ProBiota, FCNyM, UNLP Serie Técnica y Didáctica nº 21(30)
ISSN 1515-9329

Semblanzas Ictiológicas
Juan José Rosso

Hugo L. López
y
Justina Ponte Gómez

Indizada en la base de datos ASFA C.S.A.
2013

Semblanzas Ictiológicas

Juan José Rosso

Cruzando el Paraná
Entre Ríos, abril de 2011

Hugo L. López y Justina Ponte Gómez

ProBiota
División Zoología Vertebrados
Museo de La Plata
FCNyM, UNLP

Diciembre, 2013

Imagen de Tapa
Juan José Rosso tomando datos con la sonda, laguna de Gómez, diciembre de 1999

El tiempo acaso no exista. Es posible que no pase y sólo pasemos nosotros.

Tulio Carella

Cinco minutos bastan para soñar toda una vida, así de relativo es el tiempo.

Mario Benedetti

Semblanzas Ictiológicas

A través de esta serie intentaremos conocer diferentes facetas personales de los integrantes de nuestra “comunidad”.

El cuestionario, además de su principal objetivo, con sus respuestas quizás nos ayude a encontrar entre nosotros puntos en común que vayan más allá de nuestros temas de trabajo y sea un aporte a futuros estudios históricos.

Esperamos que esta iniciativa pueda ser otro nexo entre los ictiólogos de la región, ya que consideramos que el resultado general trascendería nuestras fronteras.

Hugo L. López

Nombre y apellido completos: Juan José Rosso
Lugar de nacimiento: Bahía Blanca
Lugar, provincia y país de residencia: Miramar, Buenos Aires, Argentina
Título máximo, Facultad y Universidad: Doctor en Ciencias Agropecuarias, Facultad de Agronomía, Universidad de Buenos Aires (UBA)
Posición laboral: Investigador Asistente CONICET
Lugar de trabajo: Instituto de Investigaciones Marinas y Costeras
Especialidad o línea de trabajo: Diversidad y ecología de peces de agua dulce
Correo electrónico: plurosso@yahoo.com.ar

Cuestionario

-**Un libro**: *El gen egoísta* de Richard Dawkins

-**Una película**: *El nombre de la rosa*

-**Un tema musical**: *Rapsodia Bohemia*, Queen

-**Un artista**: José Hernández

-**Un deporte**: bochas

-**Un color**: naranja

-**Una comida**: fillet de pescado (frito) con croquetas (también fritas) de acelga

