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A NEW RECORD OF *Mesalina brevirostris* (REPTILIA: SAURIA: LACERTIDAE) FROM SOUTHEASTERN ANATOLIA

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A total of 12 *Mesalina brevirostris* specimens collected from Ceylanpınar, Şanlıurfa, Turkey were examined in terms of pholidosis characters, morphometric measurements and color-pattern features. Akçakale and Ceylanpınar populations were differentiated from one another in the number transversal series of ventral plates (TVP) according to the results of the Mann–Whitney *U*-test. The main characteristics of the specimens collected from Ceylanpınar are within variation limits mentioned in the literature.

Keywords: *Mesalina brevirostris*, new locality, distribution, Ceylanpınar, Turkey.

INTRODUCTION

Mesalina brevirostris, Blanford's short-nosed desert lizard, was first described from Tumb Island, Persian Gulf, Iran, and Kalabagh, Punjab, Pakistan (Blanford, 1874). Later on, the type locality of *Mesalina brevirostris* was restricted as Kalabagh, Punjab, Pakistan (Schmidt, 1939). Its range extends from Sinai Desert (southern tip and Tiran Island), Northern Saudi Arabia, Jordan, Lebanon, Iraq, Kuwait, South Western Iran, the islands of the Arabian Gulf, Pakistan, the Iranian Plateau, Bahrain, Qatar to United Arab Emirates (Weber, 1960; Minton, 1966; Haas and Werner, 1969; Arnold, 1986; Ross, 1988; Leviton et al., 1992; Anderson, 1999; Bosch, 2001; Soorae, 2004). *Mesalina brevirostris* differs from other related taxa in having three nasals, lower in contact with rostral and 1st supratemporal; ventral plates in 12 (rarely 10) longitudinal series; occipital plate absent or minute, not in contact with interparietal; collar curved or angular; head is not strongly depressed; 34 – 50 dorsal scales at mid-body and 19 – 20 lamellae under 4th toe, the large transparent scales of the lower eyelid are not edged with black (Leviton et al., 1992; Anderson, 1999; Bosch, 2001).

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Angel (1936) described a small subspecies *Eremias brevirostris microlepis* from Haouarine in Syria, based on a single specimen with 60 dorsals and 26 lamellae under the fourth toe and a higher number of femoral pores (18 – 20). Although Haas (1957) considered this description to be invalid, Werner (1971) recognized this form for western Syria and northern Jordan.

Haas and Werner (1969) regarded specimens from eastern Syria, Iraq, Jordan and Pakistan to be *M. b. brevirostris*. They also described a new subspecies from Major Birinji and Gatwand (Southwestern Iran) as *M. brevirostris fieldi*.

Szczerback (1974) reported that *Mesalina* is a distinctive genus which should be includes small species from *Eremias*. Arnold's (1986) study on the hemipenes of lacertid lizards supported the view of Szczerback (1974). According to interpretations of phylogeny, the genera *Eremias* and *Mesalina* were recognized as sister taxa (Mayer and Benyr, 1994; Mayer and Bischoff, 1996) or at least closely related (Arnold, 1989).

Recently *Mesalina brevirostris* was recorded for the first time from Akçakale, Şanlıurfa, Southern Anatolia (Kumlutaş et al., 2002a, 2002b). So a new genus was added to Turkish Herpetofauna and the northernmost known limit of this taxon was extended.

In this study, *Mesalina brevirostris* specimens collected from the vicinity of Ceylanpınar, ~70 km east of Akçakale, were described morphologically and compared with relevant data given in literature.

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MATERIAL AND METHODS

The specimens (10 ♂♂, 2 ♀♀) were collected from Ceylanpınar (46°50.298′ N 39°34.236′′ E), Şanlıurfa, Turkey, on 04/28/2005 (leg. İ. Baran, Y. Kumlutaş, Ç. Ilgaz, A. Avcı). They were deposited in the Zoology Lab. of the Department of Biology at Buca Education Faculty, Dokuz Eylül University and incorporated into the collection of ZDEU (Zoology Department, Ege University, Turkey): ZDEU.111/2005.

