THE TRUE BASKETMOUTH CICHLIDS OF THE GENUS ACARONIA (Myers 1940)

By Wayne S. Leibel

The common name ‘basketmouth’ has been applied to a number of relatively unrelated South American cichlids with large, protrusible mouths including the chaetobranchines (=planktivorous gape-and-suck filter-feeders; see Leibel, 2001), gape-and-suck predatory heroine cichlids of the genus Caquetia (e.g., C. spectabilis, C. kraussii, and C. myersii, the so-called “false-basketmouths”; see Leibel, 1996), and the subject of this article, the true basketmouths of the genus Acaronia, although these are not the only New World cichlids that have adapted this feeding strategy (see Wainwright et al., 2001 for a recent mechanistic study of cichlid ram-protrusion feeding; Coleman, 2002 for a review of same; and Eaton, 1943 for an earlier treatment of the topic). I call this group the “true” basketmouths because in 1840 when Heckel described Acara (now Acaronia) nassa, he memorialized their anatomy and feeding strategy with the species name, nassa which is Latin for “wicker fish trap.” He did so on the strength of the collector Natterer’s report that the natives called it bocca de juquia meaning “fish trap mouth.” Indeed, woven basket-work fish traps are used by Guyanese Indians for fishing (Roth, 1943), and I myself brought one back from Venezuela on a recent trip. The traps bring to mind, in shape and design, the long, tube-like, protrusible mouths of gape-and-suck predatory fish. Clearly the natives were familiar with the natural history of this cichlid and the means by which it makes its living, i.e., by sucking down fish with its huge, basket-like protrusible mouth. The true basketmouths — both A. nassa and A. vultuosa — are infrequently kept in the home cichlid aquarium, though they are beautiful and interesting denizens, and they have spawned only once in captivity to the best of my knowledge, at least as of 1998 (Stawikowski and Werner, 1998). While I have written about them and this spawning previously (Leibel, 1985), they have become more frequently imported over the past few years, and I hope this article entices a few of you South American cichlidiot to obtain and work with these interesting fishes, so as to establish them in the hobby and increase our knowledge of their spawning behavior.

Taxonomic History

As mentioned above, Acaronia nassa was first described by Heckel in 1840 as Acara nassa from material collected by Natterer from the Amazon. Although sufficiently astute to sort several of the more distinctive specimens in Natterer’s collection into separate new genera (e.g., Uaru, Symphysodon, Pterophyllum, Crenicichla, and Heros, for example) Heckel described no fewer than 21 species in his new genus Acara. These included several species which are still retained in the genus Aequidens (Eigenmann and Bray, 1894), the true acaras of the aquarium hobby, and also a fair number of obviously unrelated forms, including the oscar (now Astrototus), several geophagines (Geophagus surinamensis and “G.” brasiiliensis), and even an African mouthbrooder, Haplochromis desfontaines!
Although Günther (1862) apparently accepted Heckel’s (1840) placement of nassa in the mixed-bag genus Acaara, he did suggest that two other new species described by Heckel, Acara cognatus and A. unicolor, were in fact identical to Acaronia nassa. Steindachner (1875) formally synonymized these two with nassa and erected the monotypic subgenus Acaropsis (opsis = appearance, e.g., “looks like”) for Heckel’s nassa which he felt (correctly) differed substantially from the other species in the genus Acara. Eigenmann and Bray (1894) later promoted Acaropsis to full generic rank and distinguished it from their new genus Aequidens, where all but the obvious misfits from Acara Heckel were moved, on the basis of anatomical features responsible for its basket-like mouth — a much larger mouth, highly-protractile premaxillaries, and exposed maxillaries — all related to its occupation as an efficient gape-and-suck predator.

Myers (1940) pointed out that the name Acaropsis suggested by Steindachner (1875) was in fact preoccupied by a genus of spiders (Moquin-Tandon, 1863). By the law of historical precedence, Acaropsis was the property of this arachnid genus and unavailable to Steindachner, and thus retroactively invalid. Myers (1940) suggested Acaronia which was available and to this day serves as the generic nomen.