-**Un animal**: perro

-**Una palabra**: amistad

-**Un número**: prefiero las palabras

-**Una imagen**: la sonrisa de mi hijo

-**Un lugar**: el agua en su medio natural y en todas sus expresiones

-**Una estación del año**: otoño

-**Un nombre**: ninguno en particular

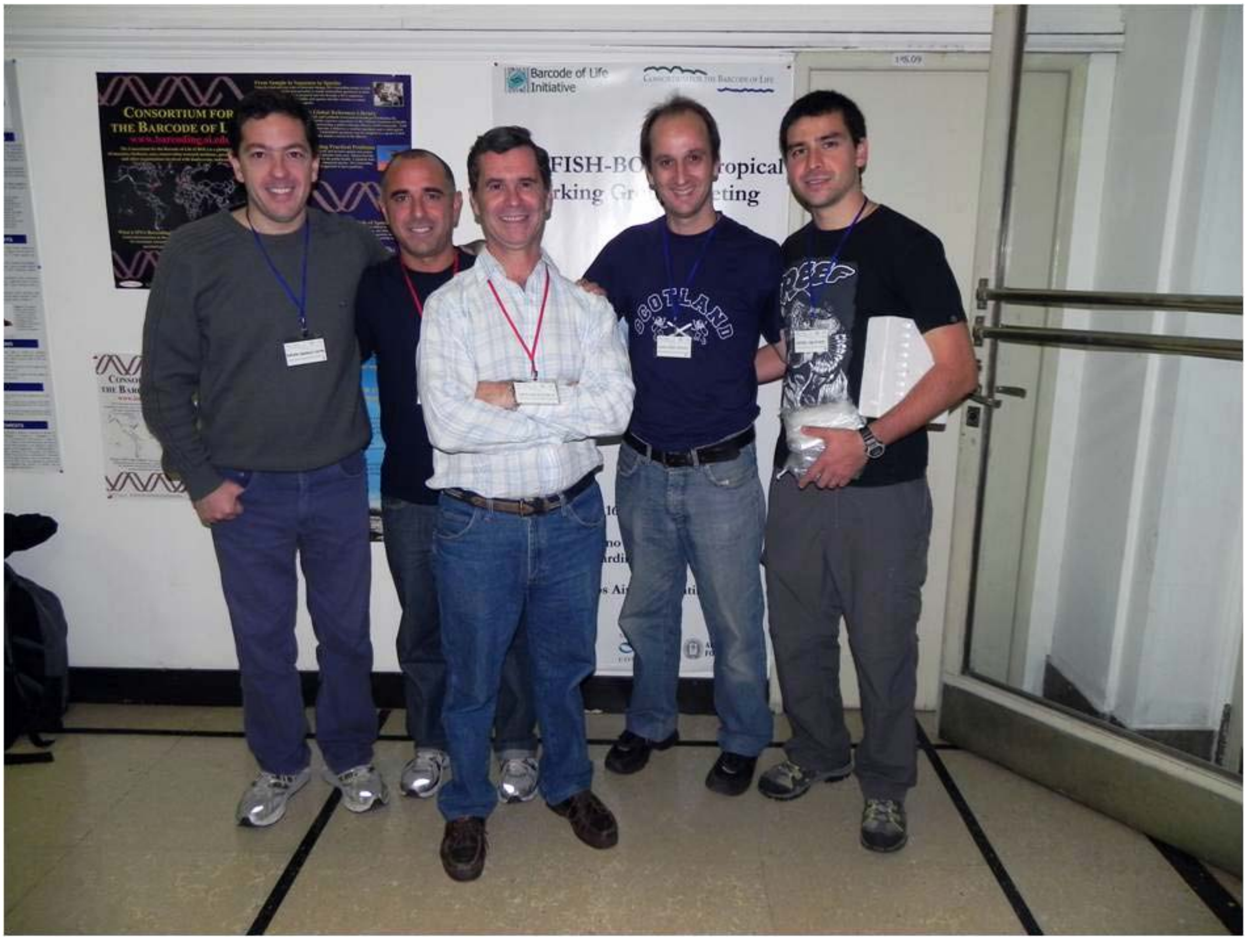
-**Un hombre**: mi papá

-**Una mujer**: mi mamá

-**Un personaje de ficción**: Forest Gump, por la utopía de que el éxito les este reservado solo a los nobles de espíritu

