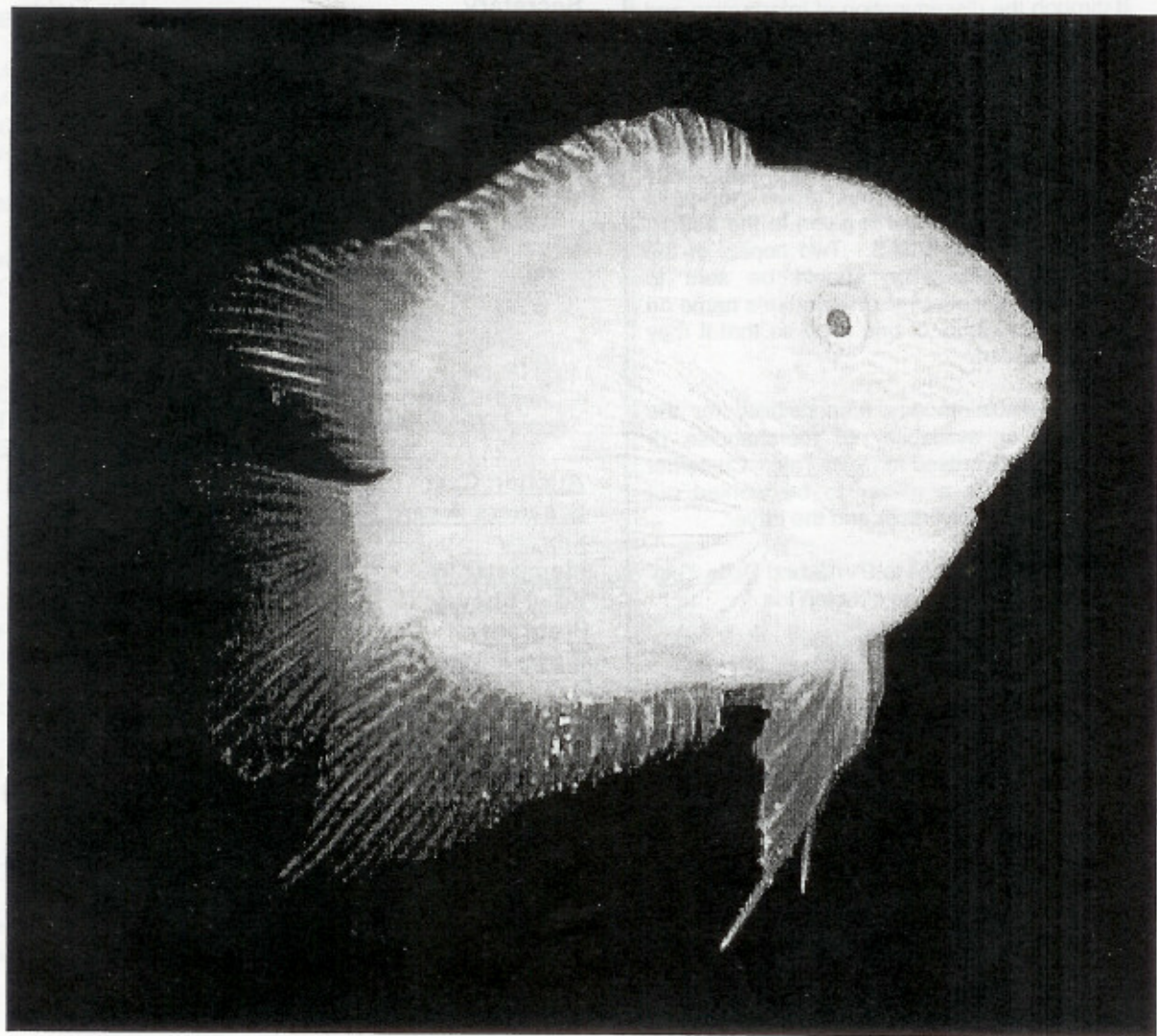




DELTA TALE

Official Publication of the
POTOMAC VALLEY AQUARIUM SOCIETY

Volume 31, Number 2
March/April 2000



PVAS DELTA TALE

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Delta Tale is published bimonthly for the benefit of the membership of the POTOMAC VALLEY AQUARIUM SOCIETY, INC., a non-profit educational and social organization. The society was founded in 1960 for the purposes of furthering the aquarium hobby through the dissemination of information and advice, and the promotion of good fellowship among the membership by organized activities and competitions.

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Cover Photo: *Heros severus* "Gold Severum" by PVAS Member Andrew Blumhagen

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Trading Post

For Sale:

<i>Apistogramma macmasteri</i> "Double Red"	1-2"	\$28pr.
<i>Hemichromis cristatus</i> "Dwarf Jewel"	1-1.5"	\$10ea.
<i>Pseudocrenilabrus philanderer</i> "Dispersus Red"	1"	\$10ea.
<i>Thoracochromis braussi</i>	1"	\$19ea.
<i>Aulonocara rubescens</i> "Albino"	1.5-2"	\$15ea.
<i>Labidochromis</i> sp. "Hongi Island"	1.5-2"	\$8ea.

Dov Goldstein: dov@fintasticaquatics.com

I am willing to bring fish to monthly meeting, I request at least a few days' notice in order to due so. I am also willing and able to ship anywhere.

For Sale: Plastic fish bags and back issues of aquarium magazines, many different titles. Send SASE for catalog to John Mangan, 12633 Oakwood Dr., Woodbridge, VA

Looking For: Wet Pets, Inc. Is looking for full and part-time Aquarium Service Technicians. Experience in the hobby required, Marine experience preferred. Vehicle and equipment provided. Call (301) 565-3474 for details.

President's Message

Greetings to all you happy fish keepers and breeders! I hope this note finds all of you with tanks full of fry, what with all of the rain we've been having. I made an amazing discovery recently: combine water changes with varied diet, pressure drop (a storm) and a temp drop, and your fish will breed like rabbits. Speaking of breeding fish, I would like to thank Scott Saunders from Oodles of Angels for his opening his hatchery; for those of you who missed it, we had a great time! I actually was able to demonstrate drilling tanks without cracking one! I gave myself a round of applause for that one, and Scott breathed a sigh of relief! He also gave a great talk at the February meeting. If you were not able to make it to his talk, check out his website, www.oodlesofangels.com, as much of the information can be found there!

I would also like to thank Russ Taylor for his talk and slide program about goldfish shows in Japan. It is amazing how different the fish shows are in Japan as compared to the way the same fish are shown here. His pictures were very well done and his talk was very entertaining. Even I, a cichlid addict (or cichlidiot, to quote a friend), was very entertained by his talk. A very warm thank you to Russ for joining us!

For both meetings we had a good turnout, and we saw some faces we have not seen in a while, but we need more people to join us at these meetings. I would like to see all a good turnout for John Bijarney as he presents a slideshow of his 1992 four-week-long exploration of Lake Malawi. I know I am looking forward to it. *[ed.note: Ok, so that was a month or two ago... can you tell that we're a little behind? We did have a good turnout for John Bijarney, and his presentation was great.]* We are trying to bring in interesting and varied speakers that would be of interest to everyone. I hope to be able to keep bringing great speakers to the monthly meetings, but in order to do so we need more of you to come to each meeting. If there is someone you want to see us bring in for a talk, let me know and I will give it a shot! I will close with a quote from Marc DeWorth... "**Show Some Pride!**" Let's see you at the next meeting!

