



PROJETO PIABA
Compre um Peixe Salve uma Ávore
BUY A FISH SAVE A TREE

Rich Fish diversity of Rio Negro – an opportunity for a sustainable ornamental fishery

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PIABA is a generic term for ornamental fishes



Charles Darwin

July 1, 2008, is the 150th anniversary of the first announcement of his discovery of **natural selection** at the Linnean Society.

2009 is the 200th anniversary of Darwin's birth (Feb. 12), as well as being the 150th anniversary of the publication of his masterpiece, "On the Origin of Species" (Nov. 24).



Alfred Russel Wallace

On July 1, 1858, Wallace's manuscript, as well as a couple of short statements on natural selection by Darwin were read at a meeting of the Linnean Society in London. The meeting had been organized by some of Darwin's scientific friends to establish his priority in the discovery.

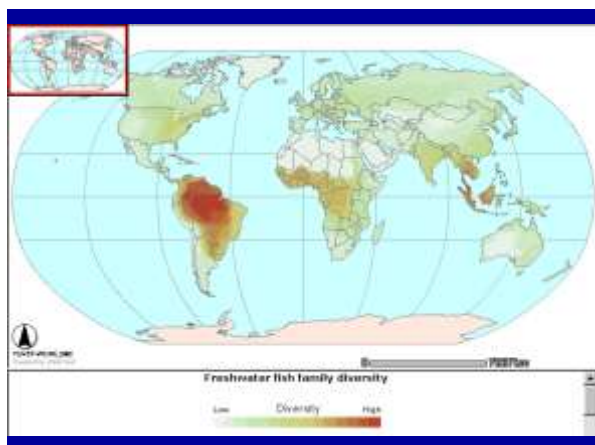
Natural Selection- individuals vary in their ability to survive and reproduce in a given environment

Natural Selection does not produce perfection

- Evolution limited by historical constraints.
- Selection can only "edit" existing variations.

"Survival of the fittest"

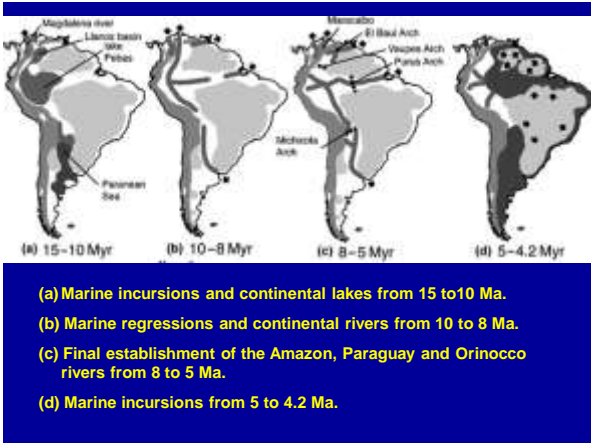
- **An unfortunate concept**
Used to justify "Social Darwinism"
- **Fitness is not about survival**
 - The "fittest" does not necessarily survive
 - Fitness is not a guarantee
- **Fitness is about reproductive success**
 - Individuals who are better adapted to their environment have a greater chance of transmitting their genes to the next generation





Diversity of Neotropical Fishes in the Hobbyists Aquarium

	South American	Amazon Basin	Rio Negro Basin	IBAMA Permitted	AFS list	Aquarium & Hobbyists
Petromyzontiformes	3	0	0	0	2	0
Carchariasiformes	1	1	0	0	0	0
Serraniformes	22	18	8	4	0	6
Lepidocarrasiformes	1	1	1	0	1	1
Dactyloglossiformes	3	3	2	1	3	3
Clupeiformes	19	14	3	0	0	2
Characiformes	1,233	780	400	97	71	100
Salmoniformes	8	0	0	0	1	0
Siluriformes	1,380	828	300	51	105	127
Gymnocharacinae	96	58	49	3	7	7
Balacheoidiformes	2	1	0	0	0	0
Atheriniformes	8	0	0	0	0	0
Balzoformes	16	4	2	0	0	2
Cyprinodontiformes	178	107	59	7	10	18
Synbranchiiformes	4	2	1	0	1	1
Cichlidae	275	250	120	22	52	46
Other Perciliformes	57	26	20	5	8	2
Poeciliiformes	6	2	1	2	0	2
Tetraodontiformes	2	2	1	2	0	2
TOTAL	3,303	2,052	947	155	272	299





Easy Part First: study fish diversity and enhance an existing Ornamental fishery

1. Study Fish Diversity.
2. Environmental Gradients and variability.
3. Water Level, Climate Change & El Niño.
4. Monitoring fish health throughout the trade chain.

