

New data on the distribution of pumpkinseed *Lepomis gibbosus* and largemouth bass *Micropterus salmoides*, and of non endemic Iberian gudgeon *Gobio lozanoi* in the Galicia region (NW Spain)

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Abstract

This paper provides the first report of non endemic Iberian gudgeon *Gobio lozanoi* in the Tamega River Basin, Northern Iberian Peninsula, and summarizes new and recently-published information on the current distribution of introduced pumpkinseed *Lepomis gibbosus* and largemouth bass *Micropterus salmoides* in the Galicia region.

Key words: alien species, biological invasions, non endemic

Many introduced alien freshwater fishes have established self-sustaining wild populations and have caused dramatic changes in many ecosystems worldwide (Gurevitch and Padilla 2004). Some species have been introduced intentionally, while other species have arrived due to transfer between basins, but most of them with high impact on native populations (Lowe et al. 2000). In the Iberian Peninsula, there are many examples of intentional introductions of fish species (Elvira and Almodovar 2001; Doadrio 2002). Some of them have been due to fishing activities, such as the introduction of European catfish *Silurus glanis* (Linnaeus, 1758) into river reservoirs of north-eastern Spain, and the North American largemouth bass *Micropterus salmoides* (Lacepede, 1802) throughout the Iberian Peninsula. Whereas other have been introduced as a form of biomanipulation, such as the introduction of mosquito fish *Gambusia hoolbroki* (Girard, 1859) to control mosquitoes.

Recent work on alien fish species and their distributions in the Galicia region of north-

western Spain (Hervella and Caballero 1998) highlight gaps in knowledge concerning the true distribution of these species. However, information on the distribution of native, translocated species to the region is also lacking, and this is apparent with regard to species of the Family *Gobio*. *Gobio gobio* (Linnaeus, 1758) was supposed to have only two autochthonous population in the Iberian Peninsula in Ebro and Bidasoa River Basins (Doadrio 2002), but colonized rivers throughout the geographical range of Iberian Peninsula (Coelho 1981; Doadrio et al 1991; Andreu-Soler et al. 2004). All the rest of Iberian populations are supposed to be allochthonous due to its introduction as fishing bait, and due to transfer between different basins (Clavero and Garcia-Berthou 2006). Recent taxonomic research has splitted the Iberian and Southern France gudgeon populations from the european gudgeon *G. gobio*, assigning these populations to a new species, Iberian gudgeon *Gobio lozanoi* (Doadrio and Madeira 2004). *G. lozanoi* was cited in

Galicia region in the Miño River Basin by Doadrio and Madeira (2004), and also in Tea, Bibei and Lor rivers (Hervella and Caballero 1998), where it seems that was released as fishing bait.

The aim of the present paper is to present new data on the current distribution two introduced species (*M. salmoides* and pumpkinseed *Lepomis gibbosus* (Linnaeus, 1758) and of non endemic *G. lozanoi* in the Galicia region.

In August 2008, during a herpetological monitoring programme in the adjacent ponds to Tamega River, one dozen individuals of

L. gibbosus were captured in shrimp traps. This species is considered an invasive species throughout the Iberian Peninsula (Doadrio 2002), but there are few records in the north of Spain. The regional government has not included *L. gibbosus* species in its regional inventory of fish species (Hervella and Caballero 1998) and this species is not listed for Galicia in recent documents for management of fish populations in our region (Xunta de Galicia 2008). Also captured in the same ponds were four fish adult specimens, subsequently identified by I. Doadrio and M. E. Garcia as *G. lozanoi* (see Figure 1).



Figure 1. Adult of *G. lozanoi* captured on the Tamega River Basin

Both *L. gibbosus* and *G. lozanoi* were captured in some ponds and abandoned channels, created due to abandon of gravel pit exploitations, closer to the River Tamega near Verin (Galicia region, Nw Spain: 41°53'N, 7°26'W; and 41°51'N, 7°26'W) (see Annex 1). This report seems to be the first regarding the presence of *G. lozanoi* in the River Tamega and its adjacent wetlands. *L. gibbosus* was first detected in the water bodies of the River Tamega during herpetological surveys in 2005 (C. Ayres, unpublished data) and again during the present

studies, including in the Antela channel and in the River Limia near Xinzo de Limia (Galicia region, NW Spain: 42°4'N, 7°46'W, which receives inflows from the Antela channel (see Annex 1).

During the same surveys, *M. salmoides* was captured in the same sampling points of the Tamega River, Limia River, and also in the Avia River near Ribadavia (Galicia region, Nw Spain: 42°18'N, 8°07'W) (see Annex 1). Considered an invasive species elsewhere in Iberia, *M. salmoides* has been previously reported in

Galicia, usually associated with large rivers and dams (Hervella and Caballero 1999), mainly in the Miño River basin but it was also reported from wetlands and artificial ponds (Ayres and Cordero 2007) closer to the border with Portugal.

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Annex 1

New and previously-published information on the presence of non endemic (*Gobio lozanoi*) and introduced (*Lepomis gibbosus*, *Micropterus salmoides*) fish species in the Galicia region of north eastern Spain

| Species | Location | Geographic coordinates | | Date of record | Source |
|------------------------------|----------|------------------------|-----------|----------------|--------------------------|
| | | Latitude | Longitude | | |
| <i>Gobio lozanoi</i> | Tamega | 41°53' | 7°26' | August 2008 | Present study |
| <i>Gobio lozanoi</i> | Tamega | 41°51' | 7°26' | August 2008 | Present study |
| <i>Lepomis gibbosus</i> | Tamega | 41°51' | 7°26' | June 2005 | C. Ayres (unpublished) |
| <i>Lepomis gibbosus</i> | Tamega | 41°51' | 7°26' | August 2008 | Present study |
| <i>Lepomis gibbosus</i> | Tamega | 41°51' | 7°26' | August 2008 | Present study |
| <i>Lepomis gibbosus</i> | Limia | 42°04' | 7°46' | August 2008 | Present study |
| <i>Micropterus salmoides</i> | Cerquido | 42°05' | 8°37' | June 1996 | Ayres and Cordero (2007) |
| <i>Micropterus salmoides</i> | Orbenlle | 42°06' | 8°37' | June 1996 | Ayres and Cordero (2007) |
| <i>Micropterus salmoides</i> | Centeans | 42°07' | 8°37' | April 1997 | Ayres and Cordero (2007) |
| <i>Micropterus salmoides</i> | Tamega | 41°53' | 7°26' | August 2008 | Present study |
| <i>Micropterus salmoides</i> | Limia | 42°04' | 7°46' | August 2008 | Present study |
| <i>Micropterus salmoides</i> | Limia | 42°05' | 7°46' | August 2008 | Present study |
| <i>Micropterus salmoides</i> | Avia | 42°18' | 8°07' | August 2008 | Present study |