It was not clear until recently (1989) how many species should be recognized in the genus Acaronia. Jardine (1843) described Centrarchus rostratus, which exists only as a written description and colored drawing in Jardine’s book; no type specimen exists. Kullander (1989) believes, based solely on the drawing and facial markings depicted, this species to be A. nassa. Miranda-Ribeiro (1918) described a second species, Acaropsis (Acaronia) rondoni, from the Rio do Sangue in the Matto Grasso region of Brazil. Having examined the type specimen, Kullander (1986) concluded that this was an Aequidens and not an Acaronia species. Eigenmann and Allen (1942) described a third species, A. trimaculatus, from material collected from Iquitos, Peru by Morris in 1922. Kullander (1986) has since synonymized A. trimaculatus with Aequidens uniocellatus.

An interesting aside involves the description of a juvenile specimen of Acaronia vultuosa, which is somewhat different morphologically from adult fish (e.g., the eyes are relatively larger in juveniles), as an Apistogramma species. Fowler (1940) described Apistogramma ambloplitoides on the basis of a single 77 mm specimen collected by Morrow in Peru. His figure of the holotype, which appears again in Fowler (1954), is a dead-ringer for a juvenile Acaronia nassa, as Kullander (1980) has since confirmed.

Thus until 1989, the genus Acaronia Myers 1940 was thought...
to be monotypic with the sole species *A. nassa* (Heckel 1840) distributed throughout the Amazon and north to Guyana and possibly occurring in the Orinoco drainage in Venezuela (Pellegrin, 1903; Eigenmann and Allen, 1942), as well as the La Plata drainage in Paraguay and Bolivia (Eigenmann and Allen, 1942).

In 1989 Sven Kullander described a second *Acaronia* species, *A. vultuosa*, from the Orinoco drainage in Venezuela with a distribution from the Casquiare canal and swamp southward in the Rio Negro in Brazil. The principal diagnostic difference between *A. nassa* and *A. vultuosa* seems to be the size and number of spots that constitute the suborbital stripe on the cheek just below the eye; *A. vultuosa* has many more, smaller spots than does *A. nassa*. The name *vultuosa* is Latin, meaning “full of facial expressions” and was given by Kullander (1989) in reference to the diagnostic black markings on the head. *Acaronia nassa* has richly spotted fins, whereas in *A. vultuosa*, the fins are less patterned and the caudal fin is clear. *Acaronia vultuosa* has horizontal “striping” formed by alternating dark scale centers and light scale margins, whereas *A. nassa* lacks such striping. In addition to colorational differences, *A. vultuosa* lacks microbranchiospines on the first gill arch (*A. nassa* has them), and in *A. vultuosa* the anterior external gill rakers on the first gill arch remain separate (in *A. nassa*, they are fused). Though these seem like small differences, Kullander regarded them as sufficient grounds for splitting the species. That they are ‘good’ species and not simply geographic variants is suggested by the fact that the two forms (species) occur together (i.e., are sympatric and syntopic) over a small part of their range.

In a broader context, *Acaronia* was seen by Regan (1905; 1906) as a derivative of the more primitive *Aequidens* and indeed, superficially, they appear very closely-related. Miranda-Ribeiro (1915), in contrast, saw *Acaronia* as derived from *Cichlasoma* (meaning the current-day heroine cichlids; Kullander 1998). More recently, Cichocki (1976) suggested on the basis of his rather unorthodox cladistic analysis that *Acaronia* is more closely-related to *Chaetobranchus* than to the “Aequidens” lineage, with the diminutive *Biotoeus* as the sister to it. Kullander (1998), based on a reevaluation of morphological characters, saw *Acaronia* as the basal taxon to his newly suggested subfamily Cichlasomatinae, comprising *Acaronia*, the cichlasomines (or acaras), and the heroines (former ‘*Cichlasoma*’ species), but not at all closely related to the chaetobranchines or geophagines. Modern DNA analysis places *Acaronia* as sister to the *Laetacara-Bujurquina* line and firmly within the cichlasomine clade (e.g., with *Cichlasoma bimaculatum*; the true *Aequidens*; and other ‘*Aequidens*’; Farias et al., 2000), as does the molecular data when combined with morphological data. In this analysis the chaetobranchines are at the base of the geophagine lineage and only distantly related to the cichlasomines (and heroines). So
clearly, gape-and-suck feeding adaptations have evolved independently within the Neotropical Cichlidae.