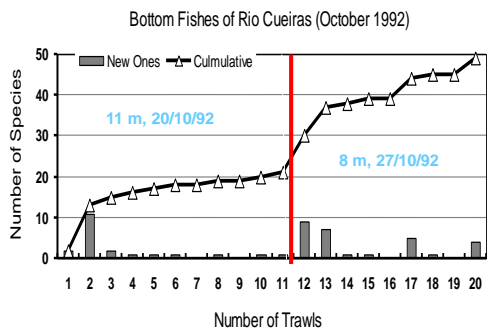
Habitats



Study Fish Diversity



Richness of fishes in the deep channel & floodplain Rio Cueiros (lower Rio Negro)

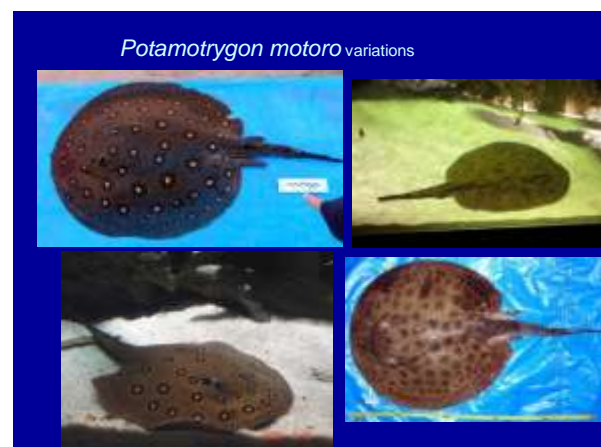
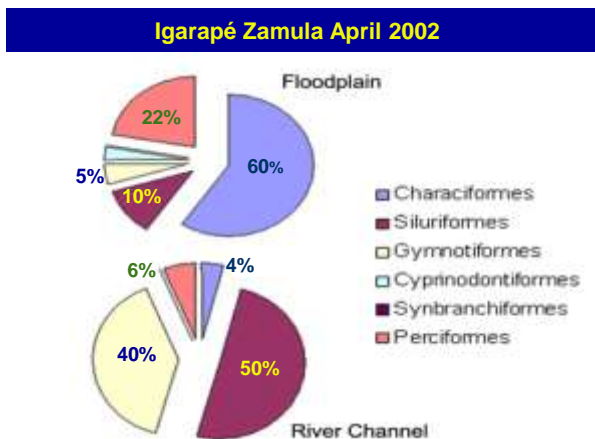


