DELTA TALE

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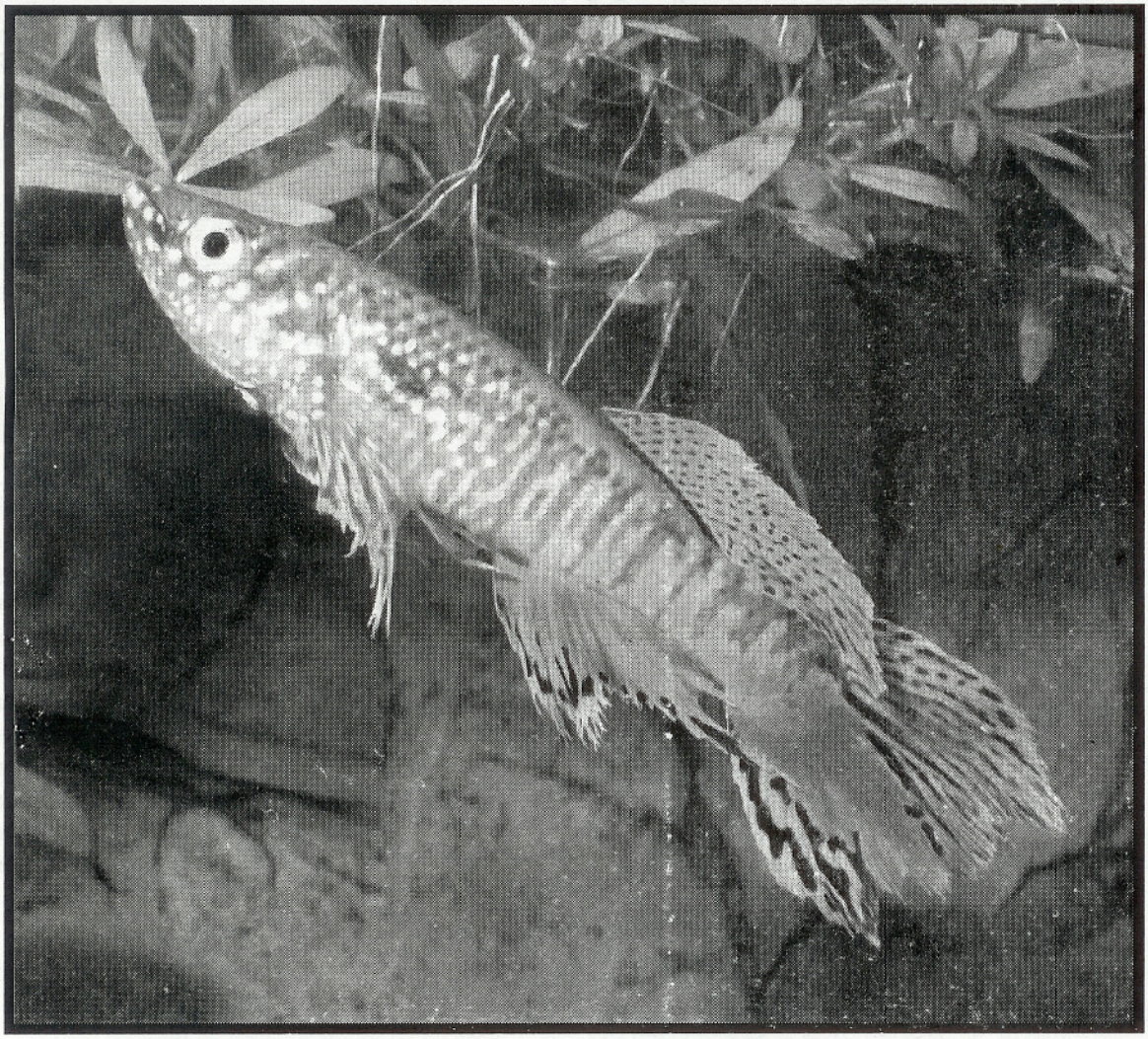

DELTA TALE

Volume 32, Number 3

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:
Fundulopanchax sjoestedti
"Blue Gularis" by Francine Bethea

Please visit the PVAS web site at:

www.pvas.com

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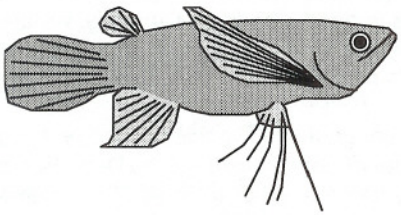


Line drawing by PVAS member Gene Moy

President's Message

David Snell

The June auction was a success, but it was not without its problems. It has been determined that a number of items were stolen before being auctioned. PVAS has compensated the sellers of the stolen items.

This not only cost the club money in terms of compensation, but it could hurt the club in holding future events. These stolen items could mean the difference between PVAS making or losing money at the auction. The money that is earned is simply reinvested in the next event. If PVAS does not make a profit at the auctions, we will not be able to hold future events.

Many people think PVAS generates a lot of money at our auctions. However, its getting harder and harder to keep costs down and generate a profit. This past auction is a great example. We had auction sales of $4800, which means that PVAS "made" $1600. Then reduce our income by $700 for the hotel space, and about $300 for publicity, mailings, etc. Reduce the remaining $600 by nearly $100 in stolen auction payments, and about another $100 or so in bad checks/non-paying buyers. It looks like we really earned about $400. That is not a lot of money for 8 hours of work done by 20 volunteers.

Although PVAS did compensate the sellers for their stolen items, this procedure will not likely continue in the future. We also run the risk of people "working the system" by listing items, then pulling them and claiming they were stolen. Unfortunately, sellers are now not only faced with the risk of fish selling below their expected selling price, possibly dying in the bag, but now also theft. The club will take reasonable precautions to try and prevent theft but we feel that the owner of the items placed in the auction has to assume some responsibility for the safety of the item. If we work together we can solve this theft problem.

PVAS has been formulating ideas to eliminate the theft problem at future auctions. At the upcoming Board meeting, we hope to develop some type of security procedure for our August auction.

If anyone has any information regarding the stolen items or witnessed any suspicious activities during the auction, please contact me at david@in2fish.com or please call me before 9PM @ 703-968-9084. At future events,

if you see any suspicious activities, please report it to a PVAS officer or auction worker immediately. If we work together, we can ensure our success at upcoming auctions.

There is one other issue I need to bring up, and that deals with auction payments. The majority of the buyers promptly pay at each auction. We have a growing problem of buyers not paying PVAS at the end of the auction. This is requiring PVAS to send out invoices requesting payment that sometimes take 3-5 months before we receive payment. Recently, we have had up to $500 in late payments. Everyone is reminded that payment is required at the end of the auction. Being "out" $500 makes it difficult to budget and plan future events.

At the July Board meeting, PVAS will determine if buyers will be required to leave some type of collateral in order to receive a bidder number. The collateral might be a driver's license, signed blank check, or a cash deposit.

Any changes in policy and/or procedures will be communicated in the Delta Tale, on the PVAS web site, in the PVAS List messages, and in our auction flyers.

Until next time,

David
david@in2fish.com

From the Editors' Tank

Nancy Johnson, our Exchange Editor, is on vacation, so we've done something a bit differently with this edition. Instead of the usual selection of articles chosen by Nancy from other clubs' publications, we have printed two items that came as a special request directly from the other clubs. The first, which came through PVAS member Ken Guin, is an announcement of the Aquatic Gardeners' Association's International Aquascaping Contest. Perhaps I'll even enter this year... that is, if I ever set up the CO2 system that I purchased two auctions ago...

The second is by special request of the American Livebearer Association. Judging from the continuing appearance of fancy guppies at PVAS auctions, someone in the club is still working with the fish that started so many of us in the hobby. You wouldn't know it, though, from browsing the Photo Gallery on the PVAS web site. Corys and cichlids abound... even saltwater fish are represented, but nary a livebearer.

How about it? If you're working with these fish, take a few photographs and send in the pictures for the PVAS Photo Gallery on www.pvas.com and for publication in the Delta Tale.

The third item is by PVAS member Gene Moy. What's it doing in the Exchange Section, you ask? Gene recently visited Hawaii, where he toured the fishroom of a member of the Honolulu Aquarium Society. Congratulations on the club's 50th anniversary!

That's all for now. Happy reading.

Membership Update

Francine Bethea

PVAS would like to welcome a few new members to the club. They are:

Michael Thennet of Falls Church, Virginia
His interest: natives, marine and cichlids

David Schnur of Arlington, Virginia
His interest: Lake Tanganyika cichlids

Terri Vance of Chantilly, Virginia
Her interest: African cichlids, killies, Rainbows, plants, marine and Synodontis cats

John Field of Takoma Park, Maryland
His interest: he didn't say.

Now that the smoke has cleared, the Membership Committee is proud to announce that there are 101 PVAS members in good standing! Currently, we are working on a membership directory that will include each member's name, city and state and e-mail address.

I want to congratulate Pamela Champ on her creativity. The January/February issue of the Delta Tale listed new members and she used that to verify her membership in order to receive a 10% discount on her purchases at a local fish store. Maybe membership cards are in the making. How about it, BOD?

The Bowl Show Rules!

Francine Bethea

June 2001 Bowl Show Results - Class: Open

- 1st Place - Andrew Blumhagen
  Esomus metallicus – 5 points
- 2nd Place –Barbara McClorey
  Corydoras aeneus – 4 points
- 3rd Place - Barbara McClorey
  Gambusia holbrooki –3 points
- Show - Barbara McClorey
  Ilyodon amocea – 1 point

There are slight changes concerning the Bowl Show starting in July 2001. By the time you read this, full information about the revisions will also be available on the PVAS Web site.

