

## Breeding Wild Discus

### Everything you may need to know to start breeding the Wild Discus.

*By Wayne Leibel*

If there's anything more exciting for aquarists than owning wild-caught discus, it has to be breeding them. So it comes as no surprise that as soon as the first discus arrived in the hobby, the efforts to breed them began.

According to Keller (1974), the first importation of a live discus fish, by the Eimeke Company of Hamburg, Germany, occurred in 1921, some 100 years after its initial description. Unfortunately, of three fish shipped, two were dead on arrival and the third fish died soon after.

In a note that appeared in *Aquatic Life* in 1934, (Vol 17:231-233, et seq.), translated from the original article that appeared in a German hobby magazine, W. Praetorius describes collecting discus from near Santerem (far eastern Brazil) in October of 1928. Unfortunately, the five specimens he attempted to return to Germany also did not make it. Remember, most tropical fish were transported in milk cans aboard freighters at this time — it's a wonder any discus ever made it back alive!

Eventually they did. Apparently, 18 specimens were imported into New York in 1932 by a Mr. Griem (see *The Aquarium*, April 1933:327-328), who shipped them in individual cans and accompanied them personally from South America. Of these, six were consigned to the Empire Tropical Fish Import Co. of New York, and the balance were shipped to the Hartel hatchery of Dresden, Germany. According to Keller (1974), Herbert Hartel actually travelled to New York to personally oversee and accompany the shipping of the three "blue scalare" that were to become the founding population of discus in Germany. (Incidentally, William T. Innes, who reported on the importation in his magazine, *The Aquarium*, first suggested in this article the name "pompadour fish" or "crested cichlid" in place of "blue scalare" as the common name for the discus.) Innes (1935, *The Aquarium*, October, 119-122) reports that they sold in the U.S. for \$75 apiece.

The first successful spawning of discus apparently occurred in the U.S. in May 1935 by Gustav Armbruster of Philadelphia (Innes 1935). Apparently, he had previously had eggs in 1933 (*The Aquarium*, March 1934), but these proved infertile.

Dwight Winter of Pittsburgh (1934, *The Aquarium*, August, 89-90), whose purchase of two specimens from the original importation resulted in a compatible breeding pair, also reported several (six) spawnings, of which the last five were fertile and resulted in fry that ultimately died. Winter believed they died because the fry were very small and because the aquarium in which they were housed was too deep. He also suggested that discus were mouthbrooders!

According to Innes (1935), Franklin Barrett of Philadelphia also had several viable spawnings, but the young perished despite his attempts at varying their rearing conditions. Meanwhile, Armbruster finally succeeded in raising approximately 50 fry to an age of five months by providing "microorganisms from outdoor ponds." Photos by Innes of captive-spawned discus at each month of growth accompany the article and were later included in his *Exotic Aquarium Fishes* (1935, first and subsequent editions).

Apparently, Armbruster was unable to repeat his success (Innes, *The Aquarium*, 1935). But successful spawnings did take place in Germany in 1935 by a Mr. Beierlein (Hoedeman 1974) and in 1939, by Hansjoachim Mitsch (1939, *The Aquarium*, March, 186-188), who also fed his 46 viable fry "pond water" to start them off. And again, in 1948, when aquarists at the Paramount Co., of New York were able to rear 56 youngsters by feeding them "5 different kinds of infusoria."

Notably, all of the above aquarists removed the parents after spawning and artificially incubated the eggs, to protect, they thought, their precious eggs. Apparently, many of the pairs ate their eggs (Innes, 1948, *The Aquarium*, June, 119-121). What was missing, of course, was the parental slime that provides the first nutrition for the free-swimming discus fry!

By removing the parents to protect the valuable eggs, aquarists were denying the fry the opportunity to contact feed off their parents flanks, as they do naturally. In fact, it is nothing short of amazing that any of the broods survived. I don't know when this was first discovered.

Keller (1974) suggests that Hartel in Germany first successfully reared fry and observed contact feeding in 1936. He did so by providing his pair a clay tube that apparently overcame their shyness. The parents swam out with a shoal of fry pasted

to their bodies. Hoedeman (1974) attributes the discovery of contact feeding to the German Hoffman, who in 1939 succeeded in having parents raise 30 fry.

However, if true, the information concerning contact feeding never made it to the American hobby. In all of the editions of Innes' *Exotic Aquarium Fishes* up to and including the 15th published in 1953, no mention is made of contact feeding. But, in the May 1953 issue of *Innes' The Aquarium*, the Bernard Merstens chose to leave parents with their spawn and solved the problem.

The Merstens' pair was kept in a 50-gallon heavily planted aquarium. The pair laid their eggs on the back wall of the aquarium. Witnessing their spawning, the Merstens covered the aquarium with the exception of a small window through which they could watch the progress of the spawn. The Merstens reported that at 48 hours, the eggs hatched and the parents began moving and attaching their young to the leaves of Amazon swordplants. Six days after hatching, the free-swimming fry did something amazing: "The babies not only swim around Mama, but eat directly from her. They nibbled at her fins and sides."

