The Lateral Line

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Archocentrus sp. "Honduran Red Point"
By Dave Hansen

BAP Report

Even though the September nights are getting cooler, the BAP is still hot. First off congratulations to Pat (Nascar2) on his entry of *Thoracochromis brauschi*. This is a very nice looking species and I can understand the interest it received. But only one batch available and the "Early Mullet gets the fish".

Congratulations to Evan on posting the *Apistogramma cacatuoides*. This was his second Apisto entry and is a very pretty fish. These fish can be kept and bred in small tanks for those of us who may not have large fish rooms. But even if you do have room, they make a colorful addition. Congrats again Evan.

Matt (MattIW) made his "1st Entry" with the *Pseudotropheus saulosi* on 13th of September. He followed up with another which was the *Auloncara* sp. "Walteri" on the 30th of September. Congratulations Matt, keep up the good work.

Congratulations Dan on the addition of 3 more entries. They include *Pseudotropheus saulosi*, *Labidochromis* sp. "red top Kimpuma" and *Aulonocara* sp "Lwanda". These fry were produced in his backyard ponds. He is in the process of clearing them out before our winter months, so there may be more species available. Congrats Dan on a very productive project.

Your last reminder that October 31st is the last day to submit your entries in the BAP.

■ *Jim Beck*

BAP totals on page 11.

Featured Column:

Grill Gas

Robert De Leon (HCCC): Genetic testing to identify different species or relationships between species. What is going on with it or why hasn't it been done? Especially for Lake Victoria fish.

Are we not there technologically (too much work) or is it an issue of cost?

Gas: Genetic mapping has been done with many of the cichlids in and around Lake Victoria. As Dr. Les Kaufman stated, the species flocks of the region have evolved over the last 10,000 to 12,500 years. While diversification is still rapidly occurring, genetic diversity has not yet had an opportunity to develop at a level which is easily measurable.

The use molecular techniques have shown that there is less diversity between Lake Victoria cichlid species than there are in the human species (Dr. Ron Coleman). This is not to say genetic and molecular examination is all for not. In fact a French colleague using molecular spectroscopy is in the process of developing a phylogenic tree showing possible lineages of Victorian Basin species. This is certain to turn some heads when it is made public.

Although monetary factors are always a concern when using the equipment necessary to carry out these tests, most universities and colleges today have these machines at their disposal. In the past, the financial issues were a hindrance but today, these devices are readily accessible.

Dave Schumacher HCCC: The piscivorous species of the Lake Victoria basin have always puzzled me. What are the differences between Harpagochromis, Prognathochromis, Tridontochromis, and Lipochromis?

Gas: These are all genre that Humphrey Greenwood came up with during his many years studying the fish of the Lake Victoria region. As you stated, these genuses are all piscavores to one degree or another. *Lipochromis* species are all paedophages. That is, they feed on the larvae or very young fry of other cichlid species. Greenwood divided Lipochromis into two sub genuses, *Lipochromis* (*Lipochromis*) and *Lipochromis* (*Cleptochromis*). The distinction between the two has never been fully explored and hasn't really caught on in the scientific or hobby community. I think the reason for this is that these fish just aren't readily available. *Cleptochromis* denotes an egg stealer. These fish

Matumbi hunter by Chris Paris

have developed methods of obtaining larvae from the buccal cavities of holding females. The method in which this occurs differs between species. These include pack hunting (as a group) and bumping the throat of a mouth brooding cichlid causing her to expel her fry. As is the case of *Lipochromis* (*Cleptochromis*) sp. "Matumbi hunter or actually engulfing the mouth of a brooding female, and sucking her larvae out such as *Lipochromis* (*Cleptochromis*) *melanopterus*. Other less specialized *Lipochromis* species will seize an opportunity to dine on fry such as *Lipochromis* (*Lipochromis*) *labiatus* from Lakes Edward and George. Interestingly, the *L. parvidens* from Lake Victoria is *Lipochromis* (*Lipochromis*)

Prognathochromis sp. "torpedo kirbensis" by Mark Smith

parvidens) while the closely related *Lipochromis* cf. *parvidens* from the Kyoga region, is better placed in the sub genera *Cleptochromis*. The Kyoga parvidens has been seen employing the "bump and gobble" strategy. All *Lipochromis* species have a protractible mouth.