There are now 3 classes of fish per month. In addition, a 'Best of Show' category has been created that will give 2 extra points to the winner. *No fish outside the designated classes will be judged for points.* However, you may bring in any 'out-of class' specimen for show-n-tell. The new classes are printed below.

Members who had entries from February through May,please send me your name, fish name and points received. You may e-mail me at MsCichlid@AOL.com

PVAS meetings are held at the John C. Wood Facility, Fairfax, Virginia. Directions and map are printed on the back cover of the Delta Tale.

What's Happening

PVAS Calendar

July 9: Monthly meeting, Fairfax, VA
August TBD: Summer auction
August 13: Monthly meeting, Fairfax, VA
September 10: Monthly meeting, Fairfax, VA
October 18: Monthly meeting, Fairfax, VA
Note: Third Monday of the month
November 2-4: Fall Fish Festival
November 12: Monthly meeting, Fairfax, VA
December 10: Holiday Party, Fairfax, VA

Other Local Events

July 8: **NANFA** Unicorn Fish Hatchery, Queen Anne's County, MD
July 14: **GWAPA** meeting, Lakeridge, VA
August 17-19: **CMAS** hosts Marine Aquarium Conference of North America XIII, Baltimore, MD

CAKC-Chesapeake Area Killifish Club, www.pvas.com/cakc
CMAS-Chesapeake Marine Aquarium Society, www.cmas-md.org
GWAPA-Greater Washington Aquatic Plants Association, www.pvas.com/misc/plants.htm
NANFA-North American Native Fishes Association, www.nanfa.org
Contact information for local NANFA events, www.pvas.com/calendar/calendar.htm
WAMAS-Washington Area Marine Aquarium Society, www.wamas.org

July 2001
Class I The Reddest fish
Class II The Albino fish
Class III The Bluest fish

August 2001
Class I Apistogrammas
Class II South American Killifish
Class III Gouramis

September 2001
Class I Tetras
Class II Guppy
Class III West African Cichlids

October 2001
Class I Discus
Class II Synodontis Cats
Class III Molly

November 2001
Class I Danios
Class II Rainbowfish
Class III Malawi Cichlids

December 2001
No Bowl Show

The Albuquerque Aquarium: Small But Spectacular

Nancy Johnson

My husband recently had a business trip to New Mexico, so I joined him for the weekend. It's a long way to go for a weekend. There are no direct flights, and with the time change you travel all day. However, it was a neat place and nice to get away without the kids, which we haven't done in many years.

One thing about New Mexico, as much of the west, is that you can drive 90 miles an hour and no one cares. The distances are long, so people drive fast. We paid $5 a day extra to list me as a second driver for the rental car and then my husband wouldn't let me drive.

The first day we visited Santa Fe. It's an old ghost town that came back to life as an artist colony some years ago. There are about seven historic sights that take about five minutes each to see, including the first known house in the nation—basically a clay cave that until recently had a chest with the corpse of a man beheaded by a witch who lived in the house. The ghostly head supposedly rolls down the street on occasion. It costs $1 to see (the house, not the head).

"The centerpiece of the aquarium is an enormous saltwater tank that supports a wide variety of sharks, rays, turtles, schools of Lookdowns and reef fish."

The most impressive artifact there is a beautiful old church that has a magic spiral stairway. When the church decided to install the stairs a few hundred years ago (because the nuns had a lot of trouble with the ladder) a mysterious man arrived, built the stairs at no cost to the church, and just as mysteriously disappeared. The wood has been tested and does not match any other known wood in the world, and no one knows how the staircase is supported. The speculation is that the mysterious builder was either Joseph, the carpenter from Nazareth, or his son. Truly awe-inspiring.

After seeing these sights, you shop and shop and shop until you drop, which doesn't take long at 7,000 feet.

On to the Aquarium

The second day we went to Albuquerque and my priority was to see the aquarium, which is located within a botanical park that costs $5 to enter. It's only a few blocks from the heart of the city, which is Old Town.

We actually liked Albuquerque's Old Town better than Santa Fe. Things were a little more down-to-earth, if you know what I mean ($$$). Albuquerque also has an incredible museum that goes into painstaking details of the entire history of the area. It includes fabulous examples of real armor and weapons used by the conquistadors. If you like ancient military history, you'd love this place. I *don't* like ancient military history, and I was very impressed. The museum is so big that we pooped out and couldn't get through the whole thing.

That was because we had already walked all day in the town and at the aquarium, which was as impressive as Baltimore's, albeit on a much smaller scale.

The centerpiece of the aquarium is an enormous saltwater tank that supports a wide variety of sharks, rays, turtles, schools of Lookdowns and reef fish. One end of that display backs up to the restaurant, which is very cheap and has great food. In addition to a huge viewing panel from the big tank, the restaurant has two smaller saltwater tanks with little aquarium fish such as clowns and damsels, not to mention at least four eels that I could find, and a large freshwater tank of the local endangered trout.

As you enter the main aquarium, there's a small "petting" pool straight ahead, and a movie theater. The movies were very good, except that the sound system literally shook the entire room. I got up to complain and I guess they turned down the bass somewhat, although by that time I was too deaf to really figure it out. The screen also had a big yellow dot, to the left of center. I complained about that too, but they said it was permanent. I asked for some Windex and the keys to the projection room, but they pretended they didn't hear me.

Inside the aquarium were a variety of salt and freshwater tanks. They were in good shape and the fish seemed healthy, but unfortunately many of the specimens were not identified.

Around the corner was the most spectacular jellyfish tank I had ever seen. It was a floor-to-ceiling round tank,

Continued on page 7

Venezuela Collecting Diary

R. Shane Linder

Editors' note: PVAS member Shane Linder is on assignment with the United States Department of State in Caracas, Venezuela, and has been sharing his collecting diary with catfish aficionados over the Internet. Thanks to Shane and to Francine Bethea for arranging for republication in the Delta Tale.

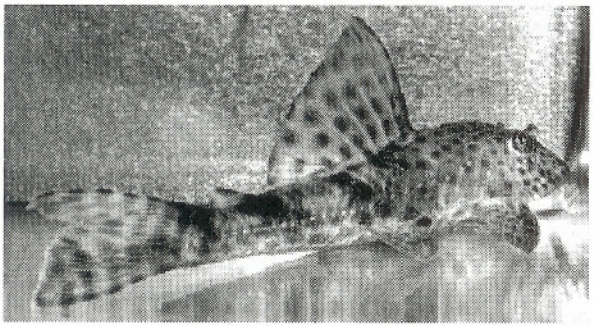


Photo by PVAS member Francine Bethea

Just returned from a fantastic day of collecting in Cojedes State. On Friday April 6, 2001 we drove from Caracas to Norbert Flauger's posada, Casa Maria (see earlier entry, printed in Delta Tale Vol 32, No. 2), in Carabobo State. We spent the evening discussing collecting and maintaining various fish. At some point, I mentioned Ingo Seidel and Norbert said that he thought Ingo would arrive Wednesday. Sure enough, Norbert checked his guest list and Ingo was scheduled to arrive this week. Ingo and I missed each other by two days! The next morning we left Casa Maria at 6:00 am to collect the Rio Santo Domingo and the Rio Tinaco. Norbert had claimed that the Rio Tinaco was the best place in Venezuela to collect loricariids, so I was very excited.

Rio Santo Domingo, Cojedes State 7 April 2001

In its lower course the Santo Domingo is called a Rio while the upper portion is referred to as Cano Santo Domingo. The exact collecting location was on the dirt road that leads west from highway 8 at Cano Benito approximately 40 km north of El Baul. Since it is the dry season, the Santo Domingo is not a river any more, but a series of unconnected pools. We collected from a pool under the bridge and turned up some very interesting fish. The pH was measured at 7.0 and the conductivity at 1,100 mu. The temperature was about 84ºF and the water had almost no visibility. In a glass container, the water was the color of weak tea. This area is the northernmost range of *Apistogramma macmasteri*. The substrate was thick leaf litter and driftwood with no aquatic plants. Collecting the leaf litter turned up:

Corydoras aeneus "black"
Corydoras septentrionalis
Corydoras habrosus (thousands!)
small banjo cats
Rineloricaria (1 specimen)
Otocinclus (thousands!)
Trichomycterids (at least 2 spp)
2 spp. of small Auchenipterids
small *Pimelodus*

Collecting around larger pieces of driftwood we encountered:

Hypoptopoma
Hypostomus plecostomus

It was possible with one sweep of a ten foot seine to capture 200 *Otocinclus* and/ or *C. habrosus* (the two were always mixed). The two *auchenipetrids* were also very common and we thought we only had one species as the color patterns are very similar. Only later did we realize that one has a dorsal and adipose fin and the other only has a small single dorsal spine with no adipose. We also turned up a number of interesting tetras to include some beautiful hatchetfish. The prime predators in the pools were large *Hoplias*.

The water was so full of fishes that it seemed to boil, especially when a large school of *Corydoras* came up for air at one time. Norbert and I joked that it would be impossible to fill a tank with dead leaves, heat it to 84ºF, throw in a few old cans, and place about two inches of fish to every gallon. If you tried to replicate this environment exactly, it would be cruelty to animals!

