

The Morphology and Distribution of *Timon princeps* (Blanford 1874) (Sauria: Lacertidae) in Southeastern Anatolia, Turkey

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Abstract. The new data on distribution of *Timon princeps* (Blanford) in Southeastern Anatolia were obtained. All reliable data on its distribution in Turkey, including new locality, are presented on the map. The meristic pholidolial, metric (morphometric) characters and color-pattern features of specimens of *T. princeps* collected from 19 km SE of Siirt, Southeastern Anatolia, Turkey were given in detail and compared with the specimens from Iran, Iraq and other Turkish localities with regard to literature. In addition, Turkish and Iran populations of *T. princeps* were compared statistically with each other in terms of meristic pholidolial characteristics and metric measurements.

Key Words: *Timon princeps*, distribution, pholidosis, morphology, Southeastern Anatolia.

Introduction

Timon is a small genus of lacertid lizard including 4 species [*Timon lepidus* (Daudin 1802); *Timon pater* (Lataste 1880); *Timon princeps* (Blanford 1874); *Timon tangitanus* (Boulenger 1881)]. It can be found in the following localities; Iberian Peninsula, Southern France, extreme Northwest Italy and Northwest Africa (Morocco, Western Sahara, North Algeria and Tunisia), with one species (*T. princeps*) occurring disjunctly in Eastern Turkey, Northeast Syria, Northeast Iraq and Southwest Iran (Arnold, E.N. et al., 2007). *Timon princeps* was first described as *Lacerta princeps* from Niriz = Neyriz, Iran (Blanford 1874). *Timon princeps* is a polytypic species and includes two subspecies (Suchov 1936, Eiselt 1968, Eiselt 1970, Anderson 1999). Nominative subspecies are known from Southwest

Iran, while the other one (*T. p. kurdistanica* - type locality: Biare = Baydarvaz, Iran) lives in Northwestern Iran, Northeastern Iraq and Southeastern Anatolia (Eiselt 1968, Eiselt 1969, Başoğlu & Baran 1977, Baran & Atatür 1998, Leviton et al. 1992, Anderson 1999).

The first report of the occurrence of *T. princeps* in Turkey was from Hüseyini, Siirt (Başoğlu 1945). According to Mertens (1952), *T. p. kurdistanica* is not differentiated as a new geographic race and is a synonym of *T. p. princeps*. The morphology of the *T. princeps* population Southeastern Anatolia including Mardin, Siirt, Hakkari and Şırnak was examined in detail by Eiselt (1968) and indicated that according to morphological characters *T. princeps* population of Southeastern Anatolia is similar to *T. p. kurdistanica*. According to Eiselt (1969), *T. p. kurdistanica* differs from a nominative

form in having 17-19 gular scales; 16 – 21 femoral pores on each side; outer row of ventrals (marginals) keeled as are all flank scales; lower edge of subocular half is relatively greater (50-67% of maximum length of subocular). According to phylogenetic relationship, morphological and karyological peculiarities, *Timon* was separated from genus *Lacerta* and accepted as full genera (Mayer & Bischoff, 1996). Arnold E.N. et al (2007) evaluated systematics of the palearctic and oriental lizard tribe Lacertini and described eight new genera. According to Arnold E.N. et al. (2007) both mtDNA and morphology indicate that *Lacerta* and *Timon* are sister taxa, and DNA suggests further possible relationships among genera.

The present paper includes the meristic pholidolial, metric (morphometric) characters and color-pattern features of *T. princeps* specimens captured from locality outside of the known Turkish range area of *T. princeps*. Also specimens of *T. princeps* captured from Turkey and Iran were statistically compared in terms of meristic pholidolial, metric characters.

Materials and Methods

The specimens (3♂, 2♀, 3 subadult) were collected from 19 km SE of Siirt (37°49'163"N, 41°54'498"E), Turkey, on 14/06/2005 (leg. Y. Kumlutaş, Ç. Ilgaz) (Fig. 1). 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 209/2005.