Dov Goldstein, dov@fantasticaquatics.com

From the Editors' Tank

It's an exciting time to be a PVAS member. We've just come off of several great events and are looking forward to more as the year progresses. First off, we had three great speakers for the last three monthly meetings. Our winter auction was our best yet, thanks in large part to Gerry Hoffman's work in targeting ways to cut down on the length of the auction. We actually finished bidding by 5:00pm! The spring auction on June 11 looks to be a great one as well. This fall, September 10, we also have a new event, a livestock-only auction where the great fish and plants to which we're accustomed will be featured in their own event.

As PVAS continues to grow, the Delta Tale also continues to evolve. The goal is to present as much information as possible in an attractive, compact package. Thanks to Smitty for his suggestions to that end. In the last issue, you saw original photographs by PVAS members on the cover and in with the articles, the return of the Trading Post, and Bowl Show results. This time, we are trying to use newspaper-style columns to save space and make Delta Tale easier to read. Undoubtedly there will be additional changes as Delta Tale moves forward.

We continue to print articles from past issues of Delta Tale and from other clubs so that we can gain a little insight into what hobbyists around the country are doing, as well as what PVAS members did back in the old days. Additionally, we hope that these re-printed articles will inspire members to write some new material. As we look through the publications from other clubs, we have noticed that PVAS prints more original articles than many other aquarium societies with whom we exchange newsletters, and other clubs are starting to notice as well. Delta Tale has lately been mentioned in several clubs' newsletters as a great source of information on rare Apistos and Corys, but there's a lot more to the club than that! Alas, our store of unpublished articles is starting to dwindle! So dust off that old keyboard or break out the fountain pen so that we can continue to fill the pages of Delta Tale with original material on a variety of topics.

Andrew Blumhagen, delta@pvas.com

What's Happening

Calendar:

- May 8: PVAS Monthly Meeting
June 11: Spring/Summer Auction
June 12: PVAS Monthly Meeting
July 10: PVAS Monthly Meeting
August 14: PVAS Monthly Meeting
September 10: Fish/Plant-Only Auction*
September 11: PVAS Monthly Meeting
October 16: PVAS Monthly Meeting
November TBD: Fall Workshop and Auction
November 13: PVAS Monthly Meeting
December 11: Holiday Dinner and Party

*This is a new event featuring only live fish and plants. All other rules remain the same as other auctions. For a full list of auction rules, please see the PVAS website at www.pvas.com.

Monthly meetings are held at the John C. Wood Facility. Directions can be found on the back of each Delta Tale issue.

Among other activities, PVAS monthly meetings feature a bowl show where members can show off their favorite fish to their compatriots. Please bring a fish or two to the next monthly meeting and don't forget to watch for the Featured Fish category which is judged separately from the "other" entries.

PVAS has an e-mail list for which you can sign up at the PVAS website. Simply click on the "E-Mail List" link to submit your e-mail address. Periodic list messages will inform members as to upcoming events and other goings-on in the club.

March Bowl Show:

Angelfish were the featured fish of the March bowl show, and the lone entry was a "Peru Altum" angel. It may take a little while for the new system to catch on. There were, however, ten entries in the "any other variety" category that were worth looking at. There were cichlids and catfish from two continents, adanio, and a livebearer from Cuba. First place went to a *Corydoras elegans* brought in by Don Kinyon, second went to a *Neolamprologus leleupi* by Lorne Williams, and third to Andrew Blumhagen's *Brachydanio rerio*.

Standings as of March:

Don Kinyon	17
Lorne Williams	12
Francine Bethea	8
Andrew Blumhagen	6
Gene Moy	2

April Bowl Show:

It was good to see new faces in attendance of the meeting, along with new (at least for this year) people showing their fish in the bowl show.

Once again, there was a lone entry in the featured fish category; a nice red and white lionhead goldfish, brought in by Duc Lam. The other ten entries included killis, catfish, and cichlids. First place went to Dov Goldstein's *Haplochromis* sp. "porthole", second to a *Dicrossus maculatus* entered by Don Kinyon, and third to Andrew Blumhagen's *Heros severus* "gold severum".

Standings as of April:

Don Kinyon	22
Lorne Williams	12
Andrew Blumhagen	9
Francine Bethea	8
Dov Goldstien	6
Duc Lam	4
Gene Moy	3
Dan Schueckler	1

PVAS Financial Report

	1998	1999
Income		
Auction	20786.00	22165.00
Membership	597.00	612.00
Monthly Auction	30.00	25.00
Monthly Raffle	204.00	226.00
Raffle	582.00	629.00
Misc	234.00	122.00
Total Income	22433.00	23779.00
Expenses		
Auction	13927.00	14851.00
Auction Expense	2235.35	2941.25
Insurance	185.00	185.00
Internet	245.80	126.18
Membership	247.99	255.06
Phone Bill	548.40	404.55
Postage	801.51	452.68
Post Box	104.00	104.00
Printing	871.80	673.94
Raffle Expense	753.19	221.89
Speakers	675.70	440.93
Supplies	694.72	552.34
Taxes	25.00	65.24
Workshop	753.34	2113.31
Field Trip		
Misc	221.70	242.95
Total Expenditures	22290.50	23630.32



Apistogramma diplotaenia, photo by Andrew Blumhagen

Supporting Shops:

Centreville Aquarium
13830-15 Lee Hwy
Centreville, VA 20120
Phone: (703) 266-2100

Congressional Aquarium
142 Congressional Lane
Rockville, MD
Phone: (301) 881-6182

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1321 Rockville Pike
Rockville, MD
Phone: (301) 309-9110

Totally Fish
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Silver Spring, MD 20906
Phone: (301) 598-2229
www.totallyfish.com

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Gaithersburg, MD 20877
Phone: (301) 921-0000
www.tropicalfishworld.com

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Wally's Aquarium
6493 Little River Turnpike
Alexandria, VA
Phone: (703) 354-3399

Special thanks to Totally Fish for their generous donation of five \$20 gift certificates for the Spring Auction Raffle

My First Reef Aquarium

Part One of Three

Andrew Blumhagen

What do you think of when you imagine a captive coral reef? Certainly the beautiful colors, variety of shapes and alien textures of living corals come to mind, as do flashes of the gaudy hues of small fish darting in and out of their hiding places. A closer look might reveal comical hermit crabs picking tiny delicacies from the rock and snails grazing on an invisible layer of algae. Perhaps a feather duster worm suddenly retracts its delicate tentacles as it senses your shadow, or a shrimp dances in the current as its antennae sweep the environs looking for its next meal.

But as soon as you are entrenched in this underwater reverie, you realize that the equipment alone for this wonderful creation cost more than half a year's rent and that the invertebrates are more sensitive than wild-caught discus—ready to crash spectacularly the moment your visiting mother-in-law sneezes in the wrong direction. The plumbing looks like the inner workings of a steam engine, the fish never seem to last for more than two weeks and the water chemistry would baffle a Nobel laureate. Who needs the trouble when you can go to a public aquarium and see the same magic without the hassle? Heck, even a SCUBA tour of the Solomon Islands would be cheaper! Well, believe it or not, you're now going to learn how to re-create this delicate but beautiful environment for about two hundred dollars and one hour of maintenance each month.