Notes on *C. aeneus* and *C. septentrionalis*: Fresh from the wild, both fish are bright emerald green. The only way to tell them apart in the net is by looking at the caudal. In a bucket, it is easy to spot the longer-nosed *C. septentrionalis*. *C. aeneus* "black" only turns this color after a few days in captivity. *C. sp. aff. aeneus* "Venezuela" (All Corydoras, pg. 108) is the form from the Rio Chirgua while *C. aeneus* on pg. 104 look like the *C. aeneus* from the Rio Tuy. The interesting thing is that in the wild, all three look the same, bright emerald green, immediately after capture. The color change comes later in captivity.

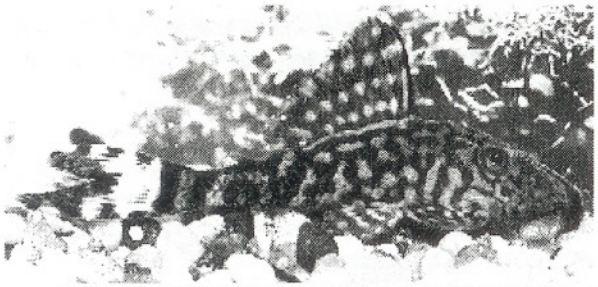


Photo by PVAS member Francine Bethea

The Biotope

This would be an easy and attractive tank to maintain. The other nice thing is that most of the fish are readily available. Lay down a substrate of about 3/4 inch fine sand. Cover this with two inches of old oak leaves. Along the back and the sides, place several pieces of driftwood. A long shallow tank (such as a 20 long) would be ideal.

We caught *C. habrosus* and *Otocinclus* in 2-3 inches of water. Filtration should be very gentle such as that provided by a sponge filter. Throw in some 4-5 *Apistogramma macmasteri*, 10-15 *C. habrosus* (or smaller groups of the larger corys), 3-4 banjo cats, and top it off with some hatchet tetras.

"This area is not what the typical hobbyist pictures when they think about where their fish come from... To envision the Llanos, think of central California in the summer."

Rio Tinaco

In less than an hour, we had all the fish that we could carry from Santo Domingo. We all climbed back in Norbert's truck to bounce another 30 minutes down dirt roads across the Llanos. Actually, we did not bounce too much since Norbert has a new 2000 Chevy Grand Blazer with air conditioning and a CD player (now that is collecting in style!).

Santo Domingo and Tinaco are located in the Venezuelan great plains known as the Llanos. This area is not what the typical hobbyist pictures when they think about where their fish come from. The Llanos are flat, dusty, and very hot in the dry season. To envision the Llanos, think of central California in the summer. This time of year, a few rivers wind through these plains and few small swamps remain where there were large lakes in the wet season. Despite the inhospitable environment, the Llanos are home to jaguars, the anaconda, and a dozen spp. of piranhas which are all creatures that North Americans and Europeans usually associate with tropical jungles.

As the crow flies, there is less than a ten miles between the Rio Santo Domingo and the Rio Tinaco, so I was very amazed at the difference in the fish species. This is really a comparison of habitats since both rivers flow into the Rio Portuguesa. Santo Domingo is a true cano that fluctuates between a river and small pools depending on the time of year. The Rio Tinaco, even in the dry season, still has some current and moves along. The Tinaco was very low the day we collected. Norbert said that this was the lowest he had ever seen the river. In places, it was actually possible to jump across the river. The river had a substrate of sand and gravel with several large driftwood snags. The temperature was about 80F, pH 7.5, and the water surprisingly hard at close to 3,000 mu. The reason for the higher pH and hardness is that the Tinaco originates in the mountains while the Santo Domingo just takes drainage from the surrounding plains. The other major difference is that since the Tinaco never dries, it is full of piranhas, electric eels, and freshwater rays. Nearly all of the fish collected exhibited damaged fins from piranha attacks.

Piranhas (despite the legends) are not really a danger to the collector. Electric eels and stingrays, however, are another story. Electric eels like to hide under cutbanks. These are normally great collecting locations, but because there are so many electric eels here, we avoided the eroded inside banks. Stingrays prefer shallow water with a sandy bottom. When crossing these areas, always take a long walking stick and probe the sand ahead of you as you walk. A fishing guide that I know in Camatagua was once stung by a ray and he was down for three months before he could return to work. He is also missing the tip of his index finger because he was not paying attention once while removing the hook from a piranha's mouth. Now that is a mistake you only make once!

The afternoon's take:
Panaque nigrolineatus (3 all under two inches)
Lamontichthys (12 specimens)
Loricaria (a beautiful mottled white and gray sp., rare, we caught 1)

Cochliodon
Hypostomus plecostomus
Hypostomus watwata
Hypostomus aff. L-153 (this will need to grow before I can ID them)
Otocinclus
Hypoptopoma
Panaque similar LDA-22
Glyptopterichthys similar L-154
Lasiancistrus sp (similar L-92)
Tatia sp.
Trichomycterids (2 spp)
Heptapterus (?)

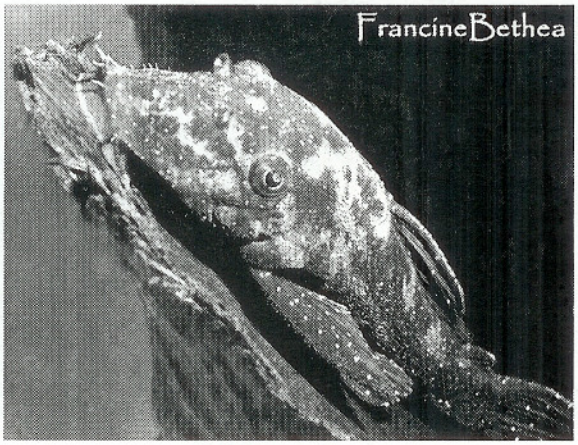
Lamontichthys are only found amongst driftwood near riffles. Most Loricariids were, as you would expect, caught amongst driftwood piles. *Hypoptopoma* are best located where erosion has caused a living tree to fall in the water. In these areas, they are very thick and as many as 20 can be caught in one sweep of the net. At Santo Domingo we caught only small (under 1.5 inch) *Hypoptopoma* while at Tinaco they were all in the 3 inch range. The largest LDA-22s were 3 inches.

The *Heptapterus* sp. is very strange. At first I thought they were just another Trichomycterid. Only by looking very closely did I note the long barbels. The species is entirely black and I kept a few to see how they do in captivity.

Norbert had promised great pleco collecting, and at the end of the day, I had no complaints.

The biotope:
The biotope for the Tinaco is just what you would picture for a typical pleco tank. Use the largest tank possible and fill it up with twisting driftwood branches. I do not mean to use a few pieces of driftwood; I mean stuff the tank with tangles of wood. The end product should fill the entire tank with a maze of branches. In addition to good filtration, add a couple of strong powerheads to keep the water oxygenated and moving. The only really difficult thing to reproduce would be the holes in the bank that many *loricariids* use to spawn in during the wet season. Substitute these with clay or plastic tubes hidden at the back of the tank.

The Trouble with Trichomycterids
Over the last week, since returning from the Rio Tinaco and Santo Domingo, I have been losing all of my little Auchenipterids. I thought it very strange, as I have not



lost any other fish from that trip. Last night I noticed that one barely surviving Auchenipterid had serious damage on one flank. I had noticed that the dead Auchenipterids were pretty chewed up, but I just chalked it up to other fish feeding on the corpses.

I had placed all of the Auchenipterids in a small tank with the two spp. of Trichomycterids (Candiru or Vampire Cats) that I had collected. Well, I am sure that you can see where this is going. I captured the Trichomycterids and placed them in a specimen container with the dying Auchenipterid. Right there in the little container the Trichomycterids attacked the poor little catfish. Since he does not have scales, they just took tiny chunks of flesh.

The moral of the story is to be careful about what you collect and even more careful about placing ANY Trichomycterids with your catch. The second sp. of Trichomycterid does not appear to be parasitic.

"The biotope for the [Rio] Tinaco is just what you would picture for a typical pleco tank. Use the largest tank possible and fill it up with twisting driftwood branches. I do not mean to use a few pieces of driftwood; I mean stuff the tank with tangles of wood. The end product should fill the entire tank with a maze of branches."

BAP Corner

John Mangan

Standings

PVAS Member	Points	Award Level
Don Kinyon	1005	Master Breeder
Gerry Hoffman	905	Master Breeder
Jeffrey Burke	445	Advanced Breeder
Lorne Williams	345	Advanced Breeder
Gene Moy	290	Intermediate Breeder
Francine Bethea	230	Intermediate Breeder
John Mangan	185	Intermediate Breeder
David Snell	170	Intermediate Breeder
Dov Goldstein	165	Intermediate Breeder
Bill Pabst	125	Breeder
Shane Linder	85	Breeder
Robert L. Smith, Sr.	20	Breeder
Debbi Smith	20	Breeder
Lee Hardy	30	Breeder
Kelly Kinyon	10	Breeder

Recent activity:

Don Kinyon receives 20 points for *Corydoras baianinho II*;

Bill Pabst receives 10 points for Praecox Rainbow, 20 points for albino *Corydoras*, and 15 points for *Betta splendens*;

Francine Bethea receives 20 points for *Corydoras barbatus*, 30 points for Bristlenose pleco (*Ancistrus sp.*), 15 points for *Fundulopanchax sjoestedti* (Blue Gularis), and 15 points for *Nannacara aureocephalus*; and

John Mangan receives 10 points for *Xiphophorus clemenciae* and 10 points for *Xiphophorus helleri* Rio Palma.

I'd like to encourage everyone to participate in the program. If you're not sure how, you can find a complete set of rules on the PVAS web site (pvas.com) or see me at one of the monthly meetings. You don't need to be an expert fish breeder to be in the program - one of the goals of the program is to help beginners learn more about fish breeding - and you can progress at your own pace.

