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Semblanzas Ictiológicas
Daniela Viviana Fuchs



Hugo L. López
y
Justina Ponte Gómez

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Semblanzas Ictiológicas

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Exposición de Miró, Museo Provincial de Bellas Artes Dr. Pedro E. Martínez, Paraná, Entre Ríos, Argentina, octubre de 2013

Hugo L. López y Justina Ponte Gómez

ProBiota
División Zoología Vertebrados
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FCNyM, UNLP

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Imagen de Tapa

Daniela Fuchs en el Valle de la Luna, Parque Provincial Ischigualasto, San Juan, 2011

*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.

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Cuestionario

- **Un libro:** *Un triste ciprés* de Agatha Christie
- **Una película:** *La sociedad de los poetas muertos*
- **Un CD :** *La traición de Wendy* de Ismael Serrano
- **Un artista:** Joan Manuel Serrat
- **Un deporte:** el fútbol
- **Un color:** el rojo
- **Una comida:** chucrut (el que hacía mi papá)
- **Un animal:** el perro
- **Una palabra:** amigo
- **Un número:** el siete
- **Una imagen:** el amor en la mirada de mis papás en mi cumpleaños de quince
- **Un lugar:** Pinamar (mi lugar)
- **Una estación del año:** primavera
- **Un nombre:** Lucía
- **Un hombre:** mi papá
- **Una mujer:** mi mamá
- **Un ictiólogo/a del pasado:** Raúl Ringuelet
- **Un ictiólogo/a del presente:** Roberto Menni
- **Un personaje de ficción:** Kay Scarpetta (de los libros de Patricia Cornwell)
- **Un superhéroe:** Batman



Daniela Fuchs, verano de 1986



Daniela con la beba de una amiga, 20 de julio de 2014



Daniela fuchs y Lucila Protogino en el festejo de fin de año de la Sección Ictiología del Museo de La Plata, 2010



Daniela, Carlos Darrieu y becarios en la inauguración de la Sección Ornitología del Museo de La Plata, 2012



Día de la Ictiología, 10 de setiembre 2012

De izquierda a derecha: Hugo López, Diego Nadalin, Agustín solari, Daniela Fuchs y Lucila Protogino



Brindis de fin de año, 2012

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MORFOLOGÍA DE *Lapillus* DE SILURIFORMES PARANO-PLATENSES

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ABSTRACT. The otoliths of fishes are complex polycrystalline, composed mainly by calcium carbonate. The *lapillus* is usually the most conspicuous otolith in siluriform fishes. Studies of siluriforms' otoliths are scarce at world level. In this paper are studied the *lapilli* of *Ageneiosus inermis*, *Auchenipterus nuchalis*, *Callichthys callichthys*, *Corydoras paleatus*, *Pterodon granulosus*, *Rhinodoras dorbignyi*, *Pinelodella gracilis*, *Pinelodella laticeps*, *Rhamdia quelen*, *Hypostomus commersoni*, *Loricariichthys anus*, *Paraloricaria vetula*, *Iheringichthys labrosus*, *Luciopimelodus pati*, *Parapimelodus valenciennis*, *Pinelodus albicans*, *Pinelodus argenteus*, *Pinelodus maculatus* and *Sorubim lima*. Fish standard length was registered in millimeters. The otoliths were extracted, described and photographed, and a dichotomical key was made. The results showed that *lapilli* otoliths of the studied species have a great morphological variability; this could be associated to the diversity and ecological plasticity of the siluriforms group. The morphological features that can be used to differentiate the *lapilli* of the studied species are: otolith shape, *sulcus* features, cisure, internal face depression and *lapillus* edges. The values of index EL (AOL/LOL)x100 were different in each family of siluriforms. The species of *Loricariidae* present the highest values of EL (>80%), the species of *Doradidae* present the lowest values (53-55%) and the other species present intermediate values.

Key words: otoliths, *lapillus*, siluriformes, Parano-Platenses fishes.

Palabras clave: otolitos, *lapillus*, siluriformes, peces Parano-Platenses.

INTRODUCCIÓN

Los otolitos de los teleósteos son complejos cuerpos policristalinos, compuestos principalmente por carbonato de calcio, que se encuentran inmersos dentro de una matriz orgánica (Carlström, 1963; Gauldie, 1993; Campana, 1999). Están ubicados en el oído interno de los peces óseos y están asociados con la función auditiva y del equilibrio (Popper y Lu, 2000).

Los otolitos son utilizados como herramientas en estudios que abarcan diversos aspectos como: paleoecología (Nolf, 1995), paleobiogeografía (Elder

et al., 1996), filogenia (Assis, 2003; 2005), edad y crecimiento (Francis y Campana, 2004), determinación de stocks pesqueros (Campana, 2005; Volpedo y Fernández Cirelli, 2006; Volpedo *et al.*, 2007), monitoreo ambiental (Burke *et al.*, 1993), migraciones verticales y horizontales de peces (Campana *et al.*, 2007), ecología trófica (Nonogaki *et al.*, 2007) y ecomorfología (Torres *et al.*, 2000; Tuset *et al.*, 2003; Volpedo y Echeverría, 2003; Volpedo *et al.*, 2008).

