February/March 2011

FISH TALES

Bermuda Fry-Angle Aquarium Society

ISSUE 162

FREE

Peacock pencilfish

THE OFFICIAL PUBLICATION OF THE BERMUDA FRY-ANGLE AQUARIUM SOCIETY

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President's PODIUM

Our January meeting proved that it's a viable proposition to fly in a speaker all the way from Europe, so we can look to bring other top-level speakers from places outside the United States and Canada for future meetings.

Anton Lamboj. one of the foremost authorities in the world on West African cichlids, visited us in January and we took advantage by scheduling two different meetings. The first meeting was on Friday 21st January at the Bermuda Aquarium. The meeting featured a presentation by Anton that gave an overview of the various cichlids from West Africa. Anton had also donated a very nice selection of fish for auction and our members responded with some strong bidding. We also had a number of Anton's books for sale that he graciously autographed.

We followed up with another meeting the following night, at Nyon's home. Anton gave a presentation on collecting fish in West Africa that complimented the presentation from the previous night. We enjoyed pizza, snacks and beers whilst getting to spend some social time with Anton. Members also got to see Nyon's fish room.

Due to the distance he had to travel, Anton extended his stay in Bermuda so that he could do some sightseeing. We owe a huge vote of thanks to Jeff for his hospitality in providing accommodation for Anton. Carol also stepped up to the plate by driving Anton around the Island on a couple of sightseeing trips, allowing him to see much more of the Island than he would have managed by himself. Many thanks to both! Anton will be attending the ACA convention in July and looks forward to meeting up with the Bermuda crew again. It was a great weekend for the club – I hope that you all enjoyed it as much as I did!

A few Bermuda residents were transplanted to Austria when Anton went home. See the notes in this issue regarding the export of Bermuda Killies.

We had hoped to have a plant auction for our February meeting and an order was placed to import some plants. Unfortunately, the paperwork has taken longer than expected to process so we had to postpone the meeting. I'm now hoping that we will have the plants here in time for the Annual General Meeting (AGM).

The AGM will be held on Friday 18th March at the Bermuda Aquarium. As noted above, it's possible that we will also have a plant auction as part of the meeting. We'll be electing members to fill the various positions needed to run the club so please let us know if you are interested in standing for election.

NEXT MEETING:

March 18th, 2011 – 8pm
At the BAMZ Lecture Room
Annual General Meeting
Please make every effort to attend

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IN THIS ISSUE

Member Profile

A couple of Month's ago members were sent a form for the members profile, to be completed and sent to pmarsh@northrock.bm. This will be an asset to members, letting them know what fish are being bred and kept on the island.

If you require the form again please let me know (pmarsh@emoo.com). It only takes a couple of minutes to fill out

Bermuda Fry-Angle Society

If you are inerested in joining the Bermuda Fry-Angle Society, just come along to our next meeting to see what we are about. Meetings are held on the third Friday of every month at the Lecture Rooms, behind the Bermuda Aquarium, Museum & Zoo, or contact **Howard Paynter Sr.,** Membership Coordinator at 292-3828(w) or email: hcycles@northrock.bm. He will be happy to provide any further information or just sign you up. Application forms are also available at Noah's Ark (just ask at cashier's desk.) You can also download an application form from our website: www.fryangle.com

Membership fees are $20 for the year, and payable to Bermuda Fry-Angle Aquarium Society.

Killifish Update

By Craig Morfitt

Most members will be aware that our club donated $1,000 towards the cost of DNA research into the various populations of Bermuda's endemic killifish. Mark Outerbridge, an ecologist working with the Department of Conservation Services, conducted an Island-wide study into the various populations. This included population counts for each pond as well as taking fin clippings from each population for DNA testing.

