

## Range extension of *Lyciasalamandra atifi* (Başoğlu, 1967) (Amphibia: Urodela: Salamandridae)

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**Abstract.** Additional data on the distribution of the terrestrial salamander *Lyciasalamandra atifi*, endemic to Turkey, are presented, based on fieldwork conducted in 2011. Five new localities situated around the Cebireis Mountain (Cebel-i Reis, Alanya, Antalya) were recorded. These represent a considerable range extension for both species and genus, around 35 km air distance to the south-east.

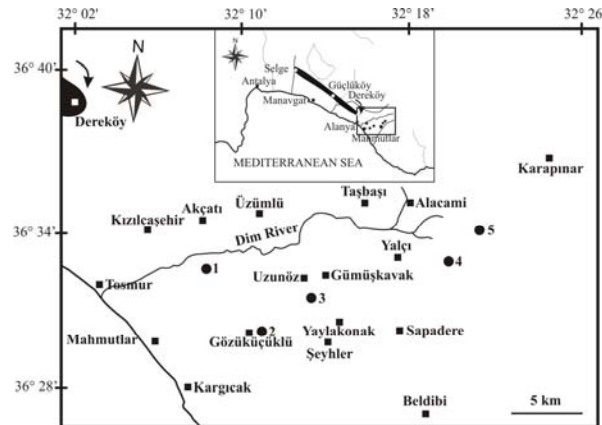
**Key Words:** Distribution, Turkey, *Lyciasalamandra atifi*, Urodela.

Atıf's Lycian Salamander, *Lyciasalamandra atifi*, is known along the Taurus Mountains range on a distance of about 110 km, from Turbelinaz (Dereköy, Alanya) to the vicinity of the antique city, Selge (Altnkaya, Serik) near the Köprülü Canyon in Antalya province (Fig. 1), with a vertical distribution of 190-1300 m (Veith et al. 2001, Öz et al. 2004, Franzen et al. 2008, Göçmen et al. 2011). It has the largest distribution area of all congeneric species and also extends the range of the genus eastwards.

In 2011, we surveyed the actual distribution area of the species and, as a result we detected it in five new localities (Dim Cave [1], Gözüküçüklü village [2], Uzunöz village [3], Kuşyuvası mevki [4] and Kaplanhanı plateau [5]) (Fig. 1) from the eastern parts of Dereköy, Alanya, "which is the easternmost previously known locality of the spe-

cies' range". All new localities are situated in the southern part of Dim Çayı (Dim River), around the northern and southern slopes of the Cebel Reis (Cebireis) Mountain range, between the altitudes of 232 m a.s.l. (Dim Cave) and 1400 m asl (Kaplanhanı plateau). Although we found many specimens, only 15 (2 adults and 13 juveniles) (Table 1) were collected, in consideration of conservation. They are deposited in the Zoology Museum of Harran University, Şanlıurfa, Turkey. Body measurements of adults and juveniles are summarized in Table 2.

Comparison of live specimens from Güçlüköy (Akseki, Antalya), evaluated by the same team (Göçmen et al. 2011), with the newly collected ones and also with the original description of the species given by Başoğlu (1967) shows that the new populations do not differ much from the pre-



**Figure 1.** Map of the new localities (solid circles) where the specimens were collected (numbers correspond to those in the text and Table 1). The arrow indicates the easternmost locality of the previously known distribution range.

**Table 1.** Geographic and some climatic information of the new localities, as well as their museum codes (ZMHRU: Zoology Museum of Harran University, Şanlıurfa, Turkey). Specimens were collected on April 6th, 2011.

