

The first record of the European catfish *Silurus glanis* Linnaeus, 1758 in the Guadalquivir River basin

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ABSTRACT

The first record of the European catfish *Silurus glanis* Linnaeus, 1758 in the Guadalquivir River basin

This paper describes the first record of the European catfish *Silurus glanis* Linnaeus, 1758, introduced into the Guadalquivir River basin. One individual of the species was captured in the Iznájar Reservoir (Córdoba, Spain) in July 2011. Most likely, the illegal introduction of the species is due to anglers that brought the fish from other Iberian river basins, where the species has been present since 1974.

Key words: Siluridae, Guadalquivir River basin, first record, exotic fish.

RESUMEN

Primera cita del siluro europeo *Silurus glanis* Linnaeus, 1758 en la cuenca del río Guadalquivir

Esta es la primera cita de siluro europeo *Silurus glanis* Linnaeus, 1758, introducido en la cuenca del río Guadalquivir. Un individuo de esta especie fue capturado en el embalse de Iznájar (Córdoba, España) en julio de 2011. La introducción ilegal de esta especie probablemente está causada por pescadores y procede de otras cuencas de la península Ibérica donde la especie está presente desde 1974.

Palabras clave: Siluridae, cuenca del río Guadalquivir, primera cita, especie exótica.

INTRODUCTION

In Spain, the presence of exotic freshwater fish species is one of the most important negative factors affecting the survival of the native fish species (Clavero & García-Berthou, 2005). Currently, approximately 25 exotic fish species are naturalised on the Iberian Peninsula (Elvira & Almodovar, 2001), and the list is still growing. *Silurus glanis* (Siluridae) is native to the North, Baltic, Black, Caspian and Aral Sea drainages but has been

introduced and translocated throughout Europe and the Balkhash basin (Kazakhstan) (Kottelat & Freyhoff, 2007). The species was introduced on the Iberian Peninsula in 1974 at Mequinenza-Ribarroja Reservoir in the Ebro River basin (Doadrio, 2002). Later, it was introduced in a reservoir in the Tajo River basin (Doadrio, 2002) and in the Susqueda and Sau Reservoirs (Ter River basin) (Carol *et al.*, 2003). Finally, Benejam *et al.* (2007) described the presence of *S. glanis* in La Baells Reservoir in the Llobregat River basin.

METHODS

The specimen was captured on July 2011 in Iznájar Reservoir (Córdoba), located on the Genil River (37°16'35" N, 4°23'10" W). This is the largest reservoir in the Guadalquivir River basin, with 981.12 hm³ of capacity and 2125.72 ha of surface area. The individual was captured on a fishing rod during a field survey program developed by the Regional Environmental Agency and was identified following Kobayakawa (1989) and Kottelat & Freyhof (2007).

RESULTS AND DISCUSSION

The specimen that was caught was scaleless, with one pair of long maxillary barbels (145 mm) and two pairs of shorter mental barbels (35 mm). The fish presented one dorsal fin (I, 4), one pair of pectoral fins (I, 14), one pair of pelvic fins (I, 11), one anal fin (I, 89) and a caudal fin (16). It was dark in colour, with pale spots around the ventral zone. The caudal fin was very long and emarginated. The specimen was registered in the Ichthyological Collection of the Zoology Department of the University of Córdoba (Spain).

This report is the first official record of the species in the Guadalquivir River watershed. Nevertheless, several unofficial comments and videos posted on the Internet suggest that *S. glanis* has been present in the Iznájar Reservoir since at least 2008. The Guadalquivir is the fifth river basin on the Iberian Peninsula affected by the presence of this species. However, *S. glanis* continues its expansion due to its popularity likely among anglers.

