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NOTA

FIRST RECORD OF THE FRESHWATER CROAKER *Plagioscion ternetzi* BOULENGER 1895 (EUPERCARIA: SCIAENIDAE) IN THE QUEGUAY RIVER AND THE URUGUAY RIVER BASIN

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ABSTRACT

In this study we report the first known record for the presence of the sciaenid species *Plagioscion ternetzi* in the Uruguay River Basin, at the specific location of the Queguay River, 20 km upstream from its mouth into the Lower Uruguay River. This finding extends the currently known distribution of the species in Uruguay (inner Río de la Plata Estuary) approximately 200 km northwards.

Key words: Freshwater croaker, Sciaenidae, Fishes from the Queguay River, Fishes from Uruguay.

RESUMEN

Primer registro de la corvina de agua dulce *Plagioscion ternetzi* Boulenger 1895 (Eupercaria: Sciaenidae) en el Río Queguay y la cuenca del Río Uruguay. En este estudio reportamos por primera vez, la presencia de la especie sciaénido *Plagioscion ternetzi* en la cuenca del Río Uruguay, particularmente en el río Queguay, 20 kms aguas arriba de su desembocadura en el bajo Río Uruguay. Esta comunicación extiende su distribución actual conocida en Uruguay (Río de la Plata interior) aproximadamente unos 200 km hacia el norte.

Palabras clave: Corvina de río, Sciaenidae, Peces del Río Queguay, Peces de Uruguay.

Historically, the ichthyofauna of Uruguay has been scarcely studied, except, perhaps, for studies focused on Rivulidae genus *Austrolebias* (Amato, 1986; Devincenzi, 1924; Devincenzi and Barattini, 1926; Vaz Ferreira, Sierra and Scaglia, 1964; Loureiro, 2004). However, more recently, during the last 15 years approximately ichthyological research has expanded to further consolidate knowledge regarding fish diversity and distribution patterns in the country. Concomitantly, extensive fish collections were restored, updated and put to work as essential databases. As a result, many new species have been described (e.g. Loureiro, Azpelicueta and García, 2004; Loureiro and Silva, 2006; Loureiro and García, 2008; González-Bergonzoni, Loureiro and Oviedo, 2009; Loureiro, Duarte and Zarucki, 2011; Loueriro, Zarucki, Malabarba and Gonzalez-Bergonzoni, 2016), or reported for the first time in the country (e.g. Zarucki et al., 2010; Serra et al., 2013; 2017; Serra, Scarabino, Wlodek, Furtado and Balao, 2020; Loureiro, Montenegro, Bessonart, Díaz and Paullier, 2020) increasing the understanding of fish distribution patterns in the region. Despite these relatively recent advances, there are still many scarcely sampled areas in the country where many potentially rare and infrequent species remain to be discovered. For instance, in this study we report the first collection of a predatory freshwater croaker, *Plagioscion ternetzi* (Eupercaria, Sciaenidae) in the Lower Queguay River,