Equipment:

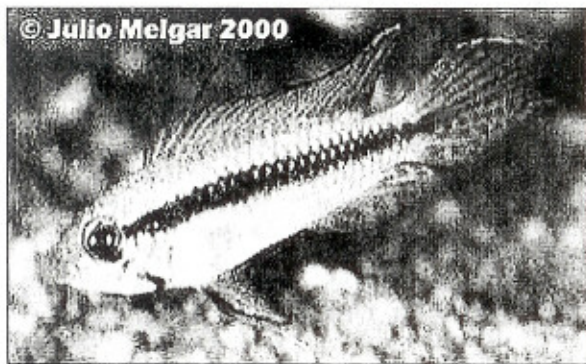
The micro-reef aquarium described here is centered around the Eclipse System Six. The Eclipse incorporates the tank, hood, filter and light into a compact unit which sits on any flat surface capable of supporting 75 pounds. It measures 16" long by 8" deep by 14.5" tall and holds (you guessed it!) six gallons of water. The front curves outward to create a magnifying effect and the sides taper slightly towards the rear. The tank's construction of high-quality acrylic also enhances the appearance of the system. The hood contains an 8 watt fluorescent light completely covered by marine organisms. It

It serves as the building blocks for your reef, as well as fulfilling a number of other important functions. Most important is the biological function it performs. Live rock actually reduces organic wastes from the fish and other animals living in the aquarium. The coralline algae (pink, purple or red microalgae with calcareous or calcium-containing cell walls) absorbs nitrogen and phosphorous just as live plants do in a freshwater aquarium. In addition, live rock is full of holes, tunnels and crevices. These provide perfect habitats for denitrifying bacteria. At the entrance of the hole, aerobic bacteria perform the familiar nitrification process (which is the same in saltwater as it is in fresh) of converting ammonia into nitrites, then nitrites into nitrates. Toward the back of the hole where oxygen has become scarce, denitrifying anaerobic bacteria complete the cycle converting nitrates into nitrogen gas. In addition to providing habitats for your animals, plants and bacteria, live rock also introduces a wide variety of organisms into your tank. These provide a diversity of organisms which can serve as food to other reef inhabitants but mostly delight the aquarist as they are observed popping out of nowhere and growing into recognizable forms.

In this system, six to eight pounds of live rock will be needed. It's important to remember that the corals to be added to the system will come attached to live rock as well. Four or five pounds of live rock is a good starting point. To select live rock, use your eyes and your nose. Look first for rock encrusted with coralline algae. Coralline algae is an extremely important component of the reef system. It is distinctively pink, red or purple and feels like wet chalk. In addition to removing organic wastes, it prevents unwanted algae from taking charge of the tank as other algae are not able to grow on top of it. Next look for other organisms attached to the rock. Macroalgae (seaweed) is good for the tank and aesthetically pleasing. Live corals, sponges, tubeworms, anemones, snails and other animals are desirable as well. Basically, the best live rock is the live rock with as much "stuff" growing on it as possible. Look also for interesting shapes that will be used to construct the reef. After looking at the live rock, give it a good sniff. If it smells foul, don't buy it. It should smell like a clear ocean breeze, not a rotting pile of seaweed or a bait bucket that's been left in the sun. Premium live rock tends to cost
(Continued on page 12)

Apistogramma elizabethae

Don Kinyon



This jewel of a fish was described in 1980 by Kullander and named in honor of Professor Louis R. Agassiz's second wife, Mrs. Elizabeth Cabot Cary Agassiz. It closely resembles the *Apistogramma agassizii*, named in the professor's honor.

It comes from the Rio Uaupes area in Brazil, from slow moving streams where the water is soft and very acidic.

Apistogramma elizabethae comes in several color forms, from blue to red to yellow, depending on the location. In the particular fish I am working with, the male has a base color of blue-gray, with brighter blue markings along the top of the dorsal fin and through the ventrals. He has a slender body, much like the *agassizii*, with a spade-shaped tail and elongated rays on the front of the dorsal fin. From the lower jaw to the beginning of the anal fin, it is a bright orange-yellow, and this area intensifies in color greatly when courting and caring for young. The female is olive-colored normally, but when courting and caring for young, she becomes a brilliant yellow, with contrasting black spots on her sides.

I was fish-sitting this pair of fish for a friend that was on a collecting trip to Peru (I love opportunities like this). I decided it was a fine chance to try and breed these beautiful animals. They were clearly in very good condition when they arrived, and I was impressed by the male's color from the start.

The pair was housed alone in a standard twenty gallon long-style tank, with straight rain water; 0° GH, pH of 6.2, at a temperature of 89° F. The tank had no substrate, a good bunch of sunken locust wood, several clay pots and a covering of oak leaves about two inches thick over half the bottom. I reduced the pH to 5.3 with dilute phosphoric acid (yes, it grows great algae—more on this later).

Both fish had a great appetite. They ate anything put in front of them, including live, frozen, and dry prepared foods. Mosquito larva, white worms, black worms, chopped earth worms, daphnia, frozen blood worms, adult *Artemia*, and shredded beef heart were offered on a rotating basis in the evenings, and flake or freeze-dried food was morning's meal. On this diet, along with twice-weekly, thirty percent water changes, the fish were in breeding condition in no time.

The first unusual thing I noticed was that the female had not been out for a few days to eat. Being a little concerned (these aren't my fish, remember), I checked a little closer. The pots were empty, but on examination of the oak leaves, the bright yellow female was found, along with a large group of eggs, buried in the middle of the pile! The female had laid the eggs on the underside of a leaf, ignoring the pots in the tank for her use. I left them alone, other than feeding and water changes, for the next few days. During this time the female did come out from under the leaves occasionally to eat, and the male patrolled the tank, keeping away imagined intruders.

In four days, the female and fry emerged from under the leaves. The half of the tank not covered in oak leaves had a fine crop of hair algae about an inch tall (thank you, phosphoric acid), and the fry took to it naturally. I'm not sure if the young fed on it, but once they were into it, they never left. The female was comfortable with the situation, and led her brood around that section of the tank most of the time. When any threat arose, the young fish disappeared into the dense growth, and mom stood guard over the top. Everyone was satisfied.

The fry's first food were microworms, fed twice a day, then after a few days newly hatched *Artemia* were added as well. The young fish grew quickly on this

(Continued on page 9)

Apistogramma mendezi

Don Kinyon

Apistogramma mendezi comes from the black waters of the Rio Negro in Brazil. It is also said to inhabit sandy or muddy-bottomed creeks off the main river, and the water may be almost clear, but still soft and acidic. Officially described by Romer in 1994, it was named for environmentalist Chico Mendes.

The adult male is not one of the breath-takingly colorful Apistos, but is nonetheless attractive. Its fairly slender body is light brown, with a broad, dark brown stripe starting at the eye and ending in the tail. There are several thinner stripes below this main stripe and an eye stripe of the same color. The ventral and anal fins are blue and the dorsal can have shades of red, brown, yellow and blue. The lyre tail is light brown with mottled dark brown markings. The female is rather nondescript except when courting or brood-caring, at which times she is bright yellow with black markings.

I started out with a trio of these fish and, to be honest, had no idea what to expect as information on fish this new to the hobby is hard to find. By making a nuisance of myself and asking questions of cichlid hobbyists I knew (and some I didn't), and finding a book that included the fish, I felt confident enough to give it a try.

