

# \* DELTA TALE \*

APRIL 1982

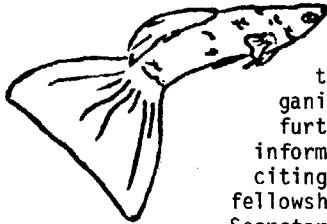
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**potomac valley aquarium society**



The Mottled Sculpin Cottus bairdi



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Spring Show:	Darrell Holman		

Ex-Officio Member of the Board : Woody Griffin

MEMBERS OR NON-MEMBERS HAVING QUESTIONS ABOUT FISH, AQUARIUM KEEPING, AND BREEDING CAN CALL ONE OF THE OFFICERS LISTED ABOVE, WHO WILL BE GLAD TO ASSIST YOU.

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## A Note From the President

I am happy to report that the worst appears to be behind us! The nice people at the Westover Baptist Church have invited us back for our April meeting and there appears to be a break in the problems over where we could hold our Spring Show! All in all, things look good for which you owe your Board of Governors a vote of thanks. All of them have chipped in to help resolve the problems we have had. I know I thank them and expect you should too.

This is the time of year to start thinking about the Spring Show and what fish you intend to enter. Its not too early to start separating your prize specimens so that they can get used to solitary conditions and so you can look them over more carefully.

We have heard that the National Aquarium -- the real one in Washington, not the Mac Mathias version in Baltimore, has received another reprieve, this time from a group of interested citizens who have come forward to run the facility for the government. One of our people, the Delta Tale Editor, Wayne Hilburn, has been directly involved in this endeavor and should be commended for his efforts. All of us benefit when visitors can come to our Nation's Capital and, if they choose, visit an Aquarium where they don't have to stand in line or pay an exorbitant entrance fee. Sure there will be a modest fee at the National Aquarium in the future, to help defray operating costs, but it will be modest. Sure our aquarium is small and outdated by some standards, but that's the way it is. More importantly, it stands as something of a monument against petty politics and even pettier bureaucrats who set about to destroy it simply, it would seem, because it was there. (This does not say that the Baltimore Aquarium, or the people who run it, are bad. Quite the contrary, they are very good.) It is more an indictment of those who would see it destroyed for some personal glory, or satisfaction that bother me. Personally, I would rather see them do away with the Senate parking privileges, but that is another windmill to tilt.

  
John E. Jessup PhD  
President

BOARD OF GOVERNORS MEETING: March 4, 1982

The meeting was held at Wayne Hilburn's house. Present were Wayne, John Jessup, Chryss Guiler, Darrell Holman, Kenny Warren, Woody and Nancy Griffin, Ruth Brewer, Andy Malenki, and Jim Hajdics. John called the meeting to order at 8:09 p.m.

John Announced that, as the Fire House roof has not yet been repaired, Monday's meeting place will be the Westover Baptist Church, at which we will hold a mini-auction. It was suggested that the Board members continue to search for an alternate site for the Spring Show in case the Fire House repairs are not completed by the weekend of the Show.

Darrell Holman then gave a status report on the Spring Show. The first draft of the show flyer was presented and accepted. The next Show Committee meeting will be at Woody Griffin's on March 25 at 7:30 p.m.

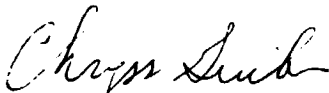
The Board members then took a moment to commend Wayne Hilburn on his effort in saving the National Aquarium.

Treasurer Ruth Brewer presented the Treasurer's Report for acceptance and it was so accepted.

Ruth also offered to sell her projection screen to the club for \$30.00. The Board voted in favor of the purchase, and thanked Ruth for her offer.

Delta Tale Editor Wayne Hilburn would like to reproduce photographs of fish in the Delta Tale, black and white prints being the most acceptable.

The meeting adjourned at 9:30 p.m.



Chryss Guiler

Recording Secretary

POTOMAC VALLEY AQUARIUM SOCIETY

Treasurer's Report - 2/28/82

1/31/82	BANK BALANCE		\$3,099.23
	Plus Revenues:		
	Memberships	\$ 23.00	
	Old check written off	<u>4.00</u>	
			+ 27.00
	Less Expenses:		
	Postage:		
	Feb. Delta Tale	18.50	
	BAP award	1.49	
	Show Expenses:		
	Supplies for air system	22.99	
	Raffle prize	180.80	
	BAP slide duplication	53.28	
	BAP title slides	7.26	
	Printing Feb. Delta Tale	33.00	
	ACA dues	<u>10.00</u>	
			- 327.32
2/28/82	BANK BALANCE		\$2,798.91



BREEDERS REPORT

<u>NAME</u>	<u>POINTS (through March 9, 1982)</u>	
Gerry Hoffman	585	****
Woody Griffin	525	****
Garland Neese	640	***
Pat & Maggi Mahoney	535	***
John Jessup	445	***
Darrell Holman	460	***
Vince Edmondson	330	***
Ruth Brewer	305	***
Jim Hajdics	190	**
Art Lembke	150	*
The Wagner Family	135	*
Kenny Warren	90	*
Tom Wright	80	*
Gene Aldridge	80	*
Thompson Family	55	*
Amy Stirman	40	
Ken Fisher	30	
Leslie Stirman	10	

AWARD LEVELS

- \*\*\*\* Master Breeder
- \*\*\* Advanced Breeder
- \*\* Intermediate Breeder
- \* Breeder

BAP Committee:

- Gerry Hoffman, Chairman
- Ruth Brewer
- Pat Mahoney
- Darrell Holman
- Woody Griffin

Recent Points Awarded

John Jessup	-Ilyodon xantusi	10
	-Gambusia punctatus	10
The Wagners	- Emperor Tetra	25
	- Aphyosemion australe	10
Art Lembke	-Cyprichromis nigripinnis	15
Gerry Hoffman	-Cherry variatus	10
	-Checkerboard Barb	10
	-Corydoras hastatus	20
	-Cynolebias whitei	25
Darrell Holman	-Corydoras paleatus	20
	-Corydoras rabauti	20
	-Corydoras pygmaeus	20
	-Cichlasoma nigrofasciatum	10
	-Xenotaenia resolanae	10
	-Albino kribensis	15