**General Appearance**

Both species of basketmouths have the overall appearance and demeanor of acaras trying to be heroines (i.e., 'Cichlasoma' species). While the body shape shares characteristics with both these groups, the fiesty, aggressive behavior seen in *Acaronia* is definitely heroine. Ground color is charcoal grey with a subtle bronze-gold wash in both species. In *A. vultuosa*, unlike in *A. nassa*, the center of each scale is dark and the scale margins are light, creating a series of parallel iridescent "stripes" that run the length of the body. Three black ocelli (ringed in silver) — one on the upper peduncle, one nearly mid-flank between the upper and lower lateral lines, and one just above the upper lateral line in line with the opercular margin — complete the body markings. Both *A. nassa* and *A. vultuosa* have additional black ocelli ringed in silver just under the eye which extend onto the face and lower lip. In *A. nassa*, there are two, one on the cheek and one on the operculum; in *A. vultuosa*, there are more numerous, smaller spots in addition to these two, giving the head a speckled appearance (Kullander, 1989). The facial markings are reminiscent of the African haplochromine, *Ctenochromis horei*; the ocellated gill plates are used like the opercula in the Firemouth, *Thorichthys meeki*, in aggressive display. The iris of the relatively large eye is bright orange, turning neon red during courtship and spawning. In *A. nassa* the unpaired fins are charcoal gray and marked with faint hyaline spots on the intramembranes. The dorsal fin is edged in white and becomes produced to sweeping points (as does the anal fin) in large specimens. The paired ventrals are well-developed with the leading rays edged in white and produced to feathery filaments in mature specimens. In *A. vultuosa*, the spotting of the unpaired fins is diminished overall and absent in the caudal (Kullander, 1989; pers. observ.). During courtship (see below), the body color darkens and several indistinct *Aequidens*-like vertical bars are expressed along with dark interorbital, nape, and nasal stripes. Frightened or newly-netted fish express a dark horizontal band extending from the eye back through the mid-lateral ocellus to the insertion of the soft dorsal, a marking characteristic of juvenile basketmouths.

The largest recorded specimen of *A. nassa* measured 240 mm (9.5") in standard length (Eigenmann and Allen, 1942), although sexual maturity is apparently reached at considerably smaller size. Lowe-McConnell (1969) reported sexual size dimorphism, with females of captured pairs usually 20-30 mm (ca. 1 inch) smaller than their male consorts. This held true for the two sexually mature pairs I acquired and whose spawning is reported below. Whether females remain smaller than males at maximum growth is unknown. There are no obvious sexual differences in finnage or coloration. However, as was true for *Acarichthys heckelii*, there seem to be subtle but reliable differences in the width and profile of the head (Leibel, 1984). The ascending profile is steeper and the interorbital width (=head thickness) is much greater in the male than in the female. Mature specimens may be sexed directly during spawning or fol-
allowing temperature-induced genital papilla (tube) extrusion (Leibel, 1985).

Biotope and Natural History

The little that we know regarding the natural history of the basketmouth cichlids comes from observations made by Rosemary Lowe-McConnell (1964; 1969) in Guyana and more recently by Sven Kullander (1986) in Peru. In Guyana, *Acaronia nassa* is widely distributed in a number of distinct biotopes. During the rainy season — typically April through September north of the equator — rivers rise and flood surrounding savannah areas. The fishes likewise spread out over the flooded savannah. Food is abundant and many species spawn at this time. At the end of the rains, the savannah dries quickly. Many fish swim back to the main rivers, but many are stranded in open savannah pools (which shrink but often remain full) until the rains free them again the following year. The savannah pools are typically clear, about 6 feet in maximum depth and several hundred yards in circumference. The bottom is muddy and quite rich in vegetation. *Acaronia nassa* (along with *Satanoperca leucosticta* and *Geophagus cf. surinamensis*) are quite plentiful in these pools. Kullander (1986) likewise found Peruvian *A. nassa* in backwater lakes and pools.

