

THREATENED FISHES OF THE WORLD: *Squalius malacitanus* Doadrio and Carmona, 2006 (Cyprinidae)

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ABSTRACT

Squalius malacitanus is an endemic cyprinid fish from the south of the Iberian Peninsula. This species is endangered due to habitat destruction, damming and low water availability.

COMMON NAME

Cachuelo de Málaga (Spanish) – Figure 1.



Fig 1. *Squalius malacitanus* (Photo credit: Ignacio Doadrio)

CONSERVATION STATUS

Endangered according to the IUCN guidelines (Doadrio, 2011).

IDENTIFICATION

This small cyprinid (up to 100 mm TL) differs from other known *Squalius* species by the presence of 8 branched rays

in the dorsal and anal fins, low caudal peduncle and narrow third infraorbital bone, while the fourth and fifth infraorbital bones are wide (Doadrio and Carmona, 2006). It has 5+2/5+5 pharyngeal teeth, 9-11 gill rakers, 38 vertebrae, 39-43 scales in the lateral line, 7-8 scales above the lateral line and three scales below the lateral line (Doadrio and Carmona, 2006). Its head is short with a small preorbital length and large fourth and fifth infraorbital bones (Doadrio and Carmona, 2006). Its body is silvery, although darker dorsally, and the scales have one big black spot on the base and a series of small black spots on the distal border (Doadrio and Carmona, 2006). According to the genetic distances found for the cytochrome *b* gene, *S. malacitanus* most likely diverged from *Squalius pyrenaicus* at least 7.8 My ago, in the upper Miocene (Doadrio and Carmona, 2006).

DISTRIBUTION

This species is endemic to the southwest Spanish drainages of the Guadaiza, Guadalmina and Guadiaro in the Mediterranean slope of Iberia, and of the Guadalete, Jara, Miel, Vega, Valle and Vega in the Atlantic slope of Iberia (Doadrio and Carmona, 2006; Doadrio et al., 2011).

ABUNDANCE

S. malacitanus is a rare species with a restricted distribution range and a decline has been observed in its populations during the last two decades (Doadrio et al., 2011).

HABITAT AND ECOLOGY

The species typically prefers moderate flowing stretches of upper course streams with clear waters, aquatic vegetation and gravel bottoms. It usually occurs in sympatry with *Pseudochondrostoma willkommii*, *Luciobarbus sclateri*, *Salaria fluviatilis*, *Anguilla anguilla*, *Petromyzon marinus* and *Atherina boyeri* (Doadrio et al., 2011).

REPRODUCTION

Data on the breeding season and reproductive behaviour are still lacking. Hybrids with the sympatric *Pseudochondrostoma willkommii* are known to occur (Doadrio et al., 2011).

THREATS

In the last two decades, its habitat has been reduced by receding water levels due to the proliferation of golf fields, damming, hybridization with the sympatric *Pseudochondrostoma willkommii* and captures for agriculture and urban areas (Doadrio and Carmona, 2006; Doadrio et al., 2011).

CONSERVATION

This species is endangered as its populations are declining mainly due to habitat destruction and low water availability.

CONSERVATION RECOMMENDATIONS

Habitat restoration measures aiming to increase water availability should be conducted in parallel with *ex-situ* conservation for restocking.

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Sažetak

UGROŽENE VRSTE RIBA U SVIJETU: *Squalius malacitanus* Doadrio i Carmona, 2006 (Cyprinidae)

Squalius malacitanus je endemska ciprinidna vrsta ribe s juga Iberijskog poluotoka. Ova vrsta ugrožena je zbog uništavanja staništa, postavljanja brana i slabe dostupnosti vode.

Ključne riječi: *Squalius malacitanus*, endemska vrsta, zaštita

REFERENCES

- Doadrio, I., Carmona, J. A. (2006): Phylogenetic overview of the genus *Squalius* (Actinopterygii, Cyprinidae) in the Iberian Peninsula, with description of two new species. *Cybum*, 30, 3, 199-214.
- Doadrio, I., Perea, S., Garzón-Heydt, P., González, J. L. (2011): Ictiofauna continental española – bases para su seguimiento. Gobierno de España, Ministerio de Medio Ambiente y Meio Rural y Marino, Madrid. 610 p.