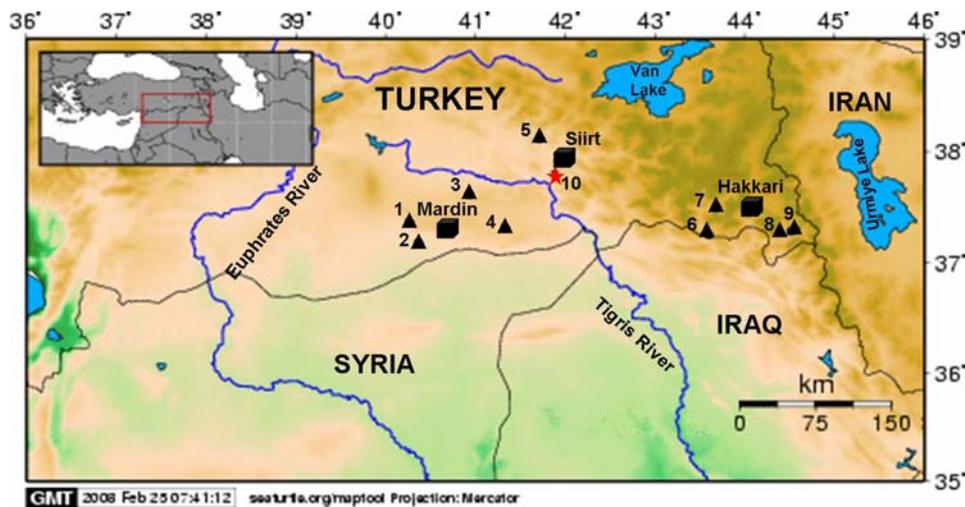


Figure 1. Distribution of *Timon princeps kurdistanica* in Turkey, showing the known distribution according to literature, with a star for the new locality. 1. 2 km N of Derik, Mardin, 2. 45 km W of Mardin, 3. 15 km SW of Midyat, Mardin, 4. 16 km NE of Savur, Mardin, 5. 10 km SW of Baykan, Siirt, 6. 10 km SW of Hakkari, 7. Çukurca, Hakkari, 8. 8 km W of Şemdinli, Hakkari, 9. 50 km SE of Yüksekova, Hakkari, 10. 19 km SE of Siirt. Data from Eiselt (1968).

Color and pattern characteristics were recorded and color slides were taken while the animals were alive. 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 & Baran (1977).

The following metric 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; HLL (hindlimb length), pelvic joint to tip of toe, SOL (length of lower edge of subocular), MSOL (maximum length of subocular), OCW (occipital plate width), IPW (Interparietal width), TOL (4th toe length), APL - APW (anal plate length - width). Furthermore, some metric indices were calculated: PLI [pileus length index, $(PL/SVL)*100$], PWI [pileus width index, $(PW/SVL)*100$], OCI [occipital plate index, $(OCL/IPW)*100$], API [anal plate index, $(AW/AL)*100$], HWI [head width index $(HW/PW)*100$], HLLI [hindlimb index $(HLL/SVL)*100$], TOLI [4th toe index $(TOL/SVL)*100$], TLI [tail length index $(TL/SVL)*100$].

Meristic pholidolial characteristics considered here comprised the following counts: supraciliary granules (left-right, SCGa-SCGb), supraciliary plates (left-right, SCa-SCb), preocular plates (left-right, POa-POb), postnasal plates (left-right, PNa-PNb), tympanic plates (left-right, TYa-TYb), transversal series of gular scales between inframaxillary symphysis and collar (MG), collar (C), temporals (left-right, Ta-Tb), ventral plates (transversal and longitudinal, TVP and LVP), femoral pores (left-right, FPa-FPb), subdigital lamellae in the 4th toe (left-right, SDLa-SDLb), transversal series of dorsal scales at the midtrunk (DS) and number of preanal scales surrounding anals (PA).

Turkish and Iran populations of *T. princeps* were compared statistically in terms of meristic pholidolial characteristics and metric measurements. Data was used to statistical analysis in order to compare Turkish and Iran populations were taken from Eiselt (1968) except

Siirt population. Because of the insufficient data (N=2) the Iraq population was not included into statistical analysis. In order to compare similarities and differences between sexes, an independent t-test was applied to the metric measurements of Turkey and Iran populations. For statistical analyses, metric indices [(PLI), (PWI), (OCI), (PPI), (HWI), (HLLI), (TOLI) and (TLI)] were used to test for similarities and differences. Indices were used due to an uncertainty regarding age groups and because it was not known whether growth was isometric or not. Data were examined for conformation to assumption of normality (the Kolmogorov-Smirnov test) and homogeneity (Fmax). The metric indices that showed differences between sexes were excluded from further analysis. One-way ANOVA was applied to the metric indices of Turkey and Iran populations in order to determine the differences between populations.

According to meristic pholidolial characteristics, the existence of sexual dimorphism between males and females was tested by the Kolmogorov-Smirnov test, and pholidolial characters showing sexual dimorphism were excluded from further analysis. Mann-Whitney U tests were used for comparing Turkey and Iran populations according to Meristic pholidolial characteristics that did not show sexual dimorphism. Regarding all statistic test, significance level set at 0.05. Statistical analyses were carried out using the program SPSS 11.0. (SPSS Inc., 1989-2001) and STATISTICA 6.0 (StatSoft Inc., 2001).

Results

Rostral was separated from internasal; reduced supraciliary granules was comprised 1-5 rows; there were 2 postnasals; the supranasal was not in contact with anterior loreal plates above nostril; trapezoidal shaped occipital was usually very wide posteriorly; upper labial scales in front of subocular was 4; typically two large, supratemporal plates; masseteric was present but barely differentiated from other large scales in

temporal region. Dorsal body scales was small, keeled and comprised 33-36 in a transverse row across mid-body. Collar was strongly serrated, eight rows of trapezoidal, overlapping ventral scales; anal was relatively small and bordered

by two rows of smaller scales; scales under toes was tubercular; whorls of tail scales was subequal in length. Descriptive statistics of pholidotic characters of *Timon princeps* specimens are given in Table 1.

