

## Evaluation East

A total of 44 Cichlid species from the Atlantic tributaries in Eastern South America have been evaluated in this paper. Round about 20% of them need a further study to determine their actual situation and conservation status.

### Index 0:

*Crenicichla brasiliensis* could be considered as unknown species (possible nomen dubium) and included in the status DD (Data Deficient).

### Index 1:

*Australoheros perdi*, *Cichlasoma zarskei* and *Geophagus obscurus* are only known from their Type Locality.

### Index 2 – 5:

This species deserve a detailed study about their actual conservation status.

### Index > 6:

This species could be considered as „Least Concern“ and assumedly don't need a detailed evaluation; except the species with a high standard deviation.value.

**Index:** Arithmetic mean of D-Index and L-Index

**SD:** Standard Deviation of Index

**Dist:** Distribution range in km: Circumference with a maximum of 4.000km

**D-Index:** ( $X^{0,2776}$ ): with an Index range of 1 to 10: 1 means only one single locality known; 10 means a circumference of the distribution range of at least 4000km.

**Loc:** Known localities with a maximum of 50

**L-Index:** ( $X^{0,5885}$ ): with an Index range of 1 to 10: 1 means only one single locality known; 10 means at least 50 localities documented.

### Results

Index:	Species	in %	Status:	Index:	Species	in %	Status:
Index 0	1	2,27%	DD	Index 6	5	11,36%	LC
Index 1	3	6,82%	CR	Index 7	6	13,64%	LC
Index 2	2	4,55%	EN	Index 8	1	2,27%	LC
Index 3	2	4,55%	VU	Index 9	5	11,36%	LC
Index 4	7	15,91%	NT	Index 10	7	15,91%	LC
Index 5	5	11,36%	NT-LC				



Name	Author	Distribution	Index	SD	Dist.	D-Ind.	Loc.	L-Ind.
<i>Aequidens tetramerus</i>	(Heckel, 1840)	Amazonas / Orinoco / NE / East	10,00	0,0	4000	10,00	50	10,00
<i>Apistogramma caetei</i>	Kullander, 1980	Apeú and Caeté Rivers	5,67	0,0	520	5,67	19	5,66
<i>Apistogramma piauiensis</i>	Kullander, 1980	Parnaíba; Mearim?; Gurupí?	5,23	2,1	1300	7,32	7	3,14
<i>Australoheros acaroides</i>	(Hensel, 1870)	Lagoa dos Patos	8,51	0,9	1500	7,62	45	9,40
<i>Australoheros autrani</i>	Otoni & Costa, 2008	Rio São João (Rio de Janeiro)	2,38	0,9	70	3,25	2	1,50
<i>Australoheros barbosae</i>	Otoni & Costa, 2008	Rio Paraíba do Sul	3,22	1,3	230	4,52	3	1,91
<i>Australoheros capixaba</i>	Otoni, 2010	Rio São Mateus, rio Itaúnas, rio Barra Seca and lower rio Doce	7,10	0,3	1000	6,80	30	7,40
<i>Australoheros ipatinguensis</i>	Otoni & Costa, 2008	Rio Doce, Minas Gerais, Brasil	4,31	1,2	460	5,49	7	3,14
<i>Australoheros macacuensis</i>	Otoni & Costa, 2008	Rio Macacu	3,32	0,2	90	3,49	7	3,14
<i>Australoheros macaensis</i>	Otoni & Costa, 2008	Rio Macaé	3,32	0,5	120	3,78	6	2,87
<i>Australoheros mattosi</i>	Otoni, 2012	São Francisco	5,15	2,0	1200	7,16	7	3,14
<i>Australoheros montanus</i>	Otoni, 2012	Paraíba do Sul	3,32	0,2	90	3,49	7	3,14
<i>Australoheros muriae</i>	Otoni & Costa, 2008	Paraíba do Sul; Jequitinhonha; Mucuri;	5,52	1,6	1200	7,16	10	3,88
<i>Australoheros paraibae</i>	Otoni & Costa, 2008	Paraíba do Sul	1,70	0,2	10	1,89	2	1,50
<i>Australoheros perdi</i>	Otoni, Lezama, Triques, Fragoso-Moura, Lucas & Barbosa, 2011	Doce	1,00	0,0	1	1,00	1	1,00
<i>Australoheros ribeirae</i>	Otoni, Oyakawa & Costa, 2008	Ribeira do Iguape	3,64	0,8	210	4,41	6	2,87
<i>Australoheros robustus</i>	Otoni & Costa, 2008	Paraíba do Sul	4,02	0,1	140	3,94	11	4,10
<i>Australoheros sanguineus</i>	Otoni, 2013	Rio Cubatão und weitere Küstenzuflüsse	5,11	1,5	880	6,57	9	3,64
<i>Australoheros saquarema</i>	Otoni & Costa, 2008	Lagoa de Saquarema	1,64	0,1	8	1,78	2	1,50
<i>Australoheros taura</i>	Otoni & Cheffe, 2009	Lagoa dos Patos	6,58	0,6	1200	7,16	21	6,00
<i>Cichlasoma orientale</i>	Kullander, 1983	Atlantic coast rivers of Ceará, Pernambuco, Rio Grande do Norte and Paraíba States.	9,85	0,1	3600	9,71	50	10,00
<i>Cichlasoma portalegrense</i>	(Hensel, 1870)	Laguna dos Patos basin and Tramandaí River basin in Rio Grande do Sul State.	9,18	0,8	2100	8,36	50	10,00
<i>Cichlasoma sanctifranciscense</i>	Kullander, 1983	São Francisco and other Atlantic tributaries;	10,00	0,0	4000	10,00	50	10,00
<i>Cichlasoma zarskei</i>	Otoni, 2011	Rio Maranhão basin (Rio Mearim??)	1,00	0,0	1	1,00	1	1,00