Color and pattern characteristics were recorded while the specimens were still alive, and color slides taken while the animals were alive were utilized in the study. The specimens were anaesthetized with ether, fixed with a mixture of 5% formalin and 70% ethanol, and later kept in 70% ethanol according to the method described by Başoğlu and Baran (1977).

The following morphometric measurements were taken by using a dial caliper (±0.02 mm): SVL (snout-vent length), tip of snout to anal cleft; TL (tail length), anal cleft to the tip of tail; PW (pileus width), at widest point between parietal plates; PL (pileus length), tip of snout to the posterior margins of parietals; HW (head width), at widest point of head; HL (head length), tip of snout to posterior margin of ear opening; TBL (total body length), tip of snout to the tip of tail; FLL (forelimb length), shoulder joint to tip of toe; HLL (hindlimb length), pelvic joint to tip of toe. Furthermore, some morphometric indexes and ratios were calculated: PI [pileus index, (PW/PL) × 100], HI [head index, (HW/HL) × 100], PW/SVL, PL/SVL, HW/SVL, HL/SVL, FLL/SVL, and HLL/SVL.

Pholidosis characters considered here comprised the following counts: Supraciliar granules (left–right, SCGa–SCGb), supraciliar plates (left–right, SCa–SCb), supralabial plates (left–right, SPLa–SPLb), sublabial plates (left–right, SBLa-SBLb), transversal series of gular scales between inframaxillar symphysis and collar (MG), collar plates (C), ventral plates (transversal and longitudinal, TVP and LVP), preanals (number of preanals surrounding anals, PA), femoral pores (left–right, FPa–FPb), subdigital lamellae in the 4th toe (left–right, SDLa–SDLb) and transversal series of dorsal scales at the midtrunk (DS).

In order to compare similarities and differences, one-way variance analyses (ANOVA) were applied to the morphometrics of the two populations. Morphometric indices and ratios (PI, HI, PW/SVL, PL/SVL, HW/SVL, HL/SVL, FLL/SVL, and HLL/SVL) were used to test for similarities and differences between Akçakale (first locality for *Mesalina brevirostris* in Turkey) and Ceylanpınar populations. Ratios were used due to an uncertainty regarding age groups and because it was unknown whether growth was isometric or not. Data were examined for conformation to assumption of normality (the Kolmogorov–Smirnov test) and homogeneity (F_{max}). The distribution functions of the pholidosis characters of Akçakale and Ceylanpınar populations were tested with the Mann–Whitney *U*-test. Regarding all statistical tests, significance level set at 0.05. Statistical analyses were carried out using program SPSS ver. 6.0.

RESULTS

Morphometric measurements. Maximum total length measured was 176.08 mm for a male specimen. The mean ratio of head length to head width was calculated as 1.69 ± 0.08 mm (range: 1.57 – 1.82 mm). The descriptive statistics of the morphometric measurements are given in Table 1.

Regardless of grouping data, only HW/SVL, PL/SVL, and HLL/SVL ratios did not conform to assumption of normality (the Kolmogorov–Smirnov test) and homogeneity (F_{max}). These ratios were discarded from further analyses. According to one-way analyses (ANOVA) performed between Ceylanpınar and Akçakale populations, no significant differences were found in HI ($df = 1.19$; $F = 0.08$; $p = 0.93$), PI ($df = 1.19$; $F = 0.58$; $p = 0.455$), HL/SVL ($df = 1.19$; $F = 1.79$; $p = 0.20$), PW/SVL ($df = 1.19$; $F = 0.29$; $p = 0.60$), and FLL/SVL ($df = 1.19$; $F = 0.48$; $p = 0.50$).