The captured specimen had a total length of 490 mm and a total weight of 0.877 kg. The maximum length recorded for the species is 5 m and the maximum weight 300 kg, but individuals are usually approximately 2 m in length and weigh approximately 80 kg (Kottelat & Freyhoff, 2007). The Iznájar Reservoir fish community consists of two native species (*Luciobarbus sclateri*, *Pseudochondrostoma willkommii*) and five exotic species (*Alburnus alburnus*, *Cyprinus carpio*, *Gambusia holbrooki*, *Lepomis gibbosus*

and *Micropterus salmoides*). According to Copp *et al.* (2009), the risk that *S. glanis* poses to the native fauna includes disease transmission, predation and the possible modification of the food web structure. Moreover, this exotic species could affect the water quality in the reservoirs through its effects on the food chain (Carol, 2007). Due to its predatory feeding habits, *S. glanis* is a threat to the abundance and survival of native fish and other vertebrates (i.e., amphibians, birds and small mammals) (Kottelat & Freyhoff, 2007).

Because the Iberian ichthyofauna has evolved in the absence of native piscivorous fishes, the many endemic fish species have developed no mechanisms to escape from the introduced piscivorous species. Therefore, piscivorous exotic fishes could affect Iberian fishes more than the fishes of other geographic areas. However, Copp *et al.* (2009) suggest that *S. glanis* exerts trophic pressure on native fish if human impacts are present. The ecological impact of this introduced species on the native fauna is still unknown, but it is highly likely that the introduced species has an effect on the native cyprinids of the Iberian Peninsula (Carol *et al.*, 2009). It has been shown that the abundance of aquatic birds is lower in reservoirs in which *S. glanis* occurs. This finding suggests the occurrence of an ecological impact on the community (Carol *et al.*, 2009). More research is required to assess the specific ecological impacts that *S. glanis* could be producing in Iberian riverine ecosystems.

REFERENCES

- BENEJAM, L., J. CAROL, J. BENITO & E. GARCÍA-BERTHOU. 2007. On the spread of the European catfish (*Silurus glanis*) in the Iberian Peninsula: first record in the Llobregat river basin. *Limnetica*, 26(1): 169–171.
- CAROL, J. 2007. *Ecology of an invasive fish (Silurus glanis) in Catalan reservoirs*. PhD Thesis. Universitat de Girona. 120 pp.
- CAROL, J., L. BENEJAM, Q. POU, L. ZAMORA & E. GARCÍA-BERTHOU. 2003. Primera citació de brema blanca (*Abramis bjoerkna*) a Catalunya i

- noves introduccions de peixos exòtics (*Alburnus alburnus*, *Sander lucioperca* i *Silurus glanis*) en diverses conques catalanes. *Butlletí de la Institució Catalana d'Història Natural.*, 71: 135–136.
- CAROL, J., L. BENEJAM, J. BENITO & E. GARCÍA-BERTHOU. 2009. Growth and diet of European catfish (*Silurus glanis*) in early and late invasion stages. *Fundamental and Applied Limnology*, 174(4): 317–328.
- CLAVERO, M. & E. GARCÍA-BERTHOU. 2005. Invasive species are a leading cause of animal extinctions. *Trends in Ecology and Evolution*, 20(3): 110.
- COPP, G. H., J. R. BRITTON, J. CUCHEROUSSET, E. GARCÍA-BERTHOU, R. KIRK, E. PEELER & S. STAKENAS. 2009. Voracious invader or benign feline? A review of the environmental biology of European catfish *Silurus glanis* in its native and introduced ranges. *Fish and Fisheries*, 10: 252–282.
- DOADRIO, I. 2002. *Atlas y Libro Rojo de los Peces Continentales de España*. Madrid. Dirección General de Conservación de la Naturaleza. 364 pp.
- ELVIRA, B. & A. ALMODOVAR. 2001. Freshwater fish introductions in Spain: facts and figures at the beginning of the 21st Century. *Journal of Fish Biology*, 59 (Supplement A): 323–331.
- KOBAYAKAWA, M. 1989. Systematic revision of the catfish genus *Silurus*, with description of a new species from Thailand and Burma. *Japanese Journal of Ichthyology*, 36(2): 155–170.
- KOTTELAT, M. & J. FREYHOF. 2007. *Handbook of European freshwater fishes*. Cornol, Switzerland. Publications Kottelat. 646 pp.