Table 1. Descriptive statistics of meristic pholidolial characters obtained from *Timon princeps* specimens collected from 19 km SE of Siirt, southeastern Anatolia. For abbreviations, see text (N: number of specimens; min: minimum value; max: maximum value; SD: standard deviation; SE: standard error of the mean)

Overall						
Characters	N	Mean	Min	Max	S.D.	S.E
TVP	8	31.25	31.00	32.00	0.46	0.16
LVP	8	8.00	8.00	8.00	0.00	0.00
DS	8	33.50	32.00	36.00	1.51	0.53
FPa	8	18.38	18.00	19.00	0.52	0.18
FPb	8	18.38	18.00	19.00	0.52	0.18
PA	8	8.13	8.00	9.00	0.35	0.13
SDLa	8	26.13	25.00	27.00	0.64	0.23
SDLb	8	26.63	26.00	27.00	0.52	0.18
SCa	8	4.50	4.00	5.00	0.53	0.19
SCb	8	4.63	4.00	5.00	0.52	0.18
SCGa	8	2.63	1.00	5.00	1.69	0.60
SCGb	8	3.00	1.00	5.00	1.41	0.50
MG	8	20.00	19.00	23.00	1.31	0.46
C	8	9.00	9.00	9.00	0.00	0.00
PNa	8	2.00	2.00	2.00	0.00	0.00
PNb	8	2.00	2.00	2.00	0.00	0.00
Ta	8	16.25	15.00	19.00	1.28	0.45
Tb	8	16.13	15.00	19.00	1.36	0.48
TYa	8	1.50	1.00	3.00	0.76	0.27
TYb	8	1.36	1.00	2.00	0.52	0.18

Males						
Characters	N	Mean	Min	Max	S.D.	S.E
TVP	3	31.00	31.00	31.00	0.00	0.00
LVP	3	8.00	8.00	8.00	0.00	0.00
DS	3	33.00	32.00	34.00	1.00	0.58
FPa	3	18.67	18.00	19.00	0.58	0.33
FPb	3	18.67	18.00	19.00	0.58	0.33
PA	3	8.33	8.00	9.00	0.58	0.33

Table 1. (Continued)

Males						
Characters	N	Mean	Min	Max	S.D.	S.E
SDLa	3	25.67	25.00	26.00	0.58	0.33
SDLb	3	26.67	26.00	27.00	0.58	0.33
SCa	3	4.33	4.00	5.00	0.58	0.33
SCb	3	5.00	5.00	5.00	0.00	0.00
SCGa	3	1.67	1.00	3.00	1.15	0.67
SCGb	3	2.67	1.00	4.00	1.52	0.88
MG	3	19.33	19.00	20.00	0.58	0.33
C	3	9.00	9.00	9.00	0.00	0.00
PNa	3	2.00	2.00	2.00	0.00	0.00
PNb	3	2.00	2.00	2.00	0.00	0.00
Ta	3	17.00	15.00	19.00	2.00	1.15
Tb	3	17.33	16.00	19.00	1.53	0.88
TYa	3	1.33	1.00	2.00	0.58	0.33
TYb	3	1.33	1.00	2.00	0.58	0.33

Females						
Characters	N	Mean	Min	Max	S.D.	S.E
TVP	2	32.00	32.00	32.00	0.00	0.00
LVP	2	8.00	8.00	8.00	0.00	0.00
DS	2	33.5	32.00	35.00	2.12	1.50
FPa	2	18.00	18.00	18.00	0.00	0.00
FPb	2	18.50	18.00	19.00	0.71	0.50
PA	2	8.00	8.00	8.00	0.00	0.00
SDLa	2	26.50	26.00	27.00	0.71	0.50
SDLb	2	27.00	27.00	27.00	0.00	0.00
SCa	2	4.00	4.00	4.00	0.00	0.00
SCb	2	4.50	4.00	5.00	0.71	0.50
SCGa	2	3.00	1.00	5.00	2.82	2.00
SCGb	2	3.00	1.00	5.00	2.82	2.00
MG	2	21.50	20.00	23.00	2.12	1.50
C	2	9.00	9.00	9.00	0.00	0.00
PNa	2	2.00	2.00	2.00	0.00	0.00
PNb	2	2.00	2.00	2.00	0.00	0.00
Ta	2	15.50	15.00	16.00	0.71	0.50
Tb	2	16.00	16.00	16.00	0.00	0.00
TYa	2	2.00	1.00	3.00	1.41	1.00
TYb	2	1.00	1.00	1.00	0.00	0.00

According to the Kolmogorov-Smirnov test, there was a difference in TVP ($Z= 0.032$, $p= 0.045$) and DS ($Z= 0.973$, $p= 0.300$) characters between males and females of Turkish specimens. In Iran populations, sexual dimorphisms were found in 4 characters [DS ($Z=0.913$, $p= 0.038$), FPa ($Z= 1.369$, $p= 0.047$), SDLB ($Z= 0.982$, $p= 0.029$) and Ta ($Z= 0.873$, $p= 0.043$)] between males and females. Thus, these characters (TVP, DS, FPa, SDLB and Ta) were excluded from further analysis of Turkish and Iran populations in terms of meristic pholidolial characters. The results of the Mann-Whitney U test based on meristic pholidolial characteristics that do not show sexual dimorphism are given in Table 2. The box and whisker plots of SCa, SCb, SCGa, SCGb, Tb and TYb are given in Fig. 2A, B, C, D, E, F. According to these plots, Turkish specimens have higher mean values of SCa, SCb, SCGa, SCGb and Tb than that

of Iran specimens, in addition mean value of TYb was found higher in Iran population (Fig. 2A, B, C, D, E, F).