Pholidosis. The nostril is surrounded by three nasals, the lower in contact with the rostral and first supralabial. SPL are usually 4 – 4 (left–right, 91.7%), rarely 3 – 4 (8.3%). The occipital is minute (very tiny) in three specimens (25.0%), and absent in the rest (75.0%). SBL are usually 7 – 7 (83.3%), rarely 6 – 6 (16.7%) and 6 – 7 (8.3%). The number of supraciliar granules ranges from 13 to 28 with a mean of 21.0 on the left side. The parietal foramen is on the interparietal. Masseteric is absent. SC are usually 6 – 6 (66.7%), rarely 7 – 6 (16.7%), 7 – 7 (8.3%), and 5 – 5 (8.3%). The subocular bordered the mouth in two specimens (16.7%), but is not in contact in the rest (83.3%), with a smaller scale adjoined the subocular fronto-ventrally. The large transparent scales of the lower eyelid are not edged with black margins. The collar is curved and free; the number of scales in collar varies from 9 to 12 (mean = 10.08). The gulars start at the level of the 3rd inframaxillary and are arranged in 21 to 26 (mean = 23.75) rows when counted along a straight median line. Dorsal scales are smooth

and transversal series of dorsal scales at mid-trunk ranges from 49 to 56 with a mean of 51.67. In one out of twelve specimens the number of longitudinal rows of ventral plates across belly is 10 (8.3%) and 12 in the remaining (91.7%). The number of transverse series of ventrals varies from 27 to 33 (mean = 29.50). A single anal plate is present and PA counts range from 5 to 7 with a mean of 5.67. The mean FP and SDL counts on the left side are recorded as 16.67 and 21.92, respectively. The descriptive statistics of the pholidosis characters are given in Table 2.

The Mann–Whitney *U*-test based on pholidosis characters confirmed differences in only TVP (U = 12.500, p = 0.03) which can distinguish between the Ceylanpınar and Akçakale populations. The box and whisker plots of TVP of two populations are given in Fig. 1. According to box and whisker plots, the mean number of TVP is found to be higher in the populations of Akçakale than those of Ceylanpınar.

Color and pattern. The coloration of the head is yellowish light brown without spots. The general dorsal coloration of Ceylanpınar specimens are gray or grayish light brown with longitudinal pale or dark specks

TABLE 1. Descriptive Statistics of Pholidosis Characters of *Mesalina brevirostris* Collected from Ceylanpınar

