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Survey of Reptiles Fauna of Nazmabad of Arak, Markazi Province, Iran

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Abstract: Study Reptiles each region and take appropriate measures to preserve and protect them as valuable species for recovery and balance of natural ecosystems, the priorities of each country's significant biodiversity. Iran is a very active geographic area for any animals and more especially for reptiles, due to its wide range deserts and ecology. Markazi Province in the northern Iran possesses varied climatic and geographical conditions that led to rich biodiversity. This study was done in Nazmabad of the southern Arak and in 34° 34' 38"of latitude and 49° 43' 39"of longitude. In this research, many reptiles were observed from different zones of Nazmabad area during March 2013 to Novamber 2013. Pictures were taken of the samples and then were released without any harm. Identified samples belong to 15 species and 7 families including: Typhlops vermicularis from the family Tiphlopidae; Psammophis schokri, Coluber najadum, Hemorrhois ravergieri, Coluber r.ladacensis, Eirenis persicus and Hierophis andreanus from the family Colubridae; Vipera lebetina from the family Viperidae; Ophisops elegans from the family Lacertidae; Laudakia caucasia and Trapelus ruderatus from the family Agamidae; Ablepharus pannonicus, Ablepharus bivittatus and Eumeces schneideri princeps from the family scincidae and Testudo graeca from the family Testudinidae. With five species represented, Colubrids the highest species diversity in the area.

Key words: Biodiversity · Fauna · Reptiles · Nazmabad · Markazi Province · Iran

INTRODUCTION

Wildlife is one of the most important measures of biodiversity and the lack of understanding can cause grave consequences and may ultimately endanger the life of the species and even lead to destruction in some areas. Iran, with an area of about 1648195 square kilometers has a great richness of species of reptiles [1]. In terms of biogeography and animal geography, it can be considered as the most complicated country in southwest Asia, as it is located at the center area encountering animals of North Africa, South Asia, Central Asia and Europe [2]. In this vast land, there are many habitats rich in various reptiles that have not been reviewed yet, mainly due to insufficient time, high costs and in some cases, the lack of security in some areas like rder. Hence, the fauna of reptiles is unknown we see that every year new records of reptiles in each area is filed [3-14]. Another important reason for the unknown reptiles in Iran is the presence of rare species and species with unique behaviors [12].With regard to the high degree endemism of reptiles in Iran, the identification and estimation of their exact position require many detailed ecological studies. The reptiles feed on plant pests and thus have great importance and role in the population regulation of many species of insects and consequently in the maintenance and control of agricultural products [2]. Many studies have been conducted on fauna of reptiles in different parts of Iran including the study of. Due to lack of proper and sufficient information on reptile fauna of Arak County and further destruction of natural habitat and population decline of some species in the region, comprehensive and detailed investigations are necessary to identify the species of the region. In the present study, the reptile fauna of the tourist-frequented region of Nazm Abad in the south Arak County was identified with frequent field visits in 7 months and the report was presented in detail (Table 1, Figure 2) [13,14].

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MATERIALS AND METHODS

The study was conducted at the semi desert plain with sparse vegetation (5000 ha), 22kms south of Arak city, Iran (49°43'39"E longitude and 34°34'.38"N latitude), Markazi province (Figure 1). It is 1840 meters ave sea level. The regional climate is semi-arid and cold, with hot summers and cold winters. The average annual temperature is 13.8°C and the mean annual rainfall is between 230 and 638 mm. Number of frost days is 60 to 120 days per year. In terms of topography it has ups and downs and is relatively deserted. Vegetation is shrubbery and grassland in some parts. Such characteristics have made the area suitable for a variety of reptiles[15]

Study Method: The present study was conducted as survey. According to the authors' recognition and mastery of the region, we have moved to the region at the appropriate time and according to the type of vegetation, soil, altitude and other factors affecting the distribution of reptiles, looked carefully for the expected species at various time and places where there was a possibility of the species presence [16]. During the study period, attempts were done to take trips to the study area three times a month. During the trips we attempted to search for reptiles by continuous walking at different times of day and night. Most samples were trapped using hand or simple tools such as a walking stick, snake charmer and loop a few cases through pitfall and animal behavior in habitat conditions and animal expressions were observed and recorded with no injury in the same place of trapping. Then using morphological characters and identification references of Iranian reptiles and amphibians [7], Iranian snakes [10] and The ok of Lizards [4] identification was performed and after taking photographs of species, they were released to their habitants.

