

FIRST RECORD OF *Alburnus atropatenae* (BERG, 1925) (CYPRINIDAE) IN NAMAK BASIN, CENTRAL IRAN

Somaye Khataminejad¹, Hamed Mousavi-Sabet^{*1}, Masud Sattari¹, Saber Vatandoust²

¹ Dept. of Fisheries Sciences, Faculty of Natural Resources, University of Guilan, Sowmeh Sara, Guilan, Iran. Tel./Fax: +98 182 3223600

² Dept. of Fisheries Sciences, Babol Branch, Islamic Azad University, Mazandaran, Iran

* Corresponding Author, E-mail: mousavi-sabet@guilan.ac.ir

ARTICLE INFO

Received: 29 January 2013

Received in revised form: 31 March 2013

Accepted: 22 May 2013

Available online: 27 May 2013

Keywords:

First record

Alburnus atropatenae

Namak basin

River Ghareh-Chay

ABSTRACT

Alburnus atropatenae Berg, 1925 is reported for the first time from the River Ghareh-Chay in the Namak basin, central Iran. Previously, this species has only been reported from the Lake Orumiyeh basin, in northwest Iran. In this report twenty-nine specimens were caught on 8 August 2012. Morphometric and meristic characteristics of the specimens were similar to those reported elsewhere for the species.

INTRODUCTION

Thirty-eight species are presently recognized in the European and west Asian genus *Alburnus* (Bogutskaya et al., 2000; Freyhof and Kottelat, 2007; Kottelat and Freyhof, 2007; Bzulug and Freyhof, 2007). Iran is an important geographic and zoogeographic area in the Middle East that has been divided into nineteen major drainage basins (Coad, 2013). Cyprinids which belong to genus *Alburnus* Rafinesque, 1820 have seven confirmed species recorded from Iran. Three species are in the southern Caspian Sea basin (Iranian part) including *A. alburnus* Linnaeus, 1758, *A. chalcoides* Gldenstaedt, 1772 and *A. filippii* Kessler, 1877. One species, *A. atropatenae* Berg, 1925 has been reported from the Lake Orumiyeh basin in northwest Iran. *Alburnus zagrosensis* is described from a stream in the River Karun basin of Chahar Mahall va Bakhtiari Province in the Zagros Mountains of Iran. The Zagros Mountains in Iran have a series of rivers draining westward and southward to the River Tigris or to the head of the Persian Gulf. Previously, only *A. mossulensis* Heckel, 1843 has been recorded from these rivers, although *A. caeruleus* Heckel, 1843 known from Iraq, may also occur there (Coad, 2013). Thus this study was conducted to confirm the presence of *A. atropatena* in the River Ghareh-Chay (Namak Basin).

MATERIALS AND METHODS

The study was conducted in the River Ghareh-Chay (34°53'.250" N, 050°02'.251" E), one of the two permanent and big rivers in Markazi Province, which is almost 540 kilometers long and originates from the heights of Shazand. It flows in the direction of west to east of Markazi Province and finally flows into Qom's Namak Lake (=salt lake) (Fig 1). Its surface area under sampling was 100 m with an average depth of 35 cm, width 230 cm, water temperature of the catching site was 22 °C and water velocity was 0.7 ms⁻¹. The sampling site is 1198 m above sea level.

The specimens were collected by electrofishing on 8 August 2012. Specimens were preserved in 4% formalin fluid and transported to the laboratory (University of Guilan) for further analysis. Two types of morphological characters (meristic traits and morphometric measurements) were examined. Meristic traits included the number of un-branched and branched fin rays in dorsal (D ub-b), anal (A ub-b), ventral/pelvic (V ub-b), pectoral (P ub-b) and caudal (C ub-b) fins. The number of scales in lateral line was counted in the complete lateral line, from the anterior scale next to the operculum to the posterior one on the caudal fin. A total of 28 morphometric characters were measured using a digital caliper to the nearest 0.1 mm including: to-

tal length (TL), standard length (SL), head length (c), distance between head tip and anal aperture (pan), pre-anal distance (aA), pre-ventral distance (aV), pre-pectoral distance (aP), pre-dorsal distance (aD), caudal peduncle length (lpc), length of dorsal (ID), anal (IA), caudal (IC), pectoral (IP) and ventral (IV) fins, distance between ventral fin and anal aperture (Van), head depth (hc), maximum body depth (H) and caudal peduncle depth or minimum body height (h), head width (laco), maximum body width (lac), distance between eyes (io), eye diameter (o), pre-orbital distance (prO), postorbital distance (poO), dorsal fin base (db), anal fin base (ab), ventral fin base (vb), pectoral fin base (pb). The percentage ratios of morphometric characters in relations to SL and c were analyzed.