Museum codes (ZMHRU)	Localities	Altitude (m)	Latitude (DMS)	Longitude (DMS)	Collected specimens	Temp. (°C)
-	Dim Cave [1]	232	36° 32' 28" N	32° 07' 12" E	None	16
2011/127	Gözüküçüklü village [2]	785	36° 30' 13" N	32° 11' 25" E	9 specimens (1♀, 8 juv.)	17
2011/128	Uzunöz village [3]	1100	36° 31' 37" N	32° 13' 25" E	2 specimens (2 juv.)	16
2011/129	Kuşyuvası mevki [4]	1243	36° 33' 07" N	32° 19' 59" E	3 specimens (3 juv.)	15
2011/169	Kaplanhanı plateau [5]	1400	36° 34' 06" N	32° 21' 04" E	1 specimen (1 ♂)	15

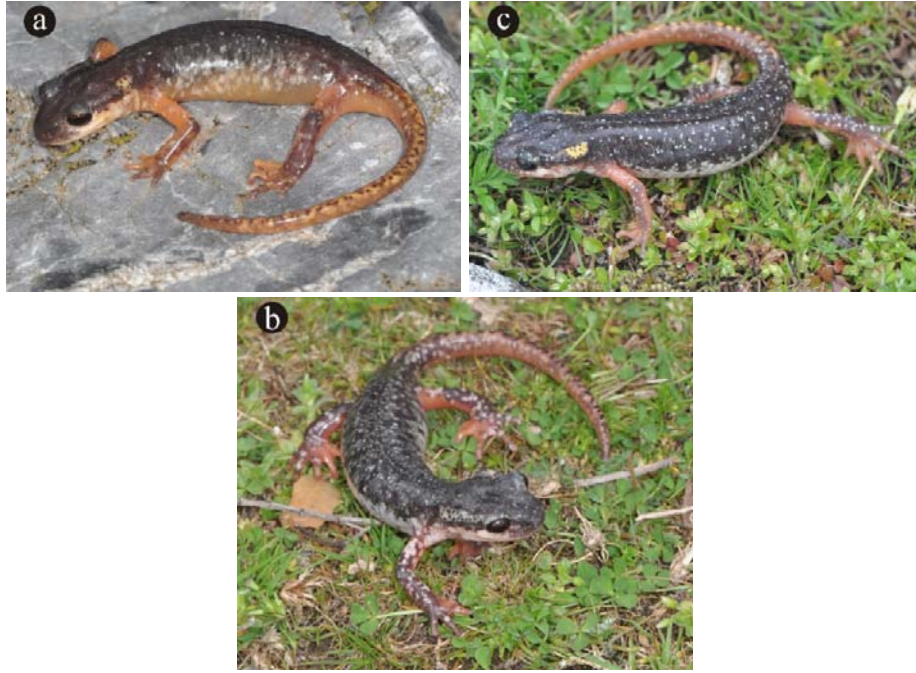
**Table 2.** Some mensural characters (in mm) of *Lyciasalamandra atifi*. 1: Values in raw data; 2: Index values in PERCRA (percents of rostrum-anus length: [each metric character/RA] × 100), according to Werner (1971). N: number of specimens; SD: Standard deviation.

Character and units	Adults				Juveniles				
	N	Mean	Range	SD	N	Mean	Range	SD	
Total Body Length	1	2	134.0	134.0	0.0	13	103.6	78.0-119.0	12.5
	2	2	183.7	178.7-188.7	7.1	13	178.4	156.3-187.7	8.1
Rostrum-Anus Length	1	2	73.0	71.0-75.0	2.8	13	58.1	45.0-65.0	6.3
	2	2	50.4	45.6-55.2	6.8	13	38.6	28.6-43.2	4.4
Tail Length	1	2	68.9	64.2-73.6	6.6	13	66.5	62.2-70.9	2.7
	2	2	61.0	59.0-63.0	2.8	13	45.5	32.0-54.0	7.1
Nostril-Eye Distance	1	2	83.7	78.7-88.7	7.1	13	78.4	56.3-87.7	8.1
	2	2	3.8	3.8-3.8	0.0	13	2.7	2.0-3.6	0.4
Distance Between Nostrils	1	2	5.2	5.1-5.4	0.2	13	4.6	3.5-5.6	0.6
	2	2	5.4	5.3-5.4	0.1	13	4.2	3.5-4.7	0.4
Eye Diameter	1	2	7.3	7.2-7.4	0.2	13	7.3	6.3-8.0	0.5
	2	2	4.7	4.3-5.1	0.6	13	4.0	3.6-4.4	0.3
Head Length	1	2	6.4	6.0-6.8	0.6	13	7.0	6.4-8.0	0.5
	2	2	18.3	18.2-18.5	0.2	13	15.4	12.9-17.0	1.2
Head Width	1	2	25.1	24.6-25.7	0.8	13	26.6	24.8-30.2	1.5
	2	2	12.5	12.2-12.8	0.4	13	10.3	8.4-11.5	1.0
Parotid Length	1	2	17.1	17.0-17.2	0.1	13	17.7	17.1-19.3	0.6
	2	2	9.3	9.2-9.3	0.1	13	7.8	6.2-8.8	0.8
Parotid Width	1	2	12.7	12.3-13.1	0.6	13	13.4	11.9-14.9	0.7
	2	2	2.4	2.0-2.8	0.6	13	2.3	1.8-3.1	0.4
Forelimb Length	1	2	3.3	2.8-3.8	0.7	13	4.0	3.1-5.2	0.5
	2	2	22.2	22.0-22.3	0.15	13	19.3	16.0-21.9	1.7
Hind Limb Length	1	2	30.4	29.4-31.3	1.4	13	33.4	29.4-38.3	2.5
	2	2	26.7	26.5-26.8	0.2	13	22.7	18.7-25.2	1.8
Distance Between Fore- and Hind Limbs	1	2	36.5	35.3-37.8	1.7	13	39.2	32.8-46.0	3.0
	2	2	41.0	37.0-45.0	5.66	13	31.8	22.4-35.6	3.7
	2	2	56.1	52.2-60.1	5.6	13	54.7	48.7-59.7	2.9