RESULTS

Reptiles Fauna of Nazm Abad area in Markazi province was examined based on direct observations during field trips and sampling that a total of 15 species belonging to 7 families were identified (Table 1, Figure 2).

Family Tiphlopidae

Typhlops Vermicularis, Merrem, 1820: They are small, thin and narrow in size. Their dies are flat and bare. The tail is short and thick. The upper and lower parts of the dy are almost identical[17]. This species has a rounded snout, small eyes that are visible beneath the transparent scales. It has relatively large and multiple scales on head and a scale on nose and one and in front the eye. The upper lip has four scales. The tail has a horn appendage. The dorsal surface of the dy is brown or light gray. They frequently feed on ants. They are found under soil, under rocks, in hilly areas and sometimes plains. The IUCN Red List there is no concern for their population that they have a normal state in Iran [7] (Figure 2, A) (34°3'20.39"N, 49°43'1.87"E).

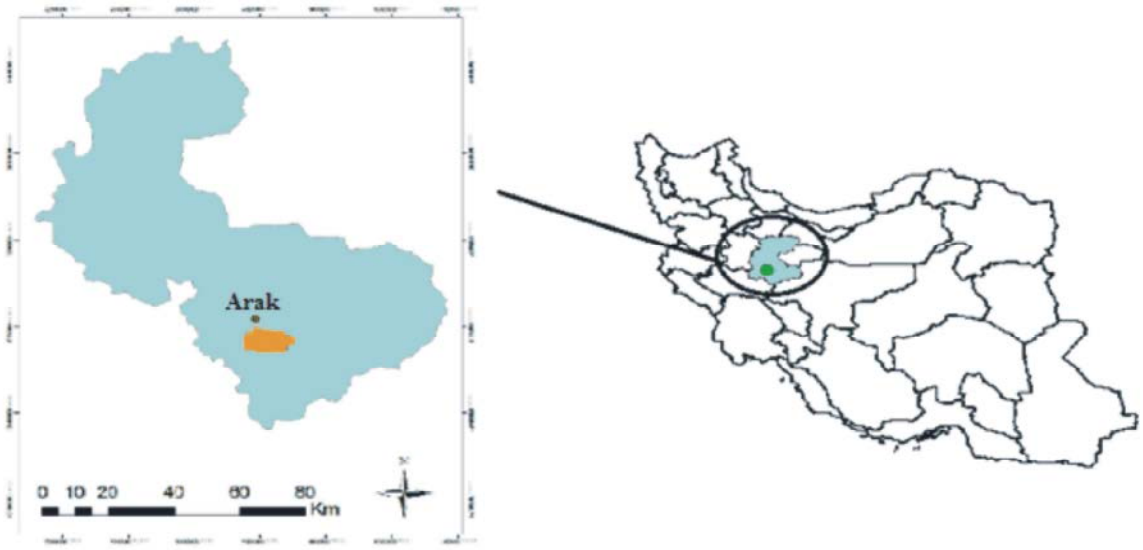

Fig. 1: Location of the Nazm Abad in the southern part of Arak, Markazi Province.

Table 1: Reptiles recorded in the study areas.