Previous research in Bermuda has suggested that we have two endemic killifish – Fundulus bermudae and Fundulus relictus. To the casual eye, these species look identical but there are morphological differences that support the classification of two species. However, with the advances made in the area of DNA testing, it is now possible to get a definitive answer on how many different species we have. The answer to that question is also critical in determining how Bermuda manages the populations in different ponds. For example, if the population in Warwick Pond is a different species to all the other ponds, then special care needs to be taken to protect that population. Such care wouldn't be so critical if the Warwick Pond population was the same species as the killies in the other ponds.

A recent conversation with Mark Outerbridge revealed that the DNA research has now been completed and, whilst he has received some preliminary results, he's still waiting for the complete report. The preliminary report suggests that the Warwick Pond population may well be different enough from the populations in the eastern end of the Island that it will warrant special conservation efforts.

Fry-Angle members knew from our own excursions to Warwick Pond that the population there was very sparse. This was later confirmed by Mark's scientific population count that showed that very few killies remained in the pond (less than 500 adults), which is heavily silted and affected by various pollutants. To protect against a catastrophic loss of the entire Warwick Pond population, Mark transplanted a few pairs into the nearby pond at the Windreach facility. The transplanted killies thrived and there is now a healthy population established at Windreach. In 2009 and 2010 some of these killies were introduced into the freshwater pond in Paget Marsh, and others were introduced into the freshwater pond on the 17th hole at Port Royal in an effort to increase their geographic range. Surveys planned later this year will confirm how well these new populations are doing in these ponds.

Whilst Anton Lamboj was visiting in January, we put him in touch with Mark, as he was interested in the Bermuda killifish. At very short notice, Mark very kindly processed the necessary paperwork to allow Anton to export three pairs of killies so that a captive breeding population can be established at the Vienna Zoo. Mark helped to catch the young pairs from the Windreach Pond and the next day they flew to Austria.

Anton's friend and colleague works at the Vienna Zoo and has captive breeding populations of many species of killifish from around the world, including several Fundulus species. It is hoped that a thriving captive population can be established at the zoo, thereby providing another buffer against any disaster that might befall the Warwick Pond population. This will be particularly useful if the Warwick Pond population is indeed proven to be a new species.

I've asked Mark to keep us updated on any progress regarding the Bermuda killies and we'll print any information he provides in Fish Tales.

Fundulus bermudae female from Trott's Pond (Mark Outerbridge)

Reprinted from Hill Country Cichlid Club's Newsletter "The Lateral Line"

The Barambi Mbo Sponge Eater *Pungu maclareni* (Trewavas 1962)

-Troy Veltrop

Reprinted from Buntbarsche Bulletin, official publication of the American Cichlid Association, Inc. (ACA).

A close up shot showing the specialized teeth of *Pungu maclareni*. *Photo by Dave Hansen.*

The Way of the Dodo?

Extinction: "To go the way of the dodo," as they say. Fighting extinction is the woeful plight of too many of our beloved cichlids. A quandary that can, more often than not, be attributed to the species *Homo sapiens* and our unsustainable use of natural resources, before it can be attributed to natural causes.

One tiny crater lake, Barombi Mbo, in Western Cameroon is home to eleven species of cichlids that mankind has put in this dilemma. Eleven! All of them are endemic to this lake. There is also a great deal of other aquatic life that is endemic to the lake, ranging from freshwater sponges to a mudfish named *Clarias maclareni*. The only place in the world where these species are found in the wild is in this lake, Barombi Mbo, and it is at risk along with its inhabitants. Conservation of the lake is, of course, paramount, but you are the cichlids' only chance at survival if the conservation efforts at the lake should fail. Since there are not a great deal of conservation efforts underway at the lake, and the situation will likely worsen before it gets better, the cichlids need you desperately.

Eleven Species of Cichlids. So What?

You may muse. "Aren't there places like Lake Victoria with far more species in peril where we should focus our efforts?" the conservation aware hobbyist may ask. "The cichlids of that lake and other regions are certainly at risk also." Ah, but you see, it is in its small size where the treasure lies for evolutionary biologists.

