

Lizards of the Gando Protected area in Sistan and Baluchestan Province, southeastern Iran

HEIDARI, N.^{1*} AND H.G. KAMI²

¹Department of Biodiversity, Science and Research Branch, Islamic Azad University- Khuzestan- Iran.

² Department of Biology, Faculty of Sciences, University of Golestan, Gorgan Iran.

Received: 23 April 2009 Accepted: 5 November 2009

We report observations on the natural history of lizards in the Gando Protected Area, within the Sistan and Baluchestan Province, Iran. The identity of the lizards is recorded, along with remarks on some meristic characteristics. Brief descriptions of their habitats are also given with a distribution map. Lizards (n = 132) were collected and photographed in 2008-09. Twelve species belonging to 9 genera and five families were found: Agamidae: *Landakia melanura lirata*, *Trapelus agilis*, *Landakia fusca*; Gekkonidae: *Bunopus tuberculatus*, *Cyrtopodion scabrum*, *Hemidactylus persicus*, *Hemidactylus flaviviridis*; Lacertidae: *Mesalina brevirostris*, *Mesalina watsonana*, *Acanthodactylus blanfordi*; Scincidae: *Eumeces schneiderii zarudnyi*; Varanidae: *Varanus griseus caspius*. This is the first record of *Mesalina brevirostris* in southeastern Iran.

Key words: Gando Protected Area; Sistan and Baluchistan Province; Iran.

INTRODUCTION

Iran is located in the Palearctic, at the convergence of zoological and botanical influences of Northern Africa, Southern Asia, Central Asia, and Europe. The coexistence of these geographic areas creates the most geographically and faunistically complex area in southwest Asia (Balutch, 1977). To date, 216 species of reptiles including 10 species of turtle, 79 species of snake, 125 species of lizard, one species of *Amphisbaenia*, and one species of crocodile have been documented in Iran (Rastegar-Pouyani et al, 2008). Researchers such as Anderson (1963, 1999), Blanford (1874, 1876), Nikolsky (1896, 1899, 1900), Boulenger (1887), Balutch (1977-78), Rastegar-Pouyani (2006), and Ziyaei et al. (2003-04) have studied Iran's fauna, especially lizards, in areas including Sistan and Baluchestan. In contrast, there is little information on the lizards in the Gando Protected Area, other than sporadic reports from surrounding areas.

MATERIAL AND METHODS

A total of 132 specimens belong to 5 families, 9 genera, and 12 species were collected at 11 stations (Fig.1) in the Gando Protected Area, in Sistan and Baluchestan Province, between September 2008 and February 2009. All species and their habitats were photographed.

MEASUREMENTS

Measured parameters were: SVL (length from snout to vent, from tip of snout to anterior edge of cloaca), TL (length of tail, from posterior edge of cloaca to tip of tail), SL (number of supralabials),

IL (number of infralabials), HL (head length), and HW (head width). Biometric measurements were recorded in mm according to conventional standards using vernier calipers to the nearest 0.02mm

TABLE1. Summary of stations and species occurrences.

	Ab	Mw	Mb	Es	Lm	Lf	Ta	Bt	Hp	Hf	Cs	Vg
1. OB	+	+					+			+		
2. Pb											+	
3. GB	+	+										
4. N				+				+	+	+		
5. SM	+											
6. R	+					+			+			
7. GaB		+	+						+			
8. D									+	+		
9. BK							+		+			+
10. L										+		
11. Nb					+							
.												

Stations: 1: Old Beris, 2: Pasabandar, 3: Guater Bay, 4: Negor, 5: The Somach Mountain, 6: Rask, 7: Garm Beet, 8: Dashtiyari, 9: Bahu Kalat, 10: Latidan, 11: Nobandiyan.
 Species: Ab: *Acanthodactylus blanfordi*, Mw: *Mesalina watsonana*, Mb: *Mesalina brevirostris*, Es: *Eumeces schneiderii zurudnyi*, Lm: *Laudakia melanura lirata*, Lf: *Laudakia fusca*, Ta: *Trapelus agilis*, Bt: *Bunopus tuberculatus*, Hp: *Hemidactylus persicus*, Hf: *Hemidactylus flaviviridis*, Cs: *Cyrtopodion scabrum*, Vg: *Varanus griseus caspius*. Figure 2

and with a ruler for larger specimens. For the number of studied specimens of each species refer to Table 1.

