

## New species of *Creagrutus* Günther (Characiformes: Characidae) from rio Tapajós basin, Brazil, with comments on its phylogenetic position

FERNANDO CESAR PAIVA DAGOSTA<sup>1</sup> & MURILO NOGUEIRA DE LIMA PASTANA<sup>2</sup>

<sup>1</sup>Museu de Zoologia da Universidade de São Paulo (MZUSP), PPG Sistemática, Taxonomia Animal e Biodiversidade, Avenida Nazaré, 481, Ipiranga, 04218-970 São Paulo, SP, Brazil. E-mail: ferdagosta@gmail.com

<sup>2</sup>Laboratório de Ictiologia de Ribeirão Preto (LIRP), Universidade de São Paulo, Departamento de Biologia, Avenida dos Bandeirantes, 3900, 14040-901 Ribeirão Preto, SP, Brazil. E-mail: murilo\_pastana@hotmail.com

### Abstract

*Creagrutus nigrotaeniatus* n. sp. is described from the rio Juruena basin, upper rio Tapajós system, Mato Grosso State, Brazil. *Creagrutus nigrotaeniatus* differs from its congeners by having the dentigerous surface of the premaxilla longitudinally elongate from ventral view, 4–5 post-anal scales and 2–4 maxillary teeth. The new species also has the anterior margin of hyomandibula straight or slightly concave which is a unique condition within the genus, and possesses a series of non-exclusive osteological modifications (e.g. medial opening of the dentary foramen located distinctly anteroventral to the tip of Meckel's cartilage; anterior portion of the laterosensory canal segment in first infraorbital terminating distinctly posterior to the anterior margin of this bone; presence of the third posttemporal fossa within the epioccipital; one epural present). A comparison with *Caiapobrycon tucurui* is provided and the placement of the new species within *Creagrutus* and its close relationship with *C. cracentis*, *C. gephyrus*, and *C. maxillaris* are discussed.

**Key words:** *Creagrutus maxillaris*, *Caiapobrycon*, Stevardiinae, Ostariophysi, Amazon

### Resumo

*Creagrutus nigrotaeniatus* sp. n. é descrito da Bacia do rio Juruena, alto Tapajós, Estado do Mato Grosso, Brasil. *Creagrutus nigrotaeniatus* difere-se de seus congêneres por possuir superfície dentígera do pré-maxilar longitudinalmente alongada em vista ventral, 4–5 escamas pós-anais e 2–4 dentes maxilares. A nova espécie apresenta também a margem anterior da hiomandíbula reta ou levemente côncava, condição única no gênero, e possui uma série de modificações osteológicas não-exclusivas (e.g. abertura medial do forame do dentário localizado distintamente antero-ventral a extremidade da cartilagem de Meckel; porção anterior do segmento do canal latero-sensorial do primeiro infraorbital terminando distintamente posterior a margem anterior desse osso; presença da terceira fossa pós-temporal incluída no epioccipital; um epural presente). Uma comparação com *Caiapobrycon tucurui* é apresentada e a alocação da nova espécie no gênero *Creagrutus* e sua relação próxima com *C. cracentis*, *C. gephyrus*, e *C. maxillaris* são discutidas.

### Introduction

Originally described by Günther (1864) to reallocate *Leporinus muelleri* (Günther), the genus *Creagrutus* currently represents one of the most species-rich genera within Characidae, with 69 valid species (Eschmeyer 2013) widely distributed in most South American drainages (Vari & Harold 2001). Taxonomic revisions of the trans- and cis-Andean species (Harold & Vari, 1994, and Vari & Harold, 2001, respectively), and a comprehensive phylogenetic study significantly increased the number of valid species of the genus, resulting in *Creagrutus* as one of the most well-known taxa within the Neotropical fish fauna.

As a consequence of recent collection efforts in poorly explored regions of South America (Vari & Lima 2003), several new species of *Creagrutus* have been described (Vari & Lima, 2003; Ribeiro *et al.* 2004; Torres-Mejia & Vari, 2005; Harold & Salcedo 2010; Román-Valencia *et al.* 2010). In this paper, a new species of *Creagrutus* from the rio Juruena, rio Tapajós basin is described, and its phylogenetic relationships is discussed.