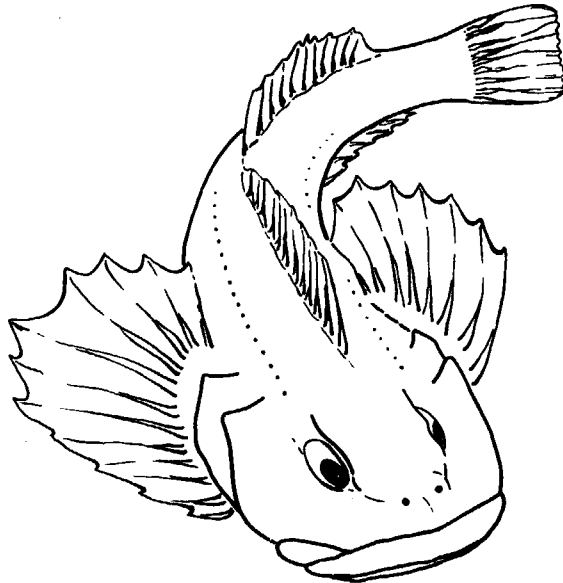
Request for Special Category Assignment:

Art Lembke: Cyprichromis nigripinnis -from 10 to 15 points  
 Lamprologus meeli -points for less than 10 fry

Both requests unanimously approved by the BAP committee 2/21/82

# The Mottled Sculpin

Luther Brown, PhD  
Department of Biology  
George Mason University  
Fairfax, Virginia 22030



Drawing by Jerry F. Dowhower

The bright colors and easy maintenance of tropical fishes have distracted many aquarists from our own native species. Several of these natives have behavior patterns that may be unfamiliar to the tropical fish fancier. The mottled sculpin, Cottus bairdi, is one temperate fish that holds particular interest for me, and has been the subject of much of my research during the last decade. The freshwater sculpins (Family Cottidae) are attractive, behaviorally interesting, and maintainable in cold water aquaria. Furthermore, mottled sculpins and slimy sculpins (C. cognatus) are native to the eastern U.S. and can be collected in the streams of Virginia and Maryland.

All freshwater sculpins have a similar size and shape. They are typically less than six inches in total length, and have large, flattened heads and very large mouths with fleshy lips. The pectoral fins are greatly expanded, and in general, the sculpins resemble the marine sculpins, scorpionfishes and sea robins, to whom they are related. All of the freshwater sculpins are cryptically colored, and, as its name implies, the mottled sculpin has blotches of tan, brown, yellow, and black covering its body.

Mottled sculpins have a wide, but discontinuous distribution. They range from northern Georgia and Alabama to Canada in eastern North America, and throughout the northern Rockies to the West. They are not found in the central parts of North America. Sculpins are most abundant in clear, rapidly flowing freshwater streams, and are usually found in association with trout, dace, and other fish requiring clean water and low temperatures.

Sculpins are bottom dwellers, and seldom swim more than a few centimeters above the substrate. They are most commonly found resting beneath flat rocks. They are carnivorous, and prey primarily on insect larvae, crustaceans and fishes. Field studies show that small sculpins prefer mayfly nymphs and small worms. Larger individuals tend to eat caddisflies, crayfish, larger worms, etc. Smaller sculpins are quite commonly eaten by larger individuals in this highly cannibalistic species. Eggs are also cannibalized during the breeding season.



Although trout fishermen sometimes accuse sculpins of preying on trout eggs and fry, repeated investigations have disproved this, and demonstrated that the reverse is actually true: sculpins may be a preferred prey of trout.

Mottled sculpins breed in early spring. In Virginia breeding can be expected in early March. More northerly populations may not breed until the end of June, depending on water temperatures. The breeding season begins when adult males occupy cavities beneath rocks on the streambed. Males darken considerably so that their heads become jet black and their dorsal fins become outlined in reddish-orange. Males are pugnacious during the breeding season, and defend their burrow from any intruders. During this period, females swell with eggs. Fully gravid females look like they will burst, and the outline of the individual eggs may be seen through the tightly stretched abdominal wall. Males seldom leave their burrows, but will swim out several inches to meet a female. The male sometimes "barks" at the female, and commonly shakes his head violently and elevates his gill covers. Occasionally, males will bite a female's fins, or even take a female's head entirely into their mouths. This does not appear to injure the female though.

After the initial encounter, both male and female move into the male's burrow. Courtship continues, and usually includes head shaking and gill cover elevation accompanied by fanning of the pectoral fins. Courtship may be very brief, or may continue for several hours. It typically occurs after dark, although daytime spawning is not uncommon. Courtship ends when both fish turn upside down and press their abdomens against the ceiling of the male's burrow. Eggs are laid in one or more bursts, and all of the eggs of a single female are deposited in one hemispherical mass. Eggs are large (2-3 mm diameter) and a single mass may cover one to two square inches of ceiling. Eggs are initially gellatinous, but the egg masses harden and become quite tough in less than

an hour. After spawning, the female either leaves the nest, or flees: large males are quite capable of eating smaller, recently spawned females.

Male sculpins remain at their nest after breeding. They fan their eggs, aerating them and keeping them free from silt. They defend their eggs against invertebrate predators and against their cannibalistic neighbors, and occasionally eat some of their own eggs. While the significance of this parental cannibalism is debatable, it does occur both in the wild and in captivity. Females breed only once per year but males are polygamous, and may mate with more than a dozen females during a single season. Oviposition is quite synchronous in the wild and virtually all of the females in a single population typically spawn during a two or three week period. Larger males are the preferred mates, and small males typically have fewer egg masses in their nests. After about three weeks of development, the eggs hatch, and the fry drop to the bottom of the nest. At this time, the fry have clearly visible yolk sacs, and are about 5 mm long. Males continue to fan and defend their offspring until the yolk sacs are absorbed and the fry disperse from the nest, usually about two weeks after hatching. Breeding males commonly spend as long as two months at their nests, leaving only for brief feeding trips.

