

RANGE EXTENSION

The Amazon sailfin catfish *Pterygoplichthys disjunctivus x pardalis* (Siluriformes: Loricariidae) in Panamá

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ABSTRACT. **Introduction:** Despite having a rich and diverse native freshwater fish fauna, exotic species have been introduced to Panama since the 20th century. **Objective:** To report its presence in the fresh waters of Panama of a newly recorded exotic fish. **Methods:** Specimens were caught with gillnet in Gatun lake, on September 30, 2017. **Results:** Three specimens with average standard length and weight of 233mm and 307g, respectively, were identified as *Pterygoplichthys disjunctivus x pardalis*. This armored catfish, native to the Amazon basin, is breeding in Gatun and may threaten local species. **Conclusion:** The exotic fish *Pterygoplichthys disjunctivus x pardalis* has a reproductive population in Gatun Lake, Panama.

Keywords: First record, exotic fish, amazon catfish, Gatun Lake, Panama.

RESUMEN. “El pez gato amazónico *Pterygoplichthys disjunctivus x pardalis* (Siluriformes: Loricariidae) en Panamá”. **Introducción:** A pesar de tener Panamá una rica y diversa fauna nativa de peces de agua dulce, se han introducido especies exóticas desde el siglo XX. **Objetivo:** Reportar la presencia en un lago panameño de un pez exótico no registrado. **Métodos:** Los ejemplares fueron capturados con red de enmalle en el lago Gatún, el 30 de septiembre de 2017. **Resultados:** Tres ejemplares con longitud y peso estándar promedio de 233 mm y 307 g, respectivamente, fueron identificados como *Pterygoplichthys disjunctivus x pardalis*. Este bagre acorazado, originario de la cuenca del Amazonas, se está reproduciendo en Gatún y podría amenazar especies locales. **Conclusión:** El pez exótico *Pterygoplichthys disjunctivus x pardalis* tiene una población reproductiva en el lago Gatún, Panamá.

Palabras clave: Primer registro, pez exótico, pez amazónico, Lago Gatún, Panamá.

Despite having a rich and diverse native freshwater fish fauna, exotic species have been introduced to Panama since the 20th century. Here we report the presence, in the fresh waters of Panama, of a newly recorded exotic fish. Three specimens of *Pterygoplichthys disjunctivus x pardalis* with an average standard length of 233mm (219 - 250mm), and an average weight of 307 grams (270 - 380g), were obtained from an artisanal fisherman at the Gamboa public dock, (9°6'47.96"N; 79°41'27.41"W) in the eastern shoreline of Gatun lake, Panamá. The specimens were captured on September 30, 2017, using a gillnet, in the Chagres river entrance to the Panama Canal. This is the first record of this exotic fish in Panamanian freshwaters.

The specimens (Fig. 1) were preserved in 10% formaline and then transferred to 70% ethanol. Preserved specimens were deposited at the Smithsonian Research Institute Neotropical Fish Collection located at the Naos Marine Laboratories in Amador, Panama, under the following catalogue number: CSTRI- 08670.

The specimens were identified using the taxonomic keys of Armbruster and Page (2006) as *P. pardalis*. The identification was based on the following combination of characters: buccal papilla



single with tongue shape structure, 12 – 14 dorsal rays, a geometric pattern of light lines on head. Spots on abdomen mostly discrete, coalescing to form short vermiculations and lateral spots coalescing to form chevrons that outline the posterior border of the lateral plates, among others.

However, according to Armbruster in Godwin, et al., (2016) and Wu et al. (2011), based on the examination of museum material and photos of introduced specimens from around the world, introduced specimens worldwide, as well as specimens from the aquarium trade, range in morphology between *P. pardalis* and *P. disjunctivus*, concluding that they should be considered hybrids.

Moreover, Wu et al., (2011) found that many *Pterygoplichthys* in Taiwan, identified from morphological characters as *P. pardalis*, had *P. disjunctivus* mitochondrial DNA, and vice versa, and that many specimens had intermediate morphologies.