SVL ranges between 124.90-127.84 with a mean of 125.88 mm were found for sexually mature male specimens, while the mean value of this character in females is 112.77 mm (range: 110.18-115.36). Descriptive statistics of metric measurements of *Timon princeps* specimens are given in Table 3.

According to independent t-tests sexual dimorphism were established between females and males in PLI ($t= 11.013$, $df= 6$, $p= 0.000$), PWI ($t= 3.721$ $df= 5.873$, $p= 0.010$), PPI ($t= 2.364$ $df= 5.627$, $p= 0.049$), HWI ($t= 1.705$ $df= 4.442$, $p= 0.015$), HLLI ($t=0.930$, $df= 5.598$, $p=0.039$) and TOLI ($t= 0.900$ $df= 5.919$, $p= 0.040$) indices in Iran population. Also TLI indices was not calculated because of sufficient data ($N=1$). There were diffe-

Table 2. Results of Mann-Whitney U test comparing Turkey and Iran populations in terms of pholidotic characteristics (The characters showing differences between two populations were marked with star).

Characters	Mann-Whitney-U	Z	p
LVP	88.000	.000	1.000
FPb	73.500	-.353	0.724
PA	84.000	-.227	0.821
SDLa	83.500	-.216	0.829
SCa*	70.000	-.846	0.397
SCb*	48.500	-1.557	0.119
SCGa*	63.500	-.853	0.394
SCGb*	57.000	-1.191	0.234
POa	84.000	.000	1.000
POb	84.000	.000	1.000
Tb*	32.500	-2.561	0.010
TYa	66.500	-.437	0.662
TYb*	45.500	-1.992	0.046

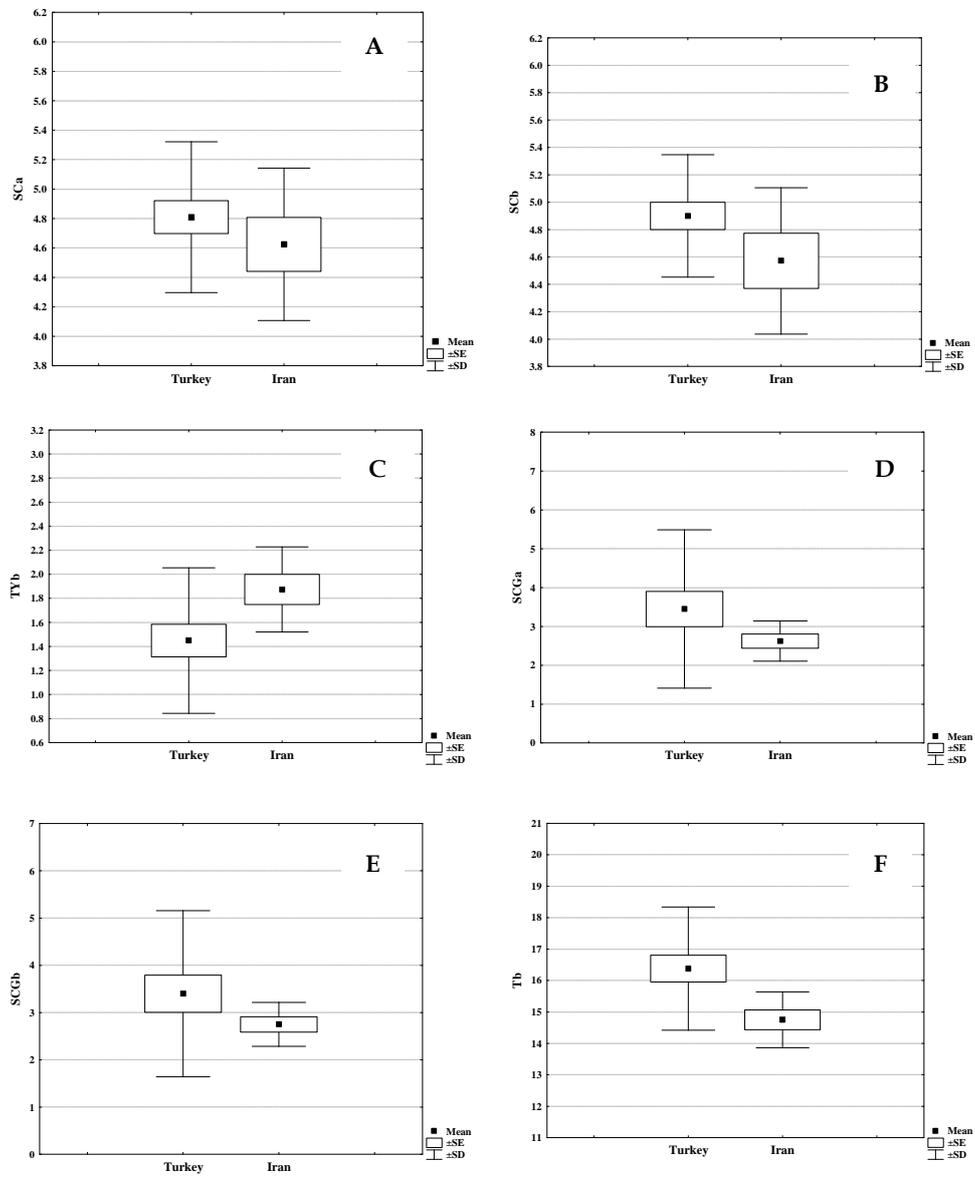


Figure 2/A, B, C, D, E, F. Box and whisker plots of the pholidotic characteristics show significant differences between the populations of Turkey and Iran according to the Mann-Whitney U test.

rences in five indices [PLI (t= 4.964, df= 12.462, p= 0.000), PWI (t= 3.829, df= 18.121, p= 0.001), OCI (t=0.989, df= 17.981, p= 0.033), HWI (t= 1.766, df= 18, p= 0.044), and HLLI (t= 1.089, df= 19, f= 0.029)] between females and males in

Turkish population. Turkish and Iran populations could not compare from each other in terms of metric indices due to the high proportion of sexual dimorphism.