Character	Overall						Males						Females					
	N	mean	min	max	S.D.	S.E.	*N*	mean	min	max	S.D.	S.E.	*N*	mean	min	max	S.D.	S.E.
SPLa	12	3.92	3.00	4.00	0.29	0.08	10	3.90	3.00	4.00	0.32	0.10	2	4.00	4.00	4.00	0.00	0.00
SPLb	12	4.00	4.00	4.00	0.00	0.00	10	4.00	4.00	4.00	0.00	0.00	2	4.00	4.00	4.00	0.00	0.00
SBLa	12	6.75	6.00	7.00	0.45	0.13	10	6.80	6.00	7.00	0.42	0.13	2	6.50	6.00	7.00	0.71	0.50
SBLb	12	6.83	6.00	7.00	0.39	0.11	10	6.90	6.00	7.00	0.32	0.10	2	6.50	6.00	7.00	0.71	0.50
SCa	12	6.17	5.00	7.00	0.58	0.17	10	6.20	5.00	7.00	0.63	0.20	2	6.00	6.00	6.00	0.00	0.00
SCb	12	6.00	5.00	7.00	0.43	0.12	10	6.00	5.00	7.00	0.47	0.15	2	6.00	6.00	6.00	0.00	0.00
SCGa	12	21.00	13.00	28.00	4.35	1.26	10	20.40	13.00	27.00	4.14	1.31	2	24.00	20.00	28.00	5.66	4.00
SCGb	12	20.92	15.00	28.00	4.10	1.18	10	20.30	15.00	28.00	4.00	1.27	2	24.00	21.00	27.00	4.24	3.00
MG	12	23.75	21.00	26.00	1.36	0.39	10	23.60	21.00	26.00	1.26	0.40	2	24.50	23.00	26.00	2.12	1.50
C	12	10.08	9.00	12.00	0.79	0.23	10	10.00	9.00	11.00	0.47	0.15	2	10.50	9.00	12.00	2.12	1.50
DS	12	51.67	49.00	56.00	2.64	0.76	10	51.60	49.00	56.00	2.55	0.81	2	52.00	49.00	55.00	4.24	3.00
TVP	12	29.50	27.00	33.00	1.78	0.51	10	28.90	27.00	31.00	1.20	0.38	2	32.50	32.00	33.00	0.71	0.50
LVP	12	11.83	10.00	12.00	0.58	0.17	10	11.80	10.00	12.00	0.63	0.20	2	12.00	12.00	12.00	0.00	0.00
PA	12	5.67	5.00	7.00	0.78	0.22	10	5.70	5.00	7.00	0.82	0.26	2	5.50	5.00	6.00	0.71	0.50
FPa	12	16.67	14.00	20.00	1.56	0.45	10	16.90	15.00	20.00	1.45	0.46	2	15.50	14.00	17.00	2.12	1.50
FPb	12	16.67	14.00	20.00	1.50	0.43	10	16.90	15.00	20.00	1.37	0.43	2	15.50	14.00	17.00	2.12	1.50
SDLa	12	21.92	20.00	24.00	1.24	0.36	10	22.10	20.00	24.00	1.20	0.38	2	21.00	20.00	22.00	1.41	1.00
SDLb	12	22.08	20.00	24.00	1.08	0.31	10	22.30	21.00	24.00	0.95	0.30	2	21.00	20.00	22.00	1.41	1.00

Note. *N*, The number of specimens; min, minimum value; max, maximum value; S.D., standard deviation; S.E., standard error of the mean. For other abbreviations see the text.

TABLE 2. Descriptive Statistics of Morphometric Measurements of *Mesalina brevirostris* Collected from Ceylanpınar

Character	Overall						Males						Females					
	N	mean	min	max	S.D.	S.E.	*N*	mean	min	max	S.D.	S.E.	*N*	mean	min	max	S.D.	S.E.
HL	12	13.00	11.50	13.94	0.75	0.22	10	13.19	11.50	13.94	0.66	0.21	2	12.07	11.84	12.30	0.33	0.23
HW	12	7.69	7.14	8.22	0.41	0.12	10	7.72	7.18	8.22	0.40	0.13	2	7.51	7.14	7.88	0.52	0.37
PL	12	12.10	11.02	12.84	0.60	0.17	10	12.24	11.02	12.84	0.54	0.17	2	11.38	11.26	11.50	0.17	0.12
PW	12	5.72	5.34	6.22	0.30	0.09	10	5.77	5.34	6.22	0.31	0.10	2	5.46	5.38	5.54	0.11	0.08
FLL	12	17.98	16.50	18.68	0.59	0.17	10	18.10	17.52	18.68	0.40	0.13	2	17.35	16.50	18.20	1.20	0.85
HLL	12	32.06	28.88	34.76	1.51	0.44	10	32.42	30.26	34.76	1.23	0.39	2	30.29	28.88	31.70	1.99	1.41
SVL	12	54.78	50.00	59.66	2.65	0.76	10	54.40	50.00	57.70	2.37	0.75	2	56.68	53.70	59.66	4.21	2.98
TL	6	102.33	82.00	120.00	13.43	5.48	4	107.00	95.00	120.00	11.518	5.76	2	93.00	82.00	104.00	15.56	11.00
TBL	6	157.92	135.70	176.08	15.19	6.20	4	162.04	146.86	176.08	13.66	6.83	2	149.68	135.70	163.66	19.77	13.98

Note. For abbreviations see Table 1 and the text.