Sculpins can be maintained in cold water aquaria. They are not normally found in streams with temperatures above about 62°F (17°C), and can survive water as cold as 32°F, providing the water is still liquid. They should be kept over a cobbled, rocky substrate with plenty of hiding crevices, especially if small and large individuals are housed together. Tank water should be kept in motion if possible, and should always be very clean. Live food is mandatory and a diet of small earthworms, stream insects, small minnows, etc. is ideal. Spawning is dependent on a combination of photoperiod and temperature, and is most practically stimulated by following natural light and temperature cycles. Chilling units are highly recommended for those interested in long term main-

tenance, but short term observations of spawning can be very rewarding. Wild caught fish that are already in reproductive condition will breed readily in unheated tanks. Flower pots or flat rocks make suitable nests, and the entire courtship and spawning sequence can be easily observed if a flat rock is simply propped against the side of the tank.

Eggs are susceptible to fungal infection, and should generally be medicated. Fungus is greatly reduced if temperatures are kept low (about 50°F, 10°C) and water is highly oxygenated. Egg mortality will be minimized if all sculpins except the guardian male are removed from the tank. Fry require live food in increasing sizes as they grow. They should be started on brine shrimp larvae or some other active prey of that size.

Sculpins offer challenge to the aquarist and reward to those who maintain them. Their polygamous breeding habits and paternal care are their most interesting behavioral traits, although they make a fine addition to the cold water aquarium community even if they are not bred. Anyone interested in keeping temperate species should definitely consider this fish.

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The following references provide additional information on the ecology and behavior of sculpins:

- Bailey, J.E. 1952. The life history and ecology of the sculpin, Cottus bairdi punctulatus in southwestern Montana. Copeia 1952: 243-255.
- Brown, L. 1981. Patterns of female choice in mottled sculpins (Cottidae, Teleostei). Animal Behavior 29: 375-382.
- Morris, D. 1954. The reproductive behavior of the river bullhead (Cottus gobio) with special reference to the fanning activity. Behaviour 7: 1-32.
- Savage, T. 1963. Reproductive behavior of the mottled sculpin, Cottus bairdi Girard. Copei 1963: 317-325.

The Giant and the Dwarf: Colisa fasciata and Colisa lalia

The Wagners

There are many types of gouramis available to the tropical fish hobbyist, but in my opinion, two of the most colorful and peaceful are the Giant Gourami (Colisa fasciata) and the Dwarf Gourami (Colisa lalia). The Giant displays a variety of shadings of blue and red on a basically brown background while the Dwarf has red and blue along its vertical scale lines with a silvery pink background. Both of these gouramis are of a peaceful nature and can be kept in a community tank, although some hiding places should be available. It has been my experience that the Giant Gourami is the most shy and demonstrates a great preference for an overturned flower pot.

These fish tend to be relatively prolific and may even breed in the community tank. No special conditioning was needed for the pairs selected for breeding other than a few days of feeding with frozen blood worms. The pairs were selected by observing them in the community tank and noting which male and female seem to naturally associate with each other. One pair of Giants and one pair of Dwarfs were placed on each side of a divided 10 gallon tank. The water was soft (0-1° hardness) and slightly acid (pH 6.8). The gouramis tend to like warm water and the temperature was maintained at 27.5° C (about 82° F).

Both pairs of gouramis spawned within a few days of being placed in the spawning tank. The Dwarfs built a small but very compact bubble nest with a few sprigs of floating dwarf hydrilla woven into the bubbles. The Giants, however, produced only a very few bubbles and these were scattered across the surface. Although the spawning embrace was observed, it was almost impossible to see the tiny clear eggs as they floated to the top. The fry hatched in about 36 hours and were free-swimming in another two days. The parents were peaceful and did not appear to be interested in devouring their young, but they were removed when the fry became free-swimming. The fry were so tiny they were difficult to even see, much less count. They were fed infusoria until they were large enough to eat newly hatched brine shrimp and microworms. The Giants grew at a much faster rate and in about a month's time both the Giants and the Dwarfs were eagerly accepting finely ground flakes. At 60 days, the Giants were about one inch in length while the Dwarfs were about half that size. Except for their size, it was difficult to differentiate the two species at this young age.

## EXPERIMENTS IN BREEDING.

by: A.J.Read

Robert Taylor and I have a small hatchery in a converted kia. When we first decided to try our hands at breeding fish we set out to experiment on the most economical method, and a method requiring least effort to rear fish in the minimum time to a selling size. We initially started with a few tanks and tried to breed as many species as possible, but soon learnt that this was foolhardy and so as beginners we chose to breed gouramies with hopes of greater achievements in the future. Our first lesson had been learnt.

All our breeding has been done in 24 x 12 inch tanks with gravel and planted with vallesineria and watersprite. Duckweed makes up the surface plant in which nests are built. The water in which the babies were born is never changed and only topped up. The females are always removed soon after spawning and the males removed when the babies are almost free-swimming. The babies are fed Liquify for the first few days.

The experiments we conducted were:

1. Does the absence or present of gravel and plantlife in a tank markedly affect growth?
2. Is it worth the trouble to feed live food or will dry food suffice?
3. Does light affect fish growth?

### RESULTS:

1. Our results in this experiment amazed us. From the breeding tanks we transferred all the bigger fish to tanks without gravel, filled with aged water of the same temperature which contained potted plants only. The mortality rate amongst these went up, and within days the fish always lost condition, whereas the fish in the original breeding tanks which were more crowded, always caught up in size and appeared better fish. When the fish in the "water only" tanks were returned to tanks with gravel and abundant plantlife they all recovered and resumed a reasonable growth rate.
2. We set out on this experiment happy that the people who produce ordinary dry flake food, have included in that food all the necessary ingredients a growing fish would require. Expense and laziness made us loath to try brine shrimp, daphnia or home-grown infusoria. We did, however,

feed microworms, freeze dried tubifex, liver and egg yolk to our experimental fish and the balance of our fish, plain flakes. In our opinion there was no difference in the growth rate. We concluded that apart from the psychological benefit gained by an occasional meal of live food, the flakes were sufficient for rearing purposes. Researching into the matter, we read literature which supported our claim, mainly due to the bulk factor contained in dry food versus live food. Dry food is all bulk, so a full fish stomach of flakes would constitute a stomach full of goodness, but live food such as worms, daphnia etc., consists of approximately 4% bulk and 96% water, so a fish would have to consume 25 stomachs full of daphnia to achieve the same end.