Table 3. Descriptive statistics of metric dimensions obtained from *Timon princeps* collected from 19 km SE of Siirt, southeastern Anatolia. For abbreviations, see text.

Overall						
Characters	N	Mean	Min	Max	S.D.	S.E
SVL	5	120.64	110.18	127.84	7.51	3.56
TL	3	244.00	202.00	270.00	36.72	21.20
PW	5	12.78	11.10	14.30	1.40	0.63
PL	5	26.90	22.90	29.66	3.22	1.44
HW	5	17.14	13.44	19.92	2.85	1.28
HL	5	28.16	24.20	31.00	3.30	1.48
HLL	5	63.45	57.88	68.44	4.62	2.06
IPW	5	2.43	2.22	2.80	0.23	0.10
OCW	5	3.88	3.06	4.50	0.61	0.27
SOL	5	4.48	3.72	5.22	0.69	0.31
MSOL	5	6.45	5.52	7.32	0.76	0.34
TOL	5	19.34	17.74	21.80	1.87	0.83
APL	5	3.76	3.14	4.04	0.36	0.16
APW	5	7.59	6.56	8.70	0.89	0.40
PLI	5	22.24	20.77	23.75	1.38	0.62
PWI	5	10.57	9.97	11.45	0.60	0.27
OCI	5	160.39	122.40	189.19	26.23	11.73
API	5	202.34	170.00	230.16	21.66	9.68
HWI	5	133.54	121.08	146.90	10.63	4.75
HLLI	5	52.59	50.23	54.32	1.54	0.69
TOLI	5	16.04	14.33	17.05	1.15	0.51
TLI	3	201.09	161.73	225.38	34.40	19.86

Males						
Characters	N	Mean	Min	Max	S.D.	S.E
SVL	3	125.88	124.90	127.84	1.70	0.98
TL	2	236.00	202.00	270.00	48.08	34.00
PW	3	13.77	13.44	14.30	0.47	0.27
PL	3	29.22	28.50	29.66	0.63	0.36
HW	3	19.16	18.46	19.92	0.73	0.42
HL	3	30.55	30.26	31.00	0.39	0.23

Table 3. (Continued)

Males						
Characters	N	Mean	Min	Max	S.D.	S.E
HLL	3	2.46	2.22	2.80	0.30	0.17
IPW	3	4.31	4.20	4.50	0.16	0.09
OCW	3	66.34	62.74	68.44	3.13	1.81
SOL	3	4.97	4.78	5.22	0.23	0.13
MSOL	3	6.95	6.46	7.32	0.44	0.25
TOL	3	20.19	17.90	21.80	2.04	1.18
APL	3	3.89	3.78	4.04	0.13	0.08
APW	3	8.20	7.86	8.70	0.44	0.26
PLI	3	23.22	22.82	23.75	0.48	0.28
PWI	3	10.94	10.61	11.45	0.45	0.26
OCI	3	176.52	160.71	189.19	14.50	8.37
API	3	210.93	199.01	230.16	16.81	9.71
HWI	3	139.37	129.09	146.90	9.22	5.32
HLLI	3	52.70	50.23	54.32	2.17	1.25
TOLI	3	16.03	14.33	17.05	1.48	0.86
TLI	2	188.95	161.73	216.17	38.49	27.22

Females						
Characters	N	Mean	Min	Max	S.D.	S.E
SVL	2	112.77	110.18	115.36	3.66	2.59
TL	1	260.00	260.00	260.00	0.00	0.00
PW	2	11.30	11.10	11.50	0.28	0.20
PL	2	23.43	22.90	23.96	0.75	0.53
HW	2	14.11	13.44	14.78	0.95	0.67
HL	2	24.57	24.20	24.94	0.52	0.37
HLL	2	2.39	2.28	2.50	0.16	0.11
IPW	2	3.24	3.06	3.42	0.25	0.18
OCW	2	59.12	57.88	60.36	1.75	1.24
SOL	2	3.74	3.72	3.76	0.03	0.02
MSOL	2	5.70	5.52	5.88	0.25	0.18
TOL	2	18.07	17.74	18.40	0.47	0.33
APL	2	3.57	3.14	4.00	0.61	0.43
APW	2	6.68	6.56	6.80	0.17	0.12
PLI	2	20.78	20.77	20.78	0.01	0.01
PWI	2	10.02	9.97	10.07	0.07	0.05
OCI	2	136.20	122.40	150.00	19.52	13.80
API	2	189.46	170.00	208.92	27.52	19.46
HWI	2	124.80	121.08	128.52	5.26	3.72
HLLI	2	52.43	52.32	52.53	0.15	0.11
TOLI	2	16.04	15.38	16.70	0.93	0.66
TLI	1	225.38	225.38	225.38	0.00	0.00

