

## Two new species of *Phenacogaster* (Actinopterygii: Characidae) from the rio Tocantins drainage, Brazil

Débora A. Antonetti\*, Carlos Alberto S. Lucena\*\*  
and Zilda Margarete S. Lucena\*\*

Two new species of *Phenacogaster* are described from the middle and upper portions of the rio Tocantins basin. *Phenacogaster eurytaenia* differs from its congeners by a conspicuously wide blackish lateral stripe extending from just anterior to the humeral spot (or immediately posterior to it) to the caudal-peduncle spot. *Phenacogaster naevata* differs from its congeners by a combination of characters including number of branched anal-fin rays, color pattern, a completely pored lateral line, and presence of bony hooks on anal- and pelvic-fin rays of males. Three additional species are recognized as occurring in the Tocantins-Araguaia drainage: *P. franciscoensis*, *P. retropinna*, recorded from the Tocantins-Araguaia drainage for the first time, and an unidentified species of the *P. pectinata* complex.

### Introduction

The genus *Phenacogaster* is a monophyletic group (Malabarba & Lucena, 1995; Lucena & Malabarba, 2010; Mattox & Toledo-Piza, 2012) included in the monotypic tribe Phenacogastrini [= Phenacogasterini by Mattox & Toledo-Piza (2012)]. *Phenacogaster* is currently composed of 20 species distributed throughout the Amazon, Orinoco, Tocantins, Paraguay, and São Francisco river basins, in the coastal rivers of northern and northeastern Brazil and the Guianas (Lucena, 2003; Lucena & Malabarba, 2010), and in the middle rio Paraná basin (Casciotta et al., 2003).

The following species have been reported in the rio Tocantins-Araguaia basin: *Phenacogaster calverti* (Géry, 1972, 1977), although not confirmed by Lucena (2003); *P. franciscoensis* (Lucena, 2003; Antonetti, 2016); and *Phenacogaster* sp. belonging to the *Phenacogaster pectinata* complex (Lucena, 2003). In the course of her doctoral thesis, one of the authors (ZMSL) recognized an undescribed species very similar to *P. calverti* when analyzing material from the middle portion of the rio Tocantins basin. More recently, the first author (Antonetti, 2016) discovered an additional undescribed species from the same basin. The aim of this paper is to name and describe these two new members of genus *Phenacogaster*.

---

\* PUCRS, Pós-graduação em Zoologia, Faculdade de Biociências, Pontifícia Universidade Católica do Rio Grande do Sul, Av. Ipiranga, 6681, P.O. Box 1491, 90619-900 Porto Alegre, RS, Brazil. E-mail: [debora.antonetti@gmail.com](mailto:debora.antonetti@gmail.com)

\*\* PUCRS, Museu de Ciências e Tecnologia, Pontifícia Universidade Católica do Rio Grande do Sul, Av. Ipiranga, 6681, P.O. Box 1491, 90619-900 Porto Alegre, RS, Brazil. E-mails: [lucena@pucls.br](mailto:lucena@pucls.br) (CASL, corresponding author); [margarete@pucls.br](mailto:margarete@pucls.br) (ZMSL)