3. Our findings in this regard were initially discovered by chance, but were monitored until we were satisfied with our results. Two spawnings hatched in separate tanks on the same day. Both tanks had the same conditions, except that one was well lit and the other received incidental light only. The fish in well lit tank, although a bigger spawning, are of a bigger, more even size. The fish in the darker tank are not as big, with a large variance in size from smallest to biggest. Having seen this we discussed the matter and have since realised that from the start of our breeding fish, they have always grown better in the section of our hatchery which is well lit.

In conclusion, the methods we have developed are:-

1. Tanks with gravel(not too well washed) and plantlife.
2. A small sub-gravel filter to make the initial setting up last for two spawnings.
3. Breeders must be spawned in fairly new water, and babies are not to be moved until a reasonable size. Breeding tank to be topped up only with no major water change.
4. An initial 3-4 day diet of Liquifry and then a diet of flake food.

Good lighting conditions.

Reprinted from Natal Tropical Fish Club, Bulletin, Durban, South Africa

## SPAWNING THE ANGELFISH: IT WAS WORTH THE WAIT

Jim Hajdics

It was about six years ago, while in the process of setting up a 5½ gallon tank that my children had gotten for a Christmas gift, that I first saw a pair of angelfish with a family of fry. Seeing all of those tiny fish around their parents was such an impressive sight to me, I believe it was the single most important item in motivating me into the hobby. It was only natural that it was the angelfish that I first set up in an attempt to achieve spawning. Over the years, with countless angelfish and all kinds of methods, I never achieved success with this fish. Finally, I broke down and purchased a "breeding pair" of marble angelfish at the March, 1980 mini-auction.

I put the pair of angelfish into a 29 gallon tank which I had filled with water that had been filtered through peat moss. I raised the water temperature to 80° F and placed a nice peice of slate in the tank for the pair to spawn on. The pair didn't get around to spawning for about four weeks and even then the spawn was a poor one. Most of the eggs were covered with fungus by the next day. The next spawning took place about three weeks later and, much to my dismay, was eaten by the second day. I could have pulled the slate and hatched the fry in a different tank, but I was determined not to do this; I wanted to see my whole family of angelfish together, like the one I had seen in the store six years earlier.

At the Spring Show, I told my troubles to the couple who had sold me the pair. They told me the fish had always been kept and spawned in distilled water (very soft and slightly acid). I was not looking forward to buying 29 gallons of distilled water--and it wasn't just the cost; can't you just imagine the look on the cashier's face at the check-out? When I got home from the auction and started the job of unpacking the fish I had shown and the ones I had bought, my son noticed angelfish eggs on a large plastic Amazon Sword plant. I was so tired I just said, "the heck with it, they'll probably be gone by tomorrow". To my surprise, however, they were still there the next day and four days after spawning they hatched. I had lost only about a fourth of the eggs to fungus and the female was taking care of the wigglers. As the fry became free swimming, the parents became very aggressive and protective. Whenever I came near the tank to feed the family of angelfish, the parents would rush me. I fed the fry on heavy doses of newly hatched and frozen brine shrimp. The fry grew rapidly and I eventually had to split up the spawn to make more room for effective growth. Even after six years, I still get a thrill out of seeing a family of angelfish together.

## Spawning Corydoras Pygmaeus

by:Darrell Holman

Corydoras pygmaeus, the Pygmy Catfish comes from the Amazon Basin in South America. It is one of the smallest members of the Corydoras genus, measuring 1-1/4 inches when fully grown. The overall coloration is very much like that of C. hastatus, olive to light brown with a single horizontal stripe which runs the length of the body ending in a large dark tail-spot which is irregular in shape. (C. hastatus has a second horizontal stripe which runs from the pectoral fins to the anal fin, the tail-spot is more elliptical in shape than that of C. pygmaeus.)

C. pygmaeus is not very particular when it comes to water conditions. They can withstand a wide variation of temperatures and pH, but are best kept in water with a temperature of 74° and a pH of about neutral. They also prefer the water to be slightly hard (about 10°dh is best)

Breeding C. pygmaeus presents very little difficulty once they are properly conditioned with a substantial diet of both live and dry foods.

I conditioned my breeders on a varied diet of blackworms, brineshrimp and staple flake. Which seemed to keep them in spawning condition continuously.

The best spawning setup that I have found, consist of a 2-1/2 gallon tank with a 1" layer of fine sand, then planted with several Cryptocorynes and filtered by a small size sponge filter.

Once the spawning tank has been prepared, I then introduce the breeders (on well conditioned fish the sexes are easily distinguished by the plumper abdomen of the female).

I usually use a trio (2 males and 1 female) for spawning, but they will spawn in larger groups. The breeders are introduced to the spawning tank just before sunset and usually will have commenced spawning by the next morning.

When observing the spawning activities, the breeders can be seen dash-ing about the tank from one end to the other. Then they will suddenly stop and settle to the bottom. The male will then swim over the female's back, from the tail to her head lightly brushing her with his barbels. He will then quickly swim to her front where he firmly clamps his pectoral fins around her barbels. At this time he will quiver a little, releasing his sperm, the female then releases 1-3 eggs into a pouch formed by her ventral fins. She will then swim off to deposit the eggs in some hidden out of the way place (usually on the underside of plant leaves, such as Cryptocorynes). This will continue over and over until the female has deposited all of her ripened eggs (1 to 2 hours). The breeders are then removed and the eggs left to develop.