They continued to do so for about 2 weeks until they switched over completely to micro worms and powdered dry food (which they had been offered since they began feeding). The Merstens raised 25 fry to 3½ weeks of age (as of that article). Although I do not have the 1954 edition of Innes' book, my 19th edition, revised (1964), includes mention and pictures of contact feeding.

Vorderwinkler (1957) attributes the discovery of contact feeding to the aquatic photographer Gene Wolfsheimer, who most certainly photographed the event prior to 1957, but I believe the Merstens or possibly Hartel should get credit. I don't have an extensive library of German aquarium books of 1936 or older, but my 1943 *Aquarienkunde* by Kramer, which has an entry for discus, makes no mention of their breeding (while detailing the same for angelfish on the preceding page).

Whoever did it, the mystery was finally solved! To put this achievement in its proper context, Vorderwinkler (1957) wrote that "more than 67,000 specimens of this fish" had been imported from South America since their introduction in 1921 (actually, 1932), most of them after planes replaced ships as the mode of transport in the 1940s and '50s. However, "only a few successful spawnings have been reported up to the present time."

I have reviewed the scant published reports above. These days, spawning discus is commonplace, as the sheer number of advertisements for aquarium-raised stock that appear in the back pages of our hobby magazines will attest to. Indeed, aquarium-raised stock, now several tens of generations removed from wild parents, and highly inbred and selected for coloration and finnage, are arguably no more difficult to spawn than their angelfish counterparts.

For my money, the true measure of a discus breeder is whether she/he can successfully spawn wild discus. (However, raising and developing quality cultivated stock is another challenging matter!) Again, I have no experience in this regard, so I will direct you elsewhere for more explicit information (e.g., Schulze, 1988, etc.).

As I have said so many times in this series, by giving fish what they need relative to how they live in the wild, you shouldn't be able to stop them from spawning! On the other hand, I've personally yet to spawn wild discus (though aquarium-bred specimens were a snap), but I know several aquarists who have. Our hats should be off to the few successful pioneers that provided the founding stock of captive-reared discus from which all strains have been derived.

But to breed discus, you first need a pair of compatible fish. Now, there are two problems in achieving a compatible pair, as I see it.

First, wild discus, imported almost exclusively as adults, are expensive! So putting together a group, say four or six individuals, can be prohibitively expensive. Yet, this is probably the best way to get that pair — allowing them to pick each other.

Sexing discus can be problematic, although several guidelines have been given in various books (i.e., body shape, intensity of coloration, shape of dorsal and anal fins). Schulze (1988) suggests the following. Females are more rounded in shape and males are slightly more elongate — he reports a 70-percent success rate in sexing by this method. While I don't doubt that experts can sex discus with some success, particularly when dealing with their own cultivated strains, you and I, with less experience, might have some difficulty.

Another approach, and one that I have advocated for obtaining pairs of other adult and expensive cichlid fish, is to spend a good deal of time watching the group interact in your dealer's aquarium. If they are healthy, and in relatively good condition, you may be able to see courtship activity — genital ramming, gill flaring, face-offs — instead of simple chasing

by the dominant fish. Possible pairs will often act like pairs even in your dealer's aquarium.

But be prepared to be wrong! You may have to divide the two fish initially until both are brought into the best of health, or you may simply have guessed incorrectly and may have to add a third fish to the mix. If so, please keep a close watch on the trio. If a pair forms, the two will maul and eventually kill the third fish. For this reason, I think that if you can afford it, a group of four to eight individuals is best, and certainly more appealing from an aesthetic point of view, assuming you have a large enough aquarium (70 gallons or larger) to house them, with enough shelter provided.

The other problem has been raised by Weiss (1995, and personal communication). Namely, collectors and exporters sort the discus by color types and often end up segregating the sexes that way. For instance, Weiss believes that the so-called "Rio Negro Heckel" are actually females of the "Blue-Headed Heckel," and that individuals sold as "Blue Discus" are males whose prospective mates are plainer and sold as "Brown Discus."

So by selecting only the most highly colored individuals from an importation, you may only be getting males. Or, worse, there may be no females in the shipment at all because they were sorted out by the collectors and sold as less-colorful morphs. I have neither the direct experience collecting or breeding wild discus to know if this is actually the case. However, Weiss, as a large-scale importer of wild discus who has traveled to Brazil several times to participate in and oversee their capture, has seen a lot of discus.

Assuming a compatible pair and good conditioning, along with the proper environmental releasers (e.g., temperature and water chemistry coupled with water changes), the spawning of wild discus is not unlike the same experience with wild angelfish. The eggs are typically hung on a vertical surface and guarded and fanned by the parents. Care should be taken not to spook them, with the typical result being egg-eating.

Fry hatch out on typical cichlid fish schedule (about three to four days) and wriggle for awhile as they absorb their yolk sac. The parents will often move them around — in pits or hanging them from aquatic plants — until they become free-swimming. At this point, the parents' copious slime will provide the first nutrition.

The male and female will often take turns "nursing," transferring the fry by a quick shake as they stand side-to-side alongside each other. Later (five to six days) they can be weaned onto newly hatched brine shrimp (*Artemia nauplii*) and eventually removed from their parents.

