



## ***Garra mondica*, a new species from the Mond River drainage with remarks on the genus *Garra* from the Persian Gulf basin in Iran (Teleostei: Cyprinidae)**

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### **Abstract**

*Garra mondica*, new species, from the Mond River drainage in Iran is distinguished from its congeners by having 7½ branched dorsal-fin rays; the breast, belly and back in front of the dorsal-fin origin naked and 9+8 branched caudal-fin rays. *Garra mondica* is also distinguished from all other congeners in the Persian Gulf basin, except an unidentified species from the Kol River, by having two fixed, diagnostic nucleotide substitutions in the mtDNA COI barcode region. The identity of *G. gymnothorax*, a nominal species from the Karun River drainage, and *G. crenulata*, a nominal species from Central Iran, are discussed. *Garra* populations examined from the Karun have a unique mtDNA COI barcode sequence, but their diagnostic characters are not consistent with the description and syntypes of *G. gymnothorax*. *G. crenulata* is considered as a synonym of *G. rufa*. Two populations of *Garra* from the Kol River have a sequence of the COI barcode region very similar to *G. mondica*, but cannot be identified as *G. mondica* and their identity cannot be resolved here.

**Key words:** Barcode region, *Garra gymnothorax*, *G. crenulata*, Kol River

### **Introduction**

In the rivers flowing to the Persian Gulf, the Strait of Hormuz and the Gulf of Oman, six species of *Garra* are recognized by Hamidan *et al.* (2014). In the Persian Gulf basin, *G. variabilis* is found in the upper Euphrates and Tigris drainages, *G. rufa* is widespread in the Euphrates and Tigris drainages, and it is found in all of the Iranian coastal rivers south to the Dalaki as well as in the Iranian endorheic basins of the Kor River and the Maharlo Lake. *Garra widdowsoni* is known from subterranean waters in the Euphrates drainage and *G. typhlops* from subterranean waters in the Tigris drainage. Both have been recently transferred from the monotypic genera *Typhlogarra* and *Iranocypris* to the genus *Garra* by Hamidan *et al.* (2014). *Garra persica* is found from the Kol River drainage in Iran south of the Makran region in the northern Gulf of Oman. *Garra persica* also occurs in the Iranian endorheic basins of Hamun-e Jaz Murian and in the Sistan and Kerman-Na'in (Bianco & Banareescu 1982; Abdoli 2000; Esmaeili *et al.* 2010, 2015). In the Hamun-e Jaz Murian basin, it occurs in sympatry with *G. rossica*, a species widespread in the Makran region and in the endorheic basins of eastern Iran, Afghanistan, Pakistan and Turkmenistan. In rivers flowing to the southern shores of the Gulf of Oman, *G. barreimiae* and *G. longipinnis* are found in the mountains of Oman. In the Persian Gulf basin, there are two additional, nominal species, currently placed in the synonymy of *G. rufa*. *Garra rufa gymnothorax* was described by Berg (1949) from several places in the Iranian Karun drainage (a tributary of the lowermost Tigris). *Discognathus crenulatus* was described by Heckel (1849) from three places in Central Iran. Both nominal species are treated as synonyms of *G. rufa* by Coad (1991) while Bianco & Banareescu (1982) considered *D. crenulatus* as a subspecies of *G. rufa*.

The *Garra* populations from the Mond drainage have been earlier identified as *G. rufa* by Esmaeili *et al.* (2010) and those of the Kol drainage have all been identified as *G. persica* by Coad (1991). When COI barcode sequences of *Garra* species from all Iranian drainage basins became available, two populations from the Mond and two from the Kol River drainages turned out to have sequences very different from other *Garra* species in the area.