In Guyana, *Acaronia nassa* is also quite common in pools adjacent to, and often connected with, the main river. These permanent pools are typically smaller than the savannah pools, edged with rock, and filled with very clear water over a mixed rock, stone and sand bottom that primarily supports a rich algal growth. Rocks and fallen tree debris provide needed hiding places for resident cichlids which include *Satanoperca leucosticta*, *Mesonauta festivum*, *Cichlasoma bimaculatum*, and the predatory peacock bass, *Cichla ocellaris*. I personally collected juvenile (1-3") *A. vultuosa* in Venezuela from pools associated with streams near Puerto Ayacucho where they lived with *Apistogramma hongsloi*, *Aequidens metae*, and *Geophagus taeniopareius*. The *A. vultuosa* were found along the banks in vegetation where they most likely ambushed small fishes, including the apistos that lived there. Although *Acaronia nassa* was occasionally taken from small creeks feeding the main rivers in Guyana, they were never captured in the main river (Lowe-McConnell 1964). *Acaronia nassa* also is abundant in man-made trenches in coastal Guyana. On the coastal plain near Georgetown, water from the coastal rivers is diverted...
into a large complex of trenches (6 feet wide by 3-4 feet deep) that are used for irrigation and drainage of the sugar and rice fields (Lowe-McConnell, 1969). The trenches are well-vegetated and contain a variety of cichlids, characins, knife-fishes, and catfishes, with cichlids making up the majority (73%) of the resident fish species. *Acaronia nassa* along with the "Black Port" (*Cichlasoma bimaculatum*) were the two most common cichlids in this trench system (Lowe-McConnell, 1969).

Unfortunately, Lowe-McConnell (1969) offers little detail on water chemistry and conditions in these irrigation trenches (or in the pools mentioned above). However, she does record mean annual air temperatures of 83°F (28°C) with daily fluctuations of 10°F (5-6°C) and corresponding water temperatures of 80-96°F (27-36°C) in the creeks and river pools. Gut analyses of eighty-two specimens of *A. nassa* confirm the carnivorous lifestyle of this fish; paleomonid shrimp, dragonfly larvae, and small fish were most commonly found. *Acaronia nassa* are solitary, lurking predators that hang near the bottom of the trenches and capture prey by sudden protrusion of the huge mouth which creates the necessary vacuum. Although breeding was never observed, some of Lowe-McConnell's (1969) sampling data are relevant. Ripe females were caught continuously from April to November indicating a rather protracted breeding season more or less independent of wet/dry fluctuations. When pairs were trapped together, the male was generally ca. 0.8-1.2" larger than the female. The mean standard length of 42 randomly caught males was 100 mm (ca. 3.9"; range 0.4-6") whereas the mean standard length for 38 females was ca. 3.8"; range 2.7-5.2"). Gonadal inspection indicated that females matured when only three inches in standard length. No maturation size was determined for males. Kullander's (1989) sample of 25 *A. vultuosa* ranged in size from 1.2-4.7" SL.

General Aquarium Maintenance

Large, wild, adult basketmouths are solitary, quarrelsome cichlids which are skulking, cryptic predators. However, they may be housed in a community tank situation with cichlids of similar size provided the tank is large and that sufficient caves are provided for them. Of course, the huge basketmouth must be reckoned with in choosing appropriate tankmates, as they will eat anything they can swallow. With enough other target fish, conspecific aggression can be somewhat curtailed. Water chemistry seems unimportant, and the fish is fairly tolerant of slack nitrogen waste management, although they definitely appreciate, as do most fish, frequent massive water changes. They are likewise tolerant of a wide range of temperatures, but 78-84°F seems a logical choice given conditions in the wild. They are somewhat shy and retiring, preferring soft lighting and requiring a dark cave-like shelter (e.g., a large diameter PVC pipe or an upturned flower pot). Here they wait for unsuspecting prey to gulp. With time they become more trusting and will leave their caves to beg food from their owners. Although they do become delightfully behavioral, there is no mistaking basketmouths for oscars. The basketmouth's propensity for digging is minimal, and it can be trusted with a gravel bottom and rooted plants.

The one major drawback with this fish, at least in wild-caught mature specimens, is that they are obligate feeder-fish gulpers and bottomless pits. I tried (with little success) in 1984 to convert my mature wild-caught fish to frozen or prepared foods. One notable exception: some individuals (but not all) adapted to large freeze-dried krill. These were taken (with a dash and a splash) from the surface only and were ignored once they sank, as were other inert foods. I would suspect that earthworms (which would sink) would be ignored, but that mealworms or crickets, which float, might...
alternate successfully with feeder fish. The high temperature/starvation strategy which is successful with many other problem feeders is not uniformly successful with this species. I have had much better success weaning small (2-3") wild-caught specimens of both *A. nassa* and *A. vultuosa* away from live foods. They eventually did well on frozen and freeze-dried foods. My captive-spawned, tank-raised fish took all prepared and frozen foods from both the surface and the bottom and were no problem at all to feed.

