

## Original Article

# First record and distribution of *Alburnus qalilus* Krupp, 1992 (Teleostei: Cyprinidae) in Turkey

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**Abstract:** The Syrian spotted bleak, *Alburnus qalilus* Krupp, 1992 was described from the Nahr al-Hawaiz, the Mediterranean coastal drainage, Syria. The species differs from all other members of the genus *Alburnus* in the following combination of characters: 8 branched dorsal-fin rays, 9-11 branched anal-fin rays, 43-47 scales in the lateral line and 9-11 gill rakers on the lower limb of the first gill arch. In the present study, the occurrence of this species is reported for the first time from the Turkish parts of the Orontes river basin in Kilis, Gaziantep and Hatay provinces. Our new data indicate that the home range of this species has been increased towards the Turkish parts of the Orontes river basin.

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## Introduction

The genus *Alburnus* Rafinesque, 1820, a member of the family Cyprinidae, are widely distributed in Europe and the northern parts of Southwest Asia (Kottelat and Freyhof, 2007). Despite their wide distribution, the taxonomy and actual distribution of the members of this genus are still not well-known (Buj et al., 2010). This genus comprises 41 valid species and also all species of *Chalcalburnus* Berg, 1933, which was proved to be a synonym of *Alburnus* using molecular studies (Zardoya and Doadrio, 1999; Durand et al., 2002; Eschmeyer et al., 2017). In addition, this genus is an excellent example of high diversity and endemism in the western Palearctic freshwater fishes (Mohammadian-kalat et al., 2015).

The genus *Alburnus* has a rich diversity in Turkey (Özuluğ and Freyhof, 2007) and, still, there are some uncertainties about *Alburnus* species living in Anatolia (Elp et al., 2015). By now, a total of 26 species of the genus *Alburnus* have been reported from Turkey, among which 15 are endemic. *Alburnus orontis* Sauvage, 1882, has been originally described from the Orontes River drainage in Syria

and is the only species that has been hitherto reported from the Orontes basin in Turkey (Geldiay and Balık, 2007; Kuru, 2004; Fricke et al., 2007; Kuru et al., 2014; Çiçek et al., 2015). The Syrian spotted bleak, *Alburnus qalilus* Krupp, 1992, was originally described from the Nahr al-Hawaiz, Syria (35°22'N, 35°58'E) based on 12 specimens collected at the Mediterranean coastal drainage. The holotype and 21 paratypes are deposited in the Senckenberg Museum, Frankfurt am Main (holotype: SMF 24480). This species is found in the Turkish parts of the Orontes basin [Asi Nehri] indicating that its distribution has increased.

## Materials and Methods

The specimens of *A. qalilus* were collected from the Orontes river basin, in the Gaziantep, Kilis and Hatay provinces (Turkey) during July-September 2013 using an electrofishing device (Fig. 1). The collected fish were anesthetized with 1% clove solution, preserved in 10% formaldehyde and transferred to the laboratory for further study. The fish were identified according to Krupp (1992). Several characteristics were measured and the

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Figure 1. Habitat of *Alburnus qalilus* in the Orontes river basin, Turkey.



Figure 2. *Alburnus qalilus* from the Afrin River, the Kilis Province.

terminology of morphological characteristics were based on Krupp (1992). The characteristics were measured to the nearest 0.1 mm using digital calipers.

### Results and Discussion

The general body shape of the collected specimens is displayed in Figure 2. Fifty-six specimens of *A. qalilus* were collected from the Orontes river basin with a total length ranging from 41.1 to 90.3 mm (Table 1) being deposited in Nevsehir Hacı

Bektaş Veli University (NHVUIC-2013-6-1;4). The morphological characteristics of the specimens are presented in Table 1. All morphological measurements of the specimens collected from Turkey overlapped with those of the type specimens (Krupp, 1992) (Table 1).

The Syrian spotted bleak was diagnosed from all other members of this genus by a combination of characteristics including 8 branched dorsal-fin rays, 9-11 branched anal-fin rays, 43-47 scales in the lateral line and 9-11 gill rakers on the lower limb of

Table 1. Morphometric and meristic characteristics of *Alburnus qalilus* (SD: Standard deviation).

