



# Article

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## A new species of riffle minnow, *Alburnoides holciki*, from the Hari River basin in Afghanistan and Iran (Actinopterygii: Cyprinidae)

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### Abstract

A new species of riffle minnow, *Alburnoides holciki* (Cyprinidae), is described from northwestern Afghanistan and northeastern Iran. It is distinguished from related species by a combination of characters including a well-defined, sharp, scaleless or only slightly scaled ventral keel; a short, slightly pointed snout; a terminal mouth with the tip of the mouth cleft, on a level with the upper half of the pupil; a large eye (orbit width about equal to interorbital width); (46)47–51(55) lateral-line scales to posterior margin of hypurals; 2.5–4.2 pharyngeal teeth; usually 8½ branched dorsal-fin rays; usually 13–16½ branched anal-fin rays; 40–42, usually 41, total vertebrae; caudal vertebral region longer than abdominal region (most frequent vertebral formulae 20+21, 20+22 and 19+21); and usually 13 or 14 predorsal vertebrae. A comparison with *Alburnoides* species from rivers of the South Caspian Sea, the northern slope of the Kopetdag Mountains and the Amu Darya basin is provided.

**Key words:** *Alburnoides*, Cyprinidae, freshwater fishes, new species, Afghanistan, Iran

### Introduction

*Alburnoides bipunctatus* (Bloch, 1782) was the name applied to most populations of riffle minnows across Europe and the Middle East from France north of the Alps eastwards to the Black, Caspian and Aral Sea basins (e.g. Berg 1949; Bogutskaya & Naseka 2004), but ongoing research is revealing a greater diversity (Bogutskaya & Coad 2009; Coad & Bogutskaya 2009; Bogutskaya *et al.*, 2010). Recent studies have shown that at least seven species exist in Iran (Bogutskaya & Coad 2009; Coad & Bogutskaya 2009). A new species is described here from the Hari (= Tedzhen) River basin of northwestern Afghanistan and northeastern Iran.

### Material and methods

Counts and measurements follow Hubbs & Lagler (1958). Measurements are to the nearest 0.1 mm. Standard length (SL) is measured from the tip of the upper jaw to the end of the hypural complex; total length (TL) is measured from the tip of the upper jaw to the end of the longest caudal-fin lobe. Head length and interorbital width were measured to their bony margins. Fin ray counts separate unbranched and branched rays. The last two branched rays articulated on a single pterygiophore in dorsal and anal-fins are noted as “1½”. Mean and standard deviation were calculated without the “½”. Lateral-line scales count includes pierced scales, from the first one just behind the supracleithrum to the posteriormost one at the base of the caudal-fin rays (i.e. posterior margin of hypurals) excluding 1 or 2 scales located on the bases of the caudal-fin rays; total number of lateral-line scales is also provided. Osteological characters are examined from radiographs. The character states of the ventral keel scale cover were estimated by direct measurements as shown in Bogutskaya *et al.* (2010: fig. 1). Statistical analyses were performed with Microsoft Excel and Statistica 8.0 packages. Means were considered to be significantly different at