## Literature cited

- Abell, R., M. L. Thieme, C. Revenga, M. Bryer, M. Kottelat, N. Bogutskaya, B. Coad, N. Mandrak, S. Contreras-Balderas, W. Bussing, M. L. J. Stiassny, P. Skelton, G. R. Allen, P. Unmack, A. Naseka, R. Ng, N. Sindorf, J. Robertson, E. Armijo, J. V. Higgins, T. J. Heibel, E. Wikramanayake, D. Olson, H. L. López, R. E. Reis, J. G. Lundberg, M. H. Sabaj-Pérez & P. Petry. 2008. Freshwater ecoregions of the world: a new map of biogeographic units for freshwater biodiversity conservation. *BioScience*, 58: 403–414.
- Antonetti, D. A. 2016. Revisão taxonômica das espécies de *Phenacogaster* Eigenmann, 1907 (Ostariophysi: Characiformes: Characidae) da bacia dos rios Tocantins-Araguaia. M.Sc. Thesis. Faculdade Biociências, Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, 54 pp.
- Bertaco, V. A. & P. H. F. Lucinda. 2005. *Astyanax elachylepis*, a new characid fish from the rio Tocantins drainage, Brazil (Teleostei: Characidae). *Neotropical Ichthyology*, 3: 389–394.
- Bertaco, V. A. & L. R. Malabarba. 2005. A new species of *Hyphessobrycon* (Teleostei: Characidae) from the upper rio Tocantins drainage, with bony hooks on fins. *Neotropical Ichthyology*, 3: 83–88.
- Cardoso, A. R. & P. H. F. Lucinda. 2003. Three new species of *Hemiancistrus* (Teleostei: Siluriformes: Loricariidae) from the rio Tocantins basin with comments on the genus. *Ichthyological Exploration of Freshwaters*, 14: 73–84.
- Carvalho F. R., V. A. Bertaco & F. C. Jerep. 2010. *Hemigrammus tocantinsi*: a new species from the upper rio Tocantins basin, Central Brazil (Characiformes: Characidae). *Neotropical Ichthyology*, 8: 247–254.
- Casciotta, J. R., A. E. Almirón, S. Sanchez & J. A. Bechara. 2001. *Phenacogaster tegata* (Eigenmann, 1911), um nuevo integrante de la ictiofauna continental Argentina. *Revista de Ictiología*, 9: 1–3.
- Costa e Silva, T., F. V. R. Ribeiro, C. A. S. Lucena & P. H. F. Lucinda. 2017. *Pimelodus speciosus* (Teleostei: Pimelodidae), a new catfish species from the rio Tocantins drainage, Brazil. *Ichthyological Exploration of Freshwaters*, 2: 97–106.
- Eigenmann, C. H. & G. S. Myers. 1929. The American Characidae. Part 5. *Memoirs of the Museum Comparative Zoology*, 43: 429–558, plus plates.
- Fink, W. L. & S. H. Weitzman. 1974. The so-called Cheirodontin fishes of Central America with descriptions of two new species (Pisces: Characidae). *Smithsonian Contributions to Zoology*, 172: 1–46.
- Géry, J. 1972. Corrected and supplemented descriptions of certain characid fishes described by Henry W. Fowler, with revisions of several of their genera. *Studies on Neotropical Fauna and Environment*, 7: 1–35.
- Géry, J. 1977. *Characoids of the world*. T.F.H. Publications, Neptune City, 672 pp.
- Lima, F. C. T. & C. R. Moreira. 2003. Three new species of *Hyphessobrycon* (Characiformes: Characidae) from the upper rio Araguaia basin in Brazil. *Neotropical Ichthyology*, 1: 21–33.
- Lucena, Z. M. S. 2003. Revisão taxonômica do gênero *Phenacogaster* Eigenmann, 1907 (Ostariophysi: Characiformes: Characidae). PhD dissertation. Universidade Federal do Rio Grande do Sul, Porto Alegre, 267 pp.
- Lucena, Z. M. S. & L. R. Malabarba. 2010. Descrição de nove espécies novas de *Phenacogaster* (Ostariophysi: Characiformes: Characidae) e comentários sobre as demais espécies do gênero. *Zoologia*, 27: 263–304.
- Lucinda, P. H. F., C. A. S. Lucena & N. C. Assis. 2010. Two new species of cichlid fish genus *Geophagus* Heckel from the Rio Tocantins drainage (Perciformes: Cichlidae). *Zootaxa*, 2429: 29–42.
- Malabarba, L. R. & Z. M. S. Lucena. 1995. *Phenacogaster jancupa*, new species, with comments on the relationships and a new diagnosis of the genus (Ostariophysi: Characidae). *Ichthyological Exploration of Freshwaters*, 6: 337–344.
- Mattox, G. M. T. & M. Toledo-Piza. 2012. Phylogenetic study of the Characinae (Teleostei: Characiformes: Characidae). *Zoological Journal of the Linnean Society*, 165: 809–915.
- Mazzoni, R., E. P. Caramaschi & R. Iglesias-Rios. 2012. Usina Hidrelétrica de Serra da Mesa: 15 anos de estudos da ictiofauna do alto Tocantins. *Furnas Centrais Elétricas, Rio de Janeiro*, 386 pp.
- Pereira, T. N. A. & P. H. F. Lucinda. 2007. A new species of *Jupiaba* Zanata, 1997 (Ostariophysi, Characiformes, Characidae) from the rio Tocantins drainage, Brazil. *Zootaxa*, 1614: 53–60.
- Taylor, W. R. & G. C. Van Dyke. 1985. Revised procedures for staining and clearing small fishes and other vertebrates for bone and cartilage study. *Cybiurn*, 9: 107–119.