Small Lake, Huge Treasure

At the young age of about one million years old, Lake

Pungu maclareni* in typical coloration. *Photo by Dave Hansen.

Barombi Mbo has a total surface area of 415 hectares (1,025 acres) and is 111 meters (364 ft) in depth. However, only the

first 40 meters (131 ft) contain enough oxygen to support the cichlids. Although the largest of the crater lakes in Cameroon, it is really a small lake. Allow me to put its size into perspective. Lake Malawi, for example, has a surface area of 29,600 square kilometers (18,393 square miles), Lake Tanganyika is 32,900 square kilometers (20,443 square miles) in surface area, Lake Victoria consumes 68,800 square kilometers (42,750 square miles), and the state of Texas is a whopping 678,354 square kilometers (421,510 square miles). By converting Lake Barombi Mbo's surface area of 415 hectares to equal units of measure, you will find it has a surface area of only a little over four square kilometers (2.5 miles).

Although only a mere drop in the bucket in size comparison, Lake Barombi Mbo offers two things that no other lake in the world, save possibly Lake Bermin, offers: the highest endemic species per hectare ratio known to biologists, and one of the few examples where such a small area has supported the evolution of new species by means of sympatric speciation (two or more descendant species produced under isolation within the same area, with no geographical barriers). It is thought that a riverine species, *Sarotherodon galilaeus,* colonized the lake and evolved into the eleven cichlid species found there today. In the field of evolutionary biology, the lake is considered as important as the Galapagos Islands. Now those four square kilometers and eleven species of cichlids are not looking so small and insignificant, are they?

The Cichlids of Barombi Mbo

By now, you are surely asking yourself, "Who are these cichlids and what can I do to help?" I applaud you for asking. So, without further ado, I present to you the cichlids of Barombi Mbo.

- **Genus: *Konia***
  First, the genus *Konia,* which contains *K. dikume* and *K. eisentrauti*. Both prefer open water; however, *K. dikume* likes it much deeper, at 20 meters (66 ft) and greater, where there are low oxygen levels in the water. *K. dikume* prefers mosquito larvae, whereas *K. eisentrauti* likes a more varied diet consisting of

algae, fish eggs, and small insects.

- **Genus: *Myaka***
  Then there is the monotypic genus *Myaka*, with *M. myaka,* a fine particle feeder that feeds on the phytoplankton in the open water column. *M. myaka* is also reported to eat small insects.

- **Genus: *Pungu***
  There is yet another monotypic genus, *Pungu,* with *P. maclareni*, which is a highly specialized freshwater sponge eater.

- **Genus: *Sarotherodon***
  Four members of the *Sarotherodon* genus also call the lake home. They are *S. caroli*, *S. linnellii*, *S. lohbergeri*, and *S. steinbachi*, all of which are primarily phytoplankton feeders living in different areas of the lake.

- **Genus: *Stomatepia***
  Lastly, the genus *Stomatepia*, consisting of *S. mariae, S. mongo,* and *S. pindu.* Members of the genus *Stomatepia* feed primarily on shrimp and insect larvae; however, *S. mariae* also eats small fish. So, there they are folks; 11 endemic cichlid species from which to choose. Which will it be? I have decided to work with as many species from the lake as I can acquire, and both *Myaka myaka* and *Pungu maclareni* currently grace my fishroom. If their status changes to'Extinct in the wild,' will future generations also be able to look to your tanks to see the only living specimens? They will mine, and I would now like to tell you a bit about one of my favorites, *Pungu maclareni*, in hopes of enticing you to do the same.

They Call Me Mellow Yellow

One of the most colorful fish from Lake Barombi Mbo, *P. maclareni*, or 'pungu,' as known by the natives, has a yellow base color with black splotches all over the body. Depending on the viewing angle, one can also see hints of silvery-grey and a light silver-blue. The black spots are also randomly scattered on all fins, with the exception of the pectorals, which for the most part lack any markings. Black streaking is also visible in the pelvic, dorsal, anal, and caudal fins. The very most outer edges of the dorsal and caudal fins are sometimes edged with a light red-orange color.

