

A checklist of herpetofauna from Sabzevar, Northeastern Iran

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The reptile's fauna of Sabzevar was investigated during 10 years (2003-2013). In total 42 species belonging to 29 genera, 13 families and two orders (Squamata and Testudines) were collected and identified. The most diverse group in the area is lizards with 23 species, followed by snakes with 18 species and the testudines with one species. The most diverse families are Colubridae, Lacertidae with 8 and Gekkonidae with 5 species respectively, followed by Agamidae with 4 species, Viperidae, Boidae and Scincidae with 3 species each, Lamprophiidae and Spherodactylidae with 2 species and 4 families Elapidae, Thyphlopidae, Varanidae and Testudonidae with only one species each.

Key words: *biodiversity; reptiles; Sabzevar; Northeastern Iran.*

INTRODUCTION

The herpetofauna of Iran is rich and diverse. In terms of species richness and taxonomic diversity of reptiles, this area is harbor of the most remarkable reptile faunas within the western Palearctic region (Sindaco and Jeremcenkov, 2008; Rastegar-Pouyani et al., 2011). The Iranian herpetofauna consists of nine species and six subspecies of Testudines (Chelonia; turtles, terrapins, and tortoises), one species of Crocodylian, one species of amphisbaenian, more than 146 species of Lacertilia (lizards), and about 85 species of Serpentes (snakes)(Smid et al., 2014). (Rastegar- Pouyani et al. (2011). The reptile's fauna of Northeast Iran consists of approximately 71 species, including 39 species of lizards, 32 snakes and one turtle (Darvish and Rastegar-Pouyani, 2012). Various investigators have contributed to the study of reptiles in Sabzevar and adjacent regions, including(Gharzi ,1991; Rastegar-Pouyani et al.2008:Khademi ,2005: Parvane Aval ,2008:Nasrabadi et al. ,2008: Darvish and Rastegar-Pouyani ,2012 and Yousofi et al. ,2013). However present study is the most comprehensive work performed with many field works from 2003 to 2013, concentrated just on reptile fauna of the Sabzevar region. Our focus here is to list the entire reptile species that colonized the Sabzevar area with a brief remark on their habitats.

MATERIAL AND METHODS

Sabzevar district (including Joghatai, Jovein, Khoshab and Davarzan) is located in western area of Razavi Khorasan Province with latitude of 35° 39' to 36° 29'N and longitude of 56° 43' to 58° 15'E (Fig. 1). The geographic and climatic situation of the area supports a rich herpetofauna for an arid region because Sabzevar is located between two different climates, mountainous climate in the north

