; frontal almost as long as prefrontal and frontonasal combined; frontal posteriorly in contact with the frontoparietals, laterally in contact with the supraoculars, and anteriorly contacting the prefrontals; two frontopariatals almost as large as one of the supraoculars, laterally in contact with the second supraocular and posteriorly contacting the interparietal and parietals; interparietal small and relatively lozenge-shaped, surrounded by the frontoparietals and parietals; two large parietals, almost as long as broad and contacting one another behind the interparietal; occipital is absent; two loreals; six supraciliaries, in contact with the supraocular; postocular elongate, surrounded by granules anteriorly; temporal region mostly covered by over 100 granular scales on each side that are larger towards the tympanum; tympanum vertically elongate, slightly larger than the orbit; no distinct supratemporal; subocular huge, narrower than long, and with a distinct ridge along the lower edge of the orbit; lower eyelids with a semi-translucent membrane.

Postcranial scalation: collar well pronounced, not serrated, made up of 10 scales, the two medial ones the largest; gular fold strongly developed, 24 gular scales; 18 longitudinal and 37 transverse rows of squarish ventral scales; anterior series of ventrals are somewhat irregular, median ventral longer than broad; dorsal scales are smooth, granular, becoming slightly larger laterally; 76 dorsal scales across the middle of dorsum, and about 190 scales in a single row from occiput to a point just above the vent; proximal caudals larger than posterior dorsals; caudals above the vent to approximately the 20th whorl are granular and from there to the end of the tail becoming large, elongate, and distinctly keeled distally, arranged in distinct whorls; 27 scales in the 20th whorl behind the vent; upper forearm covered dorsally by enlarged, juxtaposed, and almost lozenge-shaped scales; lower forearm covered with granules; upper hind limbs covered dorsally by granules, ventrally by large shields; tibia covered dorsally by slightly pointed granules, ventrally by two plates in a transverse row (Fig. 2E); 18 distinct fringes under the fourth toe, proximal part of the lower fourth toe containing a single row of lamellae (Fig. 2F); 19 femoral pores on each side, the two series separated anteriorly by a narrow space consisting of 8 scales; preanal region comprised of 24 large shields, the two medial ones being the largest; five plates in a longitudinal row fill the space between femoral pores to anterior edge of the vent.

Variation among Paratypes.— In juveniles, the coloration is different from adults; the transverse bars are uniformly dark. The venter and subcaudal surfaces of both young and adult are usually completely white although the groin is yellow in two adult female specimens (CAS 238639 [MMTT/AHI 1005], CAS 238636 [MMTT/AHI 1006]). The first pair of submaxillary shields contacts the first and/or second infralabials laterally; six or seven sublabials; seven or eight supralabials, five or six of which are anterior to the subocular; lower nasal rests on first, second, and, sometimes, third supralabials as well as the frontonasal and first loreal posteriorly; six or seven supraciliaries, in contact with the supraocular or separated from the supraocular by indistinct granules; collar well developed, not serrated, made up of 10–12 scales, the two medial ones the largest; gular fold strongly developed, 24–26 gular scales; 17–19 longitudinal and 36–38 transverse rows of squarish ventral scales; 75–80 dorsal scales across the middle of dorsum, and about 191–197 scales

in a single row from occiput to a point just above the vent; proximal caudals larger than posterior dorsals; 27–28 scales in the 20th whorl behind the vent; upper forearm covered dorsally by enlarged, juxtaposed, and almost lozenge-shaped scales; 18–21 distinct fringes under the fourth toe, proximal part of the lower fourth toe containing a single row of lamellae (Fig. 2F); 19–21 femoral pores in each side, the two series separated anteriorly by a narrow space consisting of six or eight scales; preanal region comprised of 22–28 large shields, the two medial ones being the largest; five or six plates in a longitudinal row fill the space between femoral pores to anterior edge of the vent.

Comments.— *Eremias kavirensis* is always found in the sandy microhabitat of the sand dunes and never in the surrounding gravelly areas. Based on this habitat preference, we hypothesize that *E. kavirensis* is endemic to the Maranjab sand dunes. The dune weed *Stipagrostis pennata* dominates the vegetation of the type locality (Fig. 1). Besides *E. kavirensis*, syntopic lizards include the widespread *Eremias fasciata, Bunopus crassicaudus*, *Teratoscincus keyserlingii, Phrynocephalus maculatus maculatus, Trapelus agilis*, and *Varanus griseus caspius*.

Eremias kavirensis is the fifth *Eremias* species known from the Kavir Desert (along with *E. andersoni*, *E. fasciata*, *E. persica*, and *E. velox*). *Eremias kavirensis* is geographically isolated from the morphologically similar species *E. acutirostris* and *E. grammica* from eastern Iran and adjacent countries. The description of *E. kavirensis* represents the sixth species of *Eremias* restricted to Iran and the Iranian endemic that is known from the Kavir Desert (Fig. 1). Given that all six Iranian endemics are known from restricted ranges (single localities), additional fieldwork has a high probability of either extending these ranges or else uncovering additional species heretofore unknown to science.

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