In living specimens, colors of back and sides vary from light yellow to olive brown, and olive gray in some rare cases. On this background color, dark brown spots, formed by irregular crossbars that form a wide line on back and sides of the body, are found, and they sometimes form a network like structure. These spots are also found on the upper parts of tail along with legs. Most of the times, these spots on the back are lined to form transverse bands. In some specimens, these spots are indistinct. Color of upper part of the head and supratemporals vary from olive brown to chestnut brown, and the rest of it is bluish-black. Dark brown spots are found on the upper part of head. In males, sides and lower parts of the head are bluish-black and neck is orange-red (Fig. 3). In females, sides and lower parts of the head are light yellow. In the sides of body, white colored oceli with dark brown sides are found lengthways in files (Fig. 4). These are mostly bigger and round on the front part and smaller on the belly and back parts. These also continue on the tail. White dots are found on extremities, especially on hind legs. Color of ventral side varies from whitish to grayish-yellow. In juveniles, back part is mostly single colored and is olive gray, and spots are more scarce compared to adults. Ventral side is white.

The eight specimens of *Timon princeps* were found during day excursion between 10.00 and 12.00 hours. The specimens were collected from the western slopes of the Gavur Mountain; the habitat comprised loose substrate with dense vegetation. The collection area had mainly *Quercus sp.*, *Polives sp.*, *Juniperus oxycedrus* trees. The altitude

where the sampling was carried out was 519 m a.s.l. and the temperature was 28°C. The specimens were active on the surface and when disturbed, they climbed to tree and hid in the hole. In these biotopes, *Lacerta media* Lantz & Cyren 1920 and *Ophisops elegans* Menetries 1832 were observed.

Discussion

As stated in the previous studies, *T. p. kurdistanica* differs from a nominative form in having 17-19 gular scales; 16-21 femoral pores on each side; outer row of ventrals (marginals) keeled as are all flank scales; lower edge of subocular half is relatively greater (50-67% of maximum length of subocular) (Eiselt 1968, Leviton et al. 1992, Anderson 1999). In our specimens, percentage of the length of lower edge of subocular to maximum length of subocular was found as 63.9-74% and slightly higher values than the values for *T. p. kurdistanica* as stated earlier (Eiselt 1968).

DS values varied between 32 and 36 with a mean of 33.50 (SD: 1.51) in the present study. The mean DS values were specified as 36.68 (SD: 2.45), 39.50 (SD: 1.07) and 37.0 (SD: 2.83) for Turkey, Iran and Iraq specimens respectively (Eiselt 1968). *T. p. kurdistanica* specimens examined in this study had clearly lower DS values than those from Iran, Iraq and other Turkish specimens (Table 4). According to Eiselt (1968), the mean values of TVP are 30.50 (SD: 0.55), 30.50 (SD: 0.71), 30.11 (SD: 0.99) for Iran, Iraq and other Turkish specimens. However, we found out that TVP values of our specimens were 31-32 with a mean of



Figure 3. Dorsolateral view of male specimen of *Timon princeps kurdistanica* from 19 km SE of Siirt.



Figure 4. Dorsolateral view of female specimen of *Timon princeps kurdistanica* from 19 km SE of Siirt.

Table 4. Comparison of meristic pholidolial characters of our specimens with those given by Eiselt (1969).
a: This study. **b:** Eiselt (1969). (Range: Extreme values)

	a				Iran (b)			
	N	Mean	Range	S.D.	N	Mean	Range	S.D.
TVP	8	31.25	31.00-32.00	0.46	8	30.50	30.00-31.00	0.55
DS	8	33.50	32.00-36.00	1.51	8	39.50	38.00-41.00	1.07
FPa	8	18.38	18.00-19.00	0.52	8	18.13	17.00-20.00	1.13
FPb	8	18.38	18.00-19.00	0.52	8	18.00	17.00-19.00	0.53
PA	8	8.13	8.00-9.00	0.35	8	8.25	8.00-9.00	0.46
SDLa	8	26.13	25.00-27.00	0.64	8	27.25	25.00-28.00	1.16
SDLb	8	26.63	26.00-27.00	0.52	7	26.71	26.00-28.00	0.95
SCa	8	4.50	4.00-5.00	0.53	8	4.63	4.00-5.00	0.52
SCb	8	4.63	4.00-5.00	0.52	7	4.57	4.00-5.00	0.53
SCGa	8	2.63	1.00-5.00	1.69	8	2.63	2.00-3.00	0.52
SCGb	8	3.00	1.00-5.00	1.41	8	2.75	2.00-3.00	0.46
Ta	8	16.25	15.00-19.00	1.28	7	14.00	11.00-17.00	2.38
Tb	8	16.13	15.00-19.00	1.36	8	14.75	13.00-16.00	0.89
TYa	8	1.50	1.00-3.00	0.76	7	2.00	2.00-2.00	0.00
TYb	8	1.36	1.00-2.00	0.52	8	1.88	1.00-2.00	0.35