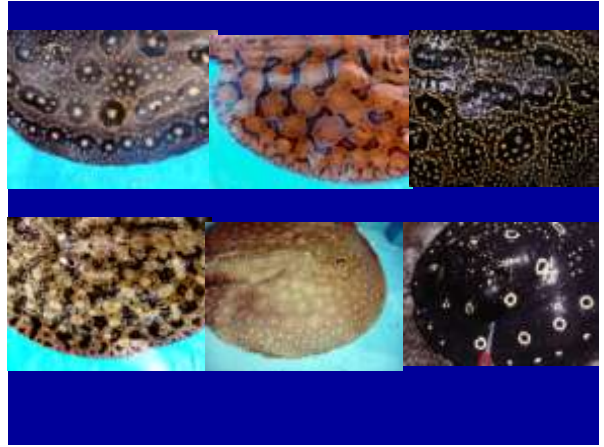
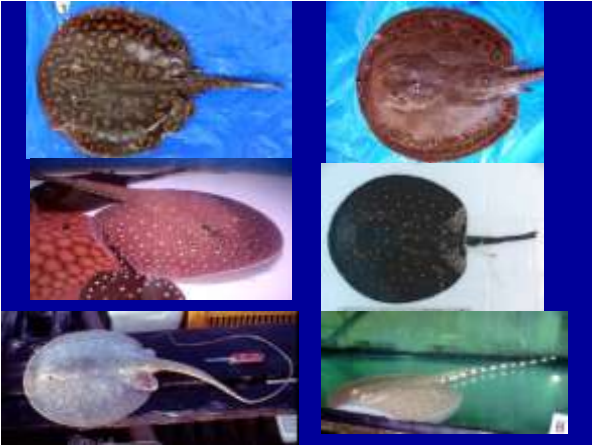
Rio Cueira (lower Rio Negro)							
SPECIES	N	%	FOC	SPECIES	N	%	FOC
<i>Potamorhynchus shroederi</i>	1	0.07 %	1	<i>Brachyplatystoma filamentosum</i>	1	0.07 %	1
<i>Anchovelia</i> sp.	1	0.07 %	1	<i>Pimelodina flavipinnis</i>	32	2.34 %	2
<i>Lycengraulis</i> sp.	4	0.29 %	1	<i>Pimelodus blochii</i>	46	3.36 %	3
<i>Hyphessobrycon</i> sp.	2	0.15 %	1	<i>Platyistomatichthys sturio</i>	1	0.07 %	1
<i>Leptorhynchus</i> sp.f.	1	0.07 %	1	<i>Pseudopimelodus</i> sp. f.	1	0.07 %	1
<i>Moenkhausia</i> sp.f.	1	0.07 %	1	<i>Adontosternarchus clarkae</i>	4	0.29 %	4
<i>Canagalla</i> sp.	1	0.07 %	1	<i>Adontosternarchus sachsii</i>	2	0.15 %	2
<i>Ageneiosus mamoratus</i>	2	0.15 %	1	<i>Sternarchella orthos</i>	195	14.23 %	5
<i>Ageneiosus vittatus</i>	3	0.22 %	1	<i>Sternarchogiton nattereri</i>	1	0.07 %	1
<i>Ageneiosus</i> sp.f.	54	3.94 %	11	<i>Sternarchogiton porcinum</i>	7	0.51 %	2
<i>Anduzidoras</i> sp.f.	1	0.07 %	1	<i>Sternarchogiton</i> sp.f.	2	0.15 %	1
<i>Centrodoras brachiatus</i>	40	2.92 %	5	<i>Sternarchogiton</i> sp2	3	0.22 %	2
<i>Hassar</i> sp. f.	4	0.29 %	1	<i>Sternarchogiton</i> sp3	1	0.07 %	1
<i>Hemiodoras moorii</i>	4	0.29 %	4	<i>Sternarchorhamphus muelleri</i>	19	1.39 %	4
<i>Lithodoras</i> sp. f.	1	0.07 %	1	<i>Sterrogerys elegans</i>	46	3.36 %	3
<i>Mugilodoras</i> sp.f.	1	0.07 %	1	<i>Sterrogerys diuidei</i>	1	0.07 %	1
<i>Opiodoras stuebeli</i>	51	3.72 %	4	<i>Distocyclus conirostris</i>	23	1.68 %	5
<i>Opiodoras trimaculatus</i>	39	2.85 %	2	<i>Bipistomyia</i> sp.	2	0.15 %	1
<i>Oreodoras</i> sp2	378	27.95 %	9	<i>Biotodoma capoides</i>	2	0.15 %	1
<i>Sternodorus microstomus</i>	374	28.00 %	6	<i>Clinostilba</i> sp.	8	0.59 %	2
<i>Hypopthalmus edentatus</i>	23	1.68 %	5	<i>Pachyopses fourcrai</i>	3	0.22 %	1
<i>Hypopthalmus fimbriatus</i>	39	2.85 %	4	<i>Pachyopses trifilis</i>	2	0.15 %	1
<i>Hypopthalmus marginatus</i>	34	2.48 %	5	<i>Plagioscion</i> sp.f. (post-larvae)	11	0.80 %	4
<i>Pachostia platyrhynchos</i>	1	0.07 %	1	<i>Plagioscion</i> sp2 (post-larvae)	1	0.07 %	1
<i>Pachostia vittata</i>	1	0.07 %	1				
Número de peixes	1370			Número de especies	48		

