

## First record of the bighead carp *Hypophthalmichthys nobilis* (Richardson 1845) (Teleostei: Cyprinidae) from freshwaters in Argentina.

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### Abstract

*Hypophthalmichthys nobilis* is recorded for the first time from the río Paraná in northeastern of Argentina. One specimen of this species was captured from the right bank of the río Paraná near the city of Resistencia, province of Chaco.

### Resumen

*Hypophthalmichthys nobilis* es registrada por primera vez en el río Paraná en el nordeste de Argentina. Un ejemplar de esta especie fue capturado en la margen derecha del río Paraná, próximo a la ciudad de Resistencia, provincia de Chaco.

During the past century, the Cypriniforms *Carassius auratus*, *Cyprinus carpio*, *Ctenopharyngodon idellus*, and *Hypophthalmichthys molitrix* have been introduced both intentionally and unintentionally in Argentina. The gold fish *Carassius auratus* Linnaeus, 1758 was introduced as an aquarium fish; however, specimens of this species have been collected in natural environments of the following provinces: La Pampa, Buenos Aires, San Juan, Córdoba and San Luis (Aramburu, 1971; Menni et al., 1984, Haro & Bistoni, 1996). The common carp *Cyprinus carpio* Linnaeus, 1758 is widespread throughout the country, reaching the río Negro in North Patagonia (Alvear et al., 2007). It is well known that this species has negative impacts on native organisms, mainly due to its interference with the breeding activities of other fish (Colautti, 1997). The grass carp *Ctenopharyngodon idella* (Valenciennes 1844) was introduced at the Chascomús and El Burro lakes in Buenos Aires province, to control the growth of dense clusters of aquatic plants, but without success (Arámburu, 1971). This species removes aquatic vegetation producing habitat changes and interfering with the reproduction of others organisms. Lastly, the silver carp *Hypophthalmichthys molitrix* (Valenciennes, 1844) was found for the first time in the Río de la Plata (García Romero et al, 1998) and later in other environments associated to the ríos Paraná and Uruguay. This species has been successfully introduced in many countries not only as a food resource, but also to improve the quality of water in artificial pools, since it significantly reduces the risks of algal blooms. On the other hand, *H. molitrix* can have a detrimental effect in aquatic ecosystems by competing with native species for food, spawning areas, and other limited resources, thus reducing the density of native fish species (Laird & Page, 1996).



Fig.1 *Hypophthalmichthys nobilis*, first specimen caught in freshwaters of Argentina (specimen not preserved).

During November 2008, another cyprinid species, the bighead carp *Hypophthalmichthys nobilis* (Richardson, 1845), was captured in the río Paraná by an artisanal local fisherman in Chaco province. This carp has never before been captured in natural environments of Argentina.

*Hypophthalmichthys nobilis* is a freshwater Asian carp native to eastern China and Siberia, and extreme North Korea (Kolar et al, 2005). At present, it has a widespread distribution around the world and is a very common food resource.

The bighead carp is easily recognizable because of its large size, being more than 1 meter long, and weighing as much as 40 kilograms. The head and mouth are disproportionately large, with protruding lower jaw, and eyes that “look down”. The ventral profile of the body bears a smooth keel between the anal and pelvic fins that does not extend anteriorly to the base of the pelvic fins (Kolar et al, 2005).

Bighead carp are filter feeders and feed preferentially on zooplankton but also phytoplankton. Occasionally, they may feed on detritus accumulated on the bottom as well as aquatic insects and fish larvae (Stone et al., 2000). They are eurythermic fish, being able to tolerate temperatures of 0.5 to 38°C (Kolar et al., 2005).

*Hypophthalmichthys nobilis* has been widely introduced in several countries for aquaculture purposes and also to control excessive growth of phytoplankton in natural environments. Specimens of this species are also released during a Buddhist religious ceremony (“hojo-e”), and in the Czech Republic before Christmas feast. In the latter case, some people buy two fishes, then eat one and release the other. The human behaviour of preserving traditions of their native cultures can thus result in the unintentional release of specimens in aquatic environments of other regions of the globe (Higbee et al., 2004). In Rio Grande do Sul, southeastern Brazil, Asian carps are found in the wild in Mirím and Los Patos Lagoon estuary (García et al., 2004). Escapes of those fishes from aquaculture farms into natural habitats such as the río Paraná basin in Brazil have been documented by Agostinho & Julio (1996), and Orsi & Agostinho (1999).

The specimen considered herein, collected in the río Paraná near the confluence with the río Paraguay, was 1m of SL and 10 kg approximately (Figs 1 and 2). It was captured by a local artisanal fisherman with a gill net (“mallón”) in the “cancha” de Ita Puá, Puerto Antequera (27°27'44.2”S - 58°52'00.4”W), on the right bank of the río Paraná, Chaco province, Argentina (Fig. 3).



Fig 2. *Hypophthalmichthys nobilis*, specimen from fig 1



Fig 3. Río Paraná at Cancha de Ita Puá, Puerto Ayacucho, Chaco

The establishment of populations of *H. nobilis* in freshwater environments of Argentina can be a threat for the ecosystem. This species can be a dangerous invasive fish because of its large size, eurythermic condition and high reproductive success, as it can produce one million eggs in one spawning season. Also, because of its ability to consume large amounts of food, thus decreasing phytoplankton and zooplankton populations, and disrupting the food web by competing with native fish.

To protect native biodiversity, the management of freshwater exotic species should be strictly controlled. This is especially important in those environments inhabited by endemic species. This management should focus on preventing introduction of exotic species, because eradication is usually not possible once they have become established (Lodge et al., 1998).

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