	Iraq (b)				Turkey (b)			
	N	Mean	Range	S.D.	N	Mean	Range	S.D.
TVP	2	30.50	30.00-31.00	0.71	19	30.11	28.00-32.00	0.99
DS	2	37.00	35.00-39.00	2.83	19	36.68	33.00-43.00	2.45
FPa	2	17.50	17.00-18.00	0.71	19	18.11	17.00-21.00	1.15
FPb	2	17.00	16.00-18.00	1.41	18	17.78	16.00-19.00	0.94
PA	2	8.50	8.00-9.00	0.71	20	8.40	7.00-10.00	0.75
SDLa	2	28.00	28.00-28.00	0.00	20	27.45	25.00-30.00	1.54
SDLb	2	27.00	26.00-28.00	1.41	16	26.88	25.00-29.00	1.41
SCa	2	5.00	5.00-5.00	0.00	19	5.00	4.00-6.00	0.33
SCb	2	4.50	4.00-5.00	0.71	18	5.00	4.00-6.00	0.49
SCGa	2	3.00	3.00-3.00	0.00	18	3.78	1.00-7.00	1.90
SCGb	2	2.00	1.00-3.00	1.41	18	3.39	1.00-6.00	1.75
Ta	2	18.00	17.00-19.00	1.41	19	16.68	13.00-20.00	1.80
Tb	2	17.00	16.00-18.00	0.71	19	16.26	12.00-20.00	2.02
TYa	2	1.50	1.00-2.00	0.71	19	2.00	1.00-3.00	0.67
TYb	2	2.00	2.00-2.00	0.00	18	1.67	1.00-3.00	0.69

31.25 (SD: 0.46) and our specimens were slightly higher LVP counts than those from Iran, Iraq and other Turkish specimens (Table 4). SCGa and SCGb

counts of our specimens were ranged from 1 to 5 with a mean of 2.63 (SD: 1.69) and 3.00 (SD: 1.41) respectively. These counts are compatible with the data

given by Eiselt (1968) for Iran and Iraq specimens but are slightly higher than previously examined specimens from other Turkish localities. Ta and Tb values varied between 15 and 19 with a mean of 16.25 (SD: 1.28) and 16.13 (SD: 1.36) respectively. Eiselt (1968) found the mean value of Ta and Tb as 14.00 (SD: 2.38) and 14.75 (SD: 0.89) for Iran specimens respectively. Our specimens had clearly higher Ta and Tb values than those from Iran. Also these counts are compatible with the data given by Eiselt (1968) for Iraq and other Turkish specimens. *T. p. kurdistanica* specimens examined in the present study was slightly lower lower SDLa and SDLb counts than that of Iran, Iraq and other Turkish specimens examined by Eiselt (1968).

Our specimens had lower mean values than that of Iran specimens in terms of OCI, HWI and TOLI but they were clearly larger in PPI. On the other hand, HLLI, TLI, PLI and PWI values of our specimens were compatible with the data given by Eiselt (1968) for Iran specimens (Table 5). When comparing our specimens with other Turkish specimens in terms metric indices, our specimens are compatible with the data given by Eiselt (1968) for other Turkish specimens in terms of PLI and PWI. Also, specimens examined in this study were clearly smaller than those from other Turkish specimens in terms of PPI, HWI, HLLI, TOLI and TLI while OCI was slightly larger (Table 5).

Table 5. Comparison of meristic pholidolial indices obtained from our specimens with those given by Eiselt (1969) a: This study, b: Eiselt (1969)..

	a				Iran (b)			
	N	Mean	Range	S.D.	N	Mean	Range	S.D.
PLI	5	22.24	20.77-23.75	1.38	8	22.77	20.71-24.40	1.56
PWI	5	10.57	9.97-11.45	0.60	8	10.48	9.60-11.54	0.68
OCI	5	160.39	122.40-189.19	26.23	8	186.29	166.67-215.79	19.32
API	5	202.34	170.00-230.16	21.66	8	190.00	155.56-229.17	26.30
HWI	5	133.54	121.08-146.90	10.63	8	145.69	136.19-162.50	8.22
HLLI	5	52.59	50.23-54.32	1.54	8	53.00	47.97-56.04	2.90
TOLI	5	16.04	14.33-17.05	1.15	8	17.89	15.20-20.33	1.91
TLI	3	201.09	161.73-225.38	34.40	5	202.99	151.54-230.77	32.45

	Iraq (b)				Turkey (b)			
	N	Mean	Range	S.D.	N	Mean	Range	S.D.
PLI	2	20.57	20.32-20.82	0.35	16	22.83	20.71-24.19	0.94
PWI	2	9.68	9.60-9.75	0.11	16	10.70	9.89-11.59	0.47
OCI	---	----	----	---	15	140.44	100.00-176.19	21.89
API	---	----	----	---	17	216.36	188.00-260.87	21.19
HWI	2	143.52	142.86-144.17	0.93	15	141.85	131.75-150.00	5.63
HLLI	---	----	----	---	16	54.48	46.83-59.73	3.35
TOLI	---	----	----	---	16	19.15	16.27-21.59	1.59
TLI	---	----	----	---	11	220.22	188.17-246.67	17.85

Table 6. Comparison of metric dimensions obtained from our specimens with those given by Eiselt (1969) a: This study, b: Eiselt (1969).