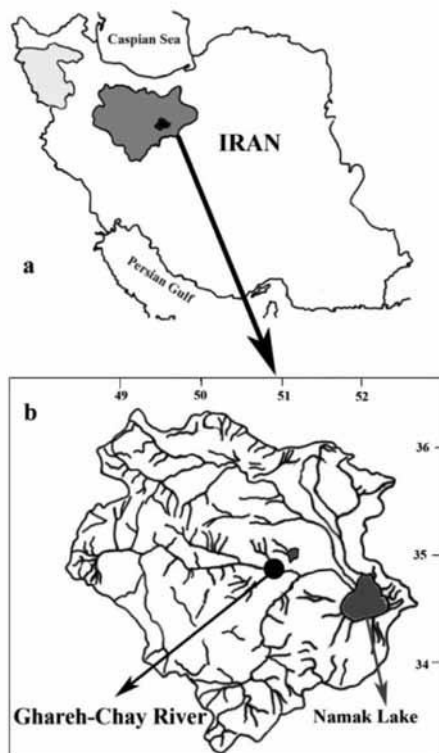


Fig. 1. **a:** Distribution of *Alburnus atropatenae* in Iran, the type locality "the lake Orumiyeh basin" (light grey) and the new locality "the Namak basin" (dark grey). **b:** Namak basin, River Chareh-Chay, new habitat for *A. atropatenae* in central Iran.

RESULTS AND DISCUSSION

In the present study one new fish species was found from one stream which flows into the Namak basin namely; *Alburnus atropatenae*. This species was captured from the River Ghareh-Chay on 8 August 2012 (Fig 1). The reported species has not previ-

ously been recorded from the Namak basin and this constitutes a new record. See Table 1 and Table 2 for meristic and morphometric data of the new recorded species.

Table 1. Meristic characteristics (Mean \pm SD) of *Alburnus atropatenae* from the River Ghareh-Chay, Namak basin (SD=Standard Deviation; Min=Minimum; Max=Maximum; Number of specimens=29)

Characters	Mean \pm SD	Min - Max
D ub-b	3.00-8.00 \pm 0.00-0.00	3.0-3.0 - 8.0-8.0
C ub-b	17.00-20.34 \pm 0.00-1.59	17.0-17.0 - 18.0-24.0
A ub-b	3.00-10.97 \pm 0.00-0.19	3.0-3.0 - 10.0-11.0
V ub-b	2.00-8.10 \pm 0.00-0.31	2.0-2.0 - 8.0-9.0
P ub-b	1.00-14.62 \pm 0.00-0.56	1.0-1.0 - 14.0-16.0
Lateral line scales	51.48 \pm 3.27	47.0 - 58.0

Table 2. Morphometric characteristics (Mean \pm SD) of *Alburnus atropatenae* from the River Ghareh-Chay, Namak basin (SD=Standard Deviation; Min=Minimum; Max=Maximum; Number of specimens=29)