RESULTS

Occurrence of each species in each locality is presented in Figures 2-5. Related measured characteristics (means \pm SD) are presented in Table 1.

Family Lacertidae

Genus *Acanthodactylus* Fitzinger 1843

1- *Acanthodactylus blanfordi* Boulenger, 1918, Blanford's Fringed-toed Lizard

Type locality: Bam and Jask, Iran; Dasht and lMand, Pakistan

Distribution: Southern Iran (Baluchistan and Kerman Province), southwestern Pakistan, southern Afghanistan, northern coasts of Oman.

Expedition localities: Specimens were found in sandy plains with scattered plants such as *Acacia* and *Tamarix*, and sandy hills in the regions of the villages Old Beris, Guater Bay, Somach Mountain, Rask (Pishin Dam), Polan, and Nobandiyan.

External characteristics: Six longitudinal dorsal lines and one longitudinal lateral line (cream in live specimens); individual longitudinal rows of black spots, especially in juveniles. Some adults are almost uniformly light brown; abdominal surface cream to grayish white.

Genus *Mesalina* Gray 1838

2- *Mesalina watsonana* (Stoliczka, 1872), Persian long-tailed desert lizard

Type locality: Sind, between Karachi and Sukkur.

Distribution: Occurs widely in the Iranian plateau and extends as far north as southern Turkmenistan.

Expedition localities: Collected in Old Beris, Guater Bay, and Garm Beet.

