

## Evaluation Northeast

A total of 60 Cichlid species from northeastern South America have been evaluated in this paper. Round about 33% of them need a further study to determine their actual situation and conservation status.

### Index 0:

The type series of *Crenicichla vaillanti* is a composite, and the species must be treated as valid until a lectotype is designated (Kullander, 2003)

### Index 1:

*Crenicichla sipaliwini* and *Guianacara oelemariensis* 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:
Criteria 0	1	1,67%	DD	Criteria 6	8	13,33%	LC
Criteria 1	2	3,33%	CR	Criteria 7	11	18,33%	LC
Criteria 2	0	0,00%	EN	Criteria 8	8	13,33%	LC
Criteria 3	3	5,00%	VU	Criteria 9	2	3,33%	LC
Criteria 4	5	8,33%	NT	Criteria 10	11	18,33%	LC
Criteria 5	9	15,00%	LC				



Name	Author	Distribution	Index	SD	Dist.	D-Ind.	Loc.	L-Ind.
<i>Acarichthys heckelii</i>	(Müller & Troschel, 1849)	Amazonas: sup / alto / medio / inf; Juruá; Purus; Madeira; Negro; Tapajós; Trombetas; Xingu; Tocantins; NE: Essequibo?;	10,00	0,0	6800	10,00	101	10,00
<i>Acaronia nassa</i>	(Heckel, 1840)	Amazonas: sup / alto / medio / inf; Ucayali; Juruá; Purus; Madeira; Negro; Tapajós; Trombetas; Xingu; Tocantins; NE: Essequibo; Oyapock;	10,00	0,0	8200	10,00	101	10,00
<i>Aequidens tetramerus</i>	(Heckel, 1840)	Amazonas: whole; Xingu; E: Parnaíba, Mearim; Orinoco: upper; middle; NE: Essequibo, Courantyne, Maroni, Oyapock;	10,00	0,0	10000	10,00	101	10,00
<i>Apistogramma gossei</i>	Kullander, 1982	Oyapock River drainage in French Guiana and Brazil; Approuague River drainage in French Guiana.	6,92	1,0	590	5,88	34	7,97
<i>Apistogramma hoignei</i>	Meinken, 1965	Portuguesa, Aracua, and lower Caura River drainages, and along the mainstream of the lower Orinoco River to Barrancas.	6,65	1,9	2300	8,57	14	4,73
<i>Apistogramma ortmanni</i>	(Eigenmann, 1912)	Essequibo; Corantijn	6,45	0,0	810	6,42	24	6,49
<i>Apistogramma rupununi</i>	Fowler, 1914	Branco River; Rupununi River basin; upper Essequibo	7,92	2,1	580	5,85	50	10,00
<i>Apistogramma steindachneri</i>	(Regan, 1908)	Essequibo bis Corantijn?; Suriname? Oder Marowijn?	7,50	0,2	1300	7,32	32	7,69
<i>Apistogramma wapisana</i>	Römer, Hahn & Conrad, 2006	Branco; Essequibo	4,09	1,2	410	5,31	6	2,87
<i>Astronotus ocellatus</i>	(Agassiz, 1831)	gesamter Hauptstrom des Amazonas; Xingu; Orinoco; Oyapock;	10,00	0,0	8700	10,00	51	10,00
<i>Biotodoma cupido</i>	(Heckel, 1840)	Amazon River basin in Peru, Bolivia and Brazil; Essequibo River in Guyana.	10,00	0,0	8100	10,00	51	10,00
<i>Chaetobranchus flavescens</i>	Heckel, 1840	Amazon River basin, in Peru and Brazil; Orinoco River basin in Venezuela (Rio Apure); rivers of Guyana, Suriname, French Guiana, and Amapá State. Widespread.	10,00	0,0	9000	10,00	51	10,00
<i>Cichla ocellaris</i>	Bloch & Schneider, 1801	Marowijne, Suriname, Saramacca, Nickerie, Corantijn, Berbice, Essequibo, and Branco drainages	9,34	0,7	2400	8,68	51	10,00