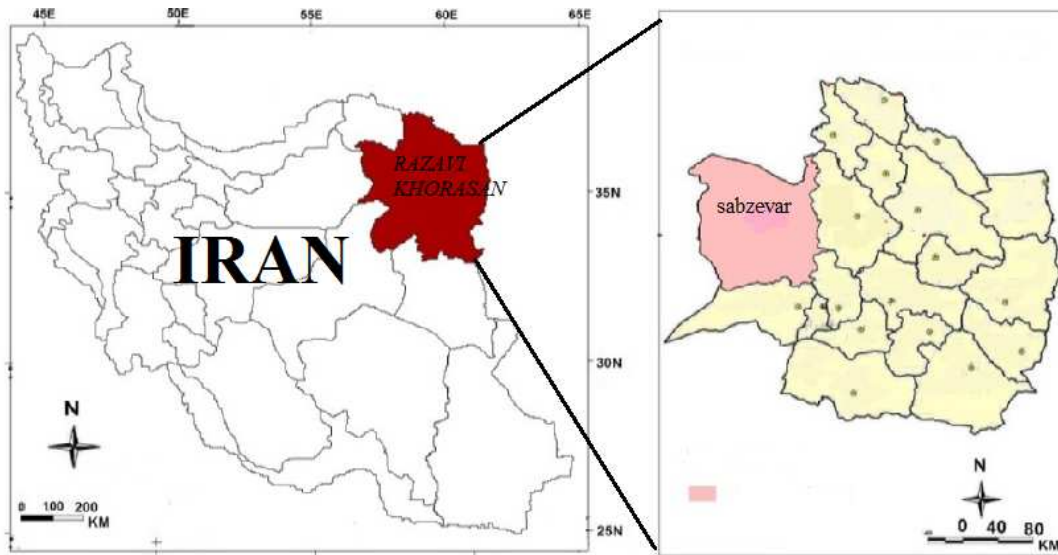


FIGURE 1. Geographical location of Sabzevar

to desert in the south. Sabzevar covers a land area of about 14245 km² (Khani, 2010; Hosseinian Yousefkhani et al., 2014). The region is bordered to the north by North Khorasan Province, to the south by Bardaskan and Kashmar, to the west by Nishabour, and to the east by Semnan Province. The elevation range extends from 950 m to about 2977 m. Mean annual precipitation and temperature since 1961 to 2001 was 191/6 mm and 17/4 °C (Hamidian, 1988). This region is a great significance area in terms of reptilian fauna.

Fieldwork were carried out in all parts of the Sabzevar region from 2004 to 2014. The best time for sampling of reptiles in the area is from March to October when environmental conditions allow these animals to be active. For sampling of nocturnal reptiles such as geckos and sand snakes, crevices and under rocks in their preferred habitats were searched. All lizards were captured by hand and snakes captured using a forceps and were deposited in the Sabzevar University Herpetological Collection (SUHC) and the Environment Office of Sabzevar. The reptile specimens were killed using chloroform and fixed using 96% ethanol and preserved in 75% ethanol. Specimens were identified using available identification keys Latifi (1991), Leviton et al. (1992), Anderson (1999) and Rastegar-Pouyani et al. (2007).

RESULTS

During this study in total 42 species of reptiles (including 23 lizards, 18 snakes, and one turtle were identified from the Sabzevar region (Table 1). Seven species (*Agamura persica*, *Bunopus tuberculatus*, *Crasobamon everesmanni*, *Teratoscincus bedriagai*, *Teratoscincus keyserlinji*, *Tenuidactylus caspius*, *Cyrtopodion scabrum*) of lizard were nocturnal and sixteen species (*Paralandakia caucasia*, *Paralandakia erythrogaster*, *Trapelus agilis*, *Phrynocephalus scutellatus*, *Phrynocephalus mystaceus*, *Ermias fasciata*, *Ermias nigrocellata*, *Ermias persica*, *Ermias lineolata*, *Ermias intermedia*, *Ermias kopetdaghica*, *Ermias velox*, *Mesalina watsonana*, *Ablepharus bivittatus*, *Trachylepis aurata*, *Eumeces schneideri*, *Varanus griseus caspius*) of lizard were diurnal. Eleven of the snake species (*Eryx tataricus*, *Eryx jaculus*, *Eryx miliaris*, *Hemorrhois ravergieri*, *Lytorhynchus ridgewayi*, *Natrix tessellata*, *Platyceps karelini*, *Platyceps rhodorachis*, *Platyceps ventrimaculatus*, *Spalerosophis daiadema*, *Typhlops vermicularis*) were nonvenomous; three (*Boiga trigonata*, *Psammophis lineolatus*, *Psammophis schokari*) semivenomous and four (*Echis carinatus*, *Macrovipera lebetina*, *Pseudocerastes persicus*, *Naja oxiana*) were venomous. The results indicated that 18.1% of the Iranian reptile species and 59.1% of the reptile of great Khorasan occur in the area.

TABLE 1. - Reptile species collected from Sabzevar.