Going with this idea of sub genra, Greenwood erected *Prognathochromis* as a genus status containing slender, predatory piscavores. The lower jaw always extends further than the upper. Generally all have incurved unicuspid teeth. This is for holding their prey when caught. These were mostly fish that were larger than the furu. Several smaller species were noted to have tricuspid teeth lining the front rows of the both jaws. This was another dividing line that Greenwood used to differentiate species. We now have *Prognathochromis* (*Prognathochromis*) which contains the fish with unicuspid dentition such as P. (*Prognathochomis*) *perrieri* and *P.* (*Tridontochromis*) sp. "silver stiletto" with tricuspid teeth.

Harpagochromis sp. "golden duck" by Dave Hansen

The major difference Greenwood noted be-

tween *Prognathochromis* species and *Harpagochromis* species is the neurocranium. He noted differences in eye orbits, cranial slope and the fact that many *Harpagochromis* species contained dentition of bicuspid structure in the outer jaw rows. We see this in *Harpagochromis* sp. "golden duck" from Lake Nawampassa in the Kyoga Basin.

Prognathochromis sp. "silver stiletto" by Dave Hansen

I have great respect for the work of Humphrey Greenwood. His writings are a source of reference for me in pretty much every article I've ever penned. One of my favorite cichlid groups are the piscavores from Lake Victoria and nearby waterways. These fish were top of the cichlid food chain pre *Lates niloticus* and because of the niche they occupied and their preferred habitat (open waters usually) they all were severely preyed upon but the Nile perch. There are only a small number of species remaining from these groups and really, there is not an abundance of information available. My personal feeling is that there is really not enough differentiation between *Harpagochromis* and *Prognathochromis* to substantiate separate genre. I believe that these should be grouped together (at least from the example of species that I've been able to work with).

The *Lipochromis* designation will likely be pulled apart someday as well. It's hard to justify a genus based on food choice. There are cases of parallel evolution, where two totally different species develop the same feeding habits based on environment and food source. With the furu of Lake Victoria, these cichlids can take things a step further and even change their morphology to take advantage of a changing situation. It's hard to fathom *L.* (*Cleptochromis*) sp. "Matumbi hunter being grouped with *Lipochromis* (*Cleptochromis*) *melanopterus*. There are more differences than similarities between the two. For the time being, these designations are the best we have and are certainly better than jumping backwards as some scientists recommend, and referring to everything as 'Haplochromis', but that is a discussion for another day!

■ Greg Steeves

If there are any technical questions you would like answered, contact Greg (Gas) using the forum PM system.

Speaker Profile:

Greg Steeves pt. 2

Jim: Greg, you are well known for your knowledge of Cichlids especially Victorians and for your writing skills. Just recently you ventured in to producing some video clips. Would you tell us about your equipment and interests?

Greg: I do enjoy writing on subjects that there is very little information available on. In some way I hope that writing about my experiences with a cichlid species might help someone else down the line. It was evident to me shortly after meeting Dave Hansen that I was not going to be able to capture my fish in the manner his photographs do. I will leave the picture taking to him and others. I decided to try and capture video footage as a way of getting these fish out there. I've still got a lot to learn but I do love the interactive aspect of video. I have a Sony digital camcorder that will be upgraded to a digital HD camera eventually. I built a computer system specifically designed for converting raw video to a format that I could share with others on the web. This has been a lot of fun for me. I'm getting a little better at things with each capture. Lee Ann and the kids gave me an underwater camera for father's day this year as well. I've been having fun getting footage of my pond fish and I'm really enjoying getting back into snorkeling. There are so many excellent spots around here for that and being able to film what I see underwater is a huge added bonus.

Jim: The Hill Country Cichlid Club has a Breeders Award Program (BAP), Endangered Species Program (ESP) and other projects in a collective effort into sustaining Cichlid species for future generations to enjoy. What are your current projects?