Both males and females have a black cheek and throat with the black being more prominent in the males. During both spawning and periods of slumber, the black coloration becomes more intense. Yellow-golden spots also sometimes appear smack in the middle of the operculum. Not only are no two specimens ever marked the same, no single fish is ever marked identically on the right side and the left side. This unique pattern of markings among specimens makes it rather easy to identify and track individual fish.

While pungu is the name used by the locals, 'mellow yellow' would certainly be fitting as well, for this is the most peaceful cichlid I have ever kept. Every time I sit looking into the tank and see the colony peacefully cruising around, I begin to sing, "They call me mellow yellow," and a strange calm washes over me. The troubles of the day fall away and I lose myself in their slow deliberate movements. They appear completely at peace and are oblivious to the chaos of their tankmates, *M. myaka*. The pungu are my 'hippie fish' and represent the yang to *M. myaka*'s yin.

Another quite amusing behavioral trait is their propensity to do 'headstands' while feeding. Reports from friends to whom I have sent fry, as well as observations in my own fishroom, have noted this behavior in both adults and juveniles. It is quite a sight to see a large school of *P . maclareni* standing on their heads, perfectly perpendicular, methodically picking through the substrate or tearing algae from a rock surface.

Although I keep my colony of 11 in a 470-liter (125-gallon) aquarium, mainly due to the five *M. myaka*, I venture to guess one could house a decent sized colony in as small as a 150-liter (40-gallon) aquarium. Only during spawning have I ever witnessed any aggression and it is usually in the form of tail bashing, mild chasing, and gill flaring. The tail bashing behavior is quite entertaining to watch and can be observed in both males and females. Two fish, usually of the same sex, will display to each other with their heads aligned with the other's tail. Then they proceed to smack each other with their tails while swimming in circles, gills flaring. Never have I witnessed any damage done, not even so much as a torn or nipped fin, and they are almost oblivious to any other fish in the tank.

The first photo of *P. maclareni* I saw was taken by Dave Hansen. It was a great closeup shot of the pungu's amazing set of teeth. However, this appearance is in

stark contrast to its demeanor. Judging by those teeth, you might think *P. maclareni* to be a fierce carnivore but instead it uses these teeth and strong jaw muscles for a much more specialized purpose: dining on the freshwater sponges that are also endemic to the lake.

While it will also use them to tear into sunken wood looking for insect larvae, this must make up a small part of the diet, for if you feed it large quantities of animal protein, it will quickly succumb to problems of the intestinal tract. This is why it is recommended to provide *P. maclareni* with a herbivorous diet that includes a sprinkling of insect larvae and crustaceans as the occasional treat.

***Pungu maclareni* feed on algae covered rocks as well as freshwater sponges.**

Maintenance

The aquarium that houses my *P. maclareni* has a sand and pea gravel mixture for substrate, and piles of rock and a few pieces of driftwood make up the decor. The pH of the water is about 8.2 and the KH and GH are around 250 ppm (mg/L). I don't mess with my water; it comes from the well this way. Tank maintenance is simple and quick. Once a week I do a 50 to 70 percent water change, vacuum the gravel, and clean the front glass. Filtration is accomplished with two hang-on filters that I also clean during the water change. I rinse the bio media in some of the tank water that I have drained into a bucket and squeeze out the sponge. Unless there is an impeller blockage or one of the intake tubes is plugged up, I do not clean the filter any further except to wipe down the outside housing.