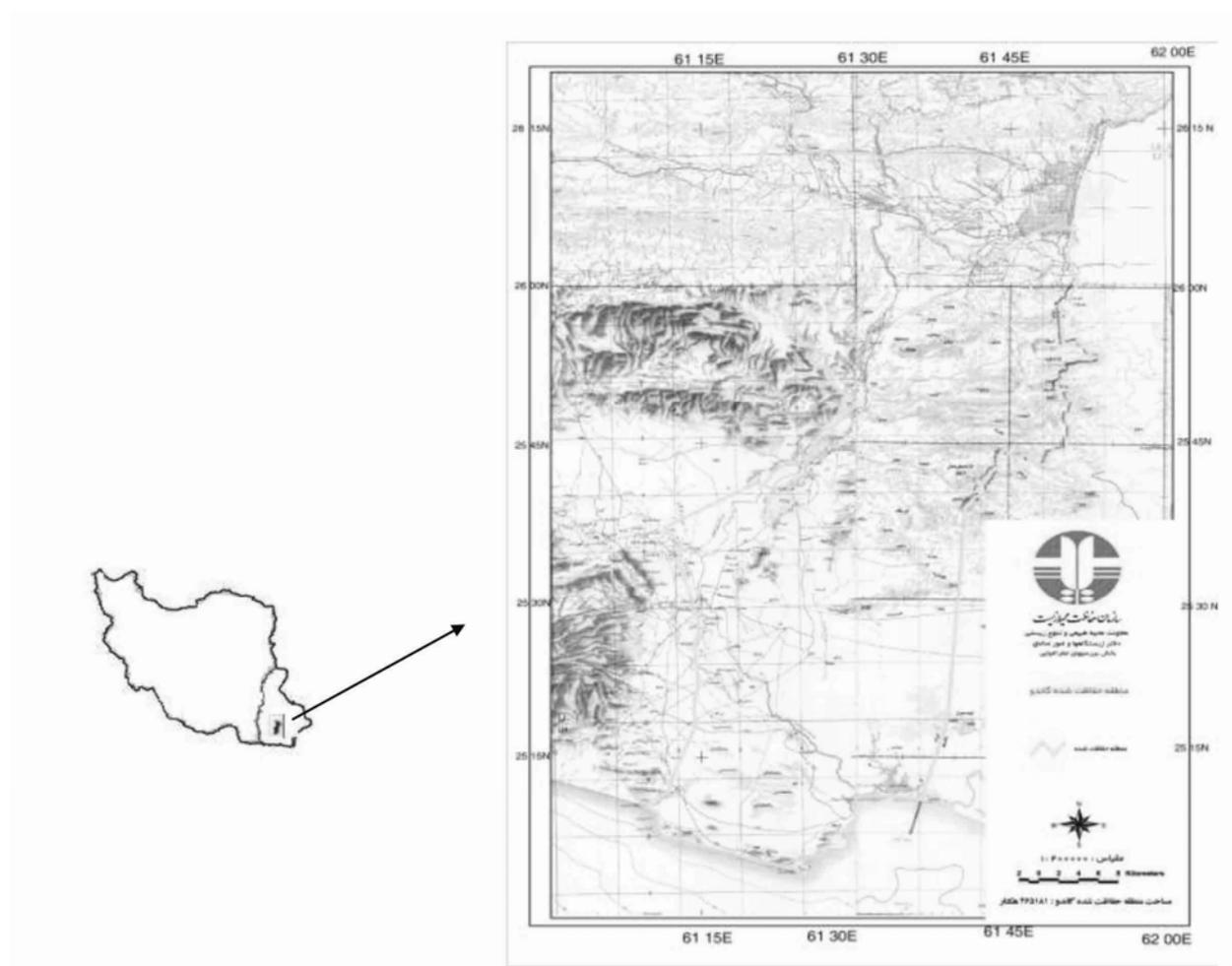


FIG. 1. Topography map of Gando protected area adapted from Iranian environment department.

External characteristics: White longitudinal streaks on the dorsal surface; some dorsal white and black spots; color pattern of dorsal part of the body and limbs similar; abdominal surfaces white.

3- *Mesalina brevirostris brevirostris* Blanford 1874, Blanford's short-nosed desert lizards

Type locality: Tumb Island (Persian Gulf) and Kalabagh Punjab

Distribution: Northern Saudi Arabia, Syria, Jordan, Iraq, Southwestern Iran and island in the Persian Gulf, Pakistan to Punjab, Northern India.

Expedition localities: Garm Beet; reported for the first time in Sistan and Baluchestan.

External characteristics: Occipital shield is small and does not contact interparietal shield; abdominal scales are in 10 straight longitudinal rows; three nasal scales contact premaxillary shield; first supralabial scale is free and angular; dorsal surface is light gray with no visible spots; there is a dark longitudinal streak on each side of the body.

Family Scincidae

Genus *Eumeces* Wiegmann 1834

4- *Eumeces schneiderii zarudnyi* Nikolsky, 1900. Zarudny's Skink.

Type locality: Bazman, Iran.

Distribution: Southeastern Iranian Plateau in Kerman, Baluchistan and Sistan Province in Iran, the Helmand Basin and southern desert regions of Afghanistan, and Baluchistan and the Mekran coast of Pakistan.

Expedition localities: Negor region inside Gando Protected Area

External characteristics: Dorsum brownish gray, abdomen cream and white; white lateral streak runs below or at the back of the eye, passes by the ear and stretches to the femur, meeting a darker streak at the top surface of body; two pinkish streaks on one-third to two-thirds of the dorsal surface. In live specimens, the dorsal area is bluish grey to lead in color and the abdomen whitish. The lateral streak is pale orange or red.

Family Agamidae**Genus *Laudakia* Gray 1845****5- *Laudakia melanura lirata* (Blanford 1874),** Large-scaled rock agama.

Type locality: Persepolis

Distribution: Southern and western periphery of the Iranian plateau, foothills of the Zagros Mountains in eastern Iraq and western Iran, eastward through southern Iran into southern Afghanistan and Baluchistan, Pakistan.

Expedition localities: Rask, Nobandiyar.

External characteristics: Adult males are dark brown with yellow-spotted head and neck; females dark brown with light spots on dorsal surface. The head is of the same color as the inferior thighs and proximal parts of the tail are yellow.

6- *Laudakia fusca* (Blanford 1876). Yellow-head agama

Type locality: Kalagan, Baluchistan, Iran, and near Jalk

Distribution: Southeastern Iran, coasts of Persian Gulf and Oman Sea.

Expedition localities: Among the rocks on walls around Pishin Dam inside Rask protected area.

External characteristics: Dorsal surface light brown; abdominal surface is light amber. The chin, gular region and thoracic region of males are dark blue. In males, the entire head is gray, limbs, and tail dark brown to black.

Genus *Trapelus* Cuvier 1816**7- *Trapelus agilis* (Oliver 1804).** Brilliant Agama, Steppe Agama.