At this time I change 1/2 of the water, replacing it with fresh tap water. I do not add any fungicide to the tank, because, of the toughness of the egg shell, which seems to have a high degree of resistance to fungusing in the fertile eggs.

In 3-4 days the eggs will hatch and the fry can be seen as little black dots on the tank bottom. In 2-3 more days they can be fed newly hatched brine - shrimp or finely crushed flake. In 30 days they be approximately 3/8" long and at 60 days they will be almost the size of their parents.

My first spawn yielded 37 fry at 60 days, but subsequent spawnings have become larger and larger. I have also noticed that there have been several albino fry appearing in each spawn. I do not know for sure, but I think this is a "first" for this species, and as soon as they mature and if they are fertile, I am going to try to spawn them.



## THE PYGMY CATFISH, CORYDORAS HASTATUS

Gerry Hoffman

Let's talk about a small fish for a while, because that is what constitutes the majority of fish in my fish room right now. A quick survey will tell you my tanks hold several species of dwarf cichlids, killifish, tetras and numerous species of corydoras catfish. Ten and twenty gallon tanks make up the majority of aquatic homes, and you don't cater to large cichlids in those limited quarters. I can downgrade my fish homes even farther in size and have some of the little fellows live out their lives peacefully without fear of being eaten by a six inch monster. How about not being able to find a fully grown fish in a 2½ gallon tank? Given suitable conditions, the pygmy catfish, Corydoras hastatus, can live, breed and be happy in such surroundings.

To begin with, this is not a fish for everyone. Its size (fully grown at 1¼ inches) makes it susceptible to predation by almost anything that will eat guppy-sized fish. The genus Corydoras brings to mind the popular albino cory, the spotted "leopard" cory, and the striped "skunk" cory that can coexist with larger species without fear of losing their lives. Not so with these fellows. Unlike its larger relatives, C. hastatus is frequently seen swimming around at the mid-water level, and its quick darting motions interspersed with motionless "hanging in mid-air" swimming would be appealing to carnivorous tankmates. And being bottom feeders, they must still try to get enough food from that which passes by other eagerly eating fish in a large aquarium.

My trio of pygmy catfish came to me over a year and a half ago when a friend, Joe, had to dismantle his fish room in order to make room for a crib, diaper pail and newborn son. (Imagine giving up a whole room of tanks and fish for something like that!) Obviously, Joe wasn't your true-blue, dedicated hobbyist. Anyway, I was presented with a ten gallon tank with about two inches of water in it, complete with gravel and ten or twelve large cryptocorynes. Everything was growing so well he didn't want to disturb the plants by uprooting them. Joe mentioned that somewhere in that tangled mess were a few C. hastatus, but they were obviously sterile since he wasn't getting eggs that developed. So, I set the tank on a stand, added water and looked for any signs of life.

If I can digress for a moment, let me take you back to the ex-fish room turned nursery. Once upon a time, any fish that entered this room would multiply and prosper. Killifish by the dozens were thriving in every corner. Rare and odd-ball fish would spawn and seemingly smile at Joe. Over two years earlier, he became PVAS's first Master Breeder; he had a natural wet thumb. In one tank, a group of pygmy corys would spawn regularly, and soon he had a ten gallon tank full of little babies. When they were full grown, he put all 50 or 60 of them into a 60 gallon tank which only contained killies and other dwarf fish. In such a set-up, it was marvelous to see a school of corys swimming throughout the tank. It was like a swarm of bees. Imagine them settling down on a broad-leaved plant; even a dozen fully grown C. hastatus on an Amazon Sword leaf wouldn't cause it to droop.

For over a year the trio (two females and one male) swam around the tank, but not once did they spawn. Several Badis badis shared that set-up and they spawned frequently. A few months ago I found an empty 2½ gallon tank and arranged it to be the new home of my little catfish. My substrate was sand from my son's sandbox; larger Corydoras species can root around in typical aquarium gravel while hunting for food, but not these little fellows. It seems sand is more to their liking. I planted a few strands of Anacharis, added Java Fern and a floating cover of Riccia, one corner box filter and they were in business. There wasn't a lot of swimming space, but there was plenty of peace and quiet. Then I added the key ingredient.

Joe's success formula, and certainly it works well when I have plenty of them, is ample feedings of grindle worms. When I have a good culture going, these white worms will readily prime almost any female into spawning condition. Generous feedings twice daily fattened up the two females and soon I started seeing eggs. Their small size only allows them to deposit one egg at a time, and over a 24 hour period I had recovered about 40 to 50 eggs. I am not sure if one or both females spawned, but the eggs were fertile. After 18 forgotten months, I am raising little C. hastatus.

If you leave everything alone and don't disturb the tank, new eggs appear every few days. Possibly with lots of live foods, there is an almost constant spawning, somewhat like killifish. I chose to remove the eggs and every time I do this the adults stop spawning for about two weeks. Most of the eggs are deposited on plant leaves or roots, and one either has to remove all the plants and put them in a hatching tank with similar water, or pick off the eggs one by one. Handling corydoras eggs will not harm them at all. If you wait 24 hours before harvesting, all unfertilized eggs will have turned white and are easily noticeable. Fertile eggs can be placed in a container with acriflavine or simply put into good clean water. In either case, I tried to provide some aeration or water movement and often kept them out of direct bright sunlight. About four or five days later, the fry pop out of their shells. My best results in raising the pygmy catfish is when they start out in an established tank with plants, some algae and other microscopic foods, and some mulm to browse in. Mulm is not decaying food or other potentially polluting substances. A little, in my opinion, is healthy for plants and feeding babies. A little dash of microworms, powdered Kordon baby diet, and rotifers round out their feedings.

Not all of my fry make it in their early days; there isn't enough algae established in their 2½ gallon set-up yet. Yes, I have duplicated the parent's tank for the fry, including sand substrate, plants and aeration. Lately, every couple of weeks I see new eggs and I am trying to build up my collection of pygmy corys until I too can watch a large school swim freely about a larger tank. In the meantime, everyone is happy in small tanks and their seclusion and privacy gives them a chance to spawn at will. Soon the adults will have spent over two years in my tanks. I wonder how long these tiny fellows can live? Probably a lot longer by themselves, without fear of being chased by a "giant" three inch fish.