Breeding of the Pungu

When I first decided to get a colony of *P. maclareni*, I was under the impression that they had never been bred in the aquarium and I set out to be the first. Unbeknownst to me, Dr. Paul Loiselle had already accomplished this feat ten years earlier in 1999. When I finally stumbled across the account of his trials, I was at least relieved to know that he had experienced some of the same issues I was facing. They just flat refused to breed, and when they finally did they would never carry to full term. It was by sheer accident that I found the key to the successful breeding of P. maclareni: 86o F + temperatures!

I would never have guessed to increase the temperature in the tank that high, but as luck would have it, spring had rolled around and I had not yet properly adjusted the heaters in my fishroom. I heat the room and not the individual tanks. Temperatures in the room soared to 100o F and all my tanks shot up to just over 86o F. On April 14 of 2010 I looked into the tank and saw several adult P. maclareni trying to get at something hiding under a piece of driftwood. They were fry! There weren't many left since it seems that. maclareni is an opportunistic feeder and will dine on its young if given the chance. That day I managed to save eight tiny fry, each about 9 mm (0.35 in) in length. From that day forward the P. maclareni would not stop spawning and about a month later I had two more fish ready to release. This time, two pairs had spawned and I had one male and one female holding. I know they were two separate pairs as I watched the preludes to their spawning a few weeks prior. I was unable to photograph the events because they become incredibly skittish during this time and would abandon the spawning ritual as soon as they saw me approach the tank with my camera. Once again, both of them spit in the tank. The male had spit sometime earlier that day while I was absent and the fry were hiding under a piece of driftwood. As I was trying to catch the still holding female, she made a couple of laps around the tank, and I swear, looked right at me and spit a cloud of little ones in my face. Fending off the other fish in the tank the best I could while trying to net out the little ones, I successfully

retrieved about 60 fry. Then again, about a month later, another 30 were added to the grow-out tank, this batch from the exact same pair that provided me with the first eight and half of the spawn a month prior. To this day, both pairs still spawn with their chosen mate, a behavior which supports Dr. Loiselle's hypothesis that P. maclareni mate monogamously.

I have made another observation which supports a hypothesis of Dr. Loiselle's. In January of 2003, Cichlid News magazine published an article by Dr. Loiselle entitled, 'The Aquarium Husbandry of the Pungu, Pungu maclareni.' In his article he mentions how the other wild caught Barombi Mbo cichlids he had as tankmates of the P. maclareni would almost totally ignore the pungu except when they (the other species) began to spawn. Then they would chase the P. maclareni away with great enthusiasm. He noted how this aggression towards P. maclareni would reach its peak just moments before the other species actually spawned. He speculated that P. maclareni might exhibit some egg robbing behavior that we did not know about.

One night, while doing water changes, I noticed what looked like a feeding frenzy in the corner of the Barombi Mbo tank. As I crept ever nearer to the corner of the 125gallon they call home, I noticed what appeared to be two *P. maclareni* attempting to spawn. Indeed, the female, buccal cavity partially bulging with eggs, was circling with a male doing the 'fish dance.' Above and all around them were the other nine *P. maclareni* in a complete frenzy. They were pushing, shoving, and chasing, all of them trying to get at the eggs that the female was laying. Those of us who have kept *P. maclareni* know how peaceful they are so this behavior was reminiscent of a barroom brawl. They swam hurriedly around the spawning area, picking up any gravel or sand particles that were eggsized, and raced off with them, only to spit mid tank and race back to the spawning site to repeat the process.

The female, two hours later, came up for food and was devoid of eggs. I have no idea what happened to the eggs she was holding. I assume the swarm of *P. maclareni* interrupted the spawning process and the eggs were never fertilized. Possibly she spit them as she was being harassed by the other *P. maclareni*. I have twice now witnessed this behavior. Neither time have I actually seen *P. maclareni* rob the eggs but there is a great deal of circumstantial evidence to support that is what had happened. Fry of *P. maclareni* look nothing at all like their parents, at least in coloration. The body shape is there but the black speckling and black coloration on the throat, chin, and operculum are absent for over three months after they are free swimming. The eight fry released in mid April were just starting to develop some black coloration when I sent them down to the Hill Country Cichlid Club at the end of July of this year. The remaining fry from the May and June spawns are a dull silveryyellow color, although there are signs of the red edging on the dorsal and caudal fins. The fry are slow growing despite their voracious appetites for baby brine shrimp and crushed spirulina flake, and are an absolute joy to watch.