Received 12 December 2017

Revised 1 February 2018

Accepted 21 April 2018

## The whole contribution can be purchased as PDF file.

### Availability

Generally all our publications are available as PDF files; full publications as a general rule after the printed version is out of print. If you have questions concerning particular contributions please contact us by e-mail:

pdf@pfeil-verlag.de.

### The PDF files are protected by copyright.

The PDF file may be printed for personal use.

The reproduction and dissemination of the content or part of it is permitted.

It is not allowed to transfer the digital personal certificate or the password to other persons.

### Prices

Books: Prices are to be found in the catalog.

Articles in journals and single contributions or chapters in books:

10 EURO basic price per order (including the first 10 pages),  
and

0.50 EURO per page, beginning with the 11<sup>th</sup> page.

Page numbers are found in the contents of the publications.

### Orders

Orders can be sent to us via the online shop, by using the PDF order form, or informally by e-mail (pdf@pfeil-verlag.de). All we need is your name and address for invoicing. You will then receive an order confirmation incl. price and link for the payment processing. For orders via the online shop and immediate payment, the file can be provided without detours.

### Completion

As soon as possible, but depending on our office hours and the desired order, we will send you the order confirmation. After payment you will receive the PDF file(s) together with your personal certificate and the corresponding password by e-mail. Larger files are available for downloading. You will receive the invoice for your order by e-mail.

In order to be able to open the encrypted PDF files, the password-protected personal certificate must be installed at the first order, which then remains on the computer. All files encrypted with this certificate can then be opened on this computer.

## Dieser Beitrag kann als PDF-Datei erworben werden.

### Verfügbarkeit von PDF-Dateien

Prinzipiell sind von allen unseren Publikationen PDF-Dateien erhältlich. Komplette Publikationen in der Regel erst nachdem die gedruckte Version vergriffen ist. Anfragen bezüglich bestimmter Beiträge richten Sie bitte per E-Mail an pdf@pfeil-verlag.de.

### Die PDF-Dateien sind urheberrechtlich geschützt.

Ein Ausdruck der PDF-Dateien ist nur für den persönlichen Gebrauch erlaubt.

Die Vervielfältigung von Ausdrucken, erneutes Digitalisieren sowie die Weitergabe von Texten und Abbildungen sind nicht gestattet.

Das persönliche Zertifikat und das Passwort dürfen nicht an Dritte weitergegeben werden.

### Preise

Bücher: Die Preise sind dem Katalog zu entnehmen. Zeitschriftenbeiträge und einzelne Kapitel aus Sammelbänden bzw. Büchern:

10 EURO Grundbetrag pro Bestellung (einschließlich der ersten 10 Seiten),  
und

0,50 EURO pro Seite ab der 11. Seite.

Den Umfang der Beiträge entnehmen Sie bitte den Inhaltsverzeichnissen.

### Bestellungen

Bestellungen können über den online-Shop, das Formular, oder formlos per E-Mail (pdf@pfeil-verlag.de) an uns gerichtet werden. Wir benötigen nur Ihren Namen und Ihre Anschrift für die Rechnungserstellung. Sie erhalten anschließend eine Bestellbestätigung incl. Preis und Link zur Zahlungsabwicklung. Bei Bestellungen über den online-Shop und sofortiger Zahlung kann die E-Book-Datei ohne Umwege bereitgestellt werden.

### Abwicklung

So bald wie möglich, aber abhängig von unseren Bürozeiten und der gewünschten Bestellung, schicken wir Ihnen die Bestellbestätigung. Nach Zahlungseingang erhalten Sie die PDF-Datei(en) zusammen mit Ihrem persönlichen Zertifikat und dem zugehörigem Passwort per E-Mail. Größere Dateien bieten wir Ihnen gegebenenfalls zum Herunterladen an. Die Rechnung für Ihre Bestellung erhalten Sie per E-Mail.

Um die verschlüsselten PDF-Dateien öffnen zu können, muss bei der ersten Bestellung das passwortgeschützte persönliches Zertifikat installiert werden, welches anschließend auf dem Rechner verbleibt. Alle mit diesem Zertifikat verschlüsselten Dateien können dann auf diesem Rechner geöffnet werden.