Characters	Holotype	Paratypes (n=11)			Orontes river basin (n=56)		
		mean	SD	ranges	mean	SD	ranges
Standard length (mm)	35.4			29.8-38.4	66.2	1.1	41.1-90.3
Percent of standard length							
Predorsal length	57.1	55.8	0.8	54.4-57.1	56.0	3.2	41.0-60.7
Prepelvic length	52.0	50.6	1.1	49.2-52.9	48.9	2.9	34.9-53.3
Preanal length	69.2	67.7	0.9	66.2-69.1	68.1	4.0	49.4-75.0
Head length	29.1	28.6	0.4	27.9-29.5	26.3	1.8	19.3-31.3
Body depth	27.1	26.2	0.7	25.0-27.3	25.1	2.2	16.9-29.0
Caudal peduncle depth	12.1	11.6	0.3	11.1-12.1	10.6	0.9	8.3-12.5
Dorsal fin base length	14.1	13.3	0.5	12.5-14.3	12.1	1.1	8.8-14.3
Anal fin base length	15.0	14.5	0.9	12.9-16.1	13.2	1.4	10.8-18.1
Longest dorsal ray	24.0	22.8	1.4	20.8-24.9	18.6	1.8	14.6-22.7
Longest anal ray	19.2	18.5	0.9	17.1-20.2	15.5	1.7	12.0-18.4
Longest pelvic ray	16.4	16.4	0.5	15.7-17.2	14.5	1.4	10.8-17.6
Longest pectoral ray	23.2	21.7	0.8	20.3-23.1	22.1	0.9	18.3-27.4
Eye diameter	9.6	9.8	0.5	9.1-10.4	9.2	1.0	4.8-9.4
Interorbital width	7.4	7.1	0.6	6.4-8.0	7.4	1.1	4.8-10.0
<b>Meristic characters</b>							
Dorsal fin rays		III 8			III 8		
Anal fin rays		III 9-11			III 9-11		
Pectoral fin rays		I 12-13			I 12-14		
Scales in lateral line		43-47			42-52		
Scales between lateral line and dorsal fin origin		9-11			9-11		
Scales between lateral line and anal fin origin		3			4-5		
Gill rakers		9-11			9-11		
Pharyngeal teeth		2.5-5.2			2.5-5.2		

the first gill arch (Krupp, 1992). In addition, this species is characterized by moderately compressed head and body; greatest depth of body about half-way between head and dorsal fin origin. Dorsal fin with 3 unbranched and 8 branched rays; anal fin with 3 unbranched and 10 branched rays; one unbranched and 13 branched pectoral fin rays complete lateral line with 45 scales, 10 scales between lateral line and dorsal fin origin, and 3 between lateral line and anal fin short gill rakers, 10 on lower limb of first gill arch, pharyngeal teeth in two rows: 2.5-5.2. Origin of pelvic fins slightly in advance of dorsal fin origin, distal margin of dorsal fin oblique and straight, distal margin of anal fin slightly concave, caudal fin deeply forked, lateral line strongly curved ventrally (Krupp, 1992).

*Alburnus qalilus* was previously known only from the Nahr al-Hawaiz, a Mediterranean coastal drainage of Syria (Krupp, 1992). In addition, this species has not been reported in the previous checklists of the freshwater fishes of Turkey

(Geldiay and Balık, 2007; Kuru, 2004), Fricke et al., 2007; Kuru et al., 2014; Çiçek et al., 2015). The present study is the first record on the occurrence of this species and its geographical distribution in Turkish parts of Orontes river basin (Fig. 3). *Alburnus qalilus*, like its Syrian population, inhabits in the rivers having quite clear water with substrate consisting silt and gravel (Fig. 1). *Salaria fluviatilis*, *Capoeta barroisi*, *Planiliza abu*, *Oxyoemacheilus insignis* and *Oxyoemacheilus namiri* co-exist with this species in its natural habitat in the Orontes and Afrin rivers.

The global distribution of species diversity and richness are interesting for naturalists for centuries being important research topics in ecology (Gaston, 2000). The knowledge of natural distribution and zoogeographic features of freshwater fishes help to identify hotspots of biodiversity, endemism, possible population connectivity and phylogeography, which are useful for conservation (Jouladeh-Roudbar, 2015; Mohammadian-Kalat, 2015). Moreover,