viously known populations, except for the size and colouration of juveniles.

The specimens collected from the new localities are smaller in size, and a little greyish (instead of dark brown) in colour on the dorsum, with small blackish flecks which are not distinct (Fig. 2). Juveniles have yellowish colouration on the posterior half of the parotids and yellowish flecks on the tail. Since most of the observed and collected specimens were juveniles, we accept these differences as variations based on their stages of development.

The specimens from around Cebireis Mountain were collected from under karstic stones located both in humid areas of the pine forest and in deforested areas surrounded by pine trees, contrary to previous reports -stating only deforested areas- on the species (Başoğlu 1967, Veith et al. 2001). Moreover, some specimens were observed inside of the karstic Dim Cave. This suggests that the species could be found in almost every place where there is a karstic structure and proper climatic factors as mentioned by Veith et al. (2001). As a result of this survey, the new records of *L.*



**Figure 2.** *Lyciasalamandra atifi*. Adult male from Kaplanhanı plateau (a), Adult female (b) and Juvenile (c) from Gözüküçüklü village.

*atifi* extend the known distribution range of both the species and the genus around 35 km air distance to the south-east.

#### References

- Başoğlu, M. (1967): On a third form of *Mertensiella luschani* (Steindachner) (Amphibia, Salamandridae). Ege Üniversitesi Fen Fakültesi İlmî Raporlar Serisi 44: 1-11.
- Franzen, M., Bußmann, M., Kordges, T., Thiesmeier, B. (2008): Die Amphibien und Reptilien der Südwest-Türkei. Laurenti-Verlag, Bielefeld, 328 pp.
- Göçmen B., Arıkan H., Yalçınkaya D. (2011): A new Lycian Salamander, threatened with extinction, from the Göynük Canyon (Antalya, Anatolia), *Lyciasalamandra irfanii* n. sp. (Urodela: Salamandridae). North-Western Journal of Zoology 7(1): 151-160.
- Öz, M., Düşen, S., Tunç, M.R., Kumlutaş, Y., Durmuş, H., Kaska, Y. (2004): A morphological and taxonomical study on the subspecies of the Lycian salamander, *Mertensiella luschani*, (Steindachner, 1891) (Urodela: Salamandridae). Turkish Journal of Zoology 28: 237-244.
- Veith, M., Baran, İ., Godmann, O., Kiefer, A., Öz, M., Tunç, M.R. (2001): A revision of population designation and geographic distribution of the Lycian Salamander *Mertensiella luschani* (Steindachner, 1891). Zoology in the Middle East 22: 67-82.
- Werner, Y.L. (1971): Some suggestions for the standard expression of measurements. Systematic Zoology 20(2): 249-252.