One and One Makes Two  
(Except When It Comes to Guppies)

I strolled into a shop one day  
that dealt in the aquarium trade,  
and now in times of recollection  
I think that was the first mistake I made.  
For pocket change, I bought a guppy  
and made my way back home,  
I put it in a mayonnaise jar,  
but then remember it's sad to be alone.  
So next day I went back to the shop  
and laid down a little money  
for a tank and filter, hood and stand  
and another common guppy.  
My life was made brighter by these fish  
and all was well I thought,  
but then one day my eyes beheld  
more fish than I had bought.  
Soon the little tank I had  
was brimming to the top,  
my little friends were overcrowded  
so I went back to the aquarium shop.  
I bought a larger tank for guppies  
and then the velvet swordtails caught my eye,  
as did the majestic angelfish,  
the corydoras and the little goodei.  
Discus like their water soft and acid,  
Killies do best in a tank of their own,  
Dwarf Cichlids being shy need places to hide,  
while Africans need dolomite and stone.  
So now sometimes late at night  
I look around and try to recall  
how a guppy in a mayonnaise jar  
turned into fish tanks wall to wall.

--Jerry Wagner



## THE MAJESTIC EMPEROR TETRA

### The Wagner Family

There is a large variety of tetras available to the tropical fish hobbyist. Most of the species are an attractive addition to the aquarium because of their body shape, color and their tendency to school. Of the few varieties that do not tend to school, the Emperor Tetra, Nematobrycon palmeri, also makes an attractive and interesting community fish. This fish generally reaches about two inches in length and has a distinctive fluorescent black line running the length of the body. The sexes are easily distinguished by the fact that the males have a three pronged tail. In addition, the male often has blue eyes while the female's eyes are green.

Most of the tetras are not extremely difficult to breed, but raising the young past the critical stage can sometimes pose a problem. The Emperor Tetra is no exception and in fact may be easier to spawn than many of its cousins since it seldom eats its eggs or young. Our experience breeding this majestic fish proved to be both easy and rewarding.

Two pairs of Emperor Tetras were placed in a ten gallon tank filled with very soft, slightly acid, clean water. A sponge filter provided filtration and the temperature was maintained at 80° F. Several floating nylon mops were provided for spawning and the bottom of the tank was also covered with nylon mops. The fish were fed frozen blood-worms, flake food and brine shrimp. This diet tends to adequately condition most fish for spawning and after about a week it was noticed that the Emperor's spent most of a day inside the floating mops. Occasionally, one of the fish would dart out of the fronds of nylon fiber, but would then quickly disappear again. No eggs were visible from outside the tank and the mops were not disturbed to search for them. Three days later, one of the bottom mops was lifted and several very small, anemic looking fry were seen darting about. The parents were removed at this time and a small potted plant from a well established tank was placed in with the fry. This process seeds the spawning tank with additional protozoans that serve as food for the tiny tetras.

The BAP checker, Ruth Brewer, arrived a couple of days later and when the bottom mops were lifted she counted eight fry. It was hard to believe, only eight tiny fry. Ruth, however, was reassuring as she announced that where she could count eight that easily, there must be more. When it comes to such matters, Ruth is seldom wrong, but it was difficult not to be skeptical. The skepticism soon turned to marveling and then to pure delight. As the days past, more and more fry began to appear. It was especially easy to see them in the early morning around the base of the potted plant, darting and diving. Generous feedings with newly hatched brine shrimp and soon the fry were too large to hide any longer. They were literally "crawling (or swimming) out of the woodwork".

Sixty days after hatching most of the fry were an inch or better in length. And the total number? Would you believe 150. The tank was pure delight with 150 shimmering, darting Emperor Tetras.

THE EMPEROR THAT DOESN'T REQUIRE SCHOOLING

OR

THE TETRA THAT WON'T SPAWN BY THE BOOK

Gerry Hoffman

How many times have you been told that tetras should be kept in schools to keep them happy and to let them be seen to their best advantage? For the great majority of Characins this may be true, since they are active fish, need plenty of room and are found in very large schools in nature. They will also spawn in a "typical tetra fashion", usually implying a group spawning with several males and females. If you have in mind trying something a little different while still having an outstanding fish, just try keeping the Emperor Tetra, Nematobrycon palmeri.

To start off, this two inch fish has subtle colors that are magnificent when this fish is properly displayed. There are iridescent blues, some subtle reds, and a black body line on both male and female. All fins are a pale yellow tipped with black. Males have a special elegance reserved for few tetras. When mature, the edge of the dorsal fin tapers into a fine filament which extends clear to the caudal fin. Three lines extend from the tail, which can double the length of the normal fin rays. Usually these get nipped off early and never achieve the maximum extension that really makes this fish attractive. When young and both sexes are quite similar, a close look at the eyes with a flashlight will help distinguish a male from a female: females have a green tint and males show up blue.

Emperors hail from Colombia and are a little shy, yet very peaceful. I have had much better luck keeping these fish alone or in pairs, and definitely not in schools in a smaller aquarium. If more than two are placed together, males should be of equal size or they may fight. Compatibility between male and female is equally important, and any old male and female will not always work out. I have had several females severely beaten and chased just because they couldn't get along with the male. But a pair that stays together without fighting will spawn frequently without any harm to either fish. Often Emperors will take to hiding in the plant cover or the corners of the tank. But watch how active they are at feeding time.

Spawning takes place in floating plants, where the male entices the female by trembling vigorously around her until she accepts the invitation. Together they scatter eggs among the plants. By most standards, parents should be removed to avoid the eating of eggs and fry. Some obvious eggs will be gobbled up, but you can leave everything as is as long as the tank is thickly planted for the fry. Fry will hide in fine leaves and gradually appear as they grow in size. They are not readily eaten or even chased. Once they are eating baby brine shrimp and small powdered foods they grow rapidly.