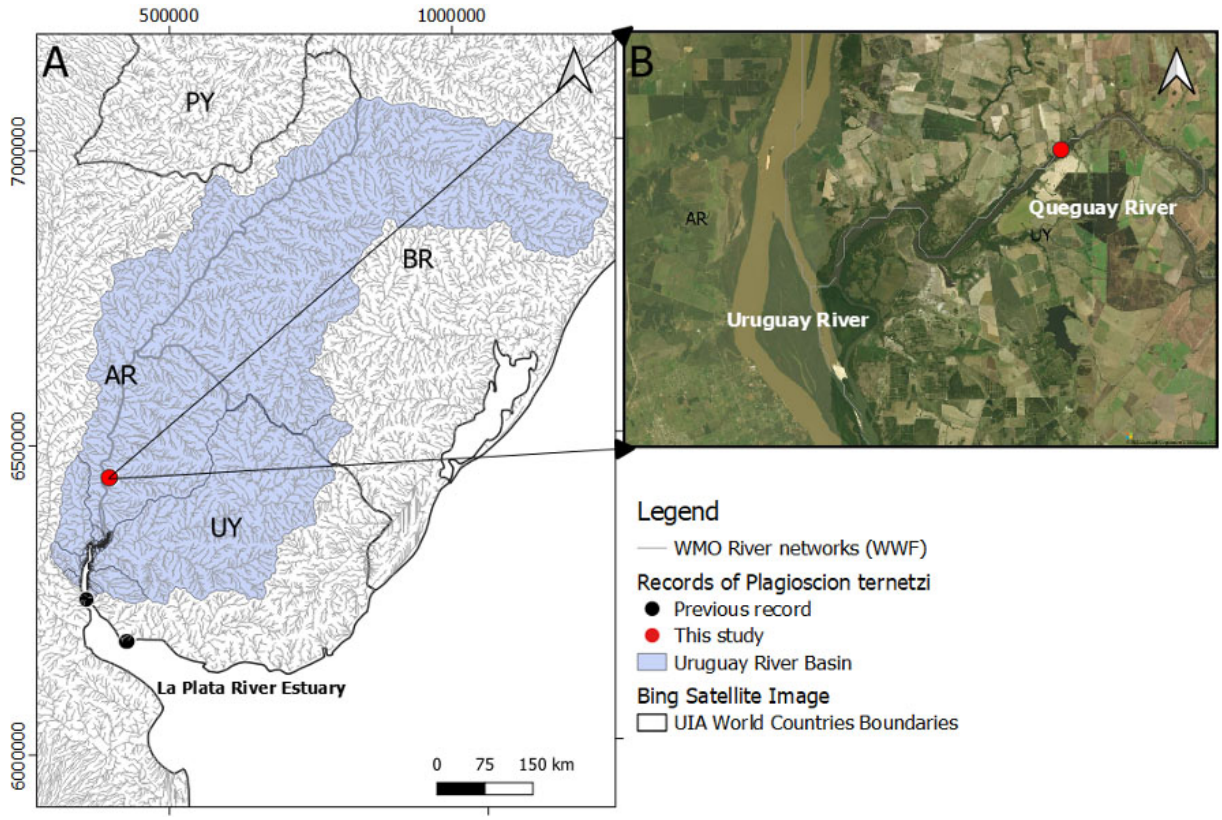

Fig. 1. Map of updated records of *Plagioscion ternetzi* in Uruguay. A) black dots represent the corroborated records reported in Serra et al 2012, and the red circle represents the location where the specimen ZVC-P 15600 was collected; B) amplified image of the region in Google Earth where the new specimen was recorded (site denoted by a red dot).

confirming its presence in the Uruguay River basin.

Among the Sciaenidae, the *Plagioscion* genus (Gill, 1861) is endemic to the Neotropics and is characterized by its large scales in a lateral line; covered by smaller scales, as well as conical teeth on premaxilla; dentary, elongated gill rakers on the first gill arch; and an oblique mouth in lateral view (Casatti, 2005). The genus is composed of seven species largely distributed in the Magdalena, Orinoco, Amazon and La Plata River basins (Parenti, 2020), of which *P. ternetzi* displays the southernmost distribution with records from the upper Paraná River basin to its mouth in the inner La Plata River, and downstream proximities of Uruguay River mouth (Casatti, 2005). Many *Plagioscion* species are important in commercial fisheries in the Parana and Amazon Basins, and are thus used in aquiculture for that reason in large reservoirs of the North of Brazil. Its feeding habits are mainly piscivorous, consuming a large diversity of prey fishes, but aquatic invertebrates and shrimp are also included in their diets (e.g. Stefani and Rocha, 2009; Gimenes, Fugi, Isaac and Silva, 2013).

Revision of published literature and databases

Plagioscion ternetzi has been cited for Uruguay in general species lists since 1976 (Carrera, 1976), but only two registers with its exact location have been published that confirm its presence in the inner Rio de la Plata Estuary and at the mouth of Uruguay River, Near the Paraná River delta (Serra, Duarte, Zarucki, Fabiano and Loureiro, 2012). These records correspond to voucher specimens MZUSP 45841 held at the Museu de Zoologia da Universidade de São Paulo (Soares and Casatti, 2000), consisting of an individual collected in February of 1966 in La Agraciada Beach on the Uruguay River (33° 48 'S 58° 25' W) in the department of Soriano - Uruguay, and a second record of two individuals from the inner La Plata River, Colonia - Uruguay (34° 28 'S 57° 49' W), collected in July of 2011 and deposited in the ichthyological collection of the Faculty of Science – University of the Republic, Uruguay (ZVC-P 10656; Serra et al 2012). Cassatti in 2005 also mentions three specimens in two lots deposited in the Museum of Vienna NMW 85547 (1), NMW 85541 (2), and 5 specimens in 3 lots belonging to