## References

- Birindelli, J.L.O., Zanata, A.M., Sousa, L.M. & Netto-Ferreira, A.L. (2009) New species of *Jupiaba* Zanata (Characiformes: Characidae) from Serra do Cachimbo, with comments on the endemism of upper rio Curuá, rio Xingu basin, Brazil. *Neotropical Ichthyology*, 7, 11–18.  
<http://dx.doi.org/10.1590/s1679-62252009000100002>
- Datovo, A. & Vari, R.P. (2013) The Jaw Adductor Muscle Complex in Teleostean Fishes: Evolution, Homologies and Revised Nomenclature (Osteichthyes: Actinopterygii). *Plos One*, 8, 1–23.  
<http://dx.doi.org/10.1371/journal.pone.0060846>
- Eschmeyer, W.N. (2013) Catalog of Fishes. California Academy of Sciences. Available from: <http://research.calacademy.org/research/ichthyology/catalog/fishcatmain.asp> (accessed 04 February 2013)
- Ferraris, C.J. Jr. (2007) Checklist of catfishes, recent and fossil (Osteichthyes: Siluriformes), and catalogue of siluriform primary types. *Zootaxa*, 1418, 1–628.
- Fink, W.L. & Weitzman, S.H. (1974) The so-called cheirodontin fishes of Central America with description of two new species (Pisces, Characidae). *Smithsonian Contributions to Zoology*, 172, 1–46.  
<http://dx.doi.org/10.5479/si.00810282.172>
- Goloboff, P.A., Farris, J.S. & Nixon, K.C. (2008) TNT, a free program for phylogenetic analysis. *Cladistics*, 24, 774–786.  
<http://dx.doi.org/10.1111/j.1096-0031.2008.00217.x>
- Günther, A. (1859) List of the cold-blooded vertebrates collected by Mr. Fraser in the Andes of western Ecuador. *Proceedings of the Zoological Society of London*, 1859, 89–93.
- Günther, A. (1864) Catalogue of the Physostomi, containing the families Siluridae, Characinidae, Haplochitonidae, Sternopychidae, Scopelidae, Stomiatidae in the collection of the British Museum. *Catalogue of the fishes in the British Museum*, 5, i–xxii + 1–455.
- Harold, A.S. & Salcedo, N.J. (2010) *Creagrutus yanatili*, a new species from the Río Urubamba drainage, southeastern Perú (Teleostei: Characidae). *Ichthyological Exploration of Freshwaters*, 20, 377–383.
- Harold, A.S. & Vari, R.P. (1994) Systematics of the trans-Andean species of *Creagrutus* (Ostariophysi: Characiformes: Characidae). *Smithsonian Contributions to Zoology*, 551, i–iii + 1–31.
- Malabarba, L.R. & Vari, R.P. (2000) *Caiapobrycon tucurui*, a new genus and species of characid from the rio Tocantins basin, Brazil (Characiformes: Characidae). *Ichthyological Exploration of Freshwaters*, 11, 315–326.
- Menezes, N.A. & Weitzman, S.H. (1990) Two new species of *Mimagoniates* (Teleostei: Characidae: Glandulocaudinae), their phylogeny and biogeography and a key to the glandulocaudin fishes of Brazil and Paraguay. *Proceedings of the Biological Society of Washington*, 103, 380–426.
- Ribeiro, A.C., Benine, R.C. & Figueiredo, C.A. (2004) A new species of *Creagrutus* Günther (Teleostei: Ostariophysi: Characiformes), from the upper Río Paraná basin, central Brazil. *Journal of Fish Biology*, 64, 597–611.  
<http://dx.doi.org/10.1111/j.1095-8649.2004.00324.x>
- Román-Valencia, C., García-Alzate, C.A., Ruiz-C., R.I. & Taphorn, D.C. (2010) A new species of *Creagrutus* from the Güejar River, Orinoco Basin, Colombia (Characiformes: Characidae). *Ichthyological Exploration of Freshwaters*, 21, 87–95.
- Taylor, W.R. & van Dyke, G.C. (1985) Revised procedures for staining and clearing small fishes and other vertebrates for bone and cartilage study. *Cybium*, 9, 107–119.
- Torres-Mejia, M. & Vari, R.P. (2005) New species of *Creagrutus* (Teleostei: Characiformes: Characidae) from the Río Magdalena Basin, Colombia. *Copeia*, 2005, 812–817.  
[http://dx.doi.org/10.1643/0045-8511\(2005\)005\[0812:nsoctc\]2.0.co;2](http://dx.doi.org/10.1643/0045-8511(2005)005[0812:nsoctc]2.0.co;2)
- Vari, R.P. & Harold, A.S. (2001) Phylogenetic study of the neotropical fish genera *Creagrutus* Günther and *Piabina* Reinhardt (Teleostei: Ostariophysi: Characiformes), with revision of the Cis-Andean species. *Smithsonian Contributions to Zoology*, 613, i–v + 1–239.  
<http://dx.doi.org/10.5479/si.00810282.613>
- Vari, R.P. & Lima, F.C.T. (2003) New species of *Creagrutus* (Teleostei: Characiformes: Characidae) from the Rio Uaupés basin, Brazil. *Copeia*, 2003, 583–587.  
<http://dx.doi.org/10.1643/ci-02-211r>