SUSTAINABLE COMMUNITY-BASED AQUARIUM FISHES IN THE NORTH RUPUNUNI, GUYANA

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A section of the Rupununi River.
Photo: JULES CAMPBELL

Iwokrama International Centre, in partnership with the North Rupununi District Development Board, has been working to develop a sustainable community-based aquarium fisheries business in the North Rupununi, central Guyana. The project focuses on the sustainable use of aquarium fisheries as a non-timber forest product, and as a means of generating revenue for indigenous communities. Funded by the Netherlands Committee for IUCN Tropical Rainforest Programme, the project will enable management protocols to ensure ecological and social sustainability. Iwokrama hopes to influence South America's aquarium trade by working to introduce a certified 'green equity' trade along the entirety of the supply chain; the result, regulating a presently unregulated trade.

Background

The Iwokrama reserve, located within the broader Rupununi ecosystem, was legally established in 1996 to demonstrate how conservation and development can be effectively integrated (See Appendix for Iwokrama's Mission Statement). Iwokrama is committed to the development of alternative, sustainable livelihoods for the people of the North Rupununi, by collaborative partnerships between local communities and the private sector.

The NRDDB is an indigenous community-based organisation, headed by village leaders and other community members from the North Rupununi District. It represents 14 communities within and surrounding the Iwokrama Rainforest Reserve. This initiative has played a major role in local conservation and development and is an institutional model in Guyana's Poverty Reduction Strategy.

This project focuses on the sustainable use of aquarium fisheries as a non-timber forest product (NTFP), and as a means of generating revenue for indigenous communities. Using a sustainable approach, the project has begun to increase the income of community members while promoting the conservation of local fishery resources. Fish communities are highly sensitive to forest disturbance and, therefore, trade also serves as a direct incentive for forest conservation.

The project was developed as an alternative to the over-exploited Arapaima (*Arapaima gigas*) fishery, as well as unregulated timber harvesting. Over the last three decades, illegal harvesting of Arapaima for high profit sale, led to a huge reduction in its numbers. This, in turn, sparked collaborative efforts within communities to mitigate negative impacts on fisheries resources. Iwokrama acknowledged the troubles with Arapaima, and initiated the Arapaima Management Plan in 2002. This highlighted the need for another source of income from fisheries, and the Aquarium Trade in the Rupununi was born.

Project collectors on the way to the fishing grounds.
Photo: JULES CAMPBELL

During 2000, an assessment of the trade in Guyana and the North Rupununi by the NRI (Natural Resources Institute), found considerable potential for an aquarium trade in the area (Watson, 2000).

The Trade

The annual worldwide trade in aquarium fish is estimated at US$186 million, with the main South American exporters based in Brazil and Peru. Guyana has a relatively small trade estimated at around US$285,000 per year.

The aquarium trade is limited by demand, not availability (Chao, 2002). In Guyana, fisheries stocks are numerous. However, the aquarium trade's full potential has not yet been realised. To add to this, exporters in Guyana have no choice but to deal in fishes which are not commonly exported elsewhere. This is predominantly because of the high taxes placed on live exports by the Guyanese government and also by previously established large-scale operations elsewhere.

Wild-caught fish make up less than 10% of the global market in tropical freshwater aquarium fish (Chao, 2002). Despite this, there remains a demand for wild specimens; not only where certain species are difficult to spawn in captivity, but also to strengthen genetic diversity. This has been emphasised lately with the increasing use of genetically modified organisms, currently introduced into the international trade.

Location

The Rupununi savannahs in central Guyana cover approximately 8,000 square kilometres of Guyana's South Western corner. Running the length of the savannahs is the Rupununi River. At approximately 240 Km, long it is a substantial tributary to Guyana's largest river, The Essequibo. The area has a very high diversity of fish, possibly one of the highest on the planet, for an area its size. Over 400 species have so far been identified, an exceedingly high figure, seeing as only a small portion of the river has been surveyed. This has led to estimates of up to 600 species for the area; exceptionally high compared with other South American wetlands such as the Pantanal which contains 260 fish species (Waters & Seitz, 2003), at approximately 15 times larger than the Rupununi wetlands.

In recent years, special interest has been sparked in the Rupununi's fish diversity. In the 1950's, Lowe (McConnell)'s work highlighted "a very rich and complex fish fauna". Later, in 2002, Armbruster and his team found a total of 308 fish species from 21 sites along the Rupununi and its drainages, stating that "Many of these species are new for Guyana." (Armbruster, 2002).

One of the project's most significant fish: the Lemon Fin (*Hemiancistrus* sp). Photo: MARK HENRY SABAJ

The Project

Initial funding for the project came from the DFID Sustainable Human Development Support. This financed the development of the holding station, core equipment, and logistics for the first two shipments. Funding for further project development for the period 2003-2005 has been acquired from the Netherlands Committee for IUCN, Tropical Rainforest Programme.

The project concentrates mainly on loricariid catfish which are categorised as high value, low volume aquarium species. Presently, five main species are targeted as they are found in great numbers in the Rupununi. These are the Lemon Fin (*Hemiancistrus* sp.), Red-Tailed Pleco (*Pseudoacanthicus leopardus*), Bushy Nose (*Ancistrus* spp.), Cochliodon (*Cochliodon cochliodion*) and the White-Tail Pleco (*Hypostomus* sp.).