(Figs. 2 and 3). The larger whitish or dirty white colored spots bordered by dark coloration on the dorsum. These spots are also found on the proximal tail, fore and hindlimbs. The darker lateral band (continuing for a short distance on the tail) consists of smaller light and dark specks. The color of the venter is whitish; the outermost ventral plates are grayish.

Biological and ecological observations. Specimens were collected between 13:00 and 15:30 on April 29, 2005. The air temperature was 28°C when the specimens were captured. The sample collecting time was recorded between 10:00 and 17:00 for Akçakale specimens (Kumlutaş et al., 2002a). They also recorded that the air temperatures where the specimens were captured ranged from 27 to 30°C. Weber (1960) cited that Iraqi specimens were active on the surface in mid-morning (9:00) and at noon at surface temperatures of 38 and 46°C, respectively. In Bosch (2001), it was mentioned that Lebanese *M. brevirostris* were already active in the early morning (6:30) in May/June 1999. The altitude where the sampling was carried out was 469 m a.s.l. Akçakale specimens were collected at 550 m a.s.l. (Kumlutaş et al., 2002a) while Lebanon specimens were captured at the altitude of 700 – 750 m a.s.l. (Bosch, 2001).

Ceylanpınar specimens were captured from the semi-desert plain with numerous small stones (Fig. 4). In the area where the specimens were collected various shrubs and annual grasses were commonly encountered.

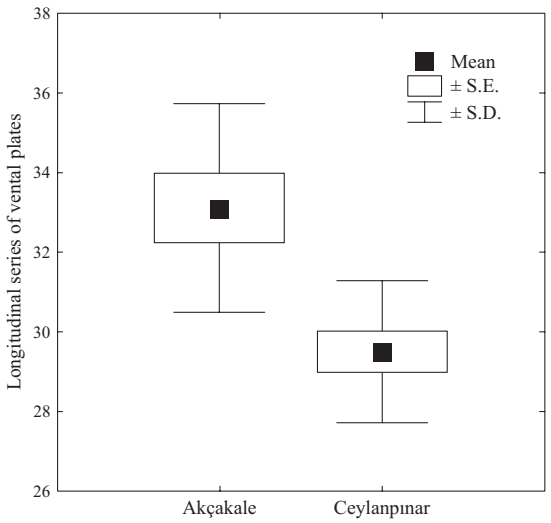

Fig. 1. Box and whisker plots of the TVP showed significant differences between Akçakale and Ceylanpınar populations according to the Mann–Whitney *U*-test.

Fig. 2. General view of male *Mesalina brevirostris brevirostris* specimen collected from Ceylanpınar. Photo by Semih Üçüncü.

Fig. 3. General view of female *Mesalina brevirostris brevirostris* specimen collected from Ceylanpınar. Photo by Semih Űçűncű.

Fig. 4. Habitat of *Mesalina brevirostris* Ceylanpınar, Şanlıurfa, southeastern Anatolia. Photo by Aziz Avcı.

Among these, the dominant one is *Peganum harmala* as is mentioned in Kumlutaş et al. (2002a).

When pursued, the specimens were running rapidly from weed to weed and then they hide among the roots of weed, especially *Peganum harmala*, or go into holes as mentioned in Bosch (2001). Ross (1988) indicated that this species occupies different habitats which include sea shore, inland gravel plains and hill tops. Arnold (1984) found this species confined to moist areas with succulent halophytic vegetation in Saudi Arabia and Bahrain. The syntopic reptile and amphibian species where specimens were collected at Ceylanpınar were *Trapelus lessonae* (De Filippi, 1865), *Eumeces schneiderii* (Daudin, 1802), *Ophisops elegans* Ménétries, 1832, and *Bufo viridis* (Laurenti, 1768).