Family	Genus	Status
Tiphlopidae	Typhlops vermicularis (Merrem, 1820)	Very rare
Colubridae	Psammophis schokari (Forsskal, 1775)	Stable populations
	Coluber najadum (Eichwald, 1831)	rare
	Coluber rhodorachis, (Parker 1931)	Rare and insufficiently known species
	Hemorrhois ravergieri. (Mertens 1832)	Stable populations
	Eirenis persicus, (Boettger, 1888)	Stable populations
	Hierophis andreanus, (Werner, 1917)	Stable populations
		Rare and need protection
Viperidae	Macrovipera lebetina (Linnaeus, 1758)	Vulnerable
Lacertidae	Ophisops elegans, (Menetries, 1832)	Status Stable populations
Agamidae	Laudakia caucasia, (Eichwald, 1831)	Status Stable populations
	Trapelus ruderatus, (Olivier, 1804)	Status Stable populations
scincidae	Ablepharus pannonicus, (Fitzinger, 1823)	Rare and insufficiently known species
	Trachylepis aurata, (Linnaeus, 1758)	Isolated populations but rare
	Eumeces schneideri princeps, (Eichwald,1839)	Isolated populations
Testudinidae	Testudo graeca, (Linnaeus, 1758)	Vulnerable and declining in number of populations

Fig. 2: Continued

FAMILY SCINCIDAE

E. Pseudocyclophis persicus

F. vipera lebetina

G. Ophisops elegans

H. Laudakia caucasia

I. Trapelus ruderatus

J. Ablepharus pannonicus

K. Trachylepis aurata

L. Eumeces schneideri princes

Fig. 2: Continued

Fig. 2. (A, B… O): Total species observed during the survey.

Family Colubridae

Psammophis Schokari, Forsskal, 1775: Narrow, elongated head, visible neck, Restral scales with more width than height and visible from the top of the head, long and narrow cheek scale, two or three scales between nose, length of cheek scales three to four times more than height, with a scale in front of the eye attached to the forehead and two or rarely three scales at the back of eye. The dy color is pale olive or pink, they have a speckled white longitudinal line between two brown longitudinal lines from the head to the tip of the tail. They feed on lizards. There is not much information available on the IUCN Red List [7] (Figure 2, B) (34°3'42.42"N, 49°43'0.36"E).

Coluber Najadum, Eichwald, 1831: It has a cylindrical dy, narrow head and prominent snout. They have a long scale at temporal area, a scale in front of the eye (usually attached to the forehead scale) and two scales behind the eye. The anterior part of the dy is light olive with black spots with a white and extended margin on th sides of the dy. Coluber najadum feeds on lizards and small rodents. They can be found mostly in the mountainous and rocky, scrub and other areas. The IUCN Red List shows no concern for the population (LC) and there is an ample amount in Iran [11] (Figure 2, C) (34°3'25.65"N, 49°43'43.43"E).

Coluber Rhodorachis, Parker 1931: In this species the upper surface of the head is covered with large and symmetric scales. The pupil is round or circular. Scales of the dorsal surface are smooth with cavities (Epicalpit). Sometimes the scales of posterior part of the dy are slightly bladed. Abdominal scales cover the entire width of the animal dy and are between 150 and 250. Scales of the inferior part of the tail are divided. The upper jaw of the snakes has between 12 and 18 teeth[18]. They feed mostly on arthropods, insects and sometimes small rodents. The IUCN Red List shows no concern for the population, they are also abundant in Iran [11] (Figure 2, D) (34° 3'12.20"N, 49°42'52.78"E).

Hemorrhois Ravergieri. Mertens 1832: In this species the dy and snout is narrow, relatively sharp and clear and dy size between 150 and 170 cm. Abdominal scales cover the entire width of the animal dy and are between 214 and 235, Rostral scales wider than height. Sometimes the dorsal without red line but painted of segments of dy anterior and posterior is different. Dark or black lines on the anterior part of the Zigzag irregular spots on the smaller sides, the posterior part of the dy and the same olive –gray. They have a one Scale up the eyes (usually connected to the frontal scale) and in the lower of sub-orbital have one scale. Their habitats consist of mountains, dessert areas and Hillside. They feed mostly on Lizards and occasionally small mammals and birds. They have been observed in Southwest Asia with widespread dissemination, Iran (all areas), Afghanistan, India and Turkmenistan. The IUCN Red List shows no concern for the population [7]. (Figure 2, O) (34°3'17.72"N, 49°43'42.23"E).

