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SERDAR DÜŞEN

MEHMET ÖZ

MEHMET RIZVAN TUNÇ

YUSUF KUMLUTAŞ

HAKAN DURMUŞ

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## Three New Localities for *Rana bedriagae caralitana* Arıkan, 1988 (Anura: Ranidae) in the West Mediterranean Region

Serdar DÜŞEN\*, Mehmet ÖZ, Mehmet Rızvan TUNÇ  
Akdeniz University, Faculty of Arts and Sciences, Department of Biology, Antalya - TURKEY  
Yusuf KUMLUTAŞ, Hakan DURMUŞ  
Dokuz Eylül University, Buca Educational Faculty, Department of Biology, İzmir - TURKEY

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**Abstract:** Thirty adult (16 ♂ 14 ♀) *Rana bedriagae caralitana* specimens were investigated morphologically. According to results of the morphological analysis, the Kırkgöz (Antalya), Taşkesiği (Korkuteli/Antalya) and Girdev Plateau (Elmalı/Antalya) populations were included in *Rana bedriagae caralitana*. Furthermore, the distribution range of *R. b. caralitana* was extended to the northern part of the west Mediterranean Region.

**Key Words:** *Rana bedriagae caralitana*, morphology, distribution range.

### Batı Akdeniz Bölgesi'nde *Rana bedriagae caralitana* Arıkan, 1988 (Anura: Ranidae) İçin Üç Yeni Lokalite

**Özet:** Bu çalışmada 30 ergin (16 ♂, 14 ♀) *Rana bedriagae caralitana* örneği morfolojik olarak incelenmiştir. Morfolojik analiz sonuçlarına göre Kırkgöz (Antalya), Taşkesiği (Korkuteli/ Antalya) ve Girdev Yaylası (Elmalı/Antalya) popülasyonları *Rana bedriagae caralitana*'ya dahil edilmiştir. Böylece *R. b. caralitana*'nın yayılışı Batı Akdeniz bölgesinin kuzeyine kadar genişletilmiştir.

**Anahtar Sözcükler:** *Rana bedriagae caralitana*, morfoloji, yayılış sahası

### Introduction

*Rana ridibunda* was described for the first time from Guryev in Kazakhstan (Terra typica restricta) by Pallas in 1771 (Mertens and Vermuth, 1960). *R. ridibunda* has a wide distribution in Central and Southern Europe and Western Asia (Başoğlu et al., 1994; Baran and Atatür, 1998). This species was represented by 2 subspecies until 1974. After the description of the subspecies *perezii* as a separate species (*Rana perezii*), this taxon became a monotypical species (Hotz, 1974).

Recently, the lake frogs of Greece, formerly classified as *R. ridibunda*, have been revised as 3 species: *R. ridibunda*, *R. epeirotica* and *R. balcanica* (Schneider et al, 1984; Schneider et al., 1993)

According to Bodenheimer (1944) and Başoğlu et al. (1994), *R. ridibunda* is a homogeneous species in Turkey. Bodenheimer (1944) recorded specimens with orange venters from Lake Beyşehir, and these were accepted as belonging to the nominate species without detailed study. Arıkan (1988) found significant differences, especially in the colour and pattern of the venters of the Lake Beyşehir specimens, and described the population as a new subspecies (*Rana ridibunda caralitana*). Beerli et al. (1994) disagree with the new naming of this population and state that *R. ridibunda caralitana* and *R. levantina* should be regarded as synonyms of *R. bedriagae*. In later studies (Arıkan et al., 1994; Arıkan et al., 1998; Budak et al., 2000; Jdeidi et al., 2001; Kaya et al., 2002) it was indicated that this subspecies' spread included, Lake Işıklı

\*Correspondence to: serdar2290@yahoo.com

(Çivril-Denizli) in the west, Lake Hotamış in the east and lower areas of the Taurus Mountains in the south, in addition to Lake Beyşehir, which is its terra typica.

In this study, specimens collected from irrigation canals and ponds in Kırkgöz (Antalya), Taşkesiği (Korkuteli/Antalya) and Girdev Plateau (Elmalı/Antalya) were evaluated taxonomically according to their morphological properties (biometry, pattern and coloration).

### Materials and Methods

The specimens in this study were collected from the irrigation canals and ponds of Kırkgöz (Antalya) at an altitude of 300 m, ponds of Taşkesiği (Korkuteli/Antalya) at an altitude of 1560 m and Girdev Plateau (Elmalı/Antalya) at an altitude of 1700 m (Figure). At present they are deposited in the Akdeniz University Zoology Museum (Table 1). The various morphometrical measurements were taken using digital callipers (0.02 sensitivity).

### Results and Discussion

The specimens used in this study were sexually mature. No sexual differences were observed in the investigated characteristics, and so data from both sexes were evaluated in the same pool. Morphometric measurements and some ratios derived from these measurements are given in Table 2.

In all specimens examined, the ground coloration of the dorsum was various tones of green and brown. The ground coloration of the whole venter including the extremities and head was dirty white almost covered with orange maculations. In 50% of them a vertebral stripe was observed.