Aside from their intraspecific aggressiveness when sexually mature (juveniles are quite social) and their requirement for huge quantities of live foods, these are industrial strength cichlids whose ability to adapt to a wide variety of water chemistries and conditions makes them possible for aquarists of all abilities to maintain successfully.

**Captive Breeding**

Although apparently quite common in Guyana and, presumably, in the Amazon (and Venezuela and the Brazilian Rio Negro for *A. vultuosa*), *Acaronia* species were historically only infrequently available in the hobby, usually mixed in with shipments of other, “more desirable” cichlids. They are easily identified even as juveniles, as they are big-eyed lurkers with trap-door mouths reminiscent of an amphibious assault vehicle. Up until stumbling over two pair of adult basketmouths in late 1983, I had seen and purchased roughly a half-dozen individuals of varying sizes over the preceding eight years. More recently, several wholesalers have brought in whole boxes of juvenile and adult *Acaronia* species, as has been the case with other ‘silver’ cichlids like *Chaetobranchus* and *Chaetobranchopsis* species.

I had the good fortune to spawn this fish almost 18 years ago in 1984, and that one incident was at least as of 1998 (and possibly to this day, with no published evidence to the contrary), to be the only occurrence of captive breeding of either basketmouth species in the American or European hobby (Stawikowski and Werner, 1998). What follows is an accounting of my experience from then which appeared originally in FAMA (Leibel, 1985).

In October 1983, I encountered four 5” specimens of wild-caught *A. nassa* in a shop in Philadelphia on an impulsive stop there enroute to a whirlwind tour of the city with visiting friends from Boston (actually two of them were rabid aquarists and demanded that we stop). The basketmouths, being sold as blue acaras (*Aequidens pulcher*) which they did resemble in their current state of wreckage, looked as though they had been run through the bass-o-matic with open sores, clouded eyes, fins rotted to the peduncle. I knew it would take much time and effort to get them back into condition, but their scarcity in the hobby and adult size made it worth the gamble. Compounding the problem was the very brisk autumn weather that had seemingly blown into town with my Bostonian friends the previous night. The fish would have to sit, boxed, in the unheated car for at least twelve hours. I don’t recall much about our visits to the Liberty Bell or Independence Hall that day, so completely absorbed in worry was I that day.

We arrived back in Easton after midnight, and I hurriedly settled in my new charges after chopping off the icicles; the water was quite cold. Within 48 hours, they had developed an industrial-strength case of ich (cysts on cysts!) in addition to their original laundry list of physical ailments. I knew I was in trouble when they turned up their baskets at adult krill and all frozen and prepared foods I tempted them with and began to take out their frustration on each other. I placed them each in one-half of two egg-crate-divided 30-gal tanks with 6” lengths of 4” diameter PVC pipe for shelter.
they skulked, still refusing to eat, although the ich, cloudy eyes, and fin rot were considerably improved with heat and medication. Live feeder goldfish were added, and I sat back to watch the mechanics of gape-and-suck predation. None were taken while I watched nor anytime while the lights were on, but the next morning, all were gone. The next batch of goldfish suffered the same nocturnal fate. It became clear that these were crepuscular predators who plopped their trade in the dim light. The relatively huge eyes of *Acaronia nassa* confer considerable advantage at sundown or sunup when optically less-endowed fish stumble blindly and drowsily near the cave lairs where they habitually lurk. A quick protrusion of the tube-like jaw mechanism creates enough suction to draw in goldfish-sized prey within a 1-2 inch radius of the mouth. The few times they did attempt to catch mobile fish by chase, they proved to be quite inept; their aim was terrible and they were much too slow and clumsy. Any energy input derived from the effort was more than offset by the amount of work necessary. However, they were exceedingly efficient sedentary predators.