Type locality: Neighborhood of Baghdad, Iraq

Distribution: Western margins of Iranian Plateau, Afghanistan, and Pakistan to western Punjab and north into the Asiatic steppes of the central Asian republics and Russia to about 48 ° N.

Expedition localities: Old Beris, Polan Village, and Bahu Kalat.

External characteristics: Dorsum khaki or gray with dark brown or red lines connected to a vertebral row and two dorsolateral rows of oval spots; 3 rows of callous scales at the anterior edge of the cloacal notch.

Family Gekkonidae**Genus *Bunopus* Blanford 1874.****8- *Bunopus tuberculatus* Blanford 1874.** Baluch rock gecko, Arabian Desert gecko.

Type locality: Near Bampur, Baluchistan, Iran.

Distribution: Israel, Syria, Iraq, southwestern Iran, central and southeastern Iran, southern and eastern Afghanistan, southern Turkmenistan, and Baluchistan and Sind, Pakistan.

Expedition localities: Nobandiyan.

External characteristics: Dorsum sandy with 5-6 brown streaks; a more or less visible cross bars dark mark in the posterior area; hind limbs have streaks or brown spots; abdomen white and lateral surface of tail streaked and brown.

Genus *Hemidactylus* Oken 1817

9- *Hemidactylus persicus* Anderson 1872. Persian Gecko.

Type locality: Iran, No specific locality given.

Distribution: Coastal eastern Arabia north to southern Iran and Iraq, east to Sind and Wazirestan, Pakistan.

Expedition localities: Negor, Polan, Latidan, Garm Beet, Bahu Kalat, Pishin Dam, and Nobandiyan.

External characteristics: Dorsum light brown or gray with individual white or dark brown tubercles. Commonly a dark lateral line on the head; abdomen whitish.

10- *Hemidactylus flaviviridis* Ruppell 1840. Yellow-bellied House Gecko.

Type locality: Massawa Island, Eritrea.

Distribution: Northeast African and Arabian shores of the Red Sea and around the coasts of Arabian and Iran, across Pakistan, eastern Afghanistan and northern India, west Bengal and south to the vicinity of Bombay; coastal towns and villages of Baluchistan, Kerman, Hormozgan, Fars, and Khuzestan Provinces in Iran.

Expedition localities: Old Beris, Negor, Latidan and Polan.

External characteristics: Dorsal surface gray to yellowish-brown and pink, either solid or with 5 dark streaks with white margins posteriorly. First anterior streak is on the neck. Pattern on tail similar to dorsum. Pallid streak through eye stretches to temple. Color variation is considerable.

Genus *Cyrtopodion* Fitzinger 1843.

11- *Cyrtopodion scabrum* (Hayden 1827). Keeled-rock gecko, rough-tailed gecko

Type locality: Tor, Sinai, Egypt, and Abyssinian Coast.

Distribution: From Egypt south along the coasts of the Red Sea to Ethiopia, Persian Gulf coasts of the Arabian Peninsula and east across the arid regions of southwest Asia to southern Afghanistan, Pakistan, and northwestern India.

Expedition localities: Pasabandar, south of Gando protected area.

External characteristics: Dorsal surface khaki with brown spots arranged in two regular longitudinal rows; limbs and tail with narrow dark streaks; abdomen white.

Family Varanidae

Genus *Varanus* Merem 1820

12- *Varanus griseus caspius* Eichwald 1831. Desert monitor.

Type locality: Egypt.

Distribution: Throughout Plateau of Iran from the Zagros Mountains in the west, eastward through Afghanistan and Baluchistan, and north through the central Asian republics.

Expedition localities: Sarbaz (Bahu Kalat).

External characteristics: Red and brown streak on dorsum; tail with 19 dark streaks.