A fifteen gallon tank was set up to house the trio with very soft acidic water, 0° hardness, and under 5.5 pH. There were two sponge filters, some Java moss and bog wood for cover and several clay pots for them to choose from for breeding, or for the females to find refuge in.

After two weeks it was clear that this setup was not going to work. The male's attentions had both females in hiding most of the time, and they were getting thinner from lack of eating. I removed the male and placed him in a community tank with much the same water conditions. The females then started to eat well and were soon large with eggs.

Unless the fish are all being conditioned for breeding in the same tank, whether it is cichlids, catfish, killis,

or whatever, I generally don't condition **pairs** or **trios**; I condition the **females**. I have found that no matter what the food and water parameters are for the males, as long as they survive, they are ready to breed. The females always take more coaxing. (My wife proofreads for me, so that's as far as I can pursue the point; You'll have to make your own comparisons.)

Once the females were in breeding condition, I returned the male to the breeding tank. He immediately gave chase to the females, who were now more receptive. Within a week of feeding live and frozen foods: mosquito larvae; white worms; blood worms; chopped earth worms; and brine shrimp (same as the females had been fed for conditioning), the fish began to spawn.

Both females spawned in the same day, but neither batch of eggs hatched. Both spawns developed fungus on all the eggs. Only after I lowered the pH with dilute phosphoric acid did the eggs of subsequent spawns hatch. Sorry, but I can't say what the magic number was; my test kit only goes down to 5.5. There were a good number of fry; each female had a brood, but in a few days their numbers started to drop dramatically. I never saw what happened, but I suspect the male was snacking on them. Wanting to save what I could, I removed about twenty young from the tank, and put them in a small rearing tank with the same water.

The fry were not unusual as far as *Apistogramma* go; they ate microworms and baby-brine shrimp, grew and matured. With the close quarters of the three gallon tank, the young had no problem finding the food, but water changes twice a day were getting tedious, so I set up a twenty gallon for them. This worked out much better, and the young started staking claims to their own territories at six weeks old.

The fry are two months old at this writing, and near half an inch in length. They will now eat chopped frozen foods and are looking more like the parents. These Apistos are a bit more trouble than some to raise and breed, but I think any cichlid enthusiast will find them well worth the extra effort.

(Continued on page 8)

Corydoras barbatus
(Quoy & Gaimard, 1824)
A Very Cool Cat Indeed

Don Kinyon

Here is a Cory that has been in the hobby for a good long time, yet never seems commonplace, or for that matter, in the price range most of us are looking for. It comes from the coastal creeks of Brazil, from Rio de Janeiro to Sao Paulo.

One reason for its uncommonality is its appearance. The adult male is truly an unusual fish. It can grow to over four inches, making it one of the largest of the genus. It is one of the long-snouted *Corydoras*, with a fairly high dorsal fin. Its striking coloration is an exercise in contrast. It has a brilliant white belly, white markings just behind the gill and the front edge of the pectorals and a stripe right down the center of its nose. These are offset by jet black squiggles, stripes, dots, and what-have-you, throughout the rest of the body. To top off the unusual appearance of the fish, it has a mass of spiked protrusions on each side of its snout, which seem more prevalent during courting and spawning. More than anything else, they give the appearance that the fish is in dire need of a shave.

I'd seen these fish at pet shops from time to time, but the cost always dissuaded me from buying any, especially with no experience with the particular species. As luck would have it, I found a bag of very young *barbatus* at a fish auction a while back, and decided it was a good opportunity to give them a try.

Of course, it was quite a while before the six youngsters showed any signs of sexual maturity, and haven't even yet, eighteen months later, grown to the size the species is capable of, but they did grow and seemed healthy. They were kept in a community tank, along with tetras, *Apistogramma*, *Ancistrus*, and a few other species of *Corydoras*. For nearly a year, the fish lived on live, frozen, and dry prepared foods, and seemed to thrive. The water in the tank was soft and acidic, pH of 6.2 and total hardness of less than 1°.

One day after refilling the tank from a water change, I noticed a small group of eggs on the front glass.

Before I could remove the eggs, however, the tetras and cichlids had cleaned them off nicely. After observing the tank for a few minutes, I saw one of the female *barbatus* carrying a clutch of four eggs between her anal fins, and watched her place them on the glass (then watched as her tank mates ate them). I was only able to save a few eggs from this spawning, and none of them were fertile.

When I was able to free up tank space, I put the two males and three females into a breeding setup. The breeding tank was a cube-style 45 gallon, with the same water as the community tank, no gravel and no heater. The filtration consisted of a large foam filter stuck onto a large power head, with the valve open all the way and an air line into the outgoing jet for turbulence and aeration. I was also able to talk a friend from the fish club (and fellow *Corydoras* nut) into putting his large colorful male *barbatus* "out to stud". This gave me three good big females and three males, one of which was outstanding.

It didn't take long for the breeding behavior to start. Once the new male was in the tank with the rest, the females got very active and the large male started to prove his dominance. While the females were making fast trips up and down the front aquarium glass, the smaller males were being pushed around. It looked like the "stubble" on the male Cory's snout is useful, at least at courting time; the larger male would swim alongside his younger companions and whack the sides of their heads with his snout! I don't think it did any real damage to the smaller fish, but they certainly didn't enjoy it.

The fish presented me a group of eggs ranging in number from ten to thirty every four days, almost like clockwork. The eggs were put into a small tank for hatching, and after the fry were taking food, usually two days after hatching, they went into a ten gallon tank for rearing. Many of the eggs weren't fertile and grew hair almost immediately, but enough hatched to keep it interesting, and losses were rare after hatching. While the fry were in the smaller tank, a two and one half gallon, they were fed very sparingly on micro worms, and half the water got changed twice daily. Once they were eating and were moved into the larger tank, they ate more microworms, along with newly-hatched brine shrimp, and had half of the water changed only once daily.

When the majority of the young were two months old, they were all put into the 45 gallon tank that had served as the breeding tank, and fed finely chopped frozen, live, and dry foods, along with the diet they had grown on to that point. The youngsters seem to like to swim in a group, even more than other *Corydoras* species. It's entertaining to watch as forty juvenile barbatus swim up and down the front aquarium glass together.

These catfish are not particularly hard to care for or breed, and make an unusual addition to a community tank, or a fine species tank by themselves.