<b><i>Cichlasoma amazonarum</i></b>	Kullander, 1983	Amazon River basin, from the Ucayali, Huallaga, Amazon and Yavarí River drainages in Peru, along the mainstream Amazon-Solimões River in Colombia and Brazil to the mouth; Oyapock; Amapá;	<b>10,00</b>	0,0	7000	10,00	51	10,00
<b><i>Cichlasoma bimaculatum</i></b>	(Linnaeus, 1758)	Orinoco River basin, in the Caroni River in Venezuela; Guianas, from the Essequibo? River to the Sinnamary River; Amazon River basin, in the upper Branco River basin.	<b>6,32</b>	2,9	3000	9,23	8	3,40
<b><i>Cleithracara maronii</i></b>	(Steindachner, 1881)	Trinidad Island (impersistent); Orinoco River basin (delta), Guianan rivers from Barima River (Guyana) to Ouanary River (French Guyana).	<b>8,72</b>	0,0	2400	8,68	40	8,77
<b><i>Crenicara punctulatum</i></b>	(Günther, 1863)	Amazon River: Ucayali, Marañón, Solimões; upper Madeira; Essequibo River drainage in Guyana; Amapá Grande River in Amapá State.	<b>8,70</b>	1,3	6000	10,00	30	7,40
<b><i>Crenicichla albopunctata</i></b>	Pellegrin, 1904	Marowijne to Approuague	<b>7,44</b>	0,7	980	6,77	35	8,10
<b><i>Crenicichla alta</i></b>	Eigenmann, 1912	Branco; Essequibo	<b>6,48</b>	1,0	1400	7,47	18	5,48
<b><i>Crenicichla coppenamensis</i></b>	Ploeg, 1987	Coppename and Saramacca River basins	<b>5,12</b>	0,0	360	5,12	16	5,11
<b><i>Crenicichla johanna</i></b>	Heckel, 1840	Amazonas (whole); Xingu	<b>10,00</b>	0,0	8400	10,00	51	10,00
<b><i>Crenicichla lugubris</i></b>	Heckel, 1840	Amazon River basin, in the Branco, Negro, and Uatumã Rivers, Xingu?; Essequibo River; Corantijn River;	<b>4,85</b>	1,5	760	6,31	8	3,40
<b><i>Crenicichla multispinosa</i></b>	Pellegrin, 1903	Maroni; Mana	<b>7,30</b>	0,8	850	6,50	35	8,10
<b><i>Crenicichla nickeriensis</i></b>	Ploeg, 1987	Nickerie and Corantijn River basins	<b>3,65</b>	1,1	270	4,73	5	2,58
<b><i>Crenicichla reticulata</i></b>	(Heckel, 1840)	Amazon River basin in Colombia, Peru, and Brazil; Xingu; Essequibo River in Guyana.	<b>10,00</b>	0,0	7400	10,00	50	10,00
<b><i>Crenicichla saxatilis</i></b>	(Linnaeus, 1758)	Atlantic coast drainages of Suriname, French Guiana, Guyana, Venezuela and Trinidad Island.	<b>6,70</b>	1,0	1600	7,75	19	5,66
<b><i>Crenicichla sipaliwini</i></b>	Ploeg, 1987	Corantijn / Courantyne River	<b>1,00</b>	0,0	1	1,00	1	1,00
<b><i>Crenicichla ternetzi</i></b>	Norman, 1926	Oyapock	<b>5,61</b>	0,2	430	5,38	20	5,83
<b><i>Crenicichla vaillanti</i></b>	Pellegrin, 1903	Essequibo and Mana River basins.	<b>0,00</b>	0,0		0,00		0,00
<b><i>Crenicichla wallacii</i></b>	Regan, 1905	Essequibo	<b>5,51</b>	1,0	850	6,50	13	4,52