As the four animals hit their stride, they were collectively downing over 100 goldfish a week. Eventually two of the four would accept large dried krill, but ate these unenthusiastically and never accepted any other frozen or prepared foods. The fish got fat and sassy, grew back their fins, spent more and more time out of their PVC caves; one pair began what appeared to be courtship through the egg crate divider a scant three months after their rescue. It appeared as though I had two pairs. The only obvious sexual dimorphism was the steeper angle and thicker interorbital width of the male’s head, and the heavier abdomens of the ripening females. No other differences in coloration or finnage were apparent. One female’s distended abdomen and obvious genital papilla signaled her ripeness and she began “dancing” for the male housed on the other side of her divider, swimming back and forth near the egg crate and rapidly snapping her mouth open and shut. After several hours of this peculiar courtship, when the male left his PVC to sit by the egg crate, the divider was removed and the water temperature hiked slowly to 95°F (note: such apparently extreme temperatures fall within the natural experience of wild fish according to Lowe-McConnell, 1964, and proved useful in eliciting spawning activity in otherwise reluctant, wild-caught cichlid species like *Acarichthys heckelii*; see Leibel, 1984).

Courtship was unlike anything I’ve ever witnessed in neotropical cichlids. The female continued her erratic, darting dance, lunging forward and sculling backward incessantly. The male would respond with opercular flaring which, given the characteristic ocelli just under the eye on the operculum, was reminiscent of similar aggressive behavior in the Firemouth, *Thorichthys meeki*. He would then assume a head down attitude, snapping his head from side to side (acara-like), circling the female and then butting her in the genital region. Another curious aspect of their courtship included a maneuver I refer to as “head-bashing.” The two fish would position themselves at right (90°) angles from each other and then dash forward with operculars flared and crash mouth to mouth, scull backward, and repeat the bashing 4-6 times per episode! Given the size and extreme development of the jaws, lip-locking was impossible. Instead, they often “made baskets” by opening their mouths to full extension, facing each other mouth to mouth, and pushing themselves back and forth.

These flurries of courtship activity were separated by episodes of substrate cleaning. Both sexes participated in repeatedly cleaning the various horizontal slates, smooth rocks, and clay caves offered them. Again, the unique mouth was utilized, as “partial” baskets were rapidly and repeatedly expressed as the fish appeared to nibble the surface. As courtship proceeded, the color of both indi-
viduals darkened dramatically, both expressing faint acara-like vertical bars on the body and dark interorbital facial stripes, and the huge eyes became brilliant red. Intermittent courtship and cleaning behaviors progressed with no damage to either fish (who were obviously both ripe) for five days. During this time a 50% water change was done; the temperature was dropped to 84°F and held there for 24 hours and then hiked back up to 95°F (again a strategy that had proven effective with *Acarichthys heckelii*; Leibel, 1984). Finally the female's tube emerged fully. It was huge (1/8" in diameter) and resembled a pencil eraser, and it became clear that spawning was imminent. Cleaning behavior increased dramatically and the male's tube descended.

They spawned in the late afternoon in my absence. After cleaning every surface vigorously except the one they chose, they pasted their eggs onto the curved surface of a broken clay flowerpot which was positioned, unfortunately, just under the return of a small (120 gph) external power filter. The eggs were small, ovoid (1.0 x 0.5 mm), clear amber in color, and attached by their long axis in a huge plaque numbering in excess of one thousand eggs that covered most of the 6 x 4 inch flowerpot shard. Upon discovery I immediately turned off the power filter and slowly reduced the temperature to 86°F. The parents maintained a rather sedentary vigil on either side of the pot, the female occasionally fanning the eggs gently with pectoral and anal fins, and both occasionally threatening the few remaining goldfish or me.

Within 2-3 hours of their discovery, the eggs began turning milk white, and I of course panicked. Viable *Acarichthys heckelii* eggs are similarly opaque (Leibel, 1984). More and more eggs turned white; by six hours post-spawning, 50-60% were opaque, and after twelve hours nearly all had turned, and they began to drop from the pot and roll loose on the substrate (once again with precedence in *Acarichthys heckelii*). Were these viable? By 24 hours post-spawn, nearly all the white eggs had fallen off the pot assisted by the gentle fanning and mouthing of the female. These still rolled loosely, and no fungus was in evidence. Perhaps 50-100 clear amber eggs were still attached to the pot. I siphoned some of each and inspected them under the microscope. The clear amber eggs had embryonated, but the opaque white eggs showed no signs of development. These later fungused. The parents continued to guard the viable amber eggs for an additional four days as most gradually turned white and rolled off the pot. Eventually two hatched, wriggled, swam, but would not take food and died. Although disappointed, I concluded that the male was at least fertile, the pair compatible, and that the power filter, to which I attributed the demise of the eggs, had to go.