	a				Iran (b)			
	N	Mean	Range	S.D.	N	Mean	Range	S.D.
SVL	5	120.6	110.2-127.8	7.5	10	123.8	91.0-148.0	19.4
TL	3	244.0	202.0-270.0	36.7	7	236.6	197.0-303.0	41.7
PL	5	26.9	22.9-29.7	1.4	10	28.4	22.2-36.2	4.6
PW	5	12.8	11.1-14.3	3.2	10	13.2	9.9-18.1	2.0
HW	5	17.1	13.4-19.9	1.3	10	19.1	14.3-24.8	3.7
SOL	5	4.5	3.7-5.2	0.7	10	4.0	3.2-5.2	0.7
MSOL	5	6.4	5.5-7.3	0.8	10	7.2	5.8-8.7	0.9
IPW	5	2.8	2.2-3.4	0.2	10	2.4	1.9-3.0	0.2
OCW	5	3.5	2.3-4.5	0.6	10	4.2	3.5-5.7	0.4
HLL	5	63.5	57.9-68.4	4.6	10	66.2	51.0-82.0	8.3
TOL	5	19.3	17.7-21.8	1.9	10	22.0	18.5-26.0	2.3
APL	5	3.8	3.1-4.0	3.1	10	4.2	3.5-5.0	1.6
APW	5	7.6	6.6-8.7	0.9	10	8.5	6.2-11.0	0.6

	Iraq (b)				Turkey (b)			
	N	Mean	Range	S.D.	N	Mean	Range	S.D.
SVL	2	123.5	122.0-125.0	2.1	16	110.5	88.0-131.0	15.4
TL	1	248.0	248.0-248.0	0.0	12	235.3	175.0-296.0	37.7
PL	2	25.4	25.4-25.4	0.0	16	25.2	20.5-30.3	3.4
PW	2	12.0	11.9-12.0	0.1	16	11.8	9.2-14.6	1.8
HW	2	17.2	17.0-17.3	0.2	15	16.5	13.5-20.5	2.4
SOL	1	3.6	3.6-3.6	0.0	15	3.8	2.8-4.4	0.5
MSOL	1	6.6	6.6-6.6	0.0	15	6.5	5.1-8.3	0.9
IPW	2	2.2	2.0-2.4	0.0	15	2.5	2.1-2.8	0.2
OCW	2	3.2	2.8-3.5	0.0	15	3.5	2.7-4.4	0.5
HLL	2	63.0	63.0-63.0	0.0	17	60.2	46.0-70.5	7.9
TOL	2	21.5	21.5-21.5	0.0	17	21.0	18.5-23.5	1.7
APL	2	5.2	4.8-5.5	0.0	17	3.6	2.3-5.0	1.3
APW	2	8.4	8.0-8.7	0.0	17	7.5	5.7-9.4	0.7

The holotype is the largest known specimen with 148.00 mm in SVL for *T. p. kurdistanica* (Eiselt, 1968). The mean SVL of our specimens was found as 120.64 (range: 110.18-127.84) mm. The comparative assessment of the morphometric measurements with those given by Eiselt (1969) is given in Table 5.

The habitat that the specimens were collected comprised of loose substrate with dense vegetation. The collection area had mainly *Quercus sp.*, *Polives sp.*, *Juniperus oxycedrus* trees. According to Eiselt (1968), the distribution zone of *Timon princeps* is within the Irano-Turanian xerophilous and summer green

Zagros oak forest climax vegetation type characterized by presence of *Quercus brandtii*. Rykena et al (1977) stated that specimens of *Timon princeps* prefer oak-shrubs habitat of the slopes of valleys.

According to Anderson (1999), the relationship of this species with other Lacertid lizard is still uncertain. Peters (1962) excluded this taxon from subgenus *Lacerta*. According to Eiselt (1968), this taxon has a close relationship to *Lacerta viridis* and both probably being derived from *L. strigata-agilis* complex. According to phylogenetic relationship, morphological and karyological peculiarities, *Timon* was separated from genus *Lacerta* and accepted as full genera (Mayer & Bischoff, 1996). Finally, Arnold et al (2007) were used both mtDNA and morphology to reconstruct the molecular phylogeny of the family Lacertidae and found that both mtDNA and morphology indicate that *Lacerta* and *Timon* are sister taxa, and DNA suggests further possible relationships among genera.

Comparing our results with the literature shows that some meristic pholidolial and metric characteristics of our specimens show differences than those of Iran, Iraq and other Turkish populations (Table 4, 5 and 6). Statistical analyses performed between the meristic pholidolial characters and of the Turkey and Iran populations verified statistically significant differences in 6 characters. In other words, of the 13 characters examined 46.2 % discriminated statistically between the 2 populations. We think that environmental factors and local conditions are the most likely candidates for explaining the observed variation. Similar situations were reported in previous studies on some lizards and snake species obtained from Southeastern

Anatolia, Syria, Iraq and Iran compared from each other (Tok et al. 1997, Göçmen et al. 2002, Göçmen et al. 2007). The distribution of *T. p. kurdistanica* in Southeastern Anatolia was updated with the new distribution locality. One of the important results of this study is to extend the distribution zone of *T. p. kurdistanica* with the new distribution locality in Southeastern Anatolia.

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