Greg: I believe that the best thing the individual can do to ensure species survival is get any and all information and experiences "out there" so that others might see what they are missing. If one does not know about a fish, then there is nothing to entice that person into trying it in the aquarium. I write on these subjects to make people aware of these cichlids I'm involved with. Dave Hansen's fantastic photography really captures the beauty of these fish. I think his pictures have popularized many seldom known species. I've recently started speaking on Lake Victoria cichlids so hopefully this "road show" will add to the exposure these fish get. Dave and I have been working on a project that I hope will be completed soon. It is a collection of articles on some of the mouth brooding cichlids from Africa. This book should provide practical knowledge for the interested hobbyist along with some really excellent photography. I've also been writing for the Haplochromis Association on a lexicon of haplochromine cichlids. I know that this is near completion but I don't know the release date. The first version will be in French followed by the English translation soon after.

Jim: Even though your have a very good knowledge of cichlids in general, you are known locally as an expert in the category of Lake Victoria cichlids. Please tell us about your favorite cichlid, why?

Greg: I'm not sure I can pinpoint a favorite fish but there are several that I have a special affliction for. I think one of my most prize fish right now are my F1 *Astatotilapia desfontainii*. These are extremely rare and I might have the last few that were collected before their last known locale dried up. These are such a beautiful cichlid species. I would love to get fry so that I can share them with others. I think the quest for a wanted fish is sometimes as attractive as the fish itself. I am currently on the hunt for *Yssichromis pyrrhocephalus*, among my favorites. I must admit that another special fish for me is the Texas cichlid (*Herichthys cynogattus*). When I am snorkeling and happen upon a pair guarding fry, it's really tough not to get mesmerized by their behavior.

Jim: You have been interested in the conservation of cichlids for a long time and have been involved in the organization of the HCCC Endangered Species Program (ESP) to further that interest. What were your thoughts in creating this program and what is its status?

Greg: The ESP (Endangered Species Program) was a necessity in our club. There are so many rare species of cichlids kept by HCCC members that it was crucial to have some sort of database to catalogue them. The information members provide is sometimes the only of records in existence and available to others. Recently, distant member Troy Veltrop is revamping the entire program trying to make it more user-friendly and encouraging everyone to take full advantage of using it. I'm expecting really good things here.

Jim: You have been a force in promoting the HCCC, by not only with its specialized programs but also with events catering to the members. Can you explain in more detail of these events?

Greg: I think that the club has a direction of its own; that is, a lot of times activity just happens with out much planning. We do have events that are planned, such as our FOTAS show, the yearly Christmas party, picnics, auctions, and the like. We have other events that just happen. An example of this was the Les Kaufman talk that occurred in January. A spur of the moment thing and these are usually the best time of all. I would like to see our club arrange for quarterly meetings at a set location. I think this is coming. As our club grows there will be a need for greater organization. All in all I believe we have one of the best specialized aquarium clubs in the country. Evidence of this was the National awards that our Breeder Award Program received this year. A number of members have been recognized for their literary skills as well and it will be my pleasure to pass those certificates to those who earned them. Many other aquarium clubs raid our library of original articles for their own publications. This is a testament to HCCC members and their contributions to the fish world. I am very proud of what we've built with our club and I'm excited about what lies ahead for us all.

Jim: Once again, thank you Greg for your time and congratulations to you and fellow club members and continued success with the Hill Country Cichlid Club.

■ Jim Beck

Species Profile:

Oreochromis esculentus

Naturally found in Lake Victoria, the Kyoga Basin and a few regional satellite lakes, *Oreochromis esculentus* has been introduced into other equatorial waterways. Together with the other native tilapine, *Oreochromis variabilis*, before the 1980's, was the major ingredient to a pre *Lates niloticus* commercial fishery. Native fishing habits of using pulled gill nets (the British settlers introduced flax gill nets to native Ugandan villagers in 1905) was the preferred harvest method. Over fishing soon led to the use of smaller and smaller loop sizes as stocks dwindled. Smaller and younger fish led to immature stocks being harvested as a result few adult fish were able to fill the population fissure. Other tilapine species were introduced to sustain a fishery. These fish included *O. leucostictus*, *O. niloticus*, *Tilapia zillii* and *T. melanopleura* (Gee, 1964). As these alien species competed for habitat and food sources, both species were lost from many areas. Perhaps the most incredible incident to fathom is the extinction of *Oreochromis esculentus* from the massive Lake Victoria.