One Person Cannot Save Them All, But We Can All Save Just One!

In conclusion, I would like to say how enjoyable it has been for me to keep *P. maclareni* in my fishroom. They are a worthy addition to any cichlid collection, especially if you happen to focus on fish included on the C.A.R.E.S. Preservation Program Conservation Priority Species at Risk List. The fish on this list may one day be gone and it is of the utmost importance for us to maintain captive populations. *Pungu maclareni* is on this list as Critically Endangered and is a peaceful, easy to maintain fish. So rush out and grab a colony to add to your collection today. Remember, "One person cannot save them all, but we can all save just one!"

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Reprinted from Greater City Aquarium Society's Newsletter "Modern Aquarium"

My Experiences with A Wild Original From Mexico

by Jules Birnbaum

No, it's not a woman. I'm too old for that. It's a swordtail. The Montezuma swordtail's scientific name is *Xphophorus* (translation: bearing a sword-but it refers to the gonopodium, not the caudal fin) *montezumae*. The family is *Poecillidae*, which are live-bearing tooth carps.

Native to the Rio Panuco in Mexico, this fish is described by Dr. Herbert Axelrod in his 1971 edition of the **Handbook of Tropical Aquarium Fish,** as "the dull little creature," and he goes on to describe it as "drab, olive-green". He also stated that there are not too many around. The fish is also described elsewhere as the true wild swordtail. In his **Tropical Fish as a Hobby,** Dr. Axeirod asserts that the swordtail has another feature that adds to its popularity, that is, it's desirability to be used in hybridization experiments.

NY Strain from Capuchin collecting area. Photo by Gaty Lange

Dr. Myron Gordon (1899-1959), an expert on the *Xiphophorus*, used them extensively in cancer research as well as hybridization. He wrote many articles and booklets for TFH Publications. During the research for this article I found out how important the pure *Xiphophorus* is to cancer research in 2010. To find out more about this interesting subject go to the web site, *Xiphophorus* txstate.edu

These livebearers make good community fish, but keep in mind that they are good jumpers, so cover your tank. This true wild fish is where many of today's swordtails came from. The Montezuma sword is considered by many experts to be where it all began. The fish you see being sold today are many generations removed from this original.

In 2009 1 picked up four juvenile Montezuma swordtails from Joe Ferdenzi, who acquired his from the famous rainbow fish expert, Gary Lange. The true *X. montezumae* is not commonly seen at our auctions or in local pet shops. I took a look at Aquabid (on the internet) to see what kind of prices they bring, but did not see any for sale. My feeling is that the pure *montezumae* is a rare fish.

These fish were a welcome addition to my new fishroom, which has approximately 20 tanks,ranging in size from 5 to 45 gallons. The only other livebearers in the room are black guppies and Endler's livebearers.

After growing these four fish out, I learned that what I unfortunately had were four females. Breeders report that some of these fish can develop male characteristics (the gonopodium and the sword) when they seem to be mature adults. However, no sword appeared on any of my four fish.

I asked Joe if he had a young male available, and I was able to acquire one of his. A wonderful feature of the

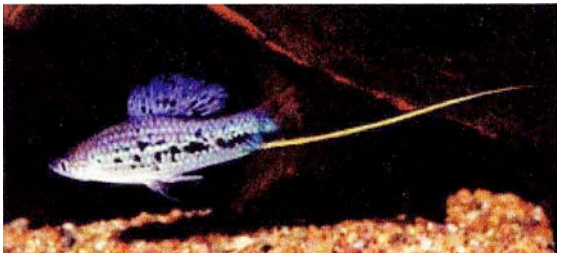
male is the very long sword tail, which can be even longer than the body of the male.