<b><i>Geophagus brachybranchus</i></b>	Kullander & Nijssen, 1989	Corantijn and Nickerie River drainages in Suriname; probably ranges westward to the Essequibo River basin. But according to Hauser et al. 2013 only in Corantijn / Nickerie;	<b>7,24</b>	1,5	530	5,71	40	8,77
<b><i>Geophagus brokopondo</i></b>	Kullander & Nijssen, 1989	Suriname River basin.	<b>2,04</b>	0,5	30	2,57	2	1,50
<b><i>Geophagus camopiensis</i></b>	Pellegrin, 1903	Oyapock and Approuague River	<b>7,41</b>	1,4	660	6,06	40	8,77
<b><i>Geophagus crocatus</i></b>	Hauser & López-Fernández, 2013	Berbice	<b>3,08</b>	0,5	100	3,59	5	2,58
<b><i>Geophagus harreri</i></b>	Gosse, 1976	Marowijne	<b>7,28</b>	1,5	560	5,79	40	8,77
<b><i>Geophagus surinamensis</i></b>	(Bloch, 1791)	Saramacca to Kaw River	<b>6,58</b>	0,6	1200	7,16	21	6,00
<b><i>Guianacara cuyunii</i></b>	López-Fernández, Taphorn Baechle & Kullander, 2006	Essequibo;	<b>4,39</b>	1,5	600	5,90	6	2,87
<b><i>Guianacara dacrya</i></b>	Arbour & López-Fernández, 2011	upper Branco; upper Essequibo;	<b>6,04</b>	0,6	900	6,61	18	5,48
<b><i>Guianacara geayi</i></b>	(Pellegrin, 1902)	Approuague River in French Guiana, Oyapock River drainage in French Guiana and Brazil	<b>5,08</b>	0,0	340	5,04	16	5,11
<b><i>Guianacara oelemariensis</i></b>	Kullander & Nijssen, 1989	Maroni	<b>1,00</b>	0,0	1	1,00	1	1,00
<b><i>Guianacara owroewefi</i></b>	Kullander & Nijssen, 1989	Marowijne, Suriname River and Coppename River basins	<b>5,96</b>	0,8	1000	6,80	16	5,11
<b><i>Guianacara sphenozona</i></b>	Kullander & Nijssen, 1989	Corantijn / Courantyne River	<b>4,44</b>	0,8	390	5,24	9	3,64
<b><i>Heros notatus</i></b>	(Jardine, 1843)	Negro; Essequibo	<b>4,96</b>	3,1	1800	8,01	3	1,91
<b><i>Ivanacara bimaculata</i></b>	(Eigenmann, 1912)	Essequibo	<b>3,39</b>	0,0	80	3,38	8	3,40
<b><i>Krobia guianensis</i></b>	(Regan, 1905)	From Demerara River until Suriname River and Amapari (Araguari drainage; Brasil)	<b>6,49</b>	1,8	2000	8,25	14	4,73
<b><i>Krobia itanyi</i></b>	(Puyo, 1943)	Marowijne River drainage in Suriname and French Guiana.	<b>6,73</b>	0,7	660	6,06	30	7,40
<b><i>Krobia paloemeuensis</i></b>	(Kullander & Nijssen, 1989)	Maroni	<b>2,89</b>	1,0	130	3,86	3	1,91
<b><i>Krobia petitella</i></b>	Steele, Liverpool & López-Fernández, 2013	Berbice River	<b>3,58</b>	0,4	150	4,02	7	3,14
<b><i>Krobia potaroensis</i></b>	(Eigenmann, 1912)	Essequibo	<b>4,83</b>	0,7	480	5,55	11	4,10
<b><i>Mazarunia charadrica</i></b>	López-Fernández, Taphorn B. & Liverpool, 2012	Essequibo	<b>4,27</b>	0,0	180	4,23	12	4,32

<b><i>Mazarunia mazarunii</i></b>	Kullander, 1990	Essequibo	<b>3,91</b>	0,0	140	3,94	10	3,88
<b><i>Mazarunia pala</i></b>	López-Fernández, Taphorn B. & Liverpool, 2012	Essequibo	<b>2,85</b>	0,3	60	3,12	5	2,58
<b><i>Mesonauta guyanae</i></b>	Schindler, 1998	Branco; Essequibo; Oyapock?; Amapá?	<b>5,81</b>	2,7	2200	8,47	7	3,14
<b><i>Nannacara anomala</i></b>	Regan, 1905	Aruka River to the lower Marowijne River	<b>7,82</b>	0,4	2000	8,25	30	7,40
<b><i>Nannacara aureocephalus</i></b>	Allgayer, 1983	La Mana; Counamama; Sinnamaray; Kourou; Approuague; Oyapock;	<b>5,69</b>	0,4	670	6,09	17	5,30
<b><i>Pterophyllum leopoldi</i></b>	(Gosse, 1963)	along the Solimões-Amazon River between about Manacapuru and Santarém; Rupununi River in the Essequibo River drainage in Guyana.	<b>4,24</b>	2,0	720	6,21	4	2,26
<b><i>Pterophyllum scalare</i></b>	(Schultze, 1823)	Amazon River basin, in Peru, Colombia, and Brazil, along the Ucayali, Solimões and Amazon rivers; rivers of Amapá State, Oyapock River in French Guiana; Essequibo River in Guyana.	<b>10,00</b>	0,0	7400	10,00	51	10,00
<b><i>Retroculus septentrionalis</i></b>	Gosse, 1971	Oyapock; Araguari	<b>6,92</b>	0,5	820	6,44	30	7,40
<b><i>Satanoperca leucosticta</i></b>	(Müller & Troschel, 1849)	Essequibo; Nickerie?; Rio Branco?;	<b>5,11</b>	1,2	780	6,35	10	3,88
<b><i>Satanoperca rhynchitis</i></b>	Kullander, 2012	Iracoubo to Oyapock;	<b>4,89</b>	1,2	690	6,14	9	3,64

**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/>**

**Kullander, S.O. (2003): "Cichlidae. Pp. 605-654 In Reis, R.E., S.O. Kullander & C.J. Ferraris, Jr., (eds.), Check list of the freshwater fishes of South and Central America." - *Edipucrs, Porto Alegre, 729 pp.***

**SpeciesLink (2017): "SpeciesLink" - <http://splink.cria.org.br/>**