In conclusion, the currently known distribution range of this subspecies *R. b. caralitana* is extended to include Lake Beyşehir (its terra typica), İvriz (Ereğli/Konya), Lake Eğirdir, Lake Suğla, Lake Gölcük (Isparta), Lake Hotamış, Lake Işıklı and Çardak (Çivril/Denizli), Lake Gencek (Derebucak/Konya), Derebucak (Konya) and Tınaztepe (Seydişehir/Konya).

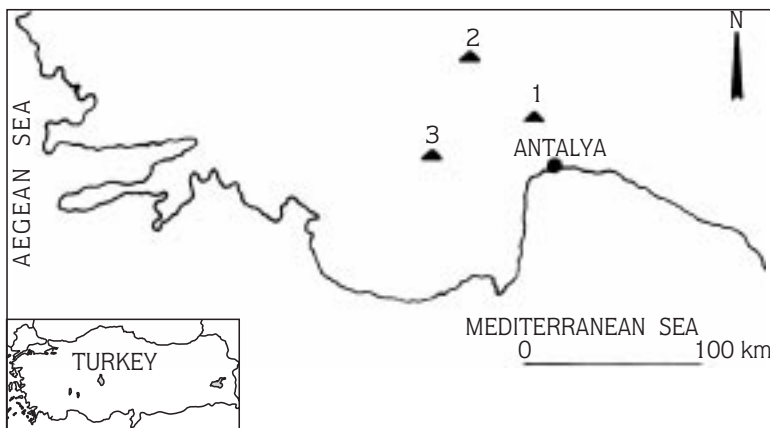


Figure. Map showing localities in which specimens were collected: 1-Kırkgöz, 2-Taşkesiği, 3-Girdev Plateau.

Table 1. Specimens used in this research.

Material	Number of Specimens	Locality	Collecting Date
2001/1 1- 6	4 ♂♂, 2 ♀♀	Kırkgöz	09.04.2001
2002/7 1-4	2 ♂♂, 2 ♀♀	Kırkgöz	17.02.2002
2001/35 1-2	2 ♀♀	Taşkesiği	11.04.2001
2002/10 1-13	9 ♂♂, 4 ♀♀	Taşkesiği	12.06.2002
2002/25 1-5	2 ♂♂, 3 ♀♀	Girdev Plateau	30.09.2002

Table 2. Some morphometrical values (in mm) and derived ratios of the investigated specimens from Kirkgöz, Taşkesiği, and Girdev Plateau.

LOCALITIES	KIRKGÖZ					TAŞKESİĞİ					GİRDEV PLATEAU				
	N	M	Range	SD	SE	N	M	Range	SD	SE	N	M	Range	SD	SE
SVL	10	74.07	60.90-97.23	10.59	3.35	15	85.17	54.04-109.68	16.54	4.27	5	68.36	49.36-88.00	17.64	7.88
HL	10	23.49	18.46-28.61	3.31	1.04	15	25.95	17.56-33.07	4.51	1.16	5	22.68	18.05-28.29	4.73	2.11
HW	10	28.72	23.67-38.16	4.31	1.36	15	30.23	19.40-41.21	5.51	1.42	5	25.71	20.32-31.10	5.12	2.29
TL	10	35.32	29.90-44.74	4.53	1.43	15	38.54	26.18-50.66	6.44	1.66	5	31.90	22.75-44.29	9.35	4.18
FTL	10	13.70	11.08-19.00	2.58	0.81	15	15.44	10.29-20.12	2.70	0.70	5	12.91	9.47-16.36	2.96	1.32
MTL	10	3.68	2.69-5.23	0.89	0.28	15	4.25	3.15-5.37	0.73	0.19	5	3.67	2.89-5.10	1.01	0.45
HL/HW	10	0.82	0.75-0.87	0.03	0.01	15	0.85	0.66-0.98	0.07	0.02	5	0.87	0.86-0.91	0.02	0.01
SVL/TL	10	2.09	2.00-2.23	0.08	0.02	15	2.22	1.94-3.39	0.35	0.09	5	2.15	1.92-2.29	0.14	0.06
SVL/HL	10	3.15	2.96-3.48	0.19	0.06	15	3.28	3.03-4.77	0.43	0.11	5	2.99	2.74-3.26	0.19	0.08
SVL/FTL	10	5.37	4.90-5.62	0.23	0.07	15	5.43	4.67-5.92	0.36	0.09	5	5.28	4.74-5.67	0.37	0.16
SVL/MTL	10	20.69	17.19-27.13	3.22	1.02	15	20.15	15.93-26.73	2.52	0.65	5	18.69	17.07-21.45	1.79	0.80
TL/MTL	10	9.88	7.78-12.31	1.52	0.48	15	9.13	7.79-10.47	0.91	0.23	5	8.67	7.66-10.06	1.01	0.45
FTL/MTL	10	3.79	3.05-4.36	0.48	0.15	15	5.43	4.67-5.92	0.36	0.09	5	3.55	3.07-3.92	0.36	0.16

Abbreviations: N: Number of specimens, M: Mean, SD: Standard deviation, SE: Standard error of the mean, SVL: Snout-vent length, HL: Head length, HW: Head width, TL: Tibia length, FTL: Femur+tibia length, MTL: Metatarsal tubercle length.

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