DISCUSSION

The maximum SVL of *Mesalina brevirostris* specimens at Ceylanpınar is 54.8 mm. The maximum SVL was found to be 58.5 mm for Akçakale specimens (Kumlutaş et al., 2002a). Ross (1988) gave a maximum SVL of 50 mm in eastern Saudi Arabia, and Arnold (1984) stated 55 mm for eastern United Arab Emirates. In Lebanon the largest specimens reached 58 mm SVL, while it was 57 mm for Syrian specimens. Anderson (1999) listed "unusually" large ones of 64 mm from Jordan. According to maximum SVL measurements, Ceylanpınar specimens were slightly shorter than previously measured specimens from Lebanon, Syria, and Akçakale (Turkey) but longer than those in eastern Saudi Arabia while they were similar with those in United Arab Emirates.

Bosch (2001) stated the maximum TL measurement as 115 mm in Lebanon specimen. Kumlutaş et al. (2002a) recorded a maximum of 115 mm TL measurement for Akçakale specimens. With a maximum 120 mm tail length, the Ceylanpınar specimens are longer than those in Lebanon and Akçakale specimens. Maximum TBL measured was 176.08 mm for a male specimen. Kumlutaş et al. (2002a) recorded that the maximum TBL was 170.82 mm for Akçakale specimens.

The ratios of head length to head width were calculated as 1.69 ± 0.08 (range: 1.57 – 1.82). Leviton et al. (1992) stated that the head of *M. brevirostris* is not strongly depressed and 1.2 – 1.33 times as long as broad. Kumlutaş et al. (2002a) calculated the mean value of this ratio as 1.69 for Akçakale specimens.

Some mean values of morphometric measurements (mm) of Akçakale (Kumlutaş et al., 2002a) and Ceylanpınar specimens were as follows, respectively: SVL, 55.40 – 54.78; TL, 102.14 – 102.33; HL, 12.57 – 13.00; HW, 7.44 – 7.69; PL, 11.84 – 12.10; PW, 5.67 – 5.72; FLL, 17.85 – 17.98; and HLL, 32.22 – 32.06.

According to one-way analyses (ANOVA) performed between Ceylanpınar and Akçakale populations, no significant differences were found in any of the morphometric measurements.

Haas and Werner (1969) stated that in three Iraqi specimens and one Syrian specimen the subocular bordered the mouth. Kumlutaş et al. (2002a) recorded that in two out of nine specimens, the subocular bordered the mouth in Akçakale specimens (22.2%) whereas there is a subocular-mouth contact in two Ceylanpınar specimens (16.7%).

DS counts in Ceylanpınar specimens (49.0 – 56.0, mean = 51.7) were similar with those in Akçakale (49.0 – 57.0, mean = 53.2) (Kumlutaş et al., 2002a) and Lebanon (46.0 – 53.0; mean = 49.7) (Bosch, 2001) specimens but were absolutely greater than that in Syria (36.0 – 47.0, mean = 40.3) (Haas and Werner, 1969). Anderson (1999) mentioned for three specimens from Rutba, Iraq, with high DS counts (45 – 50), others from Iraq and Saudi Arabia with 37 – 46, and animals from Zarqa, north of Amman (Jordan) with 54 – 60.

Some mean values of pholidosis characters of Akçakale (Kumlutaş et al., 2002a) and Ceylanpınar specimens are as follows, respectively: MG, 24.00 – 23.75; C, 9.33 – 10.08; TVP, 33.11 – 29.50; LVP, 11.78 – 11.83; PA, 5.22 – 5.67; FPa, 16.56 – 16.67; FPb, 17.11 – 16.67; SDLa, 21.33 – 21.92; SDLb, 21.44 – 22.08.

The Mann–Whitney *U*-test based on pholidosis characters confirmed differences in only TVP which can distinguish between the Ceylanpınar and Akçakale populations.

In conclusion, regarding pholidosis characters, morphometric measurements and color-pattern features, main characteristics of the specimens from Ceylanpınar, which is the second locality of *M. b. brevirostris* in Turkey, are within variation limits mentioned in the literature (Haas and Werner, 1969; Leviton et al., 1992; Bosch, 2001; Kumlutaş et al., 2002a, 2002b).

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