DISCUSSION

In this study, we have attempted to establish a baseline for future studies of lizards in eastern Baluchistan, through describing representative habitats and identifying the common species found in the Gando Protected Area. Although early collectors, such as Blanford, Zarudny, and Anderson and

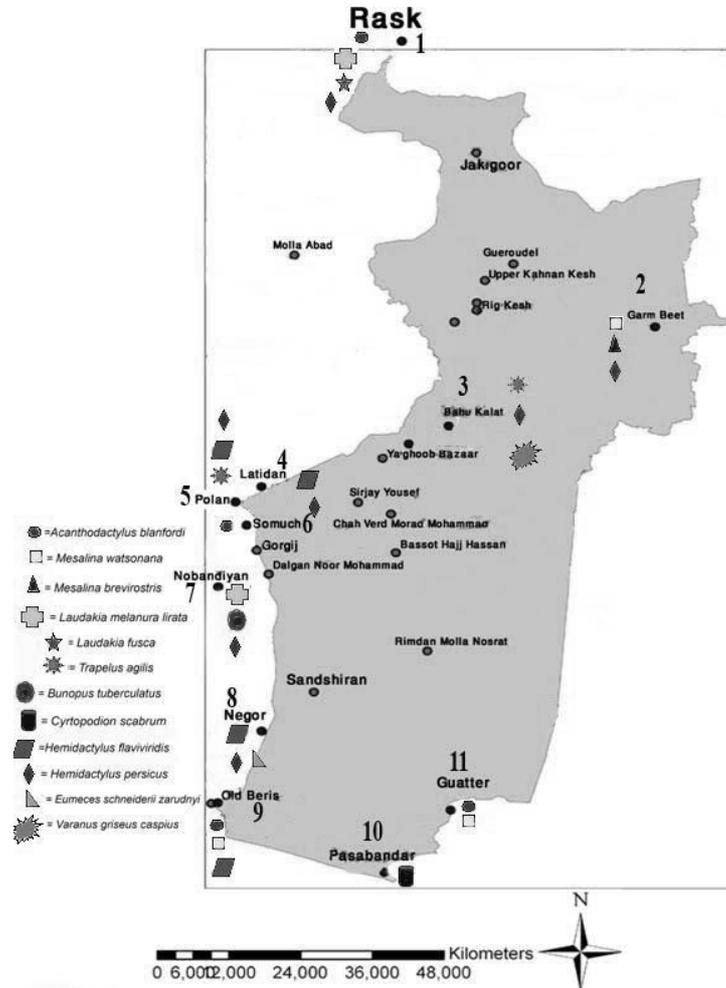


FIG.2. Occurance of lizard species observed in the Gando protected area.

Tuck (see Anderson, 1999), traveled through what is now the Gando Protected Area, none attempted comprehensive collections and none made detailed observations of the habitats. More detailed accounts of the fauna of Gando will be needed for adequate wildlife management of this protected area. Somewhat surprisingly for a remote, little-investigated region, our specimens do not compare significantly in morphology from those in the literature in the characteristics measured to show their similarities and differences.

Comparing our specimens with published reports, several scale counts extend the known range of variation. Our specimens of *Laudakia melanura lirata* show a greater number of scales around the body than those from Pakistan (Anderson 1999). The number of scales in Iranian specimens is 122-149 and in Anderson's (1999) specimens (from northwestern Punjab through Sind and Baluchistan) is 120-130. Using current taxonomic data, Iranian populations of *L. melanura* have been identified as

L. m. lirata, but both Iranian and Pakistani populations are little investigated, and it is likely that a comprehensive molecular and morphological study of these populations will result in substantial changes in their taxonomy. Sexual dimorphism in this species has been studied (Heidari et al, 2009). In our specimens of *Acanthodactylus blanfordi*, the number of gular scales (25-39) differs from the 27-38 reported by Anderson (1999). In *T. a. agilis*, our results in some measured characteristics agreed with 293 specimens investigated by Rastegar-Pouyani (1999); the mean (N= 11) SVL, TL, and HL in our specimens were 84.2, 131.2, 22.2 mm and in Rastegar-Pouyani's report were 87.11, 133.54, 25.27 mm, respectively.

In the present study the number of preanal pores found in *Bunopus tuberculatus* was 5. Szczerbak and Golubev's (1996) reported 6-16.

In *Cyrtopodion scabrum*, the number of midventral scales across the belly was 25, while Nazarov and Rajabizadeh (2007) reported 16-23; the number of longitudinal rows of dorsal tubercles observed differed from those reported by Nazarov and Rajabizadeh (2007). The number of transverse midventral scales in the specimens studied here was 10, and in Nazarov and Rajabizadeh's (2007) specimens was 12-13. For most of these species there are large gaps in the known distributions, and, if some of these dissimilarities reflect actual discontinuities, molecular work may reveal distinct populations.