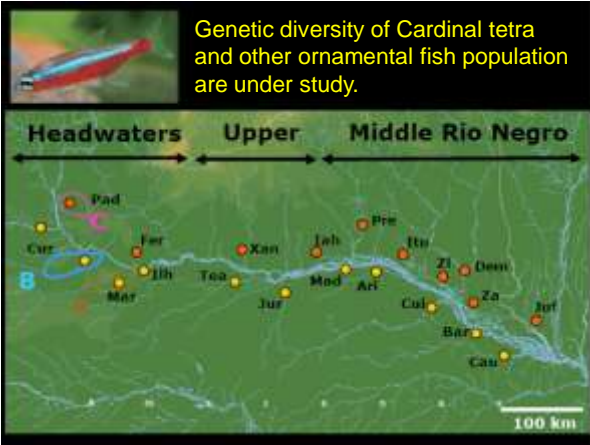


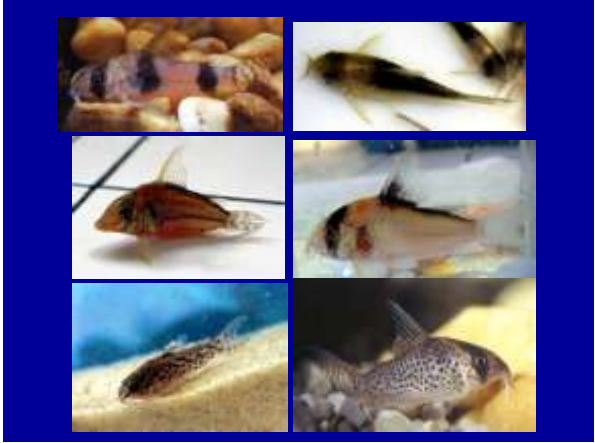
Species richness within 5 km radius at the mouth of a forest stream (Igarapé Zamula)

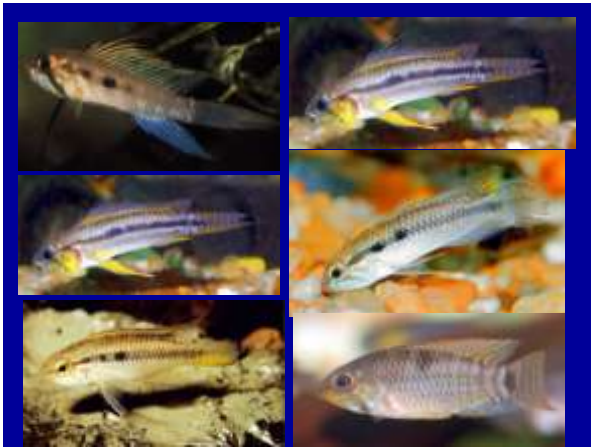
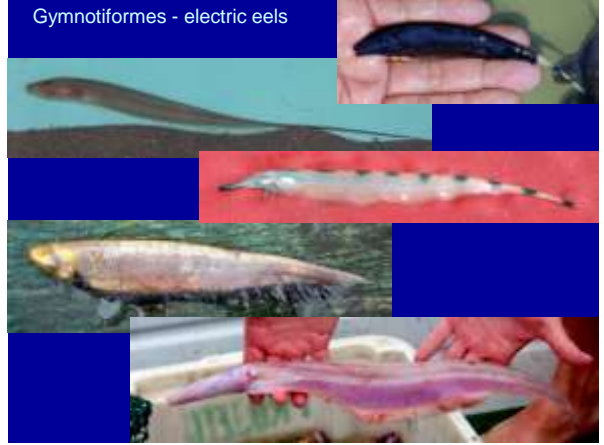
RESULTS	Years (1993-1998)		(2000-01)		RAP April 2002	
	floodplain	channel	floodplain	floodplain	channel	
No. of species caught	76	23	134	184	48	
No. of fishes caught	2,105	150	6,698	3,854	721	
No. of new caught species	76		90	103		
Cumulative No. of species	76		166	269	97	
Fishing Efforts	~500 hs 7 trawls		438 hs	131 hs	6 trawls	
Types of fishing gear used	2-3	1	3-4	6	1	
Nature of expedition (days in the field)	8 Teaching, tour research trips (27 days)		6 Teaching & research (17 days)	1 Research trip (7 days)		