Now I had what I needed to work with these fish. The four females and the male were placed in a 20 gallon high, with plenty of najas, Java moss, and Java fern to give any fry the cover they needed to survive.

Filtration was provided by a large round box filter, and water changes of 25% were performed once per week, at which time I also cleaned the bottom of the tank. The gravel was only a one inch layer. The plants I used did not need more than that, and it made cleaning the bottom easier. In fact, the way the tank was set up I did not need any substrate. Whenever possible, aged water was used for the changes.

The temperature was kept at 76 degrees F. The pH was on the acid side (6.2), and the general hardness on the high side. I did nothing special to the water to achieve these parameters. This is interesting because some authorities say the pH should be slightly alkaline, at 7.0 to 7.4. Neither did I use salt as some suggest. I must report that there is certain amount of misinformation out there on the internet, so be careful. I don't trust the authority who insists that it's his or her way or it's wrong.

Starting about a month before the first fry appeared, I fed the parents each day-dry food in the morning and black worms in the evening. There was one large albino bristlenose catfish in the tank that handled the cleanup. This is not a catfish article, but a few corys or a bristlenose in a livebearer's tank can't hurt anything, and might help clean up after all the heavy feeding you are doing to encourage the parents to breed. Snails also can help.



Rio Tamosopo, blue strain
Photo by Gaty Lange

About three weeks ago I noticed approximately ten fry, and decided to leave the fry and parents together. The fry congregated near the surface, while the parents stayed below in the heavy plants. Last week I noticed another 20 or so smaller fry, which indicated to me that the male was servicing more than one female.

I fed the fry fine dry food in the morning and brine shrimp in the afternoon. (Afternoon? What do you expect? I'm retired!) They are growing fast, and my plan is to let some grow out in another 20 gallon tank populated with young A*spidoras* catfish, while the rest will stay for now with the parents. I have the feeling there is going to be a greater ratio of females to males; at least this is what some local swordtail breeders report.

From Capuchin area.
Photo by Gaty Lange

In writing this article I have tried to tell a little of my personal experiences with this fish. If you decide to acquire some, I encourage you to supplement your knowledge by reading other available material as well.

It's a wonderful fish! Why take a substitute when you can have one of the swordtails that started it all?

News from the net buster

Dear friends,

This is the first update since a long time of absence. Last year we had a bit of a setback regarding the production and placements of the Anti Netting Devices (AND), because Alan had to sell his lodge on the Maleri Islands. The ANDs were made ready there and also the rocks of the island served as anchors for the net busters. The good news is that the new owners, Jimmy and Chris Giannakis, are keen to continue Alan's work and will continue to place the ANDs. I'm very grateful to Alan for all his excellent work and wish him luck with his new venture in southern Malawi.

Since my visit to the islands last September I wanted to improve some details of the contraptions, i.e. to add better floating material inside the AND because I found some of them that were leak and then became too heavy and sank to the bottom (where they are useless). My first idea was to replace the three plastic water bottles (empty) inside with floating polypropylene balls but I expected to get a large bag of balls for my $100 but that turned out to be a small box. Way too expensive. So now I'm thinking of a PVC tube inside with glued caps on either end and hope that this gives the AND enough buoyancy to keep it up when leak. Stuff in Africa takes time, as you are well aware off. In mid May I'll be in Malawi and will meet the new owners of the lodge and we will make a "plan de attack". We have about $12,000 at Pennstate waiting for things to get rolling again in Malawi. Jimmy and Chris also took over the account of the Maleri Island Community Trust which was used to transfer fund to from the US. We are back in business of protecting Malawi cichlids! Thank you again for your concern and your assistance. Enjoy your cichlids!

