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EIDECHSEN ONLINE

2013 Artikel article 1

L@CERTIDAE EIDECHSEN ONLINE 2013 № 1 - ONLINE VERÖFFENTLICHT / PUBLISHED ONLINE: 2013-01-01

www.lacerta.de

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Zitat / Citation:

HOSSEINIAN YOUSEFKHANI, S.S. & RASTEGAR POUYANI, E. & RASTEGAR POUYANI, N.(2013): Most records of *Mesalina watsonana* (STOLICZKA, 1872) are situated in average elevation on the Iranian Plateau. - L@CERTIDAE (Eidechsen Online), 2013 [1]: 1-6.

Most records of *Mesalina watsonana* (STOLICZKA, 1872) are situated in average elevation on the Iranian Plateau

SEYYED SAEED HOSSEINIAN YOUSEFKHANI, ESKANDAR RASTEGAR-POUYANI and NASRULLAH RASTEGAR-POUYANI, January 2013

Abstract

Over three years (2009-2012), several habitats of *Mesalina watsonana* were investigated and recorded with GPS. 100 locations were recorded in four major areas: east and the northeast of Iran, central part of the Iranian Plateau, southern Iran, and the east slopes of the Zagros Mountains in Qom Province. According to this study, the species is mainly concentrated in foothills, and most locations in this study are situated between an altitude of 500-1500 m.

Keywords: Habitat, elevation, *Mesalina watsonana*, Iranian Plateau.

Introduction

The Iranian Plateau has a distinct pattern of mountains in Iran, a generally mountainous country. Several systems of mountains and basins occur in Iran, such as: Zagros Mountains, Elburz Mountains, Central Plateau and the eastern highlands (BERBERIAN & KING 1981). Various animals have different niches in the same habitat, for instance in reptiles, some of the lizards living in deserts have their niche located at the base of shrubs (*Eremias persica*) but in this habitat another lizard (*Mesalina watsonana*) lives in the underbrush (RASTEGAR-POUYANI et al. 2007).

Mesalina watsonana is one of the 14 species of the genus *Mesalina* that occur in Iran, Afghanistan and Pakistan. Its distribution is widespread and has a high variability in color pattern. (ANDERSON 1999).

In the wide distribution range on the Iranian plateau *Mesalina watsonana* is occupying various habitats from submountain regions to open plains with salt substrate. Vegetation among these regions varies (as shown in the habitat images A-I). There are two types of open plains in Iran: the coastal plains in the south of Iran, that is covered with salt, and the plains situated in high elevation ranges (Eghlid plain in Fars province). Substrate in low altitude areas is comprised of clay, and in high altitudes the substrate is usually composed from sand.

Image A. Khorasan.

Image B. Larestan.

Image C. Damghan.

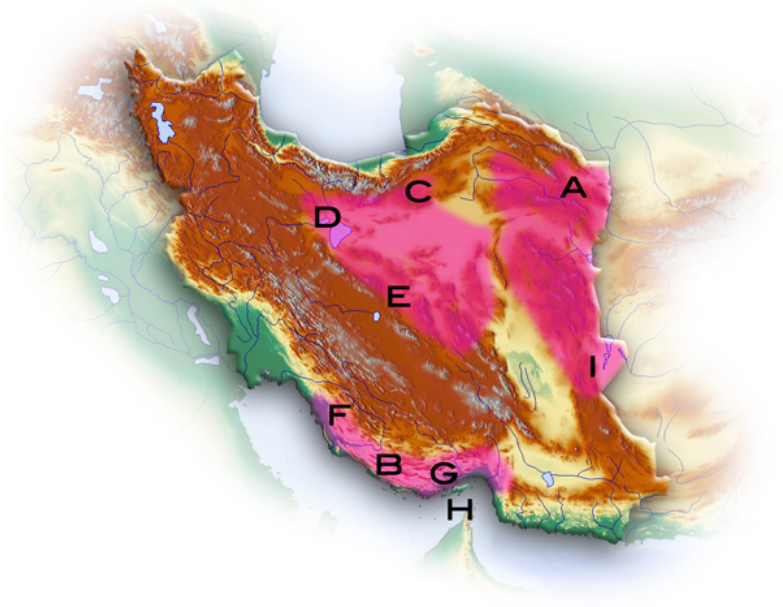

Figure 1: The regions in Iran (pink area) where data was collected on *Mesalina watsonana* in this study. Letters are corresponding to the habitat pictures to the right. (Edited from a map by SIEGFRIED TROIDL).

Materials and Methods

This project is the first study of lizard richness in relation to elevation in Iran. In this study, carried out between 2009-2012, the main parts of the distribution range of *Mesalina watsonana* in Iran were surveyed (see pink areas in figure 1). At 100 locations lizards were collected, and latitude-, longitude- and altitude data were recorded by GPS (eTrex Vista 245000 T-E).

Results

The results are presented in table 1. We divided the altitudes into 5 altitude groups and combined the collected data for these groups (see top-right of figure 2). As we can see, the species is distributed from coastal regions (0 m) to very high plains (2300 m) (see bottom of figure 2). After comparison, we concluded that most locations of the species in our study are situated between an altitude of 500-1000 m, and in second degree between 1000-1500 m.