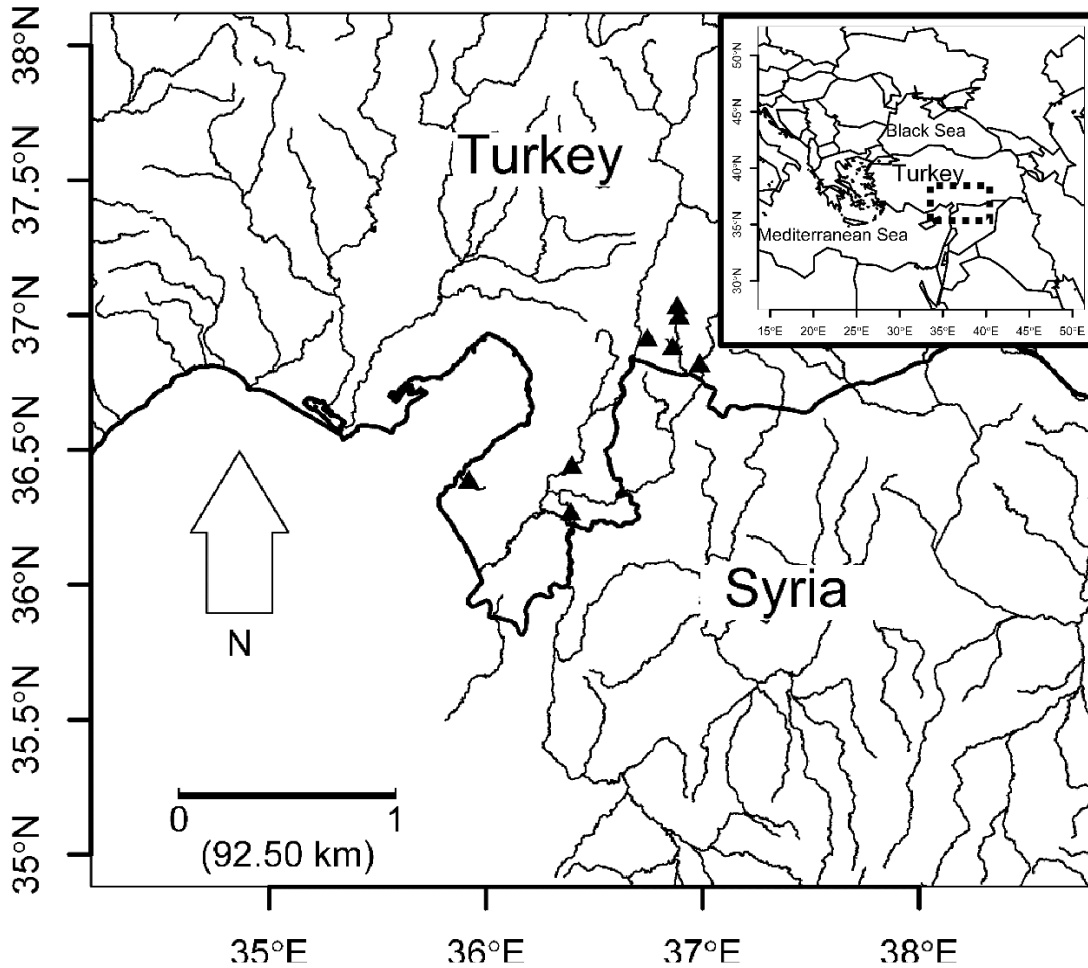


Figure 3. Distribution map and sampling points (●).

historical biogeographical analyses of freshwater fishes provide a natural link between the geological and biotic evolution of a region (Jouladeh-Roudbar, 2015). However, the freshwater fishes of Turkey are still poorly known and their ecology and habitat requirements would need further study for conservation.

**Materials examined:** All materials from Turkey. *Alburnus qalilus*: — NHVUIC 2013-6-1, 37, 41-85 mm SL; Gaziantep prov.: Karasu River near Islahiye, Orontes Basin, 37°01'14"N 36°52'57"E; E. Çiçek & S. Sungur, July-September 2013. — NHVUIC 2013-6-2. 6, 49-87 mm SL; Gaziantep prov.: Karasu River near Yesemek, Orontes Basin, 36°54'21"N 36°44'44"E; E. Çiçek & S. Sungur, July-September 2013. — NHVUIC 2013-6-3.10, 51-65 mm SL; Kilis prov.: Afrin River near Musabeyli, Orontes Basin, 37°52'24"N, 36°51'40"E; E. Çiçek & S. Sungur, July-September 2013. — NHVUIC 2013-6-4. 3, 63-

72 mm SL; Hatay prov.: Afrin River near Kırıkhan, Orontes Basin, 36°48'44"N, 36°59'09"E; E. Çiçek & S. Sungur, July-September 2013.

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#### References

- Buj I., Vukić J., Šanda R., Perea S., Čaleta M., Marčić Z., Bogut I., Povž M., Mrakovčić M. (2010). Morphological comparison of bleaks (*Alburnus*, Cyprinidae) from the Adriatic Basin with the description of a new species. *Folia Zoologica*, 59 (2): 129-141.
- Çiçek E., Sungur Birecikligil S., Fricke R. (2015). Freshwater fishes of Turkey: a revised and updated annotated checklist. *Biharean Biologist*, 9 (2): 141-

157.