For more information:

Baench Aquarium Atlas, I- Reihl & Baench, pp. 460, 461, 474- pictures & text

Back to Nature Guide to Catfishes, - Dr. David Sands, pp. 40, 41- pictures and text

Corydoras, - Werner Seuss, pp. 32, 62, 63- pictures & text

Freshwater and Marine Catfishes, - Dr. Warren Burgess, pp. 342, 362, 365- pictures & text

Aquarium Quarterly, Corydoras, - Dr. Warren Burgess, pp. 60, 62,- pictures & text

Aqualog: All Caorydoras, - Glaser, Schafer, & Glaser, pp. 97, 98,- pictures and information

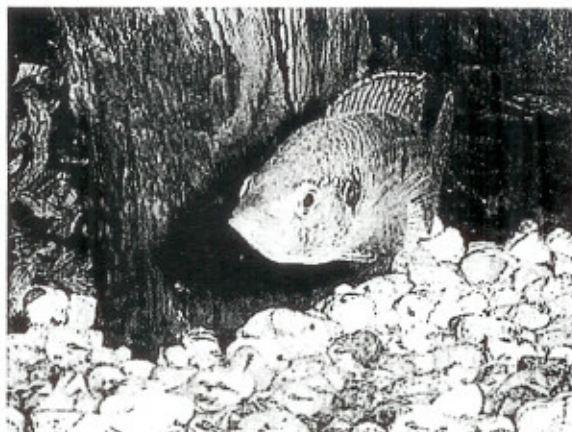
Web Page: Planet Catfish
www.planetcatfish.com/core/index.htm
An excellent source of information on the Internet for *Corydoras*, as well as most other catfish

(*Apistogramma Mendezii* continued from page 6)

For More Information:

Aqualog- Southamerican Cichlids II, Glaser, Glaser pgs. 50, 51, 57 pictures & info

South American Dwarf Cichlids, Mayland, Bork pgs. 89, 90, 91 pictures & text



The female H. cristatus guarding fry

***Hemichromis cristatus:*
Dwarf Jewel Cichlid**

Dov Goldstein

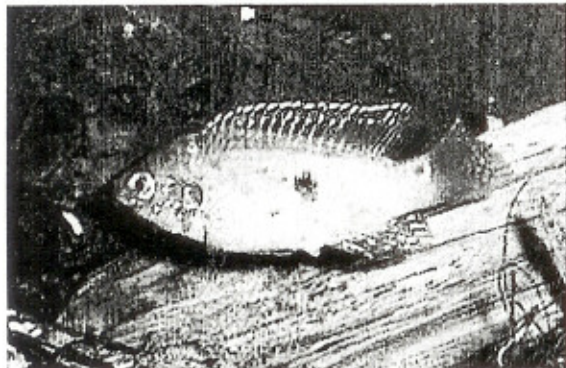
Well, in order to breed this fish I needed to start with a pair. I begged John Shaw for a bag of 4 at a fall '99 auction after I missed them when they came up. He agreed, as long as I give him some when I breed them. So now I had 4 fish; well, within a week I had three, as I guess someone in the tank did not like that fish. I found out that these fish are much more timid than their other Jewel cousins are. The tank I acclimated them into had a small colony of *Lamp. congoensis*, a riverine species. In addition there is a small colony of *Schwetochromis stormi*, another riverine species. Both species are quite tough, and the Schwetzos can be downright nasty! To duplicate a West African River setup, I have a Fluval 403 with a spray bar on the 40 breeder aquarium. This makes for a nice current in the tank. Eddies are created by placing different sized stones and clumps of Java fern all over the bottom. The fish spend all day darting and diving in and out of the rocks and rootwood.

Once the male and female pair-bonded, they drove the other Jewel, a male I assume, to the opposite end of the tank. They then staked out a flat piece of rootwood, suprisingly out in the open, and laid about 40-50 eggs. I did not see the egg-laying process
(Continued on the next page)

(*Hemichromis cristatus* continued from page 8)

the first time; I just looked into the tank and where there were two subdued pink fish, there were now two flame red fish, with two black spots on their sides. The real pretty blue spots on their cheeks and fins really stood out in contrast to the red body. The fish did not seem to mind the water being moderately hard and with a pH of 7.4, both of which are quite a bit higher than that found in their natural habitat. The water was relatively warm, about 78-80°, which they appreciated.

The eggs, which were round and opaque, hatched in 48-72 hours, at which time the parents moved them. They placed them one by one inside a small Java fern that was growing on the underside of the log. About four days later, the fry became free swimming. During that time the parents moved the fry into a pit the male dug for this purpose. They moved them periodically to other pits, also prepared by the male. Once they became free swimming I proceeded to siphon the fry out, because I observed just how these little fish love to explore. With the other cichlids in the tank waiting for a little jewel snack I decided the fry had a better shot in their own tank. Plus I would be able to deliver food directly to the fry, a problem in a large tank filled with hungry fish.



The female H. cristatus laying eggs on driftwood

The tank they were moved to was a 10-gallon bare-bottomed tank, with a Tetra Brilliant sponge filter, being driven by a pretty fast airflow. I am feeding the fry once a day with freshly hatched brine shrimp and once with Artemia Replacement Diet. They do grow faster on just brine, but we all know what has

happened to the cost of that lately. I siphon the bottom once a day, and I threw in a couple of common snails to eat the excess food I miss. By five weeks they have reached a size of about 3/4". Don't know yet when they will be sexually mature, as none of mine are that old yet.

This is a fun fish I can recommend to everyone, due to their interesting behavior. They also would do real well in a community tank setting as they are too small to eat tetras or killies, and they ignore plants. So if you get a chance to acquire this fish, this is one purchase you will not regret.

(*Apistogramma elizabethae* continued from page 5)

diet, and at one month ate grindal worms and finely chopped frozen blood worms.

The pair proved to be good parents. They remained in the tank until the young were six weeks old, at which time the fry paid no attention to them. Once the parents were removed, the young dispersed throughout the tank, still remaining in the algae for the most part and some already staking claims to territories.

At present, the brood is ten weeks old, and starting to show some adult color.

Although hard to find and on the pricey side, these *Apistogramma* are some of the more sought-after dwarf cichlids from South America. Once you've seen them in breeding dress, it's no mystery why.

For More Information:

American Cichlids I, Dwarf Cichlids, Linke, Staeck: pgs. 47-48, drawing and text

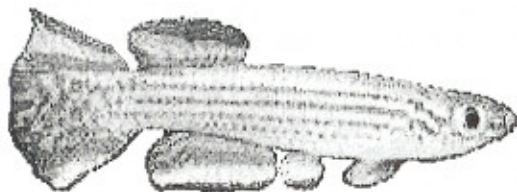
South American Dwarf Cichlids, Mayland, Bork: pgs. 60-62, pictures and text

Aqualog, South American Cichlids II, Glaser, Glaser pgs. 32-33, pictures, info

David Soares' web site:
www.geocities.com/Heartland/Plains/7918/eliz.gif

Aphyosemion striatum

David Snell



This article first appeared in the Delta Tale Volume 28, Number 4 (July/August 1997)

I have been a member of the American Killifish Association since July 1996. I have not kept any killifish until just recently. I wanted to try an *Aphyosemion* species or a *Fundulopanchax* species since they have been described by the *AKA Beginner's Guide* (p. 46/47) as hardy species and they should be easy to breed. After bidding on several species of killifish at the Potomac Valley Aquarium Society 1997 Spring Auction, I was the lucky winning bidder of a pair of *Aphyosemion striatum*.

The male *A. striatum* is a brightly colored fish. It can be described as a green bodied fish, with a series of about 5 red stripes running the length of the fish. Therefore, it appears that the *A. striatum* has a series of alternating green and red stripes. The red lines fan out and break up in the caudal fin. The bottom of the caudal fin has a nice yellow stripe. The dorsal fin of the *A. striatum* has two red stripes running horizontally, one stripe on the top and one stripe on the bottom. The two red stripes are separated in the middle of the dorsal fin by a green horizontal stripe. The pectoral fin appears to be clear, yet shaded yellow on the bottom. The ventral fins are a light shade of yellow with a few red dots. The anal fin is mostly green with a series of dots that seem to create another red stripe. The bottom of the anal fin also has a nice yellow stripe.