Eirenis Persicus, Ettger, 1888: It is among the smallest species in Iran. No species specific scales. Nasal scales are attached to the scale in front of the eye or near it. dy color is brownish light gray and the center of each scale seems darker. They feed mostly on insects and arachnids and rarely lizards. They can be found mainly in rocky areas, semi-desert areas, mountains and sometimes under the rocks. The IUCN Red List possibly shows no concern for the population, they have been observed in western parts and central plateau of Iran [11] (Figure 2, E) (34° 3'1.62"N, 49°43'45.83"E).

Hierophis Andreanus, Werner, 1917l: The species is among Iranian rare snakes and has been recorded in a few areas. They have 2 scales in front of the eye and 2 scales behind the eye. The upper lip and lower lip have with 7 scales and 7 or 8 scales, respectively and they usually have a cheek scale. Dorsal surface of head and dy is light brown, lips and lower surface of head are yellowish. They have slow motions. They are usually distributed in the Zagros Plateau. Major feeding is on arthropods and insects. The IUCN Red List shows no concern for the population and due to the scarcity, they need protection in Iran [18] (Figure 2, N) (34° 3'20.98"N, 49°44'1.15"E).

Family Viperidae

Vipera Lebentina, Linnaeus, 1758: vipera lebentina is the largest Iranian viper. It has diverse habitats. It can be found in mountainous areas and Rocky Mountains to an altitude of 2000 meters and sometimes in gardens and abandoned buildings. Without large scales ave the eye, it has scaled from 23 to 27 back scales and more than 162 abdominal scales. There is no accurate information on the IUCN Red List, the population is moderate in Iran [7] (Figure 2, F) (34° 3'40.14"N, 49°43'22.63"E).

Family Lacertidae:

Ophisops Elegans, Menetries, 1832: They can be found in rocky plains and slopes of the hills. Lacerta cannot be seen in the sandy plains. In Iran they live at an altitude of 1000 m and in bare and barren plains. There is an orange band with numerous black spots on the dy. The key to identify is round eyes without movable eyelids. They feed mainly on small insects and arthropods. The IUCN Red List shows no threaten for their safety and they are abundant in Central and Western Iran [7] (Figure 2, G) (34° 2'12.81"N, 49°44'13.75"E).

Family Agamidae:

Laudakia Caucasia, Eichwald, 1831: In the species, eyes have movable eyelids; head is covered with small scales, back scales are different, ear drum is large at least half the diameter of the orbit and tail scales form separate rings. In mature specimens of the species, spiny scales are seen on the sides of the dy. The species is found in mountainous areas and the base of the mountains. dy lacks color pattern and sometimes there are dark spots on legs. The IUCN Red List shows little information, the population is moderate in Iran [7] (Figure 2, H) (34° 2'12.32"N, 49°43'57.41"E).

Trapelus Ruderatus, Olivier, 1804: They are distributed in almost all areas of Iran, mostly in the mountains and foothills. They are diurnal, insectivorous and sometimes vegetarian. They have large roundish head and a dy with prominent scales. The tail of the animal does not have the ability of autotomy but a part of it, is often cut and a small part of that will be renewed, but the new part is clearly different. They are able to quickly change their color. Like other members of the family, they have a small dy, movable eyelids and guttural pouches. The IUCN Red List shows no concern for the population that exists in the normal population in Iran [7] (Figure 2, I) (34° 2'51.11"N, 49°44'4.43"E).

Ablepharus Pannonicus, Fitzinger, 1823: It has narrow dy, small but distinct ear hole. Dorsal color is dark brown with four longitudinal rows of scales on the back and upper lips are white. In the breeding season the underside of the tail and hind legs are terracotta or orange. They can be found in a variety of habitats including mountainous areas up to 2,500 meters altitude, semi-desert and desert

areas and sometimes in dry and desert areas with low coverage. They are diurnal and hide in the rocks and ground gaps. They feed on insects such as cockroaches, ants and other arthropods. The IUCN Red List shows little information and they are possibly abundant in Iran [15] (Figure 2, J) (34°2'42.43"N, 49°43'33.63"E).