- Durand J.D., Tsigenopoulos C.S., Ünlü E., Berrebi P. (2002). Phylogeny and biogeography of the family Cyprinidae in the Middle East inferred from cytochrome b DNA-evolutionary significance of this region. *Molecular Phylogenetics and Evolution*, 22(1): 91-100.
- Elp M., Şen F., Özulug M. (2015). *Alburnus selcuklui*, a new species of cyprinid fish from East Anatolia, Turkey (Teleostei: Cyprinidae). *Turkish Journal of Fisheries and Aquatic Sciences*, 15: 181-186.
- Eschmeyer W.N., Fricke R., van der Laan R. (2017). *Catalog of Fishes: Genera, Species, References*. Retrieved from <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. Electronic version accessed 09.03.2017.
- Fricke R., Bilecenoğlu M., Sari H.M. (2007). Annotated checklist of fish and lamprey species (Gnathostomata and Petromyzontomorpha) of Turkey, including a Red List of threatened and declining species. *Stuttgarter Beiträge zur Naturkunde* 706: 1-169.
- Gaston K.J. (2000). Global patterns in biodiversity. *Nature*, 405: 220-227.
- Geldiy R., Balık S. (2007). *Freshwater fishes of Turkey*. V. Edition, Ege University Press, Bornova, Izmir, 638 p.
- Jouladeh Roudbar A., Esmaili H.R., Gholamifard A., Zamanian R., Vatandoust S. (2015). Geographic distribution of the genus *Chondrostoma* Agassiz, 1832 in Iran (Teleostei: Cyprinidae). *Iranian Journal of Ichthyology*, 2(2): 71-78.
- Kottelat M., Freyhof J. (2007). *Handbook of European freshwater fishes*. Kottelat, Cornol, Switzerland/Berlin: privately published and Freyhof, Berlin, Germany. 646 p.
- Krupp F. (1992). Two new species of cyprinid fishes from the Mediterranean coastal drainage basin of Syria (Pisces: Osteichthyes: Cyprinidae). *Senckenbergiana biologica*, 72(1/3): 19-25.
- Kuru M. (2004). Recent systematic status of inland water fishes of Turkey. *Gazi Journal of Education Faculty*, 24(3): 1-21.
- Kuru M., Yerli S.V., Mangit F., Ünlü E., Alp A. (2014). Fish biodiversity in inland waters of Turkey. *Journal of Academic Documents for Fisheries and Aquaculture*, 1(3): 93-120.
- Mohammadian-kalat T., Aliabadian M., Esmaili H.R., Abdolmalaki S., Nejhad R.Z., Vatandoust S. (2015). Species list and distribution map of the genus *Alburnus* Rafinesque, 1820 (Cyprinidae: Leuciscinae) in Iran. *Check List*, 11(5) 1743: 1-5.
- Özulug M., Freyhof J. (2007). *Alburnus demiri*, a new species of bleak from western Anatolia, Turkey (Teleostei: Cyprinidae). *Ichthyological Exploration of Freshwaters*, 18: 307-312.
- Van der Laan R. (2016). *Freshwater fish list*, 19th edition, October 2016. Richard van der Laan, Almere, The Netherlands. 962 p.
- Zardoya R., Doadrio I. (1999). Molecular Evidence on the Evolutionary and Biogeographical Patterns of European Cyprinids. *Journal of Molecular Evolution*, 49: 227.

## چکیده فارسی

نخستین گزارش حضور و پراکنش *Alburnus qalilus* Krupp, 1992 (ماهیان استخوانی عالی: کپورماهیان) در ترکیه

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### چکیده:

ماهی کولی سوریه‌ای خال دار، *Alburnus qalilus* Krupp, 1992، از نهر الهویز، حوضه سواحل مدیترانه سوریه توصیف شده است. این گونه از تمامی اعضای جنس *Alburnus* به واسطه مجموعه‌ای از ویژگی‌های زیر شامل: ۸ شعاع منشعب باله پشتی، ۹-۱۱ شعاع منشعب باله مخرجی، ۴۷-۴۳ فلس در خط جانبی و ۹-۱۱ خار آبششی در بخش پایینی نخستین کمان آبششی قابل تشخیص می‌باشد. در مطالعه حاضر، حضور این گونه برای اولین بار در بخش ترکیه‌ای حوضه رودخانه اورنتس در استان‌های کیلیس، گازیانتپ و هاتای گزارش می‌شود. داده‌های جدید ما نشان می‌دهد که دامنه پراکنش این گونه به طرف بخش ترکیه‌ای حوضه رودخانه اورنتس گسترش یافته است.

کلمات کلیدی: کولی، رودخانه اورنتس، گازیانتپ، کیلیس.