Other lizard species reported in or near Gando Protected Area, but not found during our study, are agamids: *Calotes versicolor*, *Laudakia nupta*, *Phrynocephalus scutellatus*, *Agamura persicus*; gekkonids: *Cyrtopodion agamuroides*, *Cyrtopodion brevipes*, *Cyrtodactylus seistanensis*, *Hemidactylus robustus*, *Pristurus rupestris*; lacertids: *Acanthodactylus micropholis*, *Eremias fasciata*, *Eremias persica*; scincids: *Chalcides ocellatus*, *Ophiomorus blanfordi*; varanids: *Varanus bengalensis* (see maps in Anderson, 1999). This indicates that additional studies are desirable to fully enumerate the lizard species of the area. Although, as pointed out by Anderson (1999), and others, an Oriental element of the fauna occurs in eastern and southeastern Iran, no such species are reported in Gando, although *Calotes versicolor* and *Varanus bengalensis* may be expected to occur there. The former may be found in date-growing areas in and around villages and the latter in more heavily vegetated areas along the Sarbaz River. *Pristurus rupestris* and *Acanthodactylus micropholis* (species with Afro-Arabian relationships), *Chalcides ocellatus*, and *Ophiomorus blanfordi* should be sought along the coast. Of the species known to occur in the Gando Protected Area, *Acanthodactylus blanfordi*, *Mesalina brevirostris*, *Eumeces schneideri zarudnyi*, *Laudakia melanura*, and *L. fusca* are more or less confined to Baluchistan in both Iran and Pakistan, extending into Sind. *Hemidactylus flaviviridis* is present on the islands and along both coasts of the Persian Gulf. The remaining species are typical of the Plateau of Iran or have a still broader distribution (Anderson, 1999).

ACKNOWLEDGEMENTS

The authors extend their heartiest thanks to personnel of the Environment Organization Sistan and Baluchestan Province: Soheila Shafei, Hiwa Fiazi, and Anis and Alaa Zeinali Moqadam, for their earnest efforts and cooperation.

LITERATURE CITED

- ANDERSON, S. C. 1963. Amphibians and Reptiles from Iran. *Proceedings of the California Academy of Sciences* ser. 4 31(4): 417 – 498.
- ANDERSON, S. C. 1999. *The Lizards of Iran*. Society for the Study of Amphibians and Reptiles; Ithaca, NY, vii + 442 pp. 137 figs, 25 col. pls.
- BALUTCH, M. 1977. *Iran's Reptiles (Saurian Biogeography)*, Tehran University Press, 148 pp. (In Persian).

- HEIDARI, N., CHEATSAZAN, H., KAMI, H., G. AND SHAFIEI .S. 2009. Sexual Dimorphism of Black Rock Agama, *Laudakia melanura lirata* (Blanford 1874) (Sauria: Agamidae) in the Gando protected area, south eastern Iran (Under publish, *Zoology in the Middle East*).
- NAZAROV, R. A., RAJABIZADEH, M. 2007. A new species of angular-toed gecko of the Genus *Cyrtopodion* (Squamata: Sauria: Gekkonidae) from South-East Iran (Sistan and Baluchistan Province). *Russian Journal of Herpetology* 14(2): 1-8.
- RASTEGAR-POUYANI, N. 1999. Analysis of geographic variation of *Trapelus agilis* (Sauria: Agamidae). *Zoology in the Middle East* 19: 75-99.
- RASTEGAR-POUYANI, N., M. JOHARI, AND H. PARSA. 2006. Reptiles of Iran. Volume 1 Lizard, Razi University Press, Kermanshah, Iran 139 pp. (In Persian).
- RASTEGAR-POUYANI, N., KAMI, H. G., RAJABIZADEH, M., SHAFIEI, S., AND ANDERSON S. C. 2008. Annotated Checklist of Amphibians and Reptiles of Iran. *Iranian Journal of Animal Biosystematics* 4:1, 43-66.
- SZCZERBAK, N. S AND GOLUBEV, M. L. 1996. Gecko Fauna of the USSR and Contiguous Regions. Society for the Study of Amphibians and Reptiles. Oxford, Ohio. 229 pp.
- ZIYAEI, H., SHAFIEI S. 2003. A Study of Reptiles in Sistan & Baluchestan Province, 2003-04, Karaj Environment College. 227 pp. (In Persian)