John Mangan, ranchogoodeid@aol.com

BAP Checkers

Checker **Area**

David Snell.....Centreville/Chantilly/Manassas
(703) 968-9084

Mike Cardaci.....Centreville
(703) 222-3833

Robert "Smitty" Smith.....East Prince William County/
(703) 490-4048 Springfield

Dov Goldstein.....Frederick MD
(301) 694-7582

Gene Moy.....Mt Vernon/Olde Town
(703) 765-0865

Rick McKay.....Oakton/Vienna
(703) 281-1647

Francine Bethea .....North Prince George's County
(301) 809-3894

Lorne E Williams.....South Prince George's County
(301) 630-7674

Pete Thrift.....Springfield/Franconia
(703) 971-0594

Gerry Hoffman.....Warrenton/Manassas
(540) 347-7486

John Mangan.....Occuquan/Lake Ridge
(703) 491-4980
ranchogoodeid@aol.com

Industry Supporters

Aquarium Pharmaceuticals, Inc.
Aquarium Systems
E. G. Danner Mfg., Inc.
Freshwater and Marine Aquarium Magazine
Hikari Sales USA
Jungle Laboratories Corp.
Marineland Aquarium Products
Novalek
Omega One
OSI Marine Lab., Inc.
Penn Plax, Inc.
St. Jon Group (parent of Mardel Labs)
Tetra
TFH Publications

Apistogramma diplotaenia

Don Kinyon

This tiny *Apistogramma* comes from the soft, very acidic black waters of the Rio Negro in Venezuela and Brazil. It was first introduced into the hobby in 1981 by Schmettkamp and officially described in 1987 by Kullander. Being relatively new to the hobby, fairly rare in nature, very attractive, and more difficult to breed than some *Apistos* make this fish hard to find and very expensive when you find it.

The male can get to a length of just over 2", including the tail, and the female gets to 1 1/2". Both the male and female of the species develop a black double stripe that runs the length of the body. The stripes meet behind the eye at one end and just before the tail at the other. Males are the more colorful of the two, with color ranging from blues to yellows to reds. The body is a white/silver, with most of the color restricted to the fins. The dorsal develops a separation of the first few spines and a filament at the rear. The rounded tail has colored bars that run in arcs concentric with the outer circumference. The fish I am working with are the blue variety, and it's hard to describe with words just how beautiful they are.

I kept the parents together in a 20 gallon tank filled with rain water; very soft and acidic. I further lowered the pH with dilute phosphoric acid to 5.5 or below. The temp was kept around 82°. For cover, there was sunken locust wood and several clay pots. I used no gravel in the tank, but most of the bottom was covered with a layer of oak leaves and the rest with hair algae an inch tall. The only filtration in the tank was a simple sponge type, but water was kept fresh by a 30 percent water change twice weekly.

Feeding the adults was no problem, as they ate anything given to them, including flake foods. In the morning, they got some kind of dry prepared food; either flake or freeze-dried, and in the evening either live or frozen food. Every second day or so, they got some newly hatched brine shrimp. With this diet and water change schedule, the fish showed their breeding colors in no time.

The first thing that clued me that the parents had spawned was a very bright yellow female guarding a patch of oak leaves in the corner of the tank next to the sponge filter. She continued this behavior for the next six days, at which time she emerged followed by a troop of about 75 fry!

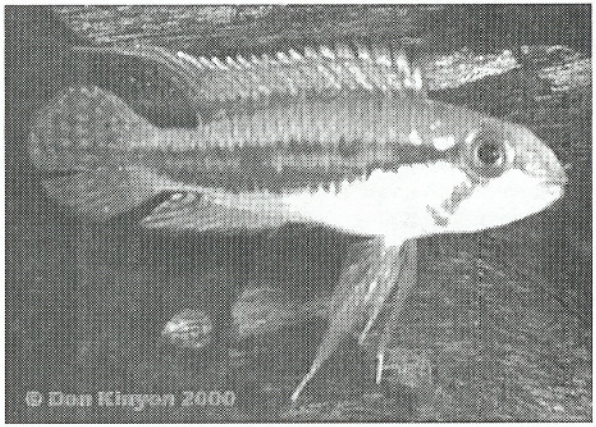


Photo by PVAS member Don Kinyon

The male patrolled the tank perimeter, but was kept away from the shoal by the ever-watchful mother.

For the first few days, the fry ate microworms. They were very tiny and probably too small for even newly hatched brine shrimp. In a few days, they had grown enough for brine shrimp to be added, but microworms were also kept on the menu for the first three weeks.

After the fry had been free-swimming for two weeks, the male started to harass the female, so he was removed. The female continued to keep watch of the young for an additional week, at which time the youngsters no longer paid any attention to her, so she was also removed.

The young grow very slowly; at one month they were between 1/4" and 3/8". In another month's time, they were at just under 1/2". They continued on newly hatched brine shrimp, along with finely chopped white worms and crushed flake food, until they were two months old. After two months, they were given all the same foods as the adults, though some foods had to be chopped or crushed.

One can only hope that many more hobbyists and breeders take the time to raise this small Apisto. I believe anyone who attempts it will find it well worth the effort.

For more information:

South American Dwarf Cichlids. Mayland/Bork pp. 58-60, picture & text

American Cichlids I, Dwarf Cichlids. Linke/Staeck pp. 45-46, picture & text

Aqualog - South American Cichlids II. Glaser/Glaser pp. 30-32, pictures & information

Apistogramma species affinis breitbinden "Sao Gabriel"

Don Kinyon

It's hard to keep up with all the new species of *Apistogramma* being imported from South America lately. Some are rather plain and others are exceptional in one way or another. This fish falls into the latter category. It is difficult to get much information on many of these fish, but knowledgeable people on the subject tell me this Apisto comes from the Rio Negro system near Sao Gabriel, Brazil.

> ***"The young fish immediately were able to eat newly hatched brine shrimp and, like their parents, always seemed ready for a meal."***

The male of the species has a silvery body with an indistinct dark longitudinal band from the gill cover just behind the eye to the base of the caudal fin. He also has the eye stripe prevalent in *Apistogramma* species. His fins are hues of yellow and blue, while his face is flecked with red. The dorsal, anal, and lyreate tail fins are all elongated in the male, but the most outstanding feature that he offers is the first few spines on his dorsal fin, which can nearly reach the tip of his tail when folded back. When the male displays, he raises them like a cockatoo and is something to behold. The smaller female is fairly bland by comparison, except while mating and brood caring, at which time she is bright yellow with jet black marking.

I gave my pair their own fifteen gallon tank, filled with collected rainwater; near zero total hardness and a pH of around 6, lowered to 5.2 with dilute hydrochloric acid. The temperature was kept at 80 degrees. Two sponge filters, some sunken wood, oak leaf litter and two upturned clay pots completed the setup. The fish were in excellent health when I received them, so on a diet rich with live foods and weekly water changes, they were in breeding shape quickly.

Soon the female laid claim to the smaller of the pots. She wooed the male by folding her fins and swimming sideways to him while wagging her tail back and forth. Evidently it did the trick, for a few days later there were about 80 pink and white eggs on the underside of the pot. The male was no longer welcome anywhere he tried to rest within the sight of the female, se he was removed for his own safety.

The mother fish spent most of the next week inside the pot, only coming out to eat quickly or to chase away imagined predators. In six days she exited the pot with 40-plus babies in tow. The young fish immediately were able to eat newly hatched brine shrimp and, like their parents, always seemed ready for a meal. They followed the female for over three weeks, at which time they went their own directions, so the mother was removed from the tank.

With twice-weekly water changes of about 25 percent, and plenty of feedings, the young grew fairly well. At one month they measured an average of three eighths of an inch, and at two months over a half inch. By this time the youngsters were eating much the same foods as the parents, and some of the males were starting to show the spectacular finnage. At this writing the fish are over three months old and becoming a little territorial. Some of the females have already staked out an area, but as yet, none of this generation has spawned.

Anyone willing to put forth a little extra effort and keep these *Apistogramma* will surely find them worth the trouble.

Albuquerque Aquarium, continued from page 1

about six feet in diameter, lit with black lights, and absolutely chock full of floating, pulsing moon jellies, bigger than dinner plates. At least I think that's what they were. Again, not specifically identified.

In that same area the huge salt tank had a curved floor-to-ceiling curving panel about 30 feet long. A few nice specimens of reef fish hid and picked among the fake coral at the bottom, which you can't see from the restaurant.

Several small displays of seahorses were interesting. Lots of information about 'horses, but again the specimens were not identified. I wished I lived in Albuquerque; I'd volunteer to go in there and punch up some of the descriptions.

For a small city and an inexpensive fare, the Albuquerque Aquarium is well worth the visit. New Mexico is simply a spectacular place, cheap to get to and inexpensive to visit. I highly recommend it.

Fundulopanchax sjoestedti

Francine Bethea

A friend and fellow PVAS member, George Richter, set me up with a beautiful pair of Blue Gularis. This species of killifish is one of the largest and most beautiful freshwater fish you will ever see. The males can reach lengths of about six inches and exhibit a kaleidoscope of blue-greens, rust, orange, and yellow dots and splotches. You would have to see this fish to believe it. The female, on the other hand, is a bland tan color and can reach four to five inches.