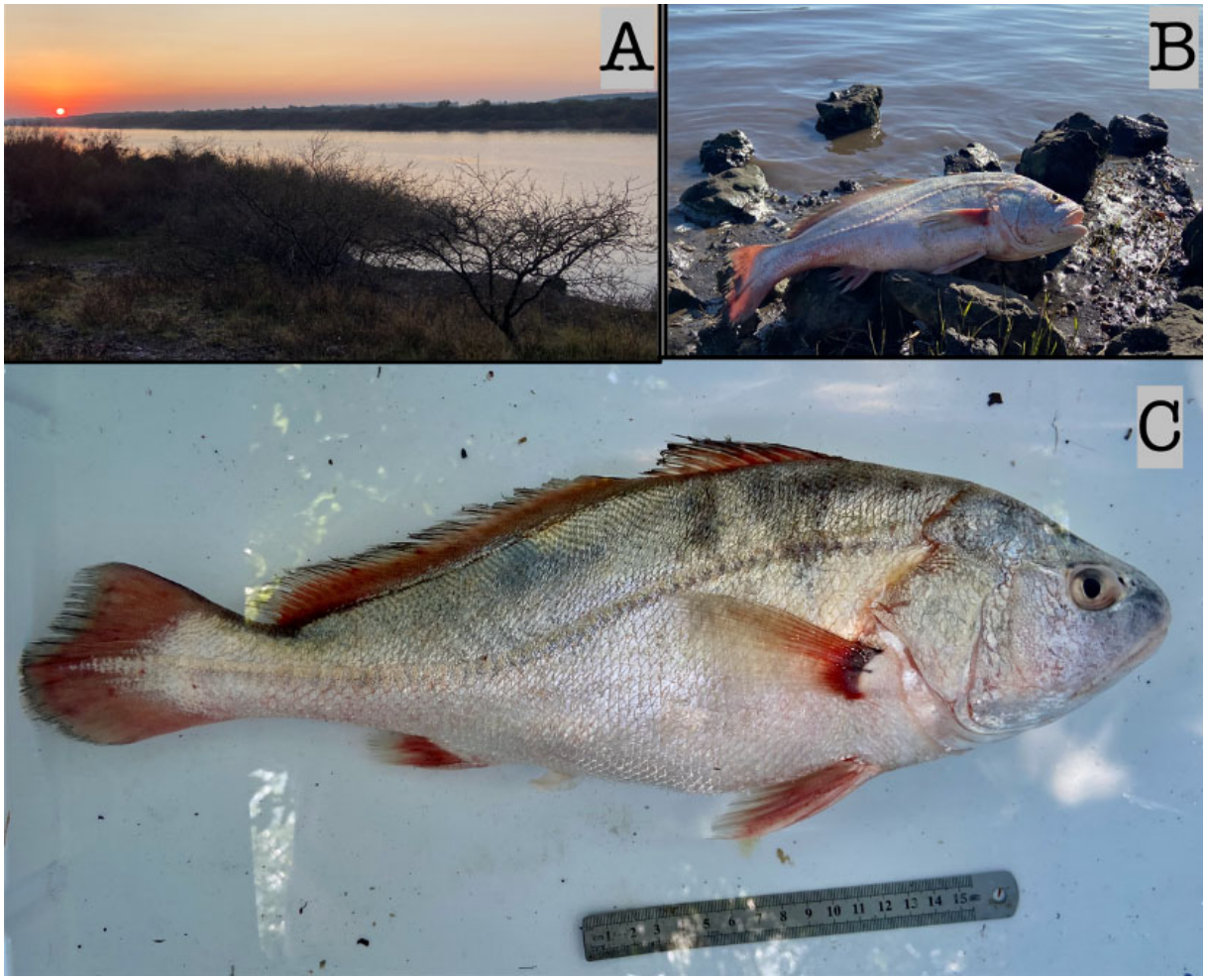

Fig. 2. A) Study area in the lower Queguay River; B and C) freshly caught sampled *P. ternetzi* specimen deposited under the code ZVC-P 15600.

the Museum of Genoa MHNG 2414.26 (1), MHNG 2414.26 (2), MHNG 2414.27 (2) but does not provide information about the location.