One pair of my Emperors was constantly spawning in floating water sprite, and eggs were obvious from time to time. I pulled a large handful of plants out and incubated the eggs in a 2½ gallon tank so

continued on page 19

## TURN DOWN THE HEAT!

Gerry Hoffman

The coldest winter of the century has left us with too many memories of what sub-zero temperatures can do to this take-it-for-granted world. Cars refuse to start, pipes freeze and burst leaving us without water, snow and ice never melt making commuting treacherous, fuel bills sky-rocket upwards, and worst of all we never seem to get warm enough. In the Virginia countryside where I live, temperatures hit  $-10^{\circ}$  F, cold enough for us, but think of those in Michigan or Chicago who try to keep their fish at the required "tropical" temperatures.

Locally, other club members have mentioned that tanks have dropped to  $62^{\circ}$ , mid-60s or even  $45^{\circ}$  in their basement fish rooms. Hearing this, my mind envisions a room of tiny red lights indicating heaters straining to keep a constant level of heat for the fish. Most of us are well aware of the effects of cold temperatures on our fish, especially a sudden drop or a continuing rise or fall. Heaters can crank out the warmth into the water, but if the surrounding air temperature is significantly lower, you lose very rapidly what you are trying to gain. In these coldest of winter months, I have the reverse problem--too much heat.

It is fortunate that I have a large downstairs room with a fireplace against the far wall. That fireplace is the hottest spot in our house each and every winter day, because that is the location of our wood-burning stove. About 25 tanks of varying sizes line the walls of the room, and very rarely do the few heaters that I use come on. On the coldest winter days, that stove has to heat our entire house and it really pours out the heat. My fish room is often  $84^{\circ}$  or hotter, and likewise the tanks stay warm enough to promote frequent spawnings. Sweaters and longjohns have no place in that room if you wish to be comfortable. Sometimes it becomes a little too warm for visitors who want to see why my basement is always illuminated.

There are a few problems one encounters with such a centralized source of heating. Remember that it takes human labor to load up the fire each day and night, and if you neglect to add additional wood at about 3:00 A.M. on a windy, sub-zero degree night, the 7:00 A.M. room temperature may be down to  $70^{\circ}$ . The water temperature is higher than that in most tanks, except those nearer the outer walls, and shortly the heat is back on and everyone stays warm. Weekend trips pose a problem for me, and at these times I must rely on heaters for the most delicate fish. Spring and Fall pose the greatest problem since often you don't need to heat the house then, but basement temperatures can go to  $60^{\circ}$  easily. I often have the stove going early in Fall and late in Spring just to please the fish.

Wood heat is a dry heat, and there is constant evaporation from the tanks that aren't covered. Most of the time I just add water to bring the level back to the top, but this is a practice you should not carry on without some water changes. Some of my plants that begin

continued on next page

## APRIL BOWL SHOW CATEGORIES

Cichlids:	Egglayers/Livebearers:
Angelfish and Discus	Livebearers, non-Guppy
Non-Riftlake African	Sharks & Loaches
Open	Open

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THE EMPEROR...continued from page 19

the fry that emerged could get the smallest foods right away. These fish grew rapidly, right along with the fry that grew up in the spawning tank. There appears to be no trouble raising the babies after the first few days.

For Emperors, a royal success depends upon the compatibility of the pair. If there is trouble, it is usually from the male. Ideal males are not as common as you might hope for and the fish should be kept in pairs while awaiting results. These fish are not that difficult to breed and are an elegant addition to your tank.

TURN DOWN THE HEAT...continued

to grow completely submerged end up dry and dieing at the tips. Just plain too hot and dry.

One batch of Killifish eggs developed too rapidly with the high temperatures and the fry didn't live long. I have to place my white worm culture under the window area where the cooler temperature will keep the worms in a comfortable condition for reproducing.

All in all, my room is certainly "tropical" in the midst of heavy snows and windy days. I don't have to raise temperatures to induce spawning; the tanks are fairly hot all the time. Brine shrimp hatch in 24 to 36 hours just sitting in the open. Neither have I seen any rampant disease in a long time. Best of all, however, is that I am just as warm as can be while enjoying my favorite hobby.

Spawning The Albino Krib  
(Pelvicachromis pulcher)

by:Darrell Holman

The Albino Krib is a beautifully tinted true albino form of that old aquarium favorite, the Kribensis, Pelvicachromis pulcher. The overall coloration varies in some specimens from a creamy-white to a light pink with the upper portion of the body overlaid in a bright golden-yellow. The lower portion of the body (in the abdominal region) is a brilliant wine-red. The dorsal and anal fins are somewhat clear, but are edged in golden-yellow. The ventral fins of both sexes are a deep red, edged in white. The caudal is yellow in color, with the absence of the dark eye-spots which are present in the original form. When frightened the albino P. pulcher turns a pale-pink in color, but, during courtship and breeding the brilliant reds and golds intensify bringing out a beautiful display of colors.

Unfortunately, the albino P. pulcher is much less hardy than the non-albino and have proved to be somewhat weaker, causing them to be very susceptible to disease. They are very sensitive to changes in water chemistry and temperature, and cannot tolerate any drastic drops in pH. They are also much more temperamental and aggressive, constantly fighting among themselves and their tankmates.

Breeding the albino P. pulcher is relatively easy, but there is one minor problem in that only 1 out of every 3 males are fertile. Although, once you have obtained a pair, that have proven to be fertile, you will soon have more Kribis than you will know what to do with.

The spawning tank should be at least 10 gallons in capacity or more. There should be a 1-1/2 to 2-1/2 inch layer of gravel as a substrate, and some rock formations or small clay flowerpots should be added to provide shelter and potential spawning sites. Plants are not necessary, but will help them to adjust to their surroundings. They seemingly prefer slightly hard, alkaline water with a temperature range from the low to mid 80°f. (My experiences with the Albino Krib has shown that they do best in water having a dh of 8°, and a pH of 7.5° with a temperature of 82°f.)