I recommend the Blue Gularis for several reasons. First off, these fish demonstrate a quality as pet-like as that of an Oscar. The constant stare at your every move once you enter the fishroom can be quite endearing. Come to think of it, their appetite is similar to an Oscar. Although live food is essential, having to culture earthworms isn't really all that bad. Frozen foods work well, too. So throw out some of the meat in your freezer to make room for a large supply of bloodworms and brine shrimp. In addition, if you are raising other species of fish and have to cull your spawns, the Blue Gularis will take care of that for you, too.

"Searching for acrylic yarn in forest green will win you strange smiles and lengthy conversations with sales people once you explain why you need it."

Another reason to give the Blue Gularis a try is to familiarize yourself with the art of making spawning mops. Searching for acrylic yarn in forest green will win you strange smiles and lengthy conversations with sales people once you explain why you need it. You will also learn that the mops need only be heated in the microwave for 10 minutes to leach out the dye instead of 4 hours on the stove. The mops are just so much more useful when they aren't frizzy and wavy. Large, thick spawning mops will also serve as protection for the female. The male can be quite determined and relentless in his pursuit to spawn.

Once you've got the mop thing figured out, you are ready for the egg picking. The eggs of the Blue Gularis are very easy to spot on the mop. That is, if you know what you are looking for. The eggs are clear, like tiny bubbles, not rosy or cream. Nor are the eggs in a nice adhesive

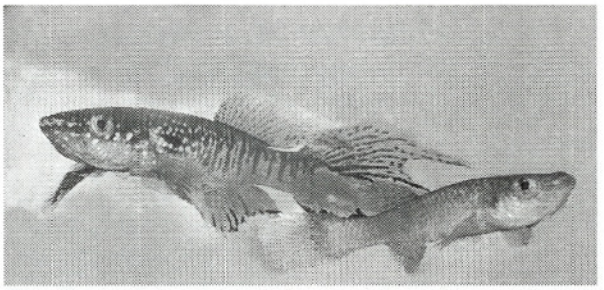


Photo by PVAS member Francine Bethea

cluster. No sir, you have go through the mop strand by strand. I must say that, once you find that first egg and the count gets up to about 50, you will forget all about that headache you got from eyestrain when you are done.

There are two methods of hatching the eggs of the Blue Gularis. One involves the use of a Petri dish with very fine peat moss to house the eggs. The other method is to water incubate them with the water from the parents' tank. The peat method takes about eight weeks for the eggs to hatch, whereas in water, it takes only 21 days. I chose the latter because it was easier for me in so many ways. I kept knocking the petri dishes over or forgetting about them altogether. The dish would dry out.

In my research, I learned of using an ice cube tray to place individual eggs. This seemed to be a grand idea at first because it was right down anal alley. Can you visualize rows and rows of ice trays methodically placed on sliding drawers? What a visual spectacle that would have been! However, the amount of trays needed got out of hand. Secondly, the water in the small compartment evaporates rather quickly. I kept forgetting about them. When I did remember the containers I would find one or two survivors. So I resorted to using those Gladware containers instead. These containers allowed the addition of java moss and snails which are beneficial to the newly hatch fry. Any fungused eggs were harder to find, however, because the mulm built up. The water changes for the fry in the containers were done with water from the parents' tank initially. After a week or so, regular water changes could be carried out.

Once the fry hatched, they were capable of eating microworms and baby brine shrimp. Blue Gularis grow at a fast rate and soon are able to take tubifex and brine shrimp. These little fish are capable of eating anything that they can fit in their mouths and things that don't quite fit as well. Soon you will have an exorbitant number of Blue Gularis.

Hemigrammus ocellifer Steindachner, 1863

David Snell

I purchased a pair of Head-and-Tail Light tetras from the Centreville Aquarium shop in late October 2000. I put them into my tetra conditioning tanks. As with other Hemigrammus species, it's fairly easy to distinguish the males from the females. The males are more slender than the females, while the females appear to be more full and round in the midsection. Also, when viewing the females head-on, the females that are filling up with eggs appear visibly wide.

The conditioning tanks had a pH of 6 to 6.3 and a conductivity of 380µs. The tetras were fed mainly frozen bloodworms, live blackworms, newly hatched brine shrimp, and live fruit flies. In a few weeks' time, the female was very noticeably filling with eggs.

For my spawning tank, I had set up a 5.5 gallon tank that was filled with about 3 gallons of RO water, with a conductivity of 50µs, and a pH of 6.3. The water temp was about 78-80°F. The water was treated with a double dosage of Kent Blackwater Extract. I attached a small piece of Java moss to a small lettuce clip that was attached with a suctioned-cup to the back glass panel. On the bottom of the tank was my homemade spawning grate that would allow the eggs to fall to the bottom of the tank and be separated from the adults above. Since tetra eggs can be light sensitive, the tank was covered with a dark towel to reduce the amount of light.

The pair was placed into the spawning tank on November 19th. Two days later in the morning, the pair had spawned. I noticed there were about 300-400 eggs. It looked like about 10% of the eggs had already fungused. The adults were immediately returned to their conditioning tanks. I was concerned that more eggs would fungus during the course of the day so I left the towel covering the tank.

Within 24 hours, the eggs started to hatch and I could see wigglers on the bottom of the tank. The fry only looked a few millimeters long and they looked like small slivers of glass. With in 36 hours it appeared that all the viable eggs had hatched. There were 300 or so fry on the bottom of the tank. By the second day, I added ½ cup of water from my paramecium culture to make food available to the fry when they became free swimming. As with the *Hemigrammus erythrozonus* fry, I found the *H. ocellifer* "hanging" on the glass nearly motionless.

"On the bottom of the tank was my homemade spawning grate that would allow the eggs to fall to the bottom of the tank and be separated from the adults above."

On the third day, I added another ½ cup of paramecium to the spawning tank. By the 5th day, all the fry were free swimming. The number of paramecium visible in the tank had declined. On the 6th day, I decided to try and start feeding the fry newly hatched brine shrimp. Although the fry appeared to be too small to consume newly hatched brine shrimp, the fry were able to eat it with out much problem. At this point, I discontinued feeding paramecium and continued the newly hatched brine shrimp.

I started doing water changes about once a week with more RO water. The Head-and-Tail Light tetras seem to grow more slowly when compared to the growth of the Glowlight tetras. The 5.5gallon tank was not likely the ideal size tank for raising them.

Over the course of the next two months it was clear that the number of fry were declining, but the strong remained. At about 6-7 weeks, the color of the fry started to look like the adults with the noticeable "head and tail" light. At about 2.5 months, I had about 80-100 remaining tetras. I moved about half the tetras to my 75 gallon planted tank, and I auctioned off the other half in 4 bags at the PVAS 2001 Winter Auction.

Trading Post

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 22192.

Your Ad Here: PVAS members may place an ad in the *Delta Tale* for free. Simply e-mail your notice to delta@pvas.com and it will be included in the next issue.

Nannacara aureocephalus

Francine Bethea

A few years ago, while thumbing through a Dwarf Cichlid book, I spied many species that I would have liked to have. Finally, the opportunity arose and I acquired a pair high on my wish list—*Nannacara aureocephalus*, also known as the Golden-Head Cichlid. In the wild, this species can be found in the Rio Mana of French Guyana. Luckily, I got mine from an importer out of New Jersey.

Once the pair arrived, I placed them in an established 20-gallon long that had water values similar to what the fish would experience in the wild—soft and acidic. A large piece of driftwood with Java Fern and Java Moss attached provided plenty of hiding places. A sponge filter gurgled slowly to encourage the growth of a thick mat of duckweed; the low light level gave the fish a sense of security. The other inhabitants of the tank were an aging group of Glowlight tetras. The water temperature was set for 78º, with a total hardness about 1º dH and a pH of 6. The combination of these water conditions and heavy feedings of live foods induced a spawn within 10 days.

The female's normal beige coloration changed to a checkerboard pattern of dark brown to black on top of the beige background. With this dramatic change in color came a fierceness to protect the spawning site. The male and the Glowlight tetras had been hounded to the far corners of the tank. After about 12 days, the fry became free swimming and the male was allowed to move in. The checkerboard pattern now adorned the male as well and he joined his mate to lead the fry around. A closer observation revealed that the fry also sported this checkerboard design and were very hard to find near the gravel floor.

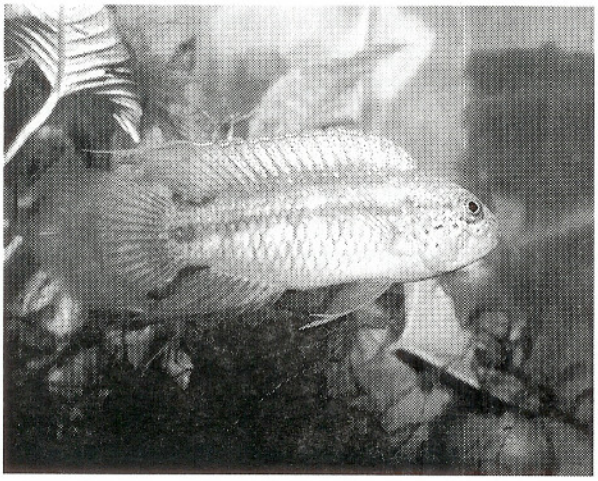


Photo by PVAS member Francine Bethea

"In the wild, this species can be found in the Rio Mana of French Guyana. Luckily, I got mine from an importer out of New Jersey."

The fry are capable of taking Microworms and *Artemia* as a supplement to whatever they found in the gravel and on the driftwood. The brood started out in heavy numbers, but soon the numbers began to dwindle. The survivors at 5mm in size began to stray from their parents, no longer in danger of being picked off by the tetras. In the meantime, the male returned to his normal coloration of gold with blue bordering each scale. The male had also surpassed the female in size, which is a distinctive trait of this species.