The female *A. striatum* can be described as a gray bodied fish. Upon closer inspection, with the aid of a fairly bright light, the ventral fins and anal fin are outlined in a light blue color. Also noted on the dorsal fin and on the top part of the caudal fin closest to the caudal peduncle are a number of

small red dots.

Both of the *A. striatum* measure about 2 inches in length.

The pair were reared in a 5 1/2 gallon tank. Initially, no filtration was used, but after about two weeks I put in a small air powered sponge filter. The water conditions in the breeding tank were 72-75 degrees, a pH of 6.5 to 6.7, and approximate hardness of 4GH and 2KH. Water changes were done at approximately one week intervals using reverse osmosis water that was filtered through peat for about one day before each water change. Also placed in the tank was a green nylon spawning mop, as outlined in the *AKA Beginner's Guide* (p. 32). The adults were fed a combination of frozen bloodworms, Fry Feed Kyowa pellets, microworms and *Artemia* nauplii.

During the first week there were no eggs found in the spawning mop. I continued to feed the fish twice a day. After the first week, a water change was done, then the *A. striatum* started to spawn.

Approximately 40 clear colored eggs were collected over the course of one week. The *Aphyosemion striatum* are capable of producing up to 30 eggs a day according to Hans Baensch (p. 540). I believe if the *A. striatum* were better conditioned they could have produced a higher number of eggs per day.

The eggs were incubated in a small 2-cup plastic container with a loose fitting lid. At first, I didn't use any fungicide. After losing half the eggs to fungus, I used a small diluted amount of Methylene Blue. After about 12-14 days, the eggs "eyed-up" and I expected them to hatch. Only four eggs had hatched on their own.

The remaining eggs still had not hatched after three more days. The eggs were artificially hatched as described in the *AKA Beginner's Guide* (p. 36) by placing the eggs into a small vial and quickly capping the vial after blowing into it. Several of the eggs hatched within one hour. After two more hours, I gave up and returned the remaining eggs back to the small container. The following day, I used the same method of artificially hatching, this time with the addition of a small amount of pellet
(Continued on the next page)

(*Aphyosemion striatum* continued from page 10)

food added to the vial. The remaining eggs hatched within one hour. They were carefully transferred to the rearing container.

All totaled, there were 17 fry, of which three died within the first week. The newly hatched fry measured about 4 mm and they were put into a small clear plastic container that holds about a quart of water. A small amount of Java moss, two Malaysian Trumpet snails, and two adult *Daphnia magna* were also placed into the container. The container had no heater and no filtration. The water was changed 20-50% nearly every day. The water conditions were the same as the adults: 72-75 degrees, pH 6.5-6.7, and hardness of 4GH and 2KH.

The fry were initially fed a variety of microworms and vinegar eels. After two weeks, I switched to mostly *Artemia nauplii* in addition to the microworms and vinegar eels. Over the course of two to three weeks the original *Daphnia* population grew in number from two adults to over forty *Daphnia* of various sizes. By the fourth and fifth weeks, the *A. striatum* fry were large enough to eat the smaller *Daphnia*. The *daphnia* population had decreased to about eight mid-sized *Daphnia*. After a little more than five weeks, the fry have grown up to 12 mm in length.

The fry will be transferred to a larger container in the near future. The *A. striatum* will likely be grown out in a plastic show box. Hopefully within the next six weeks or so the *A. striatum* will start to color up and I might be able to determine the sex of my fish. Perhaps by the Summer Auction, I will have a few pairs to auction off or give away.

If you are looking for an easy fish to breed and you want to try a killifish, I would recommend the *Aphyosemion striatum*. They have been the first pair of fish I have successfully bred.

References:

Aquarium Atlas, Riehl, R. and Baensch, H.A., 1991, Baensch, Melle, Germany.

The American Killifish Association's Beginner's Guide, Markis, AC and Langton, R.W., 1990 American Killifish Association.

Changes

Gene Moy

This article first appeared in the Delta Tale Volume 28, Number 4 (July/August 1997)

It seems that I've been in the hobby forever. Well, for most of my life anyway. I was introduced to the aquarium hobby by a childhood friend back in the early 70's.

My first tank was a 3 1/2 gallon stainless steel-framed tank. I started with an assortment of livebearers. The filter was an inside box filter with charcoal and glass wool, powered by a noisy vibrator air pump. Subsequently I purchased an all-glass 10 gallon. Over time I eventually acquired a 29 gallon, a 20 gallon long and a few 10 gallon all glass tanks. With the additional tanks, I acquired a diverse hodge podge of equipment and fish as well.

I felt the mid '70s was the heyday of the aquarium hobby. I had access to two fish stores, one pet shop, and a department store (with a fish and aquariums as part of their toy department) within four blocks of my house. By my recollection and estimation, the hobby was growing rapidly. I eventually wound up with a part time job at one of the fish stores. What a deal. The small shop had a diversity that would be envious to all but the largest shops today. The tanks usually contained lots of traditional beginners fishes, with several varieties of traditional livebearers, and more cichlids than most shops have today, including mbunas, discus, and large cichlids.

After graduation from college, and entering the "real" world, my interest in the hobby began to wane in the '80s. Sure, I had fish for a few years, but they were neglected for the most part. Soon my tanks and equipment sat dry.

Around 1990, a friend convinced me to do something with the dry tanks sitting in my dining room. I cleaned the 29 gallon and the 20 gallon long and the equipment. I found that most of my equipment still worked.

After visiting a few shops in the area, I suffered a bit of sticker shock. I also was no longer familiar with

the current manufacturers and their equipment. With regard to the fishes, some of the staples of the industry were scarce, or in my mind overpriced. I remember dime-size silver angels selling for around \$1 in the '70s. They were not to be found in the stores I visited. Occasionally I would find marble angels, but these were \$4 or \$5 or more. Wow! Inflation, I guess.

As some of my older pumps, filters and other equipment began to wear out, I had to look for parts or replacements. I suffered sticker shock here too. The discounts that I had in the '70s compounded the situation. Another surprise was the different manufacturers and their products.

I've since come to accept the current trends regarding fishes. My old-time favorites are scarce. Some of them can be found, but I've had to resort to visiting more shops. Subsequently, I discovered the value of being part of an aquarium club, and know that I may pick up the fish that I'm looking for through the club auctions.

The equipment on the market today is a marked improvement from years past. Pumps and filters are quieter and more efficient. Submersible heaters were just coming on the market, but are more or less the standard today. More technology is available for the marine hobbyist or the specialist.

Well, I'm enjoying the hobby just as much as I used to. In some ways more, because of some of the different aspects that I'm getting into.

(My First Reef Aquarium continued from page 4)

between \$5 and \$7 per pound.

No furnishings other than live rock are needed for the system, however it may be more aesthetically pleasing to cover the bottom of the aquarium with gravel instead of keeping a bare tank floor. Use a small amount of crushed coral or aragonite gravel, at most 1/2" thick, preferably 1/4" or less. The size of the gravel does not particularly matter for the thin layer that will be used here.

Look for Parts Two and Three in coming issues of Delta Tale in which Setting Up, Maintenance, Livestock Selection and Troubleshooting will be discussed.

Care for Young Fish While on Vacation

Lee R. Harper

This article was first published in the May 5, 2000 edition of Fin Fax, a publication of the Delaware County Aquarium Society.