Until the present, *P. ternetzi* has not been recorded in any other region of the Uruguay River besides the mouth of the river, where its presence has been attributed to a close proximity with the Parana River delta, which is part of the known distribution range for this species. Despite the intensive seasonal monitoring campaigns of fish biodiversity conducted in the Lower and Mid Uruguay River since 2009 by the River's binational Administrative Commission (CARU, 2010, 2013, 2014; CARU-CARP, 2016); seasonal fish monitoring programs in the Lower Uruguay River since 2005 (López-Rodríguez et al., 2017) and ichthyofaunal revisions in two main tributaries, including the Negro River (Serra, 2014) and the Queguay River (Paullier, Bessonart, Brum and Loureiro, 2019), this species has not been observed in the Uruguay River basin to date. Similar observations apply for the middle and upper Uruguay River sections in Brazilian territory, where the species has not been reported (Delariva, Neves, Baumgartner and Baumgartner, 2019). *Plagioscion ternetzi* is also consistently absent from species lists for the Uruguay River basin in Argentina (López, Miquelarena and Ponte Gómez, 2005), Uruguay (Lits and Kroeber, 2014) and Brazil (Malabarba, 2021).

Collection and first record of P. ternetzi in Queguay River

In the context of ongoing research regarding the environmental drivers of fish community and food web

structure in the 280-km long Queguay River, one of the largest tributaries to the lower Uruguay River downstream of the large hydroelectric Salto Grande Dam, seasonal sampling of the fish community was conducted in seven sites along a longitudinal gradient from the headwaters to the mouth from Aug. 2020 – Feb. 2021. At each site we used four 30m-long multi-mesh gillnets, composed of six 5m-long panels of mesh sizes 20, 40, 60, 80 and 100mm between opposing knots, and two 30m-long gillnets of mesh size 140mm between opposed knots. Furthermore, 50 pulses of electrofishing were used to sample the shallower littoral habitats within the river channel. In the summer sampling conducted on February 20th of 2021, an individual of *P. ternetzi* was caught using a 140mm mesh size gillnet set on the Queguay River, about 20 Km upstream of its mouth into the Uruguay River (Fig. 1A). The specimen was caught at the mouth of a small tributary to the Queguay River (32°04´35.70"S 58°00´45.38"W; Fig. 1B). The individual measured 360 mm in standard length and weighed 1125 g. The taxonomic identity of the species was confirmed using the scientific key developed by Cassatti (2005). Upon dissection we observed that the specimen was an adult male, and gut content analysis revealed that the fish had consumed four juvenile individuals of the pimelodid catfish species *Iheringichthys labrosus* ranging in size from 40 - 80 mm in total length, confirming its predatory nature. This specimen was formalin-preserved and deposited in the ichthyological collection of the vertebrate section of Faculty of Sciences of University of the Republic, Uruguay, under the code ZVC-P 15600.

This record extends the potential distribution of this species approximately 200 Km northwards in Uruguay, representing the first confirmed record for the Uruguay River Basin. Nonetheless, the extent and replicability of the current finding remains to be explored, as prior monitoring program suggest that this is a regionally rare species not frequent to the main course of the Uruguay River. As additional anecdotal evidence of this species local rarity the species was not recognized when a digital photograph of the specimen was shown to three artisanal fishermen operating in the Uruguay River in the immediacy of the Queguay River mouth and fishermen from Las Cañas locality downstream in the Uruguay river, recognize the species as very rare having collected only two individuals in the last 10 years or so. This leads us to speculate two possible scenarios to explain the presence of this species: i) this specimen could represent one of a few migrants from the Parana River or La Plata Estuary that rarely inhabits the study area, or ii) the presence of an unexpected and small populations of this species, potentially with a patchy distribution, that has not been recorded to date due to the lack of fish samplings within the main courses of large tributaries to the Uruguay River. Regardless, this report updates the potential spatial distribution of this species in Uruguay and poses questions for future research regarding the distribution of this species in the region.

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