Once the pair has gotten down to business and have selected a spawning site (usually where there is very little natural or artificial light), they lay their large, pink colored eggs. The spawns are usually large in number (150 or more). At this time the female will drive off the male and take full charge in caring for the eggs. The eggs hatch in about 72 hours and the fry will be free-swimming in 48 hours more. The male, if he is left in the spawning tank, will then play an equal part in caring for the fry.

Once the fry have become free-swimming they can be fed newly hatched brineshrimp. This diet, along with some supplemental crushed flake, should be fed several times daily. The fry grow very quickly and at 60 days will be approximately 5/8" long.

My first spawn of the Albino Krib was very successful and I raised about 175 fry. There were about 60% albino, 38% normal coloration, and 2% showing no coloration with dark colored eyes.



Spawning Corydoras Rabauti

by:Darrell Holman

Corydoras rabauti, or Rabaut's Catfish is one of the rarely seen members of the Corydoras genus, found only in the Rio Javari, a small tributary that empties into the Amazon Basin. This species is often confused with C. myersi, which it resembles in coloration, in young specimens. As young specimens, both species have, an overall coloration of bright pink with red fins and head. There is also a dark zone, which extends from the gills to the base of the tail. As they mature, this dark zone changes to a long horizontal stripe in C. myersi, but it remains in C. rabauti. C. rabauti is also quite smaller than C. myersi, only attaining 2 inches in length, whereas C. myersi attains a total length of 3 to 3-1/2 inches.

C. rabauti spawns in the usual Corydoras fashion, and requires same basic care and treatment.

I purchased an adult trio (2males, 1female) several months ago. They had already been kept in good spawning condition, so no conditioning was required. They were placed in a small 2-1/2 gallon holding tank for a few days, while I prepared the spawning tank. When the preparations were completed I went to remove them from the holding tank and they had already commenced spawning. There were several eggs placed here and there throughout the tank and the female was carrying more between her ventral fins that were very tightly clamped together. The spawning activities continued for another hour and a half, until there were approximately 100 eggs in all. The adults were then removed and the eggs left to hatch.

The eggs were approximately 2mm in size and were white in color. As they developed they turned a pinkish-tan. In three days they hatched and could be seen as tiny pink colored, wriggling balls on the tank bottom. They were immediately fed newly hatched brineshrimp and finely crushed flake food. This diet proved to be very substantial and they grew very fast. At 60 days they were 1/2 of an inch in length and numbered about 40.

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BOWL SHOW RESULTS: EXPANDED SHOW -- March, 1982

I. Cichlids

- A. New World Dwarf--no entry
- B. Riftlake, Non-Mbumba--no entry
- C. New World Medium--no entry
- D. Haplochromis--no entry
- E. Open
  - 1st: Albino Zebra(Pseudot. Zebra)-- Amy Stirman
  - 2nd: Pseudotropheus Kenii-- Amy Stirman
  - 3rd: Melanochromis Auratus-- Amy Stirman

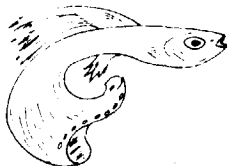
II. Egglayers/Livebearers

- A. Guppies
  - 1st: Half-Beak Guppy-- Darrell Holman
- B. Barbs
  - 1st: Checkerboard Barb-- Darrell Holman
  - 2nd: Checkerboard Barb-- Darrell Holman
  - 3rd: Highfin Rosy Barb-- Darrell Holman
- C. Killifish
  - 1st: Cynolebias Nigripinnis-- Wagners
  - 2nd: Aphyosemion Australe-- Wagners
- D. Catfish (Non-Corydoras)
  - 1st: Flagtail Catfish-- Darrell Holman
  - 2nd: Microsynodontis Shoutedeni-- Darrell Holman
  - 3rd: Bristlenose Plecostomus-- Darrell Holman
- E. Open
  - 1st: Red Cambodian Betta-- Darrell Holman

Member's Choice

Cynolebias Nigripinnis-- Wagners

<u>STANDINGS:</u>	<u>M</u>	<u>Q</u>	<u>YR</u>
Cichlids:			
Amy Stirman	9	22	22
Egglayers/Livebearers:			
Darrell Holman	28	36	36
Wagner Family	8	14	14



**POTOMAC VALLEY AQUARIUM SOCIETY  
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ARLINGTON, VIRGINIA 22206**

Date \_\_\_\_\_ 19 \_\_\_\_\_

APPLICATION FOR MEMBERSHIP

NAME \_\_\_\_\_

STREET \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

PHONE \_\_\_\_\_ ZIP CODE \_\_\_\_\_

Number of tanks \_\_\_\_\_

Type of fish \_\_\_\_\_

Time in hobby \_\_\_\_\_

Fish you have spawned \_\_\_\_\_

What you would like  
to do in this Club? \_\_\_\_\_

Which sub-group interests  
you? (guppy, cichlid, other) \_\_\_\_\_

How long do you plan to be in this area? \_\_\_\_\_

Occupation \_\_\_\_\_

Membership dues for the Potomac Valley Aquarium Society are:

Family	\$10.00	Corresponding	\$5.00
Individual	\$ 7.00	Junior	\$3.00
		(under 18)	

Completed applications accompanied by your check or money order should be mailed to P.V.A.S., P.O. Box 6219, Arlington, Virginia 22206.

Please attend our meetings at the Cocoa-Cola Bottling Plant, 5401 Seminary Road, Alexandria, Virginia at 8:00 P.M.

Potomac Valley Aquarium Society  
P.O. Box 6219  
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FIRST CLASS MAIL

1982 MEETING DATES:

JAN. 11	APRIL 12	★	JULY 12	OCT. 11
FEB. 8	MAY 10		AUG. 9	NOV. 15
MAR. 8	JUNE 14		SEPT. 13	DEC. 13

The April 12, 1982 meeting will be held at the Westover Baptist Church, intersection of North Washington Boulevard and Patrick Henry Drive, in Arlington, VA.

Meetings start at 8 p.m. Doors open 7:30 p.m. Bowl Show registration, 7:45 p.m. to 8 p.m.