Name	Author	Distribution	Index	SD	Dist.	D-Ind.	Loc.	L-Ind.
<i>Crenicichla brasiliensis</i>	(Bloch, 1792)	Northeastern Brazil, states of Ceará, Paraíba, Rio Grande do Norte, and Pernambuco.	0,00	0,0		0,00		0,00
<i>Crenicichla iguapina</i>	Kullander & Lucena, 2006	Rio Ribeira de Igupae drainage in Brazil.	4,19	1,3	470	5,52	6	2,87
<i>Crenicichla lacustris</i>	(Castelnau, 1855)	Coastal drainages of southeastern and eastern Brazil.	9,38	0,6	4000	10,00	40	8,77
<i>Crenicichla lucenai</i>	Mattos, Schindler, Ottoni & Cheffe, 2014	Lagoa dos Patos	4,09	0,7	280	4,78	8	3,40
<i>Crenicichla maculata</i>	Kullander & Lucena, 2006	Atlantic tributaries north of Lagoa dos Patos	6,13	0,3	820	6,44	20	5,83
<i>Crenicichla menezesi</i>	Ploeg, 1991	Mearim; Parnaíba; Jaguaribe; Piranhas;	9,38	0,6	4000	10,00	40	8,77
<i>Crenicichla mucuryna</i>	Ihering, 1914	Mucuri	3,24	1,3	240	4,58	3	1,91
<i>Crenicichla punctata</i>	Hensel, 1870	Laguna dos Patos and Lagoa Mirim	8,73	1,3	1400	7,47	50	10,00
<i>Crenicichla tinguí</i>	Kullander & Lucena, 2006	Itapocu	3,96	0,8	280	4,78	7	3,14
<i>Geophagus brasiliensis</i>	(Quoy & Gaimard, 1824)	Paraná sup; Iguazú; Uruguay sup / alto / med; E: Küstenzuflüsse von Sao Francisco bis Lagoa dos Patos	10,00	0,0	4000	10,00	50	10,00
<i>Geophagus diamantinensis</i>	Mattos, Costa & Santos, 2015	Paraguaçu River	2,14	0,6	40	2,78	2	1,50
<i>Geophagus iporangensis</i>	Haseman, 1911	Ribeira de Iguape	6,74	0,4	1200	7,16	23	6,33
<i>Geophagus itapicuruensis</i>	Haseman, 1911	Itapicuru	6,82	2,5	3100	9,32	12	4,32
<i>Geophagus obscurus</i>	(Castelnau, 1855)	Paraguaçu River	1,00	0,0	1	1,00	1	1,00
<i>Geophagus parnaíbae</i>	Staeck & Schindler, 2006	Parnaíba	6,74	1,6	2100	8,36	16	5,11
<i>Gymnogeophagus gymnogenys</i>	(Hensel, 1870)	Lagoa dos Patos;	8,87	1,1	1600	7,75	50	10,00
<i>Gymnogeophagus labiatus</i>	(Hensel, 1870)	Lagoa dos Patos	8,73	1,3	1400	7,47	50	10,00
<i>Gymnogeophagus lacustris</i>	Reis & Malabarba, 1988	Coastal drainages in northern Rio Grande do Sul, Brazil.	6,30	0,5	980	6,77	20	5,83
<i>Gymnogeophagus rhabdotus</i>	(Hensel, 1870)	Uruguay med / inf; Lagoa dos Patos (East);	8,12	0,0	1900	8,13	35	8,10
<i>Gymnogeophagus tiraparae</i>	González-Bergonzoni, Loureiro & Oviedo, 2009	Uruguay inf; Lagoa dos Patos (East)	4,81	1,4	720	6,21	8	3,40

## References (i.a.):

FishBase: Froese, R.; Pauly, D. (eds) (2017): "FishBase" - [www.fishbase.org](http://www.fishbase.org),FishNet 2 (2017): "FishNet 2" - <http://www.fishnet2.net>

**GBIF** (2017): "Global Biodiversity Information Facility" - <https://www.gbif.org/>  
**SpeciesLink** (2017): "SpeciesLink" - <http://slink.cria.org.br/>