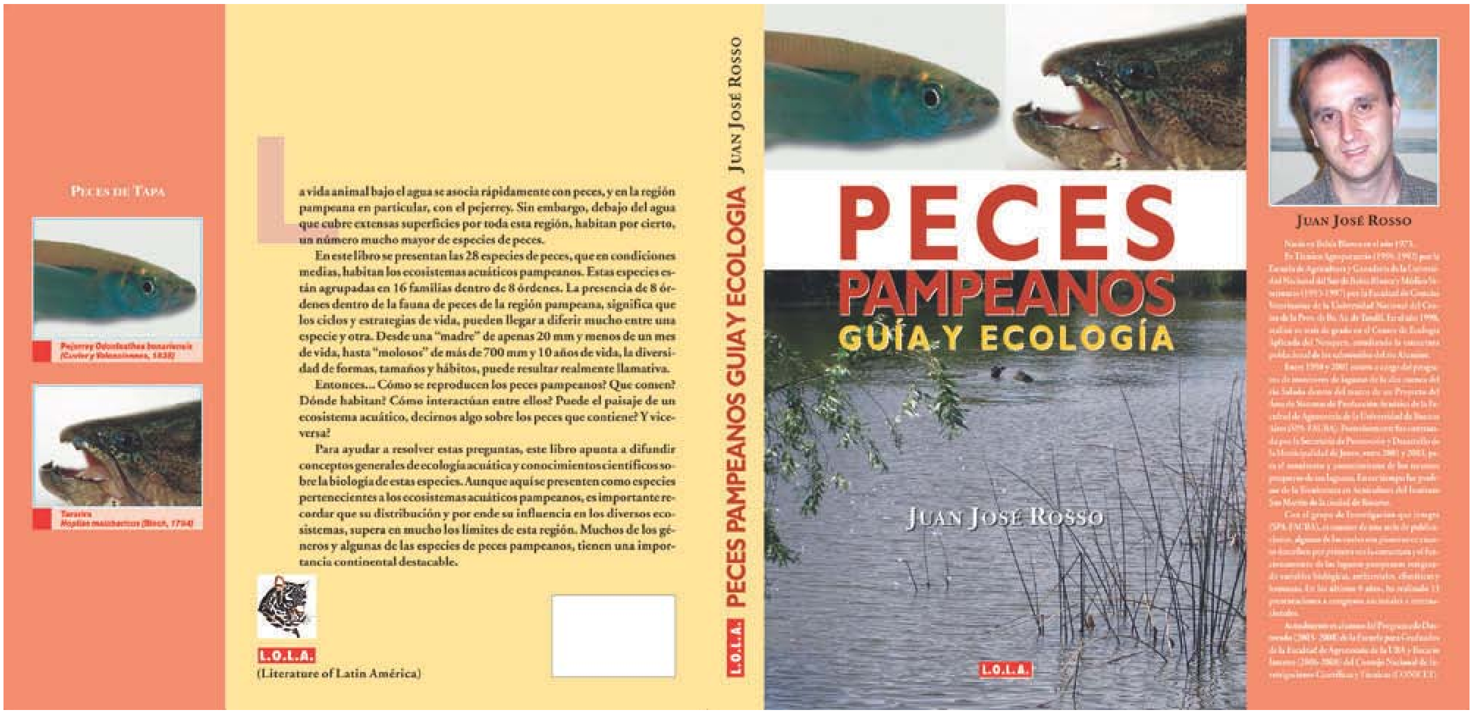
-**Un superhéroe**: Astroboy, porque era un niño

Juan José Rosso, durante la defensa de su Tesis Doctoral, junto a Rolando Quirós
Escuela para Graduados Alberto Soriano, Facultad de Agronomia de la UBA, Ciudad Autónoma de Buenos Aires, junio 2008



Taller de BARCODE con el grupo Biotaxonomía Morfológica y Molecular de Peces (BIMOPE), Ciudad Autónoma de Buenos Aires, mayo 2010
Adelante: Juan Martín Díaz de Astarloa; atrás de izquierda a derecha: Mariano González Castro, Ezequiel Mabragaña, Juan José Rosso y Matias Delpiani

"Dream team" o tal vez "Drink tint" en la *Fiesta provincial de la* corvina *de río*, Formosa, febrero de 2013. De izquierda a derecha: Franco del Rosso, Nahuel F. Schenone, Esteban Avigliano, Juan José Rosso y Ezequiel Mabragaña


Peces de Tapa
Pejerrey *Odontesthes bonariensis* (Cuvier y Valenciennes, 1835)
Tararira *Hoplias malabaricus* (Bloch, 1794)
La vida animal bajo el agua se asocia rápidamente con peces, y en la región pampeana en particular, con el pejerrey. Sin embargo, debajo del agua que cubre extensas superficies por toda esta región, habitan por cierto, un número mucho mayor de especies de peces.
En este libro se presentan las 28 especies de peces, que en condiciones medias, habitan los ecosistemas acuáticos pampeanos. Estas especies están agrupadas en 16 familias dentro de 8 órdenes. La presencia de 8 órdenes dentro de la fauna de peces de la región pampeana, significa que los ciclos y estrategias de vida, pueden llegar a diferir mucho entre una especie y otra. Desde una "madre" de apenas 20 mm y menos de un mes de vida, hasta "molosos" de más de 700 mm y 10 años de vida, la diversidad de formas, tamaños y hábitos, puede resultar realmente llamativa.
Entonces... Cómo se reproducen los peces pampeanos? Que conen? Dónde habitan? Cómo interactúan entre ellos? Puede el paisaje de un ecosistema acuático, decimos algo sobre los peces que contiene? Y viceversa?
Para ayudar a resolver estas preguntas, este libro apunta a difundir conceptos generales de ecología acuática y conocimientos científicos sobre la biología de estas especies. Aunque aquí se presenten como especies pertenecientes a los ecosistemas acuáticos pampeanos, es importante recordar que su distribución y por ende su influencia en los diversos ecosistemas, supera en mucho los límites de esta región. Muchos de los géneros y algunas de las especies de peces pampeanos, tienen una importancia continental destacable.
L.O.L.A.
(Literature of Latin América)
PECES PAMPEANOS GUIA Y ECOLOGIA JUAN JOSÉ ROSSO
L.O.L.A.
PECES
PAMPEANOS
GUÍA Y ECOLOGÍA
JUAN JOSÉ ROSSO
L.O.L.A.
JUAN JOSÉ ROSSO