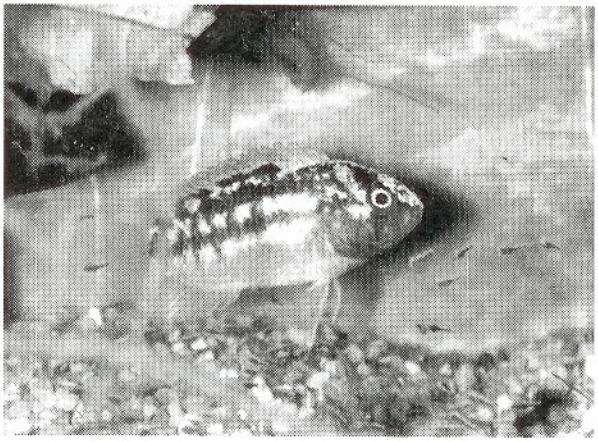


Photo by PVAS member Francine Bethea

Nannostomus beckfordi Guenther, 1872

David Snell

My three trios of *N beckfordi* came from the Aquarium Center in September 2000. *Nannostomus beckfordi* are found in the central Amazon. There bodies can reach up to 2 ½" in length. Although they are referred to as Golden, they are redder in color than golden. Similar to other Characins, the male of the species is more slender than the female. In addition to the red in their body, the males also have white tips on their fins. The females are more round in the mid section, especially the they start filling with eggs.

Once home the pairs were placed into my tetra conditioning tanks. These conditioning tanks are bare bottom 10-gallon tanks with a temperature set at about 75°F. The males were placed into one tank, the females into the other. All my tetras are fed the same foods, mostly frozen bloodworms, newly hatched brine shrimp, blackworms, Golden Pearls, and fruit flies.

In late September I noticed a few of the females being much more round in the mid-section. I decided to set up my typical 5.5-gallon spawning tank to try and spawn them. My spawning tank is a thoroughly cleaned tank. I typically clean my spawning tank, glass hood, and spawning grate with a high concentration of salt water. After the cleaning with salt water, I rinsed everything with tap water.

I placed a pair into my spawning tank. The 5.5-gallon tank was filled about 2/3 full of RO water with a double dosage of a blackwater extract. The water temp was started at 72°F then slowly raised to about 78-80°F. On the bottom of the tank, I put a homemade spawning grate. I attached a lettuce clip at the water line to the backside of the tank. Attached to the lettuce clip was a piece of java moss that reached down to the bottom of the tank. As with my spawning of the Glowlight tetras, I covered the tank with a dark towel to reduce the amount light in the tank.

While the adults were in the spawning tank, I didn't feed the fish. I didn't want any uneaten food to contribute to bacteria in the tank that would lead to fungus on any eggs that may be present.

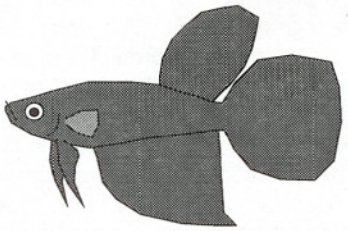
I checked the tank daily to see if the pair had spawned by looking at the bottom of the tank for visible eggs. Over the course of several days, I did not see any eggs.

After a week in the spawning tank, I decided to remove the adults, change the water, and set the tank up for another spawning attempt. After siphoning out half the water into a bucket, I noticed that there was a young fry that had darted off the bottom of the tank and settled back down. Upon closer examination, I noticed that there were about 18 fry. About half in my bucket and the other half in the spawning tank.

I spent the next hour trying to remove the fry from the bucket by sucking them out with a large syringe. Although the fry were just a few days old, they were fast. It was extremely difficult to remove the fry from the bucket and get them back into the spawning tank. After an hour, and only being able to remove about half the fry, I gave up and slowly dumped the water from the bucket back into the spawning tank.

As with the Glowlight tetras, I fed the fry heavily on paramecium for the first week or so, and then I started supplementing with newly hatched brine shrimp. I also started to feed microworms. After 4 weeks, I fed the fry mostly on newly hatched brine shrimp. At about 8 weeks I started to introduce the fry to frozen bloodworms, which only the larger fry seemed to eat. During this 8-week time, I did water changes about once a week, changing about a third of the water with RO water. I kept the temperature at 78-80°F.

At the 8-week point, and just before the PVAS holiday party, I had 12 of the original 18 fry remaining. Their size ranged from ½" to ¾". I was able to get the 60-day BAP check done just in time to earn the points for 2000 and make the Intermediate Breeders Award level.



Line drawing by PVAS member Gene Moy

Aquatic Gardeners' Association International Aquascaping Contest

PVAS member Ken Guin helped organize last year's International Aquascaping Contest and is also part of the team orchestrating it this year.

The Aquatic Gardeners' Association has announced the Second AGA International Aquascaping Contest. Taking place entirely on the Internet, this event is a unique opportunity for hobbyists to display and share their aquascaping efforts with others around the world.

Hobbyists of all ages and experience levels are welcome to take part—you do not have to be an expert to enter. All types of freshwater, brackish water and paludarium aquascapes are welcome—planted tanks, biotope and habitat tanks, rockscapes, artificial plants, all have their place in the hobby and all are eligible.

A panel of experienced aquascapers will judge the event. Last year's judges included: Karen Randall, past Chair of the AGA; Neil Frank, Editor Emeritus of TAG, the official publication of the AGA; Claus Christensen, General Manager of Tropica in Denmark; Kaspar Horst, co-founder of Dupla, Editor of Aquarium Heute, Germany.

Entries to the AGA International Aquascaping Contest should consist of the following:

- 2 to 5 photographs of the aquascape (prints, slides or digital images are acceptable);
- A diagram or planting plan of the aquascape (a hand-drawn diagram is fine);
- Details of the set-up and maintenance of the tank;
- A completed and signed entry form (available on the web site); and
- An entry fee of $5.00 US per entry.

There is a web site, which contains a full array of information to help potential entrants, including event guidelines, aquascaping resources and full details of how to register and enter. Also available from the web site are a variety of documents in Adobe(r) PDF format, which clubs may view or print locally for distribution to their membership. Be sure to check out the many prizes that were awarded to last year's winners.

The closing date for submission of entries is September 15, 2001. Winners will be announced by November 10, 2001. A CD-ROM containing all submitted entries will be available from the AGA as a permanent record of the event.

For further details about the AGA International Aquascaping Showcase & Contest, please visit the web site at http://showcase.aquatic-gardeners.org or send e-mail to showcase@aquatic-gardeners.org; postal mail may be sent to:

AGA International Aquascaping Showcase & Contest
C/O Erik Olson
306 NW 82nd Street
Seattle, WA 98117

Telephone: Erik Olson at (206) 789-5840 (Pacific Standard Time) or email: erik@thekrib.com

Supporting Shops

The following local shops have donated to PVAS auctions or assisted in distributing the *Delta Tale*:

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

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

Noah's Ark
29 East Jackson Street
Front Royal, VA
(540) 622-2899

One Stop Pet & Aquarium
1321 Rockville Pike
Rockville, MD
Phone: (301) 309-9110

Pets World Incorporated
13633 Dumfries Road
Manassas, VA
(703) 791-5565

Totally Fish
14332 Layhill Road
Silver Spring, MD 20906
Phone: (301) 598-2229
www.totallyfish.com

Tropical Fish World
Walnut Hill Shopping Center
Gaithersburg, MD 20877
Phone: (301) 921-0000
www.tropicalfishworld.com

Tropical Lagoon
9439 Georgia Avenue
Silver Spring, MD
(301) 585-6562

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

A New Look At Livebearers: They're Not Just For BAP Points Any More!

Ted Coletti
American Livebearer Association

Tankbuster folks call 'em "feeder fish." The ACA would probably package them as cichlid food. But for me, these little finnies are the lifeblood of my fishroom. I'm speaking of livebearers, those viviparous creatures that started most of us on our life-long romance with the aquarium hobby. Who among us can forget that first discovery of livebearer fry in our tanks? That excitement continues to this day for me with every drop of babies. The American Livebearer Asociation has been re-organizing itself for the 21st Century, and we'd like to take this opportunity graciously provided by your club to tell you about our organization and this fast-growing specialty.

Yeah, But Livebearers?
Most of you probably think of livebearers as "bread and butter" species: nice community fish and easy BAP points. But the experiences of us at the American Livebearer Association tell a different story:

Variety. Current estimates place the number of known livebearer species at about 1000 in 54 families of fishes! And that does not even count the various races, which can be very distinct in terms of color and patterns. Many of these livebearers are suitable for the home aquarium.

Interesting Species. Let's dismiss the "bread and butter" label right now with some examples. Peaceful community fish does not apply to species in the *Gambusia* and *Brachyraphis* genera. These diminutive monsters can keep a large cichlid at bay with its carnivorous aggression and fin-tearing prowess. Or *Belonesox belizanus*, which resembles a mini Barracuda as it stalks and devours young fishes. Or the Great White Shark, which can eat several cichlidiots and ALL their pets in one mouthful!

The reproductive habits of some species are equally fascinating. How about the Amazon Molly (*Poecilia formosa*), made up of only female clones of the founding species member? There are also the Goodeids, a quirky but fascinating group of fishes from the Mexican Highlands who nourish their young with an umbilical cord structure and deliver very large fully formed fry! Even the humble Platy (*Xiphophorus maculatus*) is fascinating as being probably the most polymorphic vertebrate on the planet earth. Did you know Platys posses 2 of three sex chromosome types (X,Y, and W)? Consider also the seahorses whose males develop brood pouches and placenta-like tissues to nourish the babies. Also the coelacanth, a living representative from a group of fossils dating back 380 million years which has the largest known fish eggs (about the size of small grapefruits) and newborns about 14 inches long!