Like angelfish and uaru, discus cycle relatively quickly, and if in good condition will lay eggs every seven to 14 days, if the fry are removed. Although youngsters can be reared artificially on magic concoctions usually based on baker's egg yolk, what's the point? These are wild fish and should be allowed to do what nature intended. Leave the foster-rearing to enthusiasts in search of maximum yield of fry.

If your fish are laying eggs, but nothing hatches, either the male is young and/or infertile or "he" is actually a "she." The phenomenon of two females pairing and spawning is not uncommon with discus, angelfish or uaru (or severum or chocolate cichlid fish, for that matter), and can become quite frustrating for their owner. If successive spawns result in no hatch, it's time to change mates — and the same is true for incessant egg-eating. Persistence will usually pay off in the long run.

#### Discus in the Community Aquarium

Here's another sacred ox about to be gored. Not only can wild discus be kept in a community aquarium, I actually recommend it! For me, the sterile bare set-ups advocated by many serious (and, yes, talented) discus breeders doesn't float my boat.

No question they are easier to maintain in a bare setting. However, I prefer to see my wild discus in captive situations that at least mimic, if they can't completely duplicate, the wild habitat. And then there is the advantage of "dither fish," whose brazen swimming (stupidity?) helps overcome the natural shyness of cichlid fish like discus.

Schulze (1988) is one author who seems to agree, and even devotes several chapters to furnishing the discus aquarium — including suitable tankmates. His guidelines are excellent.

Given that discus are shy and often slow, hesitant feeders, they should not be housed with fast swimmers, fin-nippers or more aggressive species. They obviously should share the same environmental requirements (e.g., high temperatures; soft, acid water, etc.).

So barbs and many silver dollars are out (nippers, aggressive feeders and too frenetic). Tetras, particularly large schools

of medium-size, peaceful species, are definitely in. Schulze recommends cardinal tetras (*Cheirodon axelrodi*), and claims to have successfully kept them together, but they seem like a meal for discus — even well-fed ones.

He also recommends rummy-nose tetras (*Petitella georgiae*) and medium-size *Hemigrammus* spp. I like diamond tetras (*Moenkhausia pittieri*) myself. He also recommends (African) Congo tetras (*Phenacogrammus interruptus*), and, if you can get by the different continent part, they are an excellent choice.

For catfish, Schulze (1988) recommends smaller "pleco" types like clown pleco's (*Pekoltia* sp.) and bristle-noses (*Ancistrus* sp.), but recommends avoiding larger "*Plecostomus*" and "*Hypostomus*" species (broadly defined). He suggests that *Corydoras* sp. never do well. I'd add porthole cats (*Dianema* sp.) and possibly hoplos (*Hoplosternum* sp.) to the "good list" as medium-size and inoffensive "scavengers" that will help keep the substrate cleaner. Again, not for purists, Schulze recommends (Asian) clown loaches (*Botia macracantha*) as the perfect bottom feeder for the discus community.

And cichlid fish? Most are too aggressive. He recommends against uaru, and I would certainly add severums and chocolate cichlid fish to that list. *Festivum* (*Mesonauta* sp.) are one possibility. Angelfish (*Pterophyllum* sp.) would seem a natural, but Schulze (1988) stresses that they should "under no circumstances" be kept with discus because of their aggressiveness and, more importantly, because of diseases they can harbor and give to discus.

I was a disbeliever of this notion until I added a group of newly imported altum angels (*P. altum*) to my established colony of green and heckel discus without first quarantining the angels. The angels died within 48 hours and the discus turned black and dropped off one by one over the next few weeks!

One choice that Schulze does recommend is rams (*Microgeophagus ramirezi*), and I concur. In fact, probably several of the larger *Apistogramma* species and the Bolivian ram, *M. altispinosa*, could be used interchangeably here.

Now, these are not hard and fast guidelines, just some starting places if you wish to keep a discus community. Certainly experiment, but back that experimentation with some reading before adding any "pretty fish."

Remember that the discus are primary focal points of this aquarium, and it is their requirements that must be met. The other community fish should thrive under these conditions and compliment, not detract from or otherwise annoy, the discus.

Having said that, let me describe to you one of the nicest and possibly oddest discus communities I have ever had the pleasure of enjoying. Roger Vitko of Austin Texas is a wizard when it comes to planted community aquariums and discus. His are doing just fine, thank you, in a 90-gallon heavily planted aquarium with angelfish, apistos, pike cichlid fish, assorted other cichlid fish and a literal flock of tetras. It works and looks great! So, be open to experimenting, but do so carefully, and as an informed aquarist who has done her or his homework.

#### Conclusion

Well, that's it for wild discus. Even though this topic has run for several installments, I have barely scratched the surface with this "cult" fish.

Again, let me remind you that I am no authority when it comes to these fish — just an admirer who has dabbled with them on and off over the years. Please consult some reputable texts for more information if you wish to keep discus properly. I'm sure that if you do, you will find some of what I have offered as my own opinions are soundly contradicted by some of the experts. Who's right? You are if your discus prosper and breed!