- 2006 -

RIVER RESEARCH AND APPLICATIONS

River. Res. Applic. (2008)

Published online in Wiley InterScience
(www.interscience.wiley.com) DOI: 10.1002/rra.1185

INTERACTIVE EFFECTS OF ABIOTIC, HYDROLOGICAL AND ANTHROPOGENIC FACTORS ON FISH ABUNDANCE AND DISTRIBUTION IN NATURAL RUN-OF-THE-RIVER SHALLOW LAKES

JUAN JOSÉ ROSSO* and ROLANDO QUIRÓS

Área de Sistemas de Producción Acuática, Departamento de Producción Animal, Facultad de Agronomía, Universidad de Buenos Aires, Buenos Aires, Argentina

ABSTRACT

Ecological processes in lowland rivers are mostly dominated by hydrology and its interactions with other environmental factors. Fish–habitat relationships in rivers are also influenced by human impacts.

In this study, we describe patterns of abundance and distribution of fish species in a group of natural lowland river lakes along spatial anthropogenic and abiotic gradients when four hydrologically different summers are compared. We also describe the proportion of the total variances in fish species abundances that can be accounted for by selected abiotic (water conductivity), hydrological (water residence time) and human activity-derived (total phosphorus (TP) concentration and NO_3:NH_4) variables. Consequently, our main purpose is to explore how abiotic and anthropogenic factors interact to affect fish abundance and distribution together with consistent results across different hydrological conditions. We conclude with a briefly discussion of some management implications.

The anthropogenic impacts on water quality, the extreme hydrological variability and the fluctuating abiotic environment affected fish abundance and distribution. Pampa inland silverside *Odontesthes bonariensis* was benefited from a less human disturbed environment with higher water residence time and total salinity, whereas species as *Cyphocharax voga*, *Parapimelodus valenciennis* and *Cyprinus carpio* found these conditions largely disadvantageous. On the other hand, while most species showed stronger—either negative or positive—response to anthropogenic, hydrological or abiotic factors *Oligosarcus jenynsii* was only slightly affected.

This paper identified the ecological function of a lowland river under its natural flow regime. There are not many opportunities to study unmodified rivers worldwide. Therefore, our findings may help in assessment programmes of fish communities in flow altered and human disturbed aquatic ecosystems. Copyright © 2008 John Wiley & Sons, Ltd.

KEY WORDS: Pampa Plain; Salado River; shallow lakes; hydrology; water salinity; anthropogenic impacts; fish abundance

Received 25 January 2008; Revised 7 June 2008; Accepted 19 June 2008

INTRODUCTION

Natural flow regimes of most rivers worldwide are highly conditioned by the patterns of precipitation in their basins. Although the basic nature of the river is determined by the rocks in the basin, the flow regime largely modifies the physical and chemical conditions within the river (Walling, 1980; Wilby and Gibert, 1996; Wetzel, 2001 among many others). Fishes are mobile organisms that actively select the optimum between a pool of habitats (Karr *et al.*, 1986) provided that a route of water is available between them (Holden, 1963; Schiemer and Spindler, 1989). Therefore, following these changes in the physical and chemical conditions due to the variability of flow regime, river ecosystems usually show marked patterns of changes in fish abundance and distribution along their main course and associated environments (Ryder and Pesendorfer, 1989; Reid and Puckridge, 1990; Quirós and Vidal, 2000). Thus, hydrological disturbance, stressful environments and the ability of fish to cope with abiotic challenges all affect local fish assemblage composition or dynamics (Matthews, 1998), namely patterns in fish abundance and distribution of different species. However, native fish fauna found in a particular river ecosystem is usually well adapted to the natural flow regime variability, and consequently the major changes in the fish