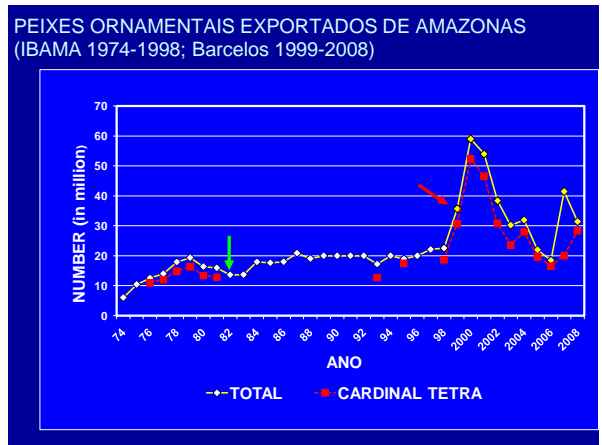
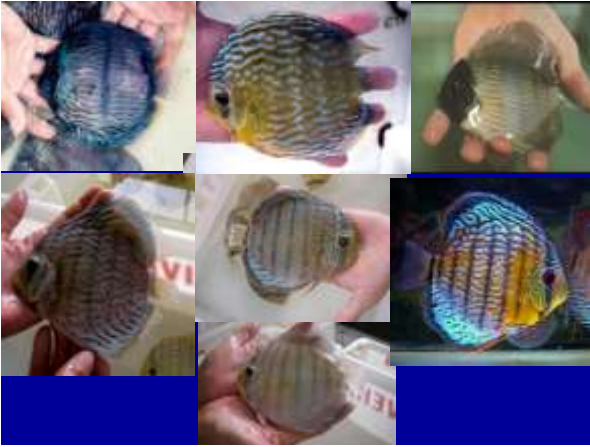












25 principal ornamental fish exporting countries

Ranking	Valor (mil USD)	Crecimiento
1	Singapore	\$41,460 0%
2	Malaysia	\$17,569 66%
3	Czech Republic	\$13,363 18%
4	Indonesia	\$12,640 -8%
5	Hong Kong	\$9,477 6%
6	USA	\$8,381 19%
7	Japan	\$8,332 8%
8	Flau	\$6,438 -34%
9	Philippines	\$6,439 -1%
10	Israel	\$6,603 1%
11	Sri Lanka	\$5,527 -7%
12	Thailand	\$6,245 56%
13	Belgium	\$4,322 6%
14	Colombia	\$4,284 18%
15	Spain	\$3,579 -26%
16	Ireland	\$3,322 -6%
17	Brazil	\$3,250 1%
18	France	\$3,046 -11%
19	Germany	\$2,744 22%
20	China	\$2,166 7%
21	Italy	\$2,037 7%
22	Taiwan	\$1,844 8%
23	Netherlands	\$1,725 -37%
24	Sweden	\$1,714 58%
25	United Kingdom	\$1,416 10%

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2004 Growth

Since 1989, fish collectors have received US \$4-5 per 1,000 cardinal tetra (US 0.4-5 cents/fish). In 2008 collectors receive US \$8-10 per thousand, but still cannot compensate the inflation.

Are aquarium fish hobbyists paying the same today as 16 years ago? (\$1.95 - 2.95 /fish)

PROJECT PIABA GOALS

1. To study fish diversity and enhance an existing ornamental fishery.
2. To alleviate poverty and reduce pressure on floodplain-rainforest ecosystem.

SELL MORE FISHES !

How to sell a fish?



Who are the consumers



Export New fishes (piaba brava)



Act locally: Co-management & Capacitation on GMP



LET'S BRING THE WORLD TO AMAZON



23 Jan 2010
10:00 Opening

23-24 Jan
Public exhibition

25-26 Jan
Business building Technical conferences

27 Jan
Visit Manaus fish exporter facilities

27 Jan to 06 Feb
Rio Negro Rxpediton

Alternative Income:

- Eco-tourism on "Ornamental Fishes" has been proposed to local communities to aggregate the value of piabas and provide new employments and encouraging entrepreneurship.