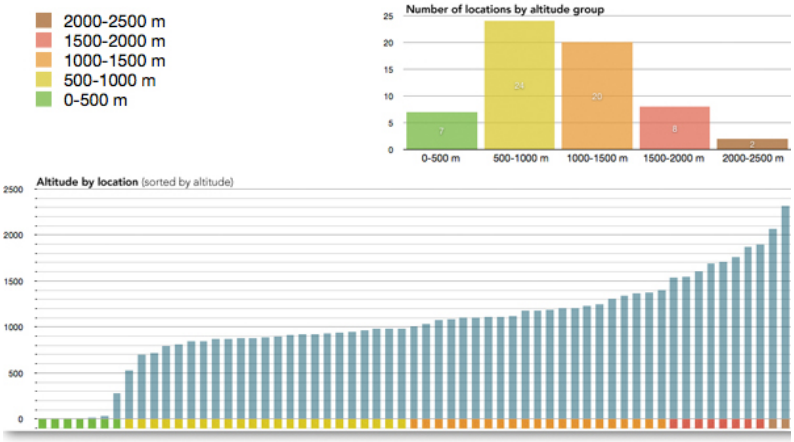

Figure 2: Graphical representation of altitude data by location.

Discussion

Reptile richness is related to elevation, temperature, moisture, vegetation and soil. *Mesalina watsonana* is one of the lizards that lives in desert areas with poor vegetation and intermediate elevation. Most of the distribution range of the species occurs in nonagricultural regions, and for this reason human activity doesn't affect its life and distribution, but in other areas, such as slopes and foothills, there is high agricultural activity. These types of habitats need more consideration regarding the lizard fauna and its conservation.

Image D. Qom.

Image E. Eghlid.

Image F. Nourabad.

Soil is an important element in the ecosystem for reptiles. Most lizard species in Iran are concentrated on clay soils, but others live in sand hills. Lizards that live in sand hills have fringed fingers to increase contact with the surface for evading enemies and excavating burrows.

Mesalina watsonana is one of the lizards that lives in various habitats, such as clay, gravel, and stony foothills. These variations in habitat require more adaptation and a variable color pattern for camouflage.

Mesalina watsonana is distributed in a wide geographic range in the Iranian plateau. Low- and high altitudes in its range have a limiting condition for the presence of the species. Lizards living in low altitudes have high temperature conditions in summer, which is unfavorable for this species. Lizards living in high altitudes have to endure very long winters and very low temperatures. But nevertheless, *Mesalina watsonana* has adapted to these very different climate zones and different types of habitat. Constant conditions in the climate of the Iranian plateau has provided good conditions for adaptation, and the long period of presence (4 Ma) on the Iranian plateau (SMID & FRYNTA 2012) also helped the species to adapt.

Image G. Bandar-e Abbas.

Image H. Qeshm Island.

Image I. Zabol.
(All habitat pictures by SAEED HOSSEINIAN).

Acknowledgment

We are most grateful to Aghil Keyvanloo, Masoud Yousefi, Mojtaba Ranaei, Hamzeh Sajed and Yaser Gholami for helping us in the fieldwork. Also we especially thank Mohammad Hosseinian and Hadi Mollaei for cooperating with us in field works as driver, Steven C. Anderson for improving the manuscript and Marten van den Berg for editing and layout of the graphical data.