Characters	Mean \pm SD	Min - Max
TL (mm)	92.19 \pm 11.96	69.92-112.11
SL (mm)	77.20 \pm 10.47	58.17-95.57
Standard Length %		
TL	119.51 \pm 0.02	1.17-1.23
C	24.33 \pm 0.01	0.23-0.26
Pan	62.49 \pm 0.01	0.60-0.65
aA	64.57 \pm 0.01	0.62-0.68
aV	46.45 \pm 0.03	0.35-0.50
aP	24.94 \pm 0.01	0.24-0.26
aD	52.33 \pm 0.01	0.50-0.54
lpc	23.34 \pm 0.01	0.20-0.26
ID	18.86 \pm 0.01	0.17-0.21
IA	13.60 \pm 0.01	0.12-0.16
IC	22.15 \pm 0.02	0.19-0.25
IP	18.35 \pm 0.01	0.16-0.21
IV	14.38 \pm 0.01	0.13-0.16
Van	16.81 \pm 0.01	0.14-0.19
hc	16.10 \pm 0.01	0.15-0.17
H	19.95 \pm 0.02	0.10-0.22
h	9.60 \pm 0.00	0.09-0.10
laco	11.55 \pm 0.01	0.11-0.13
lac	11.68 \pm 0.01	0.10-0.13
io	7.42 \pm 0.01	0.06-0.09
o	7.06 \pm 0.00	0.06-0.08
prO	6.68 \pm 0.00	0.06-0.08
poO	11.46 \pm 0.01	0.10-0.13
db	11.62 \pm 0.01	0.10-0.14
ab	13.53 \pm 0.01	0.12-0.16
vb	4.12 \pm 0.01	0.03-0.05
pb	4.20 \pm 0.00	0.03-0.05

Table 2. Continued

Characters	Mean \pm SD	Min - Max
Head Length %		
hc	66.19 \pm 0.02	0.62-0.72
laco	47.47 \pm 0.02	0.44-0.50
io	30.52 \pm 0.02	0.27-0.34
o	29.00 \pm 0.01	0.27-0.31
prO	27.45 \pm 0.01	0.25-0.30
poO	47.10 \pm 0.02	0.40-0.51

This species is endemic to the Lake Orumiyeh basin and has been recorded previously from Kazim-Chai, the River Ozband, Talkheh, Ghalechai, Zarrineh and Tatavi Rivers in the basin (Günther, 1899; Berg, 1925; Abdoli, 2000). According to this study, this species is also represented in the Namak basin.

Sažetak

PRVI NALAZ *Alburnus atropatena* (BERG, 1925) (CYPRINIDAE) U SLIVU JEZERA NAMAK, CENTRALNI IRAN

Vrsta *Alburnus atropatena* (Berg, 1925) je prvi put zabilježena u rijeci Ghareh-Chay u slivu jezera Namak u centralnom Iranu. Ranije je ova vrsta zabilježena jedino u slivu jezera Orumiyeh na sjeverozapadnom dijelu Irana. Dana 8. kolovoza 2012. ulovljeno je dvadeset devet jedinki. Morfometrijska i meristička svojstva bila su slična onima već zabilježenima za tu vrstu.

Ključne riječi: prvi nalaz, *Alburnus atropatena*, jezero Namak, rijeka Ghareh-Chay

REFERENCES

- Abdoli, A. (2000): The Inland Water Fishes of Iran. Iranian Museum of Nature and Wildlife, Tehran. pp. 378. (in Persian)
- Berg, L. S. (1925): Opisanie novogo vida roda *Alburnus* (Pisces) iz basseina Oz. Urmii ezhegodnik [Description of a new species of the genus *Alburnus* (Pisces) from the basin of Lake Urmia]. Zoologicheskogo Instituta Akademii Nauk SSSR, 26, 213-214.
- Bogutskaya, N. G., Kucuk, F., Unlu, E. (2000): *Alburnus baliki*, a new species of cyprinid Fish from the Manavgat River system, Turkey. Ichthyological Exploration of Freshwaters, 11, 55-64.
- Bzulug, M., Freyhof, J. (2007): Re-diagnosis of four species of *Alburnus* from Turkey and description of two new species (Teleostei: Cyprinidae). Ichthyological Exploration of Freshwaters, 18, 233-246.
- Coad, B. W., (2013): Freshwater Fishes of Iran. Available at <http://www.briancoad.com> (accessed on 12 March 2013).
- Freyhof, J., Kottelat, M. (2007): Review of the *Alburnus mento* species group with description of two new species (Teleostei: Cyprinidae). Ichthyological Exploration of Freshwaters, 18, 213-225.
- Günther, A. (1899): Fishes, pp. 381-391, pl. 23-24. In: Günther, R. T. Contributions to the natural history of Lake Urmi, N. W. Persia, and its neighbourhood. Journal of Zoology of the Linnaean Society, 27, 345-453, pl. 21-30.
- Kottelat, M., Freyhof, J. (2007): Handbook of European Freshwater Fishes. Kottelat, Cornol and Freyhof, Berlin, XIV, pp. 646.