A very recent experience reminded me that the following technique may be useful to others who are faced with the dilemma of how to care for newly hatched fry while away on vacation. When confronted with this situation a few years ago I determined that I had three choices to choose between. These were:

- 1) Find a friend, neighbor or relative to come in and feed the fish on a regular basis.
- 2) Develop a procedure for feeding them automatically while away or
- 3) Do nothing significant.

Of these choices, the first is only going to work if you have someone who is as intimately involved with your fish and can devote several hours a day as you do to caring for your fish. Otherwise it will be a disaster.

The second procedure will work for one or two tanks using an electrically powered feeder or a time-release feeding pellet. I am currently keeping 135 fry containers (plastic shoe boxes) and 70 bigger tanks (2 to 100 gallons), mostly of killifish. It would be impossible to use automatic feeders and calibrate them correctly for the fry containers. The larger tanks have bigger fish that will survive without feeding in most cases.

So I was forced to find a passive, non-threatening way to feed these fry while I am away for several weeks at a time. I frequently during the summer leave my killifish for a week or two at a time and have developed a procedure for feeding the fry while I am away. It has worked well for several years now and consists simply of putting a small piece of leaf lettuce (Romaine, Buttercrunch, etc.) along with some pond or ramshorn snails in each shoebox containing fry. Do not use the coarser leaf lettuce types, they don't seem to decompose rapidly enough. I normally feed baby brine shrimp to all but *(Continued on the next page)*

(Care for Young Fish... continued from page 12)

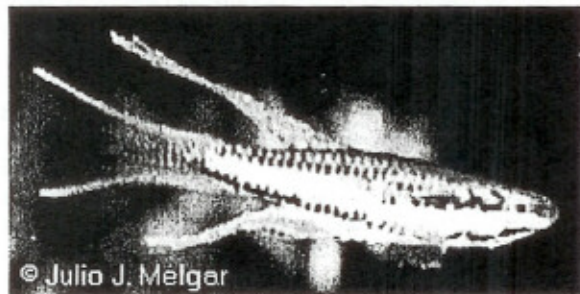
the smallest newly hatched fry every day when I am at home. This lettuce leaf procedure works even for those fry too small for baby brine shrimp, that I would normally feed separately cultivated microworms and rotifers. Before I left this last time I took an inventory and had over 850 fry of 57 species of killifish at various sizes ranging from newly hatched fish less than 1/4 inch long to over 3/4 inch housed in about 135 plastic shoe boxes. When I returned, I took inventory again and found that all but 2 or 3 of the fry were alive and well. They mostly appeared thinner than normal, but definitely most had grown in length. After feeding them some newly hatched brine shrimp as soon as I could, they all fattened up more than they were before I left. I believe the fish are feeding on the rotifers, etc., that are feeding on the snail droppings which are feeding on the lettuce leaves. (Do not use the thick stems of the lettuce—they don't decompose fast enough.) This provides a change in diet which is so beneficial to the fish that I am resolved to take more vacations from feeding them every day with baby brine shrimp, even when I am not away from home. There are probably other ways to accomplish this than lettuce leaves, but this method seems to work. I will probably try just a day or two hiatus at first. Incidentally, two years ago I went to Australia for 3+ weeks and left the fry in a similar way and did not lose any out of a considerably fewer number of fry. The only fish I lost were some of the larger cichlids that I had left with a couple of time-release feeding vacation care tablets. They fouled the water. I have also tried it with adult fish with similar results, but they would normally survive a couple of weeks without a feeding in a 2 gallon tank or bigger if there are plants present.

I believe the worst way to care for fish during a vacation is to entrust them to someone else—no matter how experienced and dedicated they may be. They will probably overfeed and kill some fish and they won't have the time to change the water. One of the benefits of not feeding for a week or more is that the water will not be fouled even without the regular changes you provide on a regular basis.

As a corollary to this vacation feeding procedure and growing out of the beneficial effects I see, I suggest that a complete change in feeding procedure be

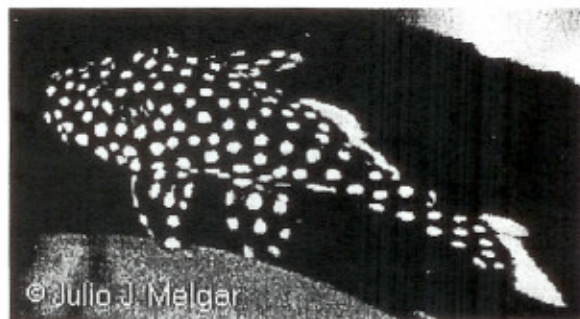
tried occasionally and the lettuce leaf procedure is only one way to go. Perhaps a prepared food of fish, etc., in a gelatin base would be another complete change from baby brine shrimp. Microworms and Grindal worms don't seem to have the same effect as a supplement to the baby brine shrimp. It also is occasionally beneficial to not feed for a day or so. In my circumstance, I normally feed baby brine shrimp once a day and the water contains about one teaspoonful of salt per gallon so the brine shrimp don't die and foul the water as much as if it was fresh water without salt. However it may have some polluting effects if uneaten.

I hope this procedure is of some interest and benefit to others faced with the dilemma of how to care for your fish while away on vacation, business or collecting in Africa.



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Aphyosemion bitaeniatum "Ijebu Ode"



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Baryancistrus sp. "Gold Nugget" L-18

The Royal Farlowella: *Sturisoma aureum*

Brian Carson

This article first appeared in the April 2000 edition of Pittsburgh Finformation, a publication of the Greater Pittsburgh Aquarium Society, Inc.

Every now and again, we come to the fishaholic cross-roads with psychologically tortuous questions like: "Should I?" and "Could I?", self-answered with "They're too expensive!" or "I don't have tank space."

A million reasons race through your mind why you shouldn't get that odd-ball pair (or group) of fish with only one true reason why you should—"They're too damn cool to pass by." After years of subjecting myself to this psycho-babble debate and usually walking away empty handed, I've learned to take the advice of a good friend and veteran hobbyist—"Get the fish now, worry about the rest later". 100% of the time I am satisfied with this approach. It was by this philosophy that I bought my first pair of *Loricariid* species catfish, the Royal Farlowella.

Although not extremely rare, the Royal Farlowella is relatively expensive. An adult pair can command a price tag of \$50-\$60. However, once past the initial investment, the pleasure in keeping them is worthwhile. I've heard rumors and read literature that call this fish a "problem" fish that is very finicky about water quality and fussy about foods. My experience has been everything to the contrary. No special water conditioning has been necessary and, to date, the only food my pair will eat is flake food, frozen brine shrimp and, their favorite, algae wafers. Although eaten the first couple of months, items like zucchini, cucumbers and green beans go untouched and eventually rot. They even turn up their noses to homegrown algae, supposedly a staple in their diet. However, I do have to admit that when I bought them, they were placed into a 20 gallon long aquarium covered top to bottom in algae which was squeaky clean the very next day, probably a result of not getting enough to eat while in the pet store.