Breeding Fun – and Challenges. Not all livebearers are "easy breeding," although this is part of the appeal of the specialty. Some species are downright challenging, let alone to breed reliably. Many have never yet been successfully kept alive in captivity!

"The American Livebearer Association has been re-organizing itself for the 21st Century and we'd like to take this opportunity graciously provided by your club to tell you about our organization and this fast-growing specialty."

Genetic variability adds another dimension to breeding livebearers. When you breed most fish, such as cichlids, barbs, or tetras, you usually get fry that look exactly like their parents. If you do mate parents with different color or finnage traits, you get some fry that look like either parent, and some with combined traits.

Not so with livebearers! Most species, especially the Xiphophorus genus, are quite variable in their color and finnage genetics. In fact, "unstable" may be a better word. Cross two fish of the same species with different color or finnage patterns and you often end up with something totally different and unexpected. The unexpecetd development of the Wagtail Platy is a good example. This makes livebearers a challenging and rewarding experience for a breeder.

Developing new livebearer varieties through selective breeding or hybridization is another area where there is a lot of opportunity for the aquarium hobbyist. The hobby only markets a few forms (platies, mollies, swordtails, guppies and an occasional halfbeak). Several new varieties of good community fish from other livebearer spe-

cies could be made available through the work of a dedicated breeder.

Observing Social Behavior. So many of my fellow fish club pals breed livebearers in a dark tank, turned sideways, on a lower rack in their fish room. BORING! If you breed these animals just for "points" you are missing out on a great observational experience. Each livebearer species exhibits a unique temperament, social structure, feeding and courtship behavior. A species tank of livebearers can provide a unique opportunity to observe such things as: hierarchies of command; the conditions for schooling versus solitary existence; males displaying (or simply thrusting) to females; the development of larger, dominant and often more colorful "Alpha fish"; feeding styles; the miracle of birth; and survival of the fittest. It's all there if you take the time to enjoy it!

A Better Livebearer Setup

Setting up a fishroom for a selective breeding program (as with fancy guppies) is outlined regularly in articles, books, and club programs. Therefore, let's discuss a basic setup for wild-type livebearers, or for the hobbyists wishing to observe the variety of interesting natural behavior inherent in a particular species.

Most of us at the American Livebearer Association keep what is known as "colony tanks." This is a species-specific aquarium where the animals live, breed, and die without segregation of the females or fry. A 20 gallon long is a good size, but even a 10 gallon works with small species such as in the Poecilidae family. Because of the small size of most livebearers, you should have the tank at eye level or next to a comfortable chair where you can observe and enjoy them.

You can set up your livebearer tank with basic biotope conditions in mind. Most livebearers hail from slightly hard, alkaline waters of Central America. Many books recommend salt for all livebearer tanks. This probably stemmed from the popularity of Florida mollies in the first half of the 20th century. Salt basically helps to counteract less-than-adequate water maintenance. The recommendation of the American Livebearer Association is that if you provide calcium-rich alkaline water, changed regularly, you generally won't need salt.

In the wild, juvenile and expecting female livebearers usually hang out in the shallow or sheltered zones, while others of the species congregate in more open waters. But even a single biotope can contain multiple species

"So many of my fellow fish club pals breed livebearers in a dark tank, turned sideways, on a lower rack in their fish room. BORING! "

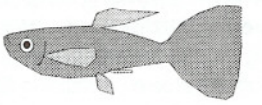
that occupy different ecological "niches." Some species come from biotopes devoid of plants, but since live plants offer an additional source of biological filtration, food, and shelter, many in the American Livebearer Association use floating Watersprite, Hornwort, *Riccia*, and Java or Willow Moss. Java Fern and *Anubias* attached to rocks or dirftwood also work - as do "substrate" tanks with hard-water plants such as *Vallisneria* and *Anacharis*. Many in the American Livebearer Association, however, feel that plants are not necessary (especially for those species from unplanted habitats) and successfully keep bare tanks with sponge or box filters. Wild livebearers that hail from flowing waters often do better with a power filter or powerhead, while still-water species (the majority) do fine with other forms of filtration. Either way, set up your tank and then sit back and watch the colony take shape!

Beyond "The Big Four"

While pet shops seem to offer many varieties of livebearers, they're really primarily selling three fancy hybrids developed to look like distinct species:

- Platies & Swordtails: *Xiphophorus maculatus, variatus, helleri, montezumae, xiphidium,* as well as all the various races.
- Guppies: *Poecilia reticulatus* and all the various races.
- Mollies: *Poecilia velifera, latipinna*, and various species in the sphenops complex, as well as all the various races.

Continued on page 15



Line drawing by PVAS member Gene Moy

Corydoras in Paradise

Gene Moy

I've been fortunate to have a job that sends me to different parts of the country and the world. Over the years, I have visited Hawaii a number of times.

Prior the most recent trips to Honolulu, I went on the Internet and found the site of the Honolulu Aquarium Society (HAS). I sent emails to two of the contacts listed on the web. The HAS officers responded almost immediately, and stated that they would find who in the club was into *Corydoras*. Shortly after that, I began corresponding with Lance Pang. I informed Lance of my interests and told him when I would be in town. Lance stated that he was into rare Corys.

After arriving to Honolulu, I contacted Lance by telephone and made arrangements to stop by on my last day on the island. Lance was located not too far from my hotel.

Lance has an impressive setup. Because of the climate, all of Lance's tanks are kept in his garage. Lighting is primarily indirect sunlight. The water and climate must agree with the Corys. Lance has a dozen or more species, including *C. sterbai, C.* C05*, C. aeneus* (black), *C. barbatus, C. duplicarus* and *C. oiapoquensis* . All of Lance's breeding stock are wild imports or their offspring.

Speaking to Lance, I learned some of his techniques. Lance believes in wild stock, as they have not been inbred. Other principles that Lance practices are frequent water changes, quality food and lots of it. Lance is fortunate that his day job is managing a seafood supply company. He customizes a blend of beef heart, fish and other seafood to feed his fish. All his Corys were exceptionally large and healthy. At the time of my first visit, Lance had at least a half dozen different types of fry. During my second visit, Lance had several hundreds of *C. aeneus* (black) fry at various sizes.

Lance is a former Discus breeder, so most of his tanks are 29 gallons. The primary filtration is air driven sponge filters. Large groups (20 or more) of adult Corys are used as breeding stock. Heaters are not necessary for his Corys, although the one remaining Discus tank has a heater.

Are there problems transporting fish from Honolulu to Washington, D.C.? Two concerns are the distance and Hawaii's agriculture laws. It's about 12 hours, barring any flight delays, from Honolulu to Washington, including a layover. That's no different than what fish undergo during shipment. Hawaii's agriculture laws are aimed at protecting Hawaii, so transporting fish off-island only has the normal concerns with airport security. Lance did inform me that a number aquarium fish can be shipped into Hawaii, as these are on an approved list. By the way, cats and dogs have be quarantined at the expense of the owner.

On my recent trips I brought back *Corydoras sterbai, C. gossei,* and *C. aeneus* (black) for another club member.

Note: HAS recently celebrated its 50 anniversary. Congratulations!

A New Look at Livebearers, continued from page 14

These varieties can be very rewarding to work with, as fancy guppy hobbyists can attest. But these core species just scratch the surface. There's actually hundreds of other livebearer species awaiting your discovery! In Europe you can find many species right at the local pet shops. Luckily, you don't need to purchase airfare to get a fish fix. The bi-monthly American Livebearer Association Trader provides its members with a shopping list of species ready for buy, sell, or trade. Usually, these are livebearers you simply can't find anywhere else, including fish club auctions.

If you want to learn more about livebearing fish, or if you wish to acquire some new species to circulate in your club, please consider joining The American Livebearer Association (ALA). As a member you receive a subscription to our newly revamped journal Livebearers which will educate and entertain you, as well as our Livebearer Trader. The ALA also promotes conservation and research efforts through its Vern Parish Grant and Species Maintenance Program. An annual Convention is also held each year with workshops, a fish show, an awards banquet, and giant livebearer auction. For more information, contact our Membership Chair, Tim Brady, at 5 Zerbe St. Cressona, PA 17929-1513 or tjbrady@csrlink.net. You can also surf our website at www.livebearers.org

Dormancy in Brine Shrimp Embryos or The Glorification of Cheapo Rock Salt

Tony A. Fitz

This article first appeared in the Delta Tale Vol. 19, No. 8, published in August 1988.

The scientific literature recently provided information that may be useful for aquarists who hatch brine shrimp (artemia). Science magazine of 18 March 1988 contains an article concerning dormancy in *artemia* embryos. During times of unfavorable environmental conditions, *artemia* embryos can go into a state similar to suspended animation. This dormancy occurs while the embryo is in brine and should be distinguished from the well-known and convenient dormancy which occurs when the cysts are dry. The suspended animation during the wet state is related to changes in the levels of acidity inside the embryo, in which the intracellular pH decreases markedly (the amount of acidity goes up). The state of suspended animation helps the embryo survive until the world outside is not quite so cruel.

Why is this of interest to the aquarist? It means that brine shrimp cysts are unlikely to hatch during unfavorable conditions, which is not surprising. Of greater interest is that the cysts can survive during bad times, hopefully to hatch when conditions improve. Of importance, this implies strongly that acidic water will decrease the hatching rate.