Trachylepis Aurata, Linnaeus, 1758: They live in loose rocky slopes, grasslands and semi-thin flat plains of deserts. The distribution is associated with that of astragalus. The species lives a secret life at an altitude of 2300 to 3300 meters close to humid environment. They have no removable eyelid and have 2 frontal-parietal scales. The main diet is arthropods and insects. IUCN Red List shows little risk threatening population. The population is moderate and non-supported and normal in Iran [15, 7] (Figure 2, K) (34°3'2.30"N, 49°43'23.01"E).

Eumeces Schneideri Princes, Eichwald, 1839: It is large and lives in foothills and plains desert, scrub and shrub lands. The lizard are often seen near water sources. Two rows of scales on the midsection are brighter than sides of the dy. Back of the dy is charcoal and brown. The orange or red line extends from the ttom of the lip to the groin. They mostly feed on arthropods and small reptiles. Much Information is not available. They are normal non-supported in Iran [7] (Figure 2, L) (34° 2'40.37"N, 49°44'20.31"E).

Family Testudinidae

Testudo Graeca, Linnaeus, 1758: They live in plateaus and mountains of up to 2700 meter hight. They can be seen around the barren foothills, grasslands, steppes, forests (oak forest, Zagros) and even around wetlands and farms. In the species, the underside of the thigh has a prominent scale called "spurs". The characteristics are the head covered with scales and having no curtains between fingers. They are grass-fed. The species is widespread in Iran and is at a national level of protection and support. According to the IUCN Red List is classified as Vulnerable category (VU) is [7] (Figure 2, M) (34° 3'19.40"N, 49°43'8.28"E).

DISCUSSION

This study was conducted recording 15 species from 7 families Tiphlopidae, Colubridae, Viperidae, Lacertidae, Agamidae, scincidae and Testudinidaein the in tourist-frequented area of Nazm Abad, lacated at the southern part of Arak County. The dominant vegetation type in the site for family Colubridae, scincidae, Agamidae, Tiphlopidae was Pistacia mutica, Acer monspessulanum, Albizia julibrissin, Amygdalus scoparia, Cardaria draba, Astragalus campylanthus, Ephedra pachyclada, Astragalus sp., Family. Asteraceae and other herbaceous plants. [16]. Among the species recorded, Hierophis andreanus, is a rare species that has been reported in the Western part of the Country and several points of the Zagros Mountains, Khuzestan, Ilam and Kurdistan provinces and Fars province is the typical region. In Arak, the species was first reported in Nazm Abad. For Ophisops elegans, the typical location is Azerbaijan near Baku. In Iran it has also usually be found in West and Markazi Province. Laudakia caucasia, has been reported from the North West to North East regions and the Zagros Mountains of Markazi and Kurdistan provinces. Trapelus ruderatus, usually live in the central parts of Zagros Mountains and Iran's southern deserts and its report in Nazm Abad is interesting. The typical location of Ablepharus pannonicus is Uzbekistan. It can be seen in the height of 2500 meters in Iran and it has a small distribution in Markazi province. Eumeces schneideri princes, has been reported from Meshkinshar, Sabzevar and Torbatejam in Iran. It is reported In Nazm Abad, Arak for the first time. Testudo graeca, according to the IUCN Red List categorized as Vulnerable (VU). The population of the province is limited and needs strict protection. In Nazm Abad it is reported for the first time. Given the proper distribution and high endemism of reptiles in different regions of Iran, we hope broader and more integrated research and studies in the future.

CONCLUSION

This study was done in Nazmabad of the southern Arak and in 34° 34' 38"of latitude and 49° 43' 39"of longitude. In this research, many reptiles were observed from different zones of Nazmabad area during March 2013 to Novamber 2013. Pictures were taken of the samples and then were released without any harm. Identified samples belong to 15 species and 7 families including: Typhlops vermicularis from the family Tiphlopidae; Psammophis schokri, Coluber najadum, Hemorrhois ravergieri, Coluber r.ladacensis, Eirenis persicus and Hierophis andreanus from the family Colubridae; Vipera lebetina from the family Viperidae; Ophisops elegans from the family Lacertidae; Laudakia caucasia and Trapelus ruderatus from the family Agamidae; Ablepharus pannonicus, Ablepharus bivittatus and Eumeces schneideri princeps from the family scincidae and Testudo graeca from the family Testudinidae.

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