*Correspondence to: Juan José Rosso, Área de Sistemas de Producción Acuática, Departamento de Producción Animal, Facultad de Agronomía, Universidad de Buenos Aires, Av. San Martín 4453, CP (1417), Buenos Aires, Argentina. E-mail: plurosso@yahoo.com.ar

MOLECULAR ECOLOGY RESOURCES

Molecular Ecology Resources (2012) **12**, 999–1011 doi: 10.1111/1755-0998.12010

DNA barcoding Neotropical fishes: recent advances from the Pampa Plain, Argentina

J. J. ROSSO,* E. MABRAGAÑA,*† M. GONZÁLEZ CASTRO*† and J. M. DÍAZ DE ASTARLOA*†

**Grupo de Biotaxonomía Morfológica y Molecular de Peces (BIMOPE), Instituto de Investigaciones Marinas y Costeras (IIMyC, CONICET-UNMDP), Funes 3350, Mar del Plata 7600, Argentina, †Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Av. Rivadavia 1917, CABA C1033AAJ, Buenos Aires, Argentina*

Abstract

The fish fauna of the Pampa Plain, the southernmost distribution range of many Neotropical species, was barcoded in this study. COI sequences were analysed by means of distance (K2P/NJ) and character-based (ML) models, as well as the Barcode Index Number (BIN). K2P/NJ analysis was able to discriminate among all previously identified species while also revealing the likely occurrence of two cryptic species that were further supported by BIN and ML analyses. On the other hand, both BIN and ML were not able to discriminate between two species of *Rineloricaria*. Despite the small genetic divergence between *A.* cf. *pampa* and *A. eigenmanniorum*, a tight array of haplotypes was observed for each species in both the distance and character-based methods. Deep intraspecific divergences were detected in *Cnesterodon decemmaculatus* (5%) and *Salminus brasiliensis* (6%). For *Salminus brasiliensis*, these findings were further supported by character-based (ML) evidence and meristic and morphological data. Our results also showed that Pampa Plain representatives of *Salminus brasiliensis*, *Rhamdia quelen*, *Hoplias malabaricus*, *Synbranchus marmoratus*, *Australoheros facetus*, *Oligosarcus jenynsii* and *Corydoras paleatus* differed by more than 3% from their conspecifics from other parts of South America. Overall, this study was able to highlight the likely occurrence of a cryptic species in *Salminus brasiliensis* and also illustrate the strong geographical structure in the COI sequence composition of seven fish species from South America.

Keywords: Argentina, biodiversity assessment, DNA barcoding, fish species, *Salminus brasiliensis*

Received 5 March 2012; revision received 24 July 2012; accepted 28 July 2012

Introduction

Over the last 250 years, the number of known animal species increased from 4400 to approximately 1.5 million (Chivian & Bernstein 2008). The most conservative estimations suggest that we have discovered only 10% of the animal species present in our planet (Mora *et al.* 2011). At this rate, life may not be completely inventoried for several millennia (Packer *et al.* 2009). For the past 45 years, approximately 300 new species of fishes have been described each year, increasing the number of known species from 18 818 in the 1970s (Nelson 1976) to more than 32 000 today (Eschmeyer 2012). This number represents slightly more than half of all vertebrates on Earth (Nelson 2006).

Neotropical fishes are approximately 15% of all vertebrate biodiversity, occurring in <0.003% of the world's water (Vari & Malabarba 1998). About 4500 fish species have already been described in the Neotropics, but the total number is speculated to rise to 6000 or even 8000 species (Reis *et al.* 2003). Indeed, many emblematic species of this continent, such as *Hoplias malabaricus*, *Eigenmannia virescens* and *Synbranchus marmoratus*, are well-known species complexes (Reis *et al.* 2003; de Carvalho *et al.* 2011), further enhancing the intricacy and controversial taxonomy of many Neotropical fishes. Therefore, it seems mandatory to accelerate and simplify the processes involved in the identification of these species.