De los tres pares de otolitos, generalmente para los estudios antes mencionados, se utiliza la *sagitta* porque

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POSTER PRESENTATIONS

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177.

EB113 - DISTRIBUTION OF SPECIES OF ORCHIDACEAE IN THE PROVINCE OF SAN LUIS (ARGENTINA)

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Seven terrestrial species of the family *Orchidaceae* are cited for the province of San Luis. They are: *Sacola lanceolata* (Aubl.), *Habenaria gourleiiana* Gillies ex Lindl., *Habenaria hexaptera* Lindl., *Pelexia bonariensis* (Lindl.) Schltr., *Pteroglossaspis argentina* Rolfe, *Aa achalensis* Schltr. and *Aa hieronymi* (Cogn.) Schltr. Our objective was to estimate the geographical distribution of species in this family to "San Luis" for the purpose of making better management of these areas for the conservation "in situ" of these species. *Sacola* is the most widespread species found in the "Sierras de San Luis", "Morro" and "Comechingones", as well as in its foothills. *Aa* and *Pelexia* have the same distribution, but the former is easier to find the second, being located on slopes and alluvial valleys. *Habenaria hexaptera* is found in the form of communities in alluvial valleys and hillsides in the "Sierra de San Luis", as *Habenaria gourleiiana* not found. *Pteroglossaspis* was found in two valleys of the "Sierra de San Luis" and "Comechingones". We conclude that this family has a distribution characterized by: a) the height (above 700 m), b) tending to cold humid climate, c) high soil stoniness and/or lithosoils, d) on hillsides, valleys and plains barely grazed, which recognizes the vulnerability of these species to trampling and overgrazing.

178.

EB114 - DISTRIBUTION IN ARGENTINA OF THE GENUS *Bryconamericus* (CHARACIFORMES, CHARACIDAE)

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The genus *Bryconamericus* Eigenmann comprises about 50 species of small fishes reaching until 10 cm standard length. Among other characters, they have four teeth in the inner row of the premaxillary and a poorly varied coloration pattern. They live in lotic and lentic environments, being abundant in flooded areas formed by overflow of creeks, rivers and lagoons with dense submerged and floating vegetation. Species of the genus live from Central America to the Sauce Grande River basin (38°56'S-61°23'O) in the South of Buenos Aires Province (Argentina). Thirteen species has been reported from Argentina, occurring in environments in northwestern, northeastern, eastern and center of the Argentinean territory. *Bryconamericus iheringii* is the widest distributed species, living in all the above mentioned areas, from the Bermejo River basin to southern Buenos Aires Province, which is the southern border of distribution of the genus. This wide distribution suggests a high degree of eurytopy. In Argentina, the northern border of distribution of the genus is given by *B. iheringii* and *B. thomasi*, both occurring in the Lipeo River in the Salta Province. Misiones Province is the area with more endemics, with *B. ikaa* and *B. pyahu* reported from the Iguazú River basin, *B. agna*, *B. mennii* and *B. sylvicola* from the Paraná River basin and *B. ytu* found only in localities of the Uruguay River basin. *Bryconamericus eigenmanni* is only found in central Argentina, in Córdoba Province and *B. rubropictus* in the northwestern Salta Province. Based on available material and new surveys, we analyze in this paper the distribution of the genus, providing numerous new localities for different species and a map with the distribution area of *Bryconamericus* in Argentina.

179.

EB115 - ESTIMATION OF BIODIVERSITY OF ARTHROPODS WITH EMPHASIS ON FORMIC (INSECTA: hymenoptera) IN AN OPEN JARILLAL SITE OF THE NATIONAL PARK LIHUE CALEL (LA PAMPA, ARGENTINA)

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Arthropods represent the most diverse and evolutionary successful phylum, they play critical roles in the ecosystem, as pollinators agents and seed dispersion. They are also involved regulating population size, acting as biological controllers. The measurement of biodiversity allows to estimate the richness and relative of abundance of species. The province of La Pampa (Argentina) is suffering from advanced destruction of their natural environments with high probability that a percentage of its fauna would be extinguished before being studied. The objective of this study was to estimate the biodiversity of arthropods in an open jarillal site, including pasture (grasslands). Sampling were carried out from December 2008 to March 2009 on two transects of 300m each using the method of canvas over the jarillal and net of trawl on grassland, in two places: with and without disturbance (fire). The obtained material was preserved in alcohol to 80% and was analysed and settled in the subject Biology of the Invertebrate II, Faculty of Exact and Natural Sciences, of the UNLPam. The sults indicated that the orders Hemiptera and Hymenoptera were the most abundant for both sampling sites. The family Formicidae (Hymenoptera) was the most abundant during the sampling months. We watched differences in the abundance of ants species, as regards the vegetal structure of the park, since in the grasslands the most dominant specie was *Camponotus punctulatus*, while in the jarillal it was *Brachymyrmex patagonicus*.