Being paranoid of rumors of "sudden death" if the water quality was to fall below pristine conditions, I performed 50% water changes with dechlorinated water 3 times a week. I did this for nearly 2 months (that is about the maximum extent of interest I have in new fish that don't seem interested in spawning). Although they appeared healthy, spawning just wasn't in the cards for now. I cut

back to a 50% water change once a week and then to 90% every two weeks and then I lost track. It wasn't until I bought several pencilfish that the cats would finally spawn. The difference: I started back to 50% water changes once a week and, by this time, the few sprigs of water sprite floating atop the water had grown into a dense mat of vegetation. Light levels were low and the water clean—my recipe for success. The male soon began to court the female by perching himself on a rock, face into the current of water from the outside filter, and wag his body to get her interest. He would then swim (if you can call it that—not a pretty scene) next to her and nudge by placing his head under her body and then lift upward. He would do this until she was in his chosen spawning site, which was a submersible heater tube, clipped diagonally on the back glass. I could tell it was the male from the small "beard" protruding from the rim of his nose and the downward hook created by the first ray of the dorsal fin. About 100 eggs were laid with each one being fertile. Now the true dilemma: what to do with the fry?

In my experience with the Royal Farlowella, all the rumors regarding water quality and being fussy eaters really are true, but they only apply to one phase: newborn fry. With the first spawn, I decided to allow Mother Nature to take her course because the only other tankmates were pencilfish and emperor tetras. The male aggressively guarded the eggs as he tirelessly fanned them day and night during the 10-day incubation period. Although the tankmates were well behaved, the tank simply was too large and the fry had no chance of finding food. They all perished.

Fortunately, the pair was on a roll and laid another batch of eggs within 10 days, again on the heater. Because it was winter, I did not want to pull out the heater and decided to siphon out the young when hatched. Bad decision. They all perished. Before they could lay another batch of eggs, I placed a few rocks on the heater and the male chose another spot—the bottom of the aquarium. This time I allowed the eggs to develop for 9 days and then scraped them off with a razor blade. While I scraped, I siphoned the eggs as they were freed from the glass and placed them into a 2 1/2 gallon aquarium for close observation. The eggs hatched, the fry absorbed their yolk sac, refused to eat (green beans) and then perished.

It wasn't until another fellow hobbyist gave me the answer I was looking for: Trout Chow and snails! At

(Continued on the next page)

each feeding (three times a day), I would place a few nuggets of Trout Chow into the aquarium and watch the snails devour it as fast as they could (which is pretty slow). What do Trout Chow and snails have to do with raising Farlowella fry. I have no idea but it works! I can only guess that the fry either eat dissolved portions of the food the snails leave behind or eat microbes that the snails cast off in their waste. In any event, I maintained a relatively strong current with a well established sponge filter and changed half the water each day. After about a week of Trout Chow feedings supplemented with sponge filter "scrunge", I added a couple of green beans to the aquarium that were immediately accepted. It was this combination of food and regular water changes that allowed the fry to get past the critical age of about one month.

Farlowella young grow at astonishingly slow rates, so you must be willing to dedicate tank space for at least a few months. Frequent water changes are a must and they don't fare well if transferred often from one tank to another, which may account for high mortality rates when sold too young. Aside from the pitfalls of raising "problem" fry, the Royal Farlowella is certainly a must for any hobbyist looking for something worthwhile. As an extra incentive, they are also listed as a target species in the GPASI BAP.

Industry Supporters:

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Echinodorus schlueteri

Walter Buekert

This article first appeared in the March 2000 edition of *The Nekton*, a publication of the Saskatoon Aquarium Society.

Plants play several significant roles in an aquarium environment. They add beauty and contribute oxygen to aquarium and remove carbon dioxide from the water while providing hiding places for young fry and/or small fish from the more aggressive fish. Plants also slow the growth of green algae, which can color an entire aquarium green if not controlled. Plants will compete with the algae for light and nourishment and will usually win. To avoid algae in a new aquarium plant a few fast-growing plants right away. After a few weeks you can replace them with more beautiful and demanding plants. Although most plants are rooted in the gravel at the bottom of the aquarium, some will float on the surface and others cling to rocks and logs. Most of the plants will reproduce by sending out runners or growing plants on their existing leaves. With some more aggressive plants it will be necessary to trim longer leaves back to let the light through to the plants below.

E. schlueteri has leaves that are egg or heart-shaped. The leaves vary in size from 4 to 6 inches long and 6 to 8 inches wide. The blade is freckled with numerous red-brownish spots. The spots are enhanced by bright light. The spots are most conspicuous on the young leaves but are often maintained on the older leaves as well. This plant will grow quite well in a pH between 6.0 and 7.8 and the temperature between 72 and 82 degrees F.

I had my plant in an 80 gallon tank. It was homemade and had glass only on the front. The rest was plywood with fiberglass inside. The lighting was 4 4-foot fluorescent bulbs, 2 cool white and 2 warm white. Every Monday 25% of the water was changed and every 2 1/2 months I added a type of fertilizer. The fish I had with the *E. Schlueteri* were Swordtails, Zebra Danios, 2 Loaches. Other plants in the tank included *Vallisneria americana*, *Cryptocoryne wendtii*, *C. beckettii*, *C. willisii*, *C. petchii* and *Bolbitis heteroctii*. I had 2 to 3 inches of gravel in the tank and was using a powerhead with a sponge filter attached for filtration.

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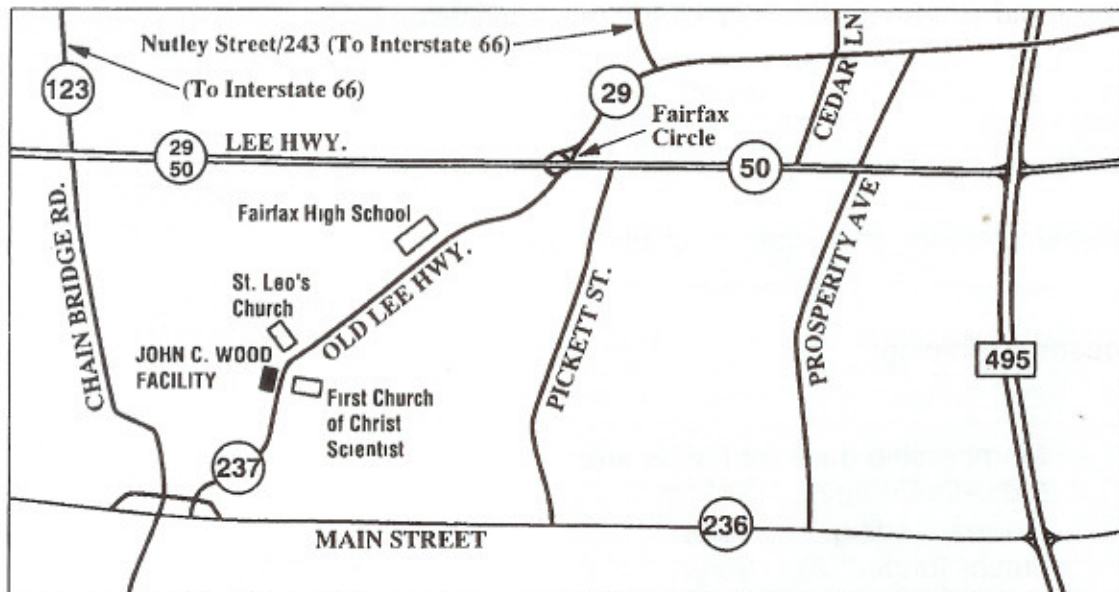
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