Members of *Pterygoplichthys* species are native to the Amazon River Basin in South America (Armbruster & Page, 2006; Weber, 1992), but they have been spread around the world through the aquarium trade.

The aquarium trade is also the most likely origin of *Pterygoplichthys* in the Gatun Lake, where this fish currently maintains reproductive populations in the Chagres river (O. Robles, personal communication, 2017), main drainage of the Gatun lake.

The introduction of *Pterygoplichthys* around the world has caused several ecological, socio-economic and environmental problems. In some places such as Mexico (Wakida-Kusunoki et al., 2007; Wakida-Kusunoki & del Ángel, 2008; Álvarez-Pliego, et al., 2015) and Costa Rica (Herrera & Molina, 2011).

In Gatun lake, *Pterygoplichthys* is most likely to compete for food and habitat use with some native species such as *Hypostomus aspidolepis*. The last species was considered closely related to *Pterygoplichthys* by Armbruster (2004) or to *Hypostomus* by Lujan et al. (2015).

This is likely the first instance of *Pterygoplichthys* being introduced within the native range of a species of *Hypostomus*. Although *Pterygoplichthys* and *Hypostomus* co-occur throughout much of their native ranges, *H. aspidolepis* currently has no competitors, and the effects of a prolific invader like *Pterygoplichthys* should be evaluated and considered.

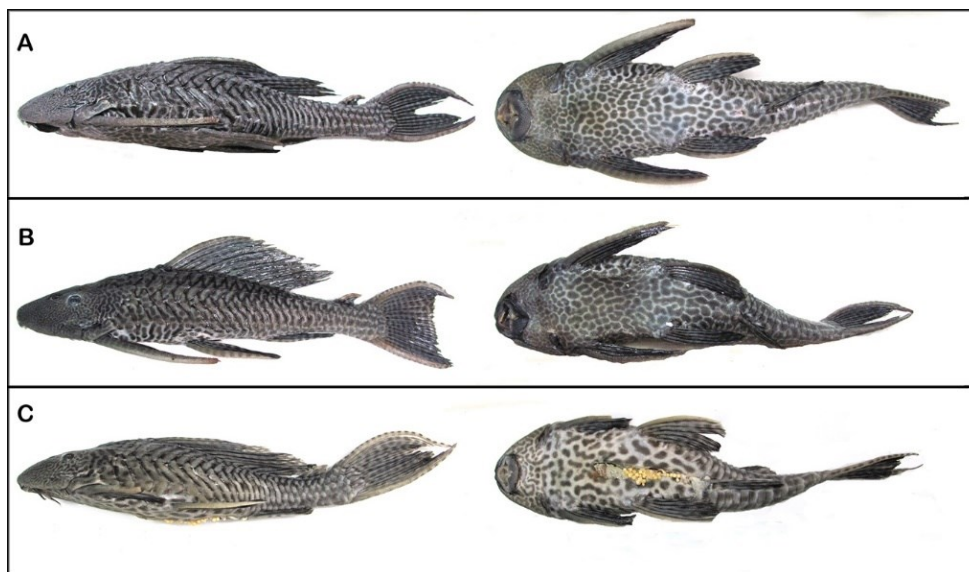


Fig. 1. Voucher specimens of *Pterygoplichthys disjunctivus x pardalis* captured in Gatun Lake (CSTRI-08670). A. Lateral and ventral view of specimen of SL: 250mm, w: 380g B. Lateral and ventral view of specimen of SL: 230mm, w: 270g C. Lateral and ventral view of specimen of SL: 219mm, w: 270g with eggs inside.

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ETHICAL, CONFLICT OF INTEREST AND FINANCIAL STATEMENTS

The author declares: I have fully complied with all pertinent ethical and legal requirements, both during the study and in the production of the manuscript; there are no conflicts of interest of any kind, and I fully agree with the final edited version of the article. A signed document has been filed in the journal archives.

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