

The status of *Garra ghorensis* in Jordan: distribution, ecology and threats

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Abstract. Six sites in Jordan were continuously visited during the year 2002 to study the distribution and the status of the cyprinid fish *Garra ghorensis* which is endemic to the southern Dead Sea area. Parameters such as temperature, conductivity, salinity, total dissolved solids, dissolved oxygen, pH, and water current speed were used to characterise each site. The population structure for both *G. ghorensis* and the introduced cichlid *Oreochromis aureus* in Ain al-Haditha is illustrated. Current threats affecting *G. ghorensis* are briefly discussed.

Kurzfassung. Während des Jahres 2002 wurden in Jordanien sechs Stellen regelmäßig aufgesucht, um die Verbreitung und den Status des cypriniden Fisches *Garra ghorensis*, der im Gebiet südlich des Toten Meeres endemisch ist, zu untersuchen. Parameter wie Temperatur, Leitfähigkeit, Salinität, Schwebstofffracht, gelöster Sauerstoff, pH und Fließgeschwindigkeit wurden zur Charakterisierung der Habitate genutzt. Die Populationsstruktur von *G. ghorensis* in Ain al-Haditha wird im Vergleich zu der eingeführten Cichlide *Oreochromis aureus* dargestellt. Faktoren, die den Bestand von *G. ghorensis* gefährden, werden diskutiert.

Key words. Cyprinidae, *Garra rufa*, distribution, threats, alien species.

Introduction

Two species of the genus *Garra* (Family Cyprinidae), *G. rufa* and *G. ghorensis*, occur in Jordan. *Garra rufa* (Heckel, 1843) has a wide range of distribution which extends from some coastal rivers in southern Turkey, northern Syria, and the Tigris-Euphrates drainage basin (KRUPP & SCHNEIDER 1989) to the Orontes drainage basins, Litani River (TORTONESE 1983) and Mujib River in Jordan in the south. *Garra ghorensis* Krupp, 1982 is an endemic species occurring to the south of Mujib River and extending to the Wadi Fifa at the southern end of the Dead Sea basin.

G. ghorensis was originally described from Ain al-Haditha as a subspecies of *G. tibanica* Trewavas, 1941. However, morphometric studies revealed that it is a separate species (cf. also KRUPP 1987). EL-ABSY & MIR (1986) reported on the distribution of *G. ghorensis* in Jordan.

The freshwater fishes of Jordan have been studied by several authors (KRUPP 1983, 1987; KRUPP & SCHNEIDER 1989, MIR 1990). Within the past 20 years, unprecedented changes in watercourses in Jordan have taken place to meet the demand for drinking water and for agricultural purposes. These changes are exemplified by the construction of dams along several wadis extending from the eastern mountains to the Jordan Valley, resulting in the construction of extensive irrigation canals all over the Jordan Valley. Additionally, *Oreochromis aureus* (Steindachner, 1864) was introduced into water bodies where populations of