The tap water in my neighborhood tends to be slightly acidic and various metabolic events in water tend to increase the content of acidity. I have heard complaints from other area aquarists of strongly acidic aquarium water. Acidic water should not be used to hatch brine shrimp, since this instead will promote dormancy in the artemia embryos.

Pure "salt" (sodium chloride) has no buffering capacity. Pure salt therefore has no effect on water pH; if the water is acidic to start with, it will remain acidic after the addition of any amount of sodium chloride. To ensure alkaline water conditions for our *artemia* hatching vessels, we should not use pure salt unless we also add an appropriate buffer to keep the water at a slightly alkaline pH. Several adequate buffers are available commercially to buffer water into the slightly alkaline region. I believe that the easiest, and therefore the best, way to achieve slightly alkaline pH is to use plain old cheapo rock salt in *artemia* hatching containers.

Common, ordinary, generic rock salt is great for several aquatic purposes. I refer to the stuff that is sold in any grocery store for melting ice off sidewalks and other "non-consumable" purposes. Yes, I refer to that nasty looking stuff with black somethings in it that never completely dissolve in water. The cheaper it is and the junkier it looks, the more I like it.

I don't know exactly what is in cheap rock salt, but after using many different brands from many different sources for many years (e.g., buying whatever was cheapest on the shelf of whatever store I was in at the time), I have never had any problems with rock salt and am convinced that its impurities are not harmful. The junk in rock salt may even be valuable for our aquatic uses. Not only are we undoubtedly getting trace minerals (maybe megatraces), but the rock salts that I have tested contain "secret ingredients" that conveniently tend to buffer water into the slightly alkaline region (interesting, isn't it, that this is just what we want for hatching brine shrimp). I use rock salt not only for hatching brine shrimp, but I also put one teaspoon per gallon into all of my fry tanks (use caution for certain mineral-intolerant species such as *Corydoras*). This amount of salt in fry tanks keeps most newly hatched brine shrimp alive for at least 24 hours, so that one feeding daily ensures continuous availability of this most nutritious of fry foods. Whatever are the black stuffs and other secret ingredients in cheap rock salt, they obviously aren't too bad since fragile fry thrive in it. I also add rock salt to all water containing *Nothobranchius* species, which otherwise quickly become extinct in my tanks.

> ***"I believe that the easiest, and therefore the best, way to achieve slightly alkaline pH is to use plain old cheapo rock salt in artemia hatching containers."***

Of course, it must be possible to get a bad batch of rock salt. To be prudent, one might use care with a new bag until its adequacy is demonstrated. Thereafter, an investment of a very few dollars in several bags of the same brand would secure a huge supply. And you can also use it to make ice cream in the summer and melt ice in the winter! Viva la cheapo rock salt.

The Diamond Tetra: *Moenkhausia pittieri*

Gerry Hoffman

This article first appeared in the Delta Tale Vol. 16, No. 3, published in March 1985.

The name says it all: Diamonds. Who wouldn't love to possess those gorgeous gems that are the symbol of beauty par excellance? The iridescent sparkle that one sees in the stone is also seen in the glitter reflected from the scales of a Tetra that once was very popular in the aquarium hobby. The fish carries the same name as the expensive gemstone, Diamond Tetra. Scientifically it is known as *Moenkhausia pittieri.*

Its name is appropriate, for it is a beauty when placed in a dimly lit aquarium. Under these conditions, its scales glitter and sparkle with a brilliance to match the most expensive of diamonds. Males flare and spread their finnage while engaging in mock battles and the pale violet color of their elongated dorals and anals add to their royal splendor. Females have slightly shorter fins, but a definite plumpness to the abdomen. With lighting from behind and through the fish, the numerous eggs appear pinkish within the belly of the fish. Actually they are the typical clear/amber color of Characin eggs, but seem to be pinkish while inside the female.

Literature on the fish recommends that a large well-planted tank is best for their maintenance. My four pair of young adults were given my most thickly planted 55 gallon setup. With adequate room and sufficient food, they grew rapidly and began to display to their opposite sexes. Flake foods, frozen foods, and live foods were all equally accepted, but the introduction of live foods into their environment really got their excitement level up.

Once the group reached sexual maturity and the fish were observed to engage in spawning behaviors, a large mass of Java moss was positioned at one end of the long tank. The surface area was covered with floating *Ceratophyllum* which was thick and robust. No filtration was used, nor were there any other species of fish present. Water changes were done weekly or biweekly depending on my desire to spawn the fish. Since the fish were freely pairing off around the Java moss, I elected to let them spawn in their large surroundings and attempt to retrieve the eggs from the tank. Approximately every other day, I would place a one gallon drum bowl in the tank and underwater stuff the Java moss into it, immediately removing the bowl from the tank. Upon shaking the moss, eggs could be seen falling to the bottom of the bowl. Sometimes I would miss a day or two and the shaking would reveal a fallout of newborn fry, not old enough to swim but alive enough to wiggle around. These wigglers often made a hasty exit from the clump of Java moss before it could be moved into the drum bowl, so I often siphoned water from the bottom of the tank and recovered several more fry this way. I rotated batches of Java moss so there was always a spawning site for the fish if they were in the mood to breed.

Later on the adults also spawned in the thick growth of *Ceratophyllum.* Removing these eggs presented a problem until I discovered a method. Gentle shaking of the plants let the eggs slowly sink downwards, and they could be sucked up in a kitchen-type baster. Newly hatched fry would twist and twirl through the water and it was hard to suck them up before they were eaten by the parents. A good day/s catch would be about 25 fry or eggs. Presumably most of the eggs were sought out and eaten by the hungry adults. Occasionally a baby was observed hiding among the pants. Five or six grew large enough to freely come out for food and play with each other. If they were big enough to do this, they were let alone.

Care of the fry was relatively simple. Allowed to hatch within the Java moss, there was a natural flora of microorganisms. This was supplemented with regular feedings of the rotifer *Philodina.* Almost after hatching the fry seemed capable of eating newly hatched brine shrimp. Growth proved to be astonishingly rapid with continuous feedings of the baby brine and later on flake foods.

Moenkhausia pittieri is an easy Tetra to maintain and does well under most any conditions. The very soft acid water required by many difficult to spawn Tetras is not a must for this species. In fact, I have been told that Lake Valencia, in Venezuela, where this fish hails from, has relatively hard water. In addition, industrial pollution may be slowly destroying the only known habitat of a very beautiful fish. This fish is rarely seen in the aquarium trade these days and soon only hobbyists may be the main source of distribution. If enough interested hobbyists keep this fish alive, then we will truly be able to say Diamonds are forever.

POTOMAC VALLEY AQUARIUM SOCIETY
Post Office Box 664, Merrifield, VA 22116

Application for Membership

Date: _____

Name: _____

Street: _____ Apt.: _____

City: _____ State: _____ Zip: _____

Telephone: _____

Optional information

Occupation: _____

Where did you hear about PVAS/get this application?

Number of aquariums: _____ Time in the hobby: _____

Special interests: (e.g., catfish, cichlids, etc.)

Reason for joining:

Membership dues for PVAS are:

Individual/Family:	$12/yr
Corresponding:	$9/yr
Junior (under 18)	$5/yr

Please send application and check to the address above. Renewals are due in January; at other times of the year, dues will be prorated.

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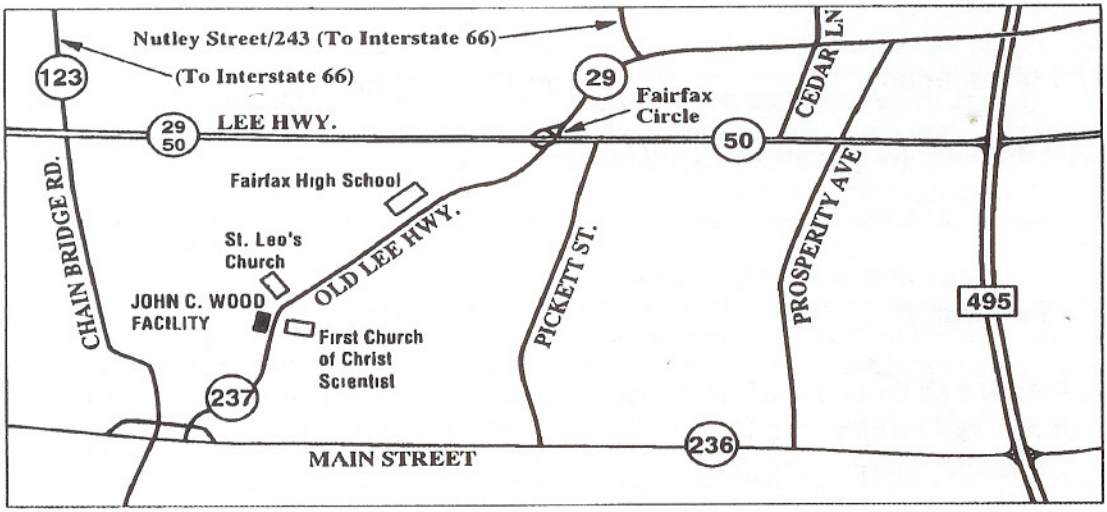

MEETINGS:are held at the John C. Wood Facility, 3730 Old Lee Highway (Route 237), Fairfax City, VA. We meet in Room 6, which is located behind the police station. Doors open at 7:30 and meetings start at 8:00 p.m.—EVERYONE IS WELCOME!