Historically, the taxonomic description of species was largely based on morphological characters. However, phenotypic plasticity and genotypic variation in the features used in descriptions can lead to misdiagnoses. Furthermore, cryptic species or differing life stages may add to the confusion. One decade ago, the DNA sequencing technology introduced the possibility of using variation in short sequences of mitochondrial DNA as labels for specimens in a process known as DNA barcoding (Hebert *et al.*

Correspondence: Juan José Rosso, Fax: +54 223 4753150; E-mail: pluross0@yahoo.com.ar

Environ Geochem Health (2013) 35:201–214
DOI 10.1007/s10653-012-9476-9

ORIGINAL PAPER

Concentration of arsenic in water, sediments and fish species from naturally contaminated rivers

Juan José Rosso · Nahuel F. Schenone · Alejo Pérez Carrera · Alicia Fernández Cirelli

Received: 24 August 2011 / Accepted: 29 June 2012 / Published online: 23 November 2012

Abstract Arsenic (As) may occur in surface freshwater ecosystems as a consequence of both natural contamination and anthropogenic activities. In this paper, As concentrations in muscle samples of 10 fish species, sediments and surface water from three naturally contaminated rivers in a central region of Argentina are reported. The study area is one of the largest regions in the world with high As concentrations in groundwater. However, information of As in freshwater ecosystems and associated biota is scarce. An extensive spatial variability of As concentrations in water and sediments of sampled ecosystems was observed. Geochemical indices indicated that sediments ranged from mostly unpolluted to strongly polluted. The concentration of As in sediments averaged 6.58 μg/g ranging from 0.23 to 59.53 μg/g. Arsenic in sediments barely followed ($r = 0.361$; $p = 0.118$) the level of contamination of water. All rivers showed high concentrations of As in surface waters, ranging from 55 to 195 μg/L. The average concentration of As in fish was 1.76 μg/g. The level of contamination with As differed significantly between species. Moreover, the level of bioaccumulation of As in fish species related to the concentration of As in water and sediments also differed between species. Whilst some fish species seemed to be able to regulate the uptake of this metalloid, the concentration of As in the large catfish *Rhamdia quelen* mostly followed the concentration of As in abiotic compartments. The erratic pattern of As concentrations in fish and sediments regardless of the invariable high levels in surface waters suggests the existence of complex biogeochemical processes behind the distribution patterns of As in these naturally contaminated ecosystems.

Keywords Arsenic · Freshwater biota · Biomonitoring · Rivers · Argentina

J. J. Rosso (✉) · N. F. Schenone · A. Pérez Carrera · A. Fernández Cirelli (✉)
Centro de Estudios Transdisciplinarios del Agua (CETA), Facultad de Ciencias Veterinarias, Universidad de Buenos Aires, Av. Chorroarín 280, CP1427 Buenos Aires, Argentina
e-mail: plurosso@yahoo.com.ar

A. Fernández Cirelli
e-mail: AFCirelli@fvet.uba.ar; ceta@fvet.uba.ar

N. F. Schenone · A. Pérez Carrera
CONICET (Consejo Nacional de Investigaciones Científicas y Técnicas), Buenos Aires, Argentina

Introduction

Arsenic (As) is a highly ubiquitous and potentially toxic element. It may occur in surface freshwater ecosystems as a consequence of both natural contamination and anthropogenic activities. Human exposure to As can occur through a variety of routes, although the consumption of groundwater is the main route of exposure for most people. Health problems because of

"Esperando las redes", Club de Pescadores Laguna El Carpincho, Junín, prov. de Bs. As. 1998
De izquierda a derecha: Cristian Petracchi; Armando M. Rennella, Javier Villamil, Hugo von Bernard, Juan José Rosso y Santiago Araund

"Levantando enmalle", Laguna de estudio experimental, Vedia, prov. De Bs. As., diciembre de 2000

"Vamos a arrastrar con el suegro" o "Como los muestreos se hacen o se hacen", Rio Salado, Gral. Belgrano, prov. de Bs. As., mayo de 2009.
Juan José Rosso y Luis Rey Ocampo

"Arrastre en la selva misionera", Río Acaraguá, Villa Bonita, febrero 2011
Ezequiel Mabragaña y Juan José Rosso

"