Photo by Greg Steeves

Reported sizes of 50cm have been reported from Lake Victoria however 20cm is large in captivity. Interestingly, the Lake Kyoga population reached 26cm and smaller lakes yielded a smaller adult size for segregated populations in smaller waterways. The main food source was phytoplankton but the individual diatom species differed from lake to lake (Kalule, 2004). Specialized gill rakers filter minute food particles from the open waters. *O. esculentus* secretes mucus in the mouth which traps small food particles. These form into small bulbs which are ingested. Open waters are the preferred habitat of adults. All historical data suggests that the male to female ratio always showed a predominance of males over females by a factor of almost 2:1 which additionally occurs in captive populations.

This is a long lived species and although sexual maturity can occur within six months, full

growth is reached after 9-10 years. Adults school together in open waters following plankton blooms while the young inhabit inshore waters in areas of dense aquatic vegetation. Brooding females also raise their young for up to two weeks in these planted areas. After this time, the young are left to fend for themselves. Growth is rapid.

Photo by Greg Steeves

Most species of Tilapia are hardy, enduring many differing conditions. *O. esculentus* is able to withstand temperatures of 10°C for short periods suffering no ill effects. Higher temperatures in excess of 40°C are also tolerated along with the low oxygen levels these conditions produce (Borstein, 2007). It is not recommended to house *O. esculentus* in these circumstances for prolonged periods but this ability to adapt to rogue conditions are quite possibly an evolutionary advantage to survival. The ability to tolerate and flourish in many different ecosystems has put this cichlid and many other Tilapine on prohibited species lists in most temperate and semi-tropical regions.

Brood sizes can exceed an incredible 1000 eggs. This is a huge amount by any standards but more remarkable considering this species is a mouth brooder. Mature males construct various indentations in the substrate. This is usually done in areas of sand. It might be a bit of a stretch to refer to this pit as a bower but it is the center at which the male frantically displays and attempts to lure a ripened female to spawn. Males become active in the presence of ripe females and will display to these females while chasing rival males, fins fully erect, in a series of bluffs. I have never witnessed actual contact between con specifics. Normal gestation is between 15 and 24 days dependant on temperature.

Body coloration of females and non-dominant males is olive brown with a slight greenish tinge along the body below the dorsal fin. The belly region has a cream-silver shading. All fins are clear and translucent. Spawning males develop a red cast to the body which intensifies on the head. The dorsal fin has a wide black stripe running its entire length. The caudal fin also develops a crimson hue.

Oreochromis esculentus is part of the Lake Victoria Species Survival Plan (LV-SSP).

The Metro Toronto Zoo has harbored original wild stock and still has a couple F0 species from the original cache along with first generation captive bred individuals. Originally captive stocks were maintained with the hopes of eventual reintroduction into the waterways where it had been driven to extinction. It is believed that *O. esculentus* has a geographical isolated ancestral rooting to *O. niloticus* (Seehausen, 1996). Known by the Swahili word Ngege, this cichlid was once an important food source to the peoples of the Lake Victoria region. It is reported to be an excellent tasting fish.

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■ *Greg Steeves*

2008 BAP Standings

Name	YTD
Dan S.	325
Nick	230
Pat	105
Greg	75
Jerry	60
Robert D.	60
Mike	45
Dan I	35
Matt	30
Duc	25

2008 BAP Standings (cont.)

Name	YTD
Evan	20
Robert T.	20
Drew	15
Ed	15
JB	15
Lisa Br.	15
Joseph	15
Christy	5
Kenneth	5
Jim B,	5

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