location	latitude	longitude	altitude	specimens collected
1	28° 37' 02.4"	54° 20' 29.7"	1.103 m	2
2	28° 27' 56.5"	54° 14' 25.4"	1.111 m	1
3	26° 58' 35.3"	54° 34' 27.4"	285 m	2
4	29° 14' 45.4"	54° 22' 59.1"	1.689 m	1
5	27° 47' 33.6"	53° 47' 17.0"	939 m	3
6	26° 48' 43.1"	54° 10' 35.0"	37 m	1
7	35° 30' 32.3"	59° 13' 15.0"	1.100 m	2
8	35° 06' 42.3"	59° 42' 35.7"	1.180 m	1
9	34° 55' 45.3"	59° 53' 33.4"	1.087 m	1
10	34° 26' 32.2"	60° 20' 34.8"	950 m	3
11	34° 14' 21.5"	60° 20' 33.7"	875 m	1
12	34° 59' 59.9"	58° 03' 26.4"	1.176 m	3
13	34° 34' 47.1"	58° 39' 12.7"	921 m	1
14	34° 45' 01.0"	61° 01' 09.8"	715 m	1
15	34° 11' 37.8"	56° 29' 32.6"	980 m	1
16	36° 42' 34.4"	59° 15' 45.5"	1.030 m	2
17	34° 46.99'	57° 22.27'	1.080 m	2
18	33° 15.29'	58° 51.64'	1.401 m	2
19	34° 30.25'	57° 22.88'	846 m	2
20	34° 09' 33.7"	58° 24' 40.1"	1.874 m	1
21	35° 00' 00.0"	58° 06' 38.6"	876 m	1
22	36° 15' 53.8"	54° 03' 24.7"	1.340 m	2
23	27° 17.57'	56° 28.98'	0 m	4
24	27° 08.16'	55° 48.64'	12 m	3
25	26° 46.59'	56° 04.17'	0 m	2
26	27° 02.65'	53° 15.11'	0 m	4
27	26° 51.44'	55° 20.43'	3 m	1
28	34° 18' 18.6"	51° 52' 59.0"	889 m	1
29	36° 33' 44.3"	58° 09' 13.3"	1.200 m	3
30	36° 15' 58.2"	57° 41' 46.7"	985 m	1
31	34° 48' 37.4"	60° 06' 18.7"	980 m	1
32	35° 10' 21.7"	60° 58' 23.6"	814 m	2
33	34° 44' 01.9"	60° 48' 50.0"	795 m	2
34	35° 32' 12.8"	59° 11' 51.9"	1.711 m	2
35	31° 03' 56.8"	61° 38' 34.4"	530 m	3
36	36° 22' 10.0"	58° 02' 13.4"	1.230 m	1
37	32° 55' 41.3"	55° 31' 11.1"	1.544 m	3
38	30° 51' 33.8"	52° 50' 33.7"	2.316 m	4
39	29° 59' 49.4"	51° 17' 27.7"	1.183 m	3
40	30° 18' 53.3"	53° 54' 48.8"	2.065 m	3
41	34° 24' 04.2"	50° 36' 41.4"	1.201 m	1
42	34° 20' 14.8"	50° 34' 18.5"	1.369 m	3
43	34° 29' 48.5"	51° 05' 10.8"	870 m	1
44	34° 29' 20.0"	51° 07' 44.1"	883 m	3
45	34° 25' 04.3"	50° 55' 41.0"	1.304 m	2
46	34° 52' 00.2"	50° 51' 24.7"	924 m	1
47	35° 05' 26.1"	50° 53' 13.0"	930 m	4
48	34° 27' 00.5"	51° 07' 11.6"	895 m	1
49	34° 32' 05.0"	51° 02' 29.2"	910 m	1
50	34° 38' 13.8"	51° 10' 34.1"	849 m	1

location	latitude	longitude	altitude	specimens collected
51	34° 36' 36.7"	50° 49' 59.8"	1.120 m	1
52	34° 34' 47.2"	50° 40' 29.8"	1.112 m	2
53	35° 09' 58.7"	51° 43' 54.7"	967 m	1
54	36° 16' 08.2"	54° 04' 30.2"		9
55	35° 08' 40.7"	50° 14' 36.4"		1
56	31° 46' 08.3"	49° 27' 58.7"		3
57	36° 03' 06.7"	58° 40' 31.7"		1
58	35° 36' 18.6"	56° 46' 50.8"		3
59	32° 45' 06.8"	52° 57' 00.2"		1
60	31° 46' 08.3"	49° 27' 58.7"		1
61	30° 49' 17.5"	53° 07' 14.3"		3
62	36° 13' 02.8"	58° 42' 58.1"		1
63	35° 54' 36.2"	57 °33' 47.5"		1
64	32° 52' 26.8"	59° 14' 33.2"		4
65	28° 42' 25.7"	57° 53' 47.8"		1
66	29° 26' 04.7"	55° 39' 54.5"		1
67	32° 52' 26.8"	59° 14' 33.2"		3
68	33° 51' 37.6"	57° 26' 34.2"		2
69	34° 16' 08.9"	57° 29' 26.4"		3
70	34° 42' 26.4"	58° 09' 51.2"		4
71	35° 08' 48.2"	57° 46' 37.8"		4
72	33° 20' 04.3"	57° 33' 44.3"		6
73	36° 48' 51.9"	56° 26' 34.9"		1
74	34° 18' 42.3"	56° 51' 21.3"		4
75	33° 37' 02.5"	56° 51' 42.4"		2
76	35° 40' 52.3"	58° 09' 13.7"		3
77	33° 33' 12.6"	56° 52' 42.6"		1
78	35° 40' 52.3"	58° 09' 13.7"		2
79	35° 58'	50° 57'		1
80	34° 57'	51° 58'		1
81	33° 59'	51° 25'		1
82	34° 45'	52° 10'		2
83	34° 39'	50° 54'		1
84	35° 24'	51° 19'		1
85	32° 00'	49° 06'		1
86	31° 40'	49° 12'		1
87	31° 56'	48° 58'		1
88	28° 35'	60° 48'		1
89	27° 07'	61° 40'	1.373 m	1
90	29° 28'	60° 49'	1.900 m	1
91	28° 59'	60° 42'	1.762 m	1
92	26° 32'	62° 19'	700 m	1
93	34° 05'	58° 50'	1.540 m	1
94	32° 49'	59° 26'	1.610 m	1
95	32° 20'	59° 15'		1
96	34° 05'	59° 53'	1.010 m	1
97	33° 40'	60° 03'		1
98	35° 10'	57° 18'		1
99	36° 15'	57° 54'		2
100	36° 25'	58° 11'	1.250 m	1

Table 1. Latitude, longitude, altitude and number of specimens collected in this study.

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