180.

EB116 - FIRST THERMAL DATA OF SCARCELY KNOWN *Amphisbaena plumbea* (SQUAMATA: AMPHISBAENIDAE)

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Many thermal studies in reptiles are mainly based on epigeal taxa. In contrast, the thermal ecology of fossorial reptiles is poorly understood because the observations and captures are difficult. Therefore, our aim is contribute information about thermal relationships in *Amphisbaena plumbea* in lab conditions. During May-2007 the experiment was performed in a sample of amphisbaenids (N=4) placed in open-top terrarium (120x60x40 cm) with sandy-loam substrate (3cm depth) and a thermal gradient produced by a infrared lamps (250-400 W) in a extreme of terrarium. We obtain operative temperatures (substrate: T_s ; air: T_a) and body temperature (T_b). Temperatures were taken using ultra-thin catheter thermocouple 5mm inside the cloaca. Operatives temperatures and temperatures of each amphisbaenids was obtained every 10 m for 5 hr. *A. plumbea* was tigmotherm obtaining heat by substrate contact (Spearman, T_s : $r_s = 0.80$, $P = 0.00001$). T_b mean was 28.5 (DE: 3.01°C), this value is remarkable higher than those reported for other amphisbaenids. We conclude that these fossorial reptiles are capable of regulating body temperature in similar manner those epigeal reptiles. We believe that in field conditions may thermoregulates by vertical movements from cold deep areas to warm top areas of the soil.

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Ecomorphological patterns of the *lapilli* of Paranoplatense Siluriforms (South America)

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ABSTRACT

The morphology and morphometry of *lapillus* otoliths were studied in bottom frequenters, intermediate and benthonic fishes. The shape, margins and type of *sulcus* of 3 groups of otoliths from 19 species were analyzed: group 1 (bottom frequenters, 11 spp), group 2 (intermediate, 5 spp) and group 3 (benthonic, 3 spp). The indices EL (maximum width of the *lapillus* (WOL)/maximum length of the *lapillus* (LOL) %) and S (*sulcus* area/otolith area %) were calculated for each species.

The *lapilli* of bottom frequenters and intermediate groups showed, in their ventral face, similar morphological features, high shape variability (oblong shape, elongated shape and quadrangular shape) and a *sulcus* surface that represents 16–34% of otolith surface. The *lapilli* of the benthonic group are globosol or rounded with a *sulcus* surface that represents less than 12% of otolith surface.

Statistical analyses showed significant differences in the EL and S indices between the benthonic group and the other two groups, but there were no differences between the otoliths of the bottom frequenters and intermediate groups. EL and S values could be used to characterize the *lapilli* of the paranoplatense fish and could be considered a useful tool for fish ecology studies.

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1. Introduction

Neotropical fishes richness includes 4475 valid species (representing 71 families). The order Siluriforms contributes with 1648 species (15 families) (Reis et al., 2003).

The Paranoplatense zoogeographical province is the widest ichthyological region in Argentina, occupying approximately the 75% of the country and it has the largest biodiversity (Menni, 2004; López and Miquelarena, 2005; López et al., 2008). In this region we find 83.5% of the Siluriform species from Argentina (162 out of 194) (López and Miquelarena, 2005; Liotta, 2006). Siluriforms, are predated by ichthiophagous birds and water mammals, such as *Lutra longicaudis* (Olfers, 1818) (vulnerable species) and *Pteronura brasiliensis* (Gmelin, 1788) (endangered species) (Parera, 1992, 1996).

The fish inner ear comprises three otolith systems with specific hair orientation patterns. These are semicircular canals (anterior, posterior and horizontal) and three otolithic end organs (sacculle, lagena and utricle), which have related otoliths: *sagittae*, *asterisci* and *lapilli*. In particular in ostariophysian groups the *lapilli* is usually larger than the other two and appear to be more engaged in the sense of posture (Schellart and Popper, 1992; Assis, 2005) and have a very homogeneous structure among all vertebrates (Cordier and Dalcy, 1954; Popper and Coombs, 1982).

Siluriform fish use the water column in different forms and these uses determine different ecological groups. These fish species have developed a wide range of feeding strategies, which allow them to utilize food resources in a variety of habitats (Abes et al., 2001; Fugli et al., 2001; Rossi, 2001; Viana et al., 2006; Fagundes et al., 2008).

Otoliths allow the analysis of different aspects of fish biology and their environment (Morales-Nin, 1987; Gauldie, 1993; Torres et al., 2000; Volpedo and Echeverría, 2003). Environmental factors (Aguirre and Lombarte, 1999; Torres et al., 2000; Gauldie and Crampton, 2002; Volpedo and Echeverría, 2003; Volpedo et al., 2008), feeding habits (Nonogaki et al., 2007), ontogeny (Volpedo and Echeverría, 1999; Tombari et al., 2005), physiology, such as the hearing capabilities associated with specialization in acoustic communication (Popper and Fay, 1993; Paxton, 2000; Lombarte

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