Ad Konings

Reprinted from KWAS newsletter "Fish & Tales

Discus Dilemma – Do I or Don't I?

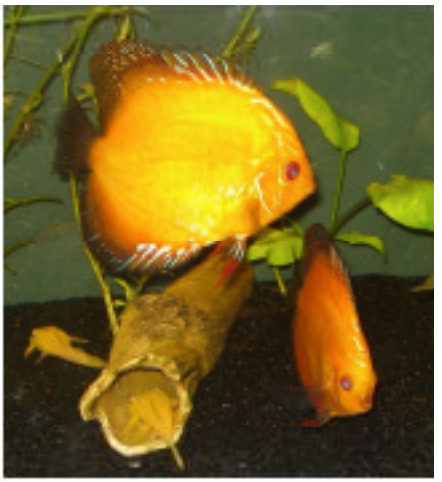
Judy Hunter KWAS

So, you admire pictures of discus on the internet but you've heard they're very hard to keep. They're also not cheap to get at any size so you hesitate to invest the $$ and be disappointed. Just how do you know if keeping discus is for you?? First of all it's probably good to ask yourself why you want to keep discus?? Do you want to breed them and watch them raise fry? Do you want to raise a champion for competition at Duisburg?? Or do you simply want to enjoy watching these fish interact on a daily basis with you and their tankmates?

While it is true that discus require rather pristine water conditions, as long as you are prepared to spend about 20 minutes a day on tank maintenance you can keep a beautiful discus tank. There are some things that discus are very picky about but if you set yourself up for success from the beginning you will truly enjoy these wonderful fish.

A fully grown discus is almost as big as a dinner plate at 8-10" across! Big fish need big tanks! The bigger the better! Discus are shoaling fish and prefer to be kept in large groups. 5-7 fish is a good place to start. You need at least 10 gallons of water per adult fish. I recommend a minimum 55 gallon tank but 70g would be better. There's nothing quite like watching a large shoal of discus moving through a planted tank....it's poetry in motion.

Water is the single most important component to keeping discus....even more important than food! Perfect water parameters for discus would be PH between 5.6-



6.8 and KH between 4-6 but you can keep and enjoy discus in PH as high as 8 as long as it stays stable.

Regular water changes are a must to keep discus successfully. 15-20% daily is what I recommend. Small, frequent water changes are best. It's better to change 15% of your water every day than to do a 50% water change once a week. Discus breeders will often change 100% of their water every day while growing out fry!

It's extremely important that the water you use to do your changes matches the water you are removing from the tank. I use a Rubbermaid as a water reservoir and age my tap water. I keep the reservoir heated to 84 degrees and aerated. If your water source is treated with chlorine it will dissipate in 24 hours and be safe to use in your tank. If your water source uses chloramine you must use Prime or another water treatment to remove it.

Invest in a good heater (better yet-use two heaters to keep the temperature consistent.) Temperature should be a steady 84-86 degrees. Discus are extremely sensitive to fluctuations in temperature or PH. These cause stress and stress causes illness in discus.

So go ahead! Set yourself up for success! With a little more attention to the finer details absolutely anyone can enjoy keeping the "King of the Aquarium" happy and healthy for many years.

Happy Discus Keeping!

BERMUDA FRY-ANGLE AQUARIUM SOCIETY

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Society Membership

Membership to the Bermuda Fry-Angle Aquarium Society is open to any resident of Bermuda who has an interest in tropical fish. The annual membership fee is $20. The Society's financial year runs from April 1st to March 31st.

Meetings are held on the third Friday of every month. Meeting place is the Lecture Rooms, behind the Bermuda Aquarium, Museum & Zoo. Occasionally meetings are held elsewhere. Check the "meeting" column in this newsletter for details of upcoming meetings.

If you would like further information please contact:
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NEXT MEETING:

March 18th, 2011 – 8pm
At the BAMZ Lecture Room
Annual General Meeting
Please make every effort to attend