	Family	Species name	Locality in the area
Lizards	Agamidae	<i>Paralaudakia caucasia</i>	Mountains Gharzi, Darab, Bazghand and Rivand
		<i>Paralaudakia erythrogaster</i>	Joghatay mountains in north part of the Sabzevar region
		<i>Trapelus agilis</i>	It is considered the most abundant lizard in the area
		<i>Phrynocephalus scutellatus</i>	It is considered the most abundant lizard in the area
		<i>Phrynocephalus mystacens</i>	Parvand Protected Area
	Gekkonidae	<i>Agamura persica</i>	Parvand Protected Area
		<i>Bunopus tuberculatus</i>	Sheshtamad
		<i>Crasobamon everesmanni</i>	Parvand Protected Area
		<i>Tenuidactylus caspium</i>	It is considered the most abundant lizard in the area
		<i>Cyrtopodion scabrum</i>	Sabzevar
	Spharodactylidae	<i>Teratoscincus bedriagai</i>	Shirahmad Wildlife Refuge
		<i>Teratoscincus keyserlinji</i>	Shirahmad Wildlife Refuge
	Lacertidae	<i>Eremias fasciata</i>	Haresabad forest
		<i>Eremias nigrocellata</i>	Haresabad forest
		<i>Eremias persica</i>	It is considered the most abundant lizard in the area
		<i>Eremias lineolate</i>	Haresabad, Mehrshahi village
		<i>Eremias intermedia</i>	Around Shamkan village
		<i>Eremias kopetdaghica</i>	Rivand area
		<i>Eremias velox</i>	Haresabad forest, Shamkan, Shirahmad
	Scincidae	<i>Mesalina watsonana</i>	It is considered the most abundant lizard in the area
		<i>Ablepharus pannonicus</i>	Shirahmad Wildlife Refuge, Sheshtamad
		<i>Trachylepis aurata</i>	Shirahmad Wildlife Refuge, Abasabad, Foromad
	Varanidae	<i>Eumeces schneideri</i>	Nasrabad, Bazghand, Darab, Besk, Tabas, Foromad
<i>Varanus griseus caspius</i>		It is considered the most abundant lizard in the area	
Serpantes	Boidae	<i>Eryx tataricus</i>	Joghatai, Shirahmad Wildlife Refuge
		<i>Eryx jaculus</i>	Asadolah khan River
		<i>Eryx miliaris</i>	Rigdarzi- Shirahmad
	Colubridae	<i>Boiga trigonata</i>	Parvand, Lotfabad ,Sabri village
		<i>Hemorrhois ravergieri</i>	Rahmatabad village
		<i>Lytrobynchus ridgwayi</i>	Parvand, Hares abad
		<i>Natrix tessellate</i>	Kalshor, Razghand village
		<i>Platyceps karelini</i>	Mashkan village ,Razghand village
		<i>Platyceps rhodorachis</i>	It is considered the most abundant snake in the area
		<i>Platyceps ventrimaculatus</i>	It is considered the most abundant snake in the area
	<i>Spalerosophis daiadema</i>	It is considered the most abundant snake in the area	
	Lamrophiidae	<i>Psammophis lineolatus</i>	It is considered the most abundant snake in the area
		<i>Psammophis schokari</i>	It is considered the most abundant snake in the area
	Viperidae	<i>Echis carinatus</i>	It is considered the most abundant snake in the area
		<i>Macrovipera lebetina</i>	It is considered the most abundant snake in the area
		<i>Pseudocerastes persicus</i>	Parvand
	Elapidae	<i>Naja oxiana</i>	Mehr, Saroogh
Typhlopidae	<i>Typhlops vermicularis</i>	It is considered the most abundant snake in the area	
Testudines	Testudonidae	<i>Testudo horsfieldi</i>	It is considered the most abundant turtle in the area

DISCUSSION

Sabzevar region situated in the northeastern margin of the Kavir Desert in central plateau of Iran (Alaeei, 2009). In this study the region was surveyed for reptile species during 10 years and 42 species of reptiles (lizard, snake and turtle) were identified. Although in the previous studies such as Parvane –Aval (2008), Nasrabadi et al. (2008), Darvish and Rastegar-Pouyani (2012) most of these species were identified and reported but some of them were discovered during present work in remotest parts of the Sabzevar area as some small isolated populations. Yousefi and Khani (2013), carried out a study on this region and evaluated the lizard conditions and adaptations with the habitats. They reported 21 species of lizards from Sabzevar region.

Hosseinian Yousefkhani et al (2014) studied the snake fauna of Shirahmad wildlife refuge and Parvand protected area, where have two different climate and habitats for reptile, they reported 17 species of snakes in this region but *Eryx tataricus*, the snake that lives in Joghatai and Shirahmad, was not reported in that work.

In this study we tried to gather all previously published and our own data of several fieldwork to, present a general view of the Sabzevar reptiles. *Bunopus crassicaudus* is reported from eastern part of this region Kamali and Mozaffari (2013), and another locality in northern area of the Sabzevar region adjacent to the North Khorasan Province (our own observation). According to these records, we can assume that this species should be colonized in Kal-e Shoor area in southern part of the region. Diversity of reptiles in this region has an ecological background and according to zoogeographical view. Several types of habitat occur in Sabzevar area, from highland and mountainous environments in north to lowlands, steppes, deserts, dunes and warm regions in south. This variety in habitat types indicate that the region has enough potential to colonize several species of reptiles.

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