Buena pesca en la isla", Entre Ríos, abril de 2011

"

Al mal tiempo, mala cara", Rio Paraguay, Formosa, febrero de 2012

ProBiota

Serie Ténica y Didáctica
21 - Colección Semblanzas Ictiológicas
Archivos Editados

01 – *Pedro Carriquiriborde*. Hugo L. López y Justina Ponte Gómez.
02 – *Pablo Agustín Tedesco*. Hugo L. López y Justina Ponte Gómez.
03 – *Leonardo Ariel Venerus*. Hugo L. López y Justina Ponte Gómez.
04 – *Alejandra Vanina Volpedo*. Hugo L. López y Justina Ponte Gómez.
05 – *Cecilia Yanina Di Prinzio*. Hugo L. López y Justina Ponte Gómez
06 – *Juan Martín Díaz de Astarloa*. Hugo L. López y Justina Ponte Gómez
07 – *Alejandro Arturo Dománico*. Hugo L. López y Justina Ponte Gómez.
08 – *Matías Pandolfi*. Hugo L. López y Justina Ponte Gómez
09 – *Leandro Andrés Miranda*.. Hugo L. López y Justina Ponte Gómez
10 – *Daniel Mario del Barco*. Hugo L. López y Justina Ponte Gómez
11 – *Daniel Enrique Figueroa*. Hugo L. López y Justina Ponte Gómez
12 – *Luis Alberto Espínola*. Hugo L. López y Justina Ponte Gómez
13 – *Ricardo Jorge Casaux*. Hugo L. López y Justina Ponte Gómez
14 – *Manuel Fabián Grosman*. Hugo L. López y Justina Ponte Gómez
15 – *Andrea Cecilia Hued*. Hugo L. López y Justina Ponte Gómez
16 – *Miguel Angel Casalinuovo*. Hugo L. López y Justina Ponte Gómez
17 – *Patricia Raquel Araya*. Hugo L. López y Justina Ponte Gómez
18 – *Delia Fabiana Cancino*. Hugo L. López y Justina Ponte Gómez
19 – *Diego Oscar Nadalin*. Hugo L. López y Justina Ponte Gómez
20 – *Mariano González Castro*. Hugo L. López y Justina Ponte Gómez
21 – *Gastón Aguilera*. Hugo L. López y Justina Ponte Gómez
22 – *Pablo Andrés Calviño U*gón. Hugo L. López y Justina Ponte Gómez
23 – *Eric Demian Speranza*. Hugo L. López y Justina Ponte Gómez
24 – *Guillermo Martín Caille*. Hugo L. López y Justina Ponte Gómez
25 – *Alicia Haydée Escalante*. Hugo L. López y Justina Ponte Gómez
26 - *Roxana Laura García Liotta*. Hugo L. López y Justina Ponte Gómez
27 – *Fabio Baena*. Hugo L. López y Justina Ponte Gómez
28 – *Néstor Carlos Saavedra*. Hugo L. López y Justina Ponte Góm
29 – *Héctor Alejandro Regidor*. Hugo L. López y Justina Ponte Gómez

Esta publicación debe citarse:

López, H. L. & J. Ponte Gómez. 2013. Semblanzas Ictiológicas: *Juan José Rosso. ProBiota*, FCNyM, UNLP, La Plata, Argentina, *Serie Técnica y Didáctica* 21(30): 1-16. ISSN 1515-9329.

ProBiota

(Programa para el estudio y uso sustentable de la biota austral)

Museo de La Plata
Facultad de Ciencias Naturales y Museo, UNLP
Paseo del Bosque s/n, 1900 La Plata, Argentina

Directores

Dr. Hugo L. López

hlopez@fcnym.unlp.edu.ar

Dr. Jorge V. Crisci

crisci@fcnym.unlp.edu.ar

Versión electrónica, diseño y composición

Justina Ponte Gómez

División Zoología Vertebrados

Museo de La Plata

FCNyM, UNLP

jpg_47@yahoo.com.mx

http://ictiologiaargentina.blogspot.com/

http://raulringuelet.blogspot.com.ar/

http://aquacomm.fcla.edu

http://sedici.unlp.edu.ar/

Indizada en la base de datos ASFA C.S.A.