Guyana's trade is limited by the large-scale operations from other South American countries. This is partly because collectors have a near monopoly on some species, such as the Cardinal Tetra (*Paracheirodon axelrodi*) in Brazil, which makes up some 48 million fish a year from *Project Piaba* alone (Chao, 2002). Although the Cardinal Tetra is not found in Guyana, this eliminates the demand for many other characids from South America.

Characids enable large-scale operations, since they spawn in huge numbers. Loricariids, on the other hand, are thought to reproduce at much slower rates during the rainy season; they also have much longer life cycles. This means that there is a strictly limited number of fish that can be harvested per season.

All harvesting is monitored using data sheets from which the figures are entered into a database. These data are then used to calculate fluctuations in CPUE (Catch per Unit Effort). This creates spatial and temporal data of off-takes, used to estimate the impacts of harvesting on wild populations. These data will eventually be used to develop a management plan for aquarium fisheries, which will

The beautiful Red-tailed Pleco (*Pseudoacanthicus leopardus*). Photo: MARK HENRY SABAJ

eventually be incorporated into a general fisheries management plan for the area.

Marketing

The trade suffers from inequity across the chain of custody and remains largely unregulated. This is primarily because there are no official pricing standards and separate species are often grouped together under one name. Iwokrama hopes to develop an ecologically and socially sustainable harvest and export system that can serve as a model for wildlife management in Guyana. This will be done by initiating contractual agreements along the supply chain, with the added bonus of partly obliterating competitive exclusion. A consultant from the UK will meet with trading bodies to examine the potential for a 'green equity' trade. This has more recently been initiated in tropical timber, where any produce entering the EU and the USA must be certified along the entirety of the supply chain.

The future of the project is very promising, and looks as though it has large potential for further development. Presently, a steady flow of profit from aquarium fisheries is expected to contribute greatly to development and alleviation of poverty in the area.

References

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Appendix

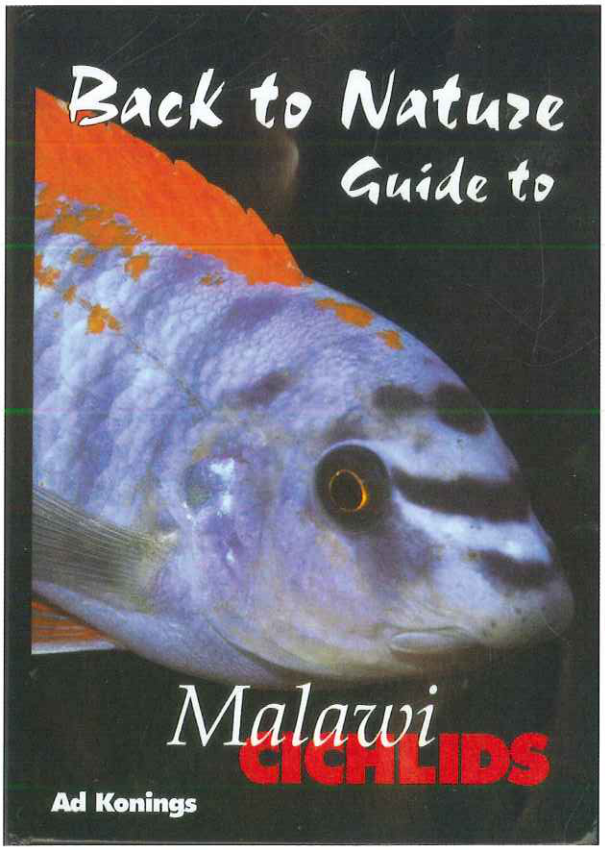
Iwokramais Mission Statement:

"To promote the conservation and the sustainable and equitable use of tropical rainforests in a manner that will lead to lasting ecological, economical, and social benefits to the people of Guyana and the world in general by undertaking research and training and the development and dissemination of relevant technologies."

MEMBERS' BOOK NEWS

Back to Nature Guide to Malawi Cichlids (2nd Edition)

By: Ad Konings
Published by: Fohrman Aquaristik AB
ISBN: 0-9668255-9-5



A great deal has happened within the world of Malawi cichlids since the first - and much-lauded - edition of Ad Koning's masterpiece was published by OFI member Fohrman Aquaristik AB in 1997.

The most notable development since then has been the arrival/discovery of new morphs and species of this most popular group of aquarium fishes. =*Malawi Cichlids (2nd Edition)*= published (also by Fohrman Aquaristik AB) during the latter part of 2003, incorporates this and other developments in a book that is even better than its predecessor. Quite simply, if anyone needs a book on Malawi cichlids, then this - in my opinion - is it. It is absolutely delightful, informative and comprehensive - a real 'must'.

The text has been significantly revised and expanded and the fish chapters have been reorganised so that they now appear as: Aulonocara Group, Haplochromis Group, Mbuna and, finally, Large Predators. Personally, I find this re-grouping a good move which separates clearly identified species assemblages, forming a marked departure from the strict alphabetical listing of the first edition. I also liked the subtle way in which the major groups are distinguished from each other by being printed on a different-coloured background.

The chapters on the natural environment, aquarium, feeding, disease, etc., are also much more complete and valuable than before. I'm still niggled, though, by the continued reference to 'silicon sealant' - a common error in many books which, I feel, should have been spotted and corrected to 'silicone sealant' in this one. (Silicon is an element, while silicone is a resinous compound that contains silicon and oxygen, with organic molecules attached to the silicon atoms; it also, of course, has totally different properties to silicon). But this is a very minor - though irritating - criticism of what is a truly magnificent book.

John Dawes