The fish were separated and fed *ad libitum* on feeder goldfish and occasional large krill. Roughly two months later in early March 1984, the female began dancing again for her consort. I pulled the divider, increased the temperature as before, and watched the same protracted courtship behavior. They once again cleaned everything in sight and then chose the same broken flowerpot to hold their eggs, which again numbered about one thousand. They were model parents, the female gently fanning and mouthing, and the male guarding the perimeter often with his consort's assistance. This time the majority of the eggs remained clear amber (the white inviable ones rolled accommodatingly off the pot) and hatched in 72-96 hours at 86°F. The fry initially remained attached to the clay surface via mucoid secretions from their hatching glands located on top of their heads, and then slowly were spat by the female into a compact ball of fry adhering to each other. They wriggled helplessly for four days as a brown ball absorbing their yolk supplies and then swam free. The free-swimming fry were small but not too tiny, easily handling microworms for the first 2-3 days and then graduating to newly-hatched brine shrimp (*Artemia* nauplii. In color and shape they resembled fry of *Nannacara anomala*, the golden-eye dwarf cichlid from Guyana. They were light brown in base coloration with a dark brown stripe along either side, and their heads were squarish with conspicuous hatching glands on the top surface. They grew quickly and after 10 days post-hatch lengthened and became more fish-like as the hatching glands regressed.

Most of the free-swimming fry were removed from the parents (placed in a 5-gallon tank nested in the four foot 30-gallon breeder in which they had been spawned), but they continued to guard those fry that remained. The parents threatened onlookers by opercular flaring and by rushing the front glass with basket mouth extended, the female often participating, but only after warning the fry of danger by typical fin-flicking signals. She would pull both ventrals in toward her body while simultaneously lowering dorsal and anal fins and then rapidly "flicking" them back and forth several times in succession. The fry were fairly unresponsive.

The parents were removed shortly thereafter and the (roughly) 800 fry raised in the 30-gallon breeding tank. Losses were minimal, and the fry grew quickly on a diet of *Artemia* nauplii. By two weeks post-hatch they more closely resembled jewelfish fry (*Hemichromis guttatus*), retaining the dark horizontal stripe but becoming increasingly chunky and torpediform. Shortly thereafter, the lateral stripes broke up, the characteristic mid-lateral blotch developed, the body filled out, and they began eating off the bottom, something their wild parents never had done. Hatching brine shrimp
to satisfy their ravenous appetites became a problem (frankly, I’m lazy), but the size of the mouths on these baby fish and their obvious willingness to eat off the bottom suggested that finely-chopped frozen foods might suffice. They eagerly snapped up frozen bloodworms minced with a razor blade and one week later were taking frozen adult brine shrimp. Their mouths, eyes, and bellies were unbelievable. At this juncture, their growth became non-uniform, the largest reaching 0.375" (TL) a mere 3 weeks post-hatch and now decidedly nassa-like in body shape. The larger ones continued their growth spurt, several reaching 1" (TL) 10 weeks post-hatch with the average size more nearly 0.5-0.75" (TL). The larger got larger at the expense of the smaller (remember, they are gape-and-suck predators), and soon the population had dwindled to 2-300, a more realistic number to raise and distribute. Since many cichlids show sexually-related size dimorphism at an early age, a number of the smaller individuals were separated from the shoal to ensure females. At 0.75-1.0" (TL), the juvenile basketmouths developed the characteristic adult coloration and markings and began, unlike their wild parents, to accept shredded dried krill and other prepared foods. They grew rapidly and steadily, and I was able to distribute tank-raised individuals to the hobby.

I passed these captive-spawned basketmouths around the cichlid community, but no one was apparently able to raise them to adulthood and get a spawning. Neither did I, for that matter. Also, regrettably, I was never able to repeat the successful spawning of the wild-caught adults. Like the chaetochromines, the two Acaronia species are wonderful if quirky additions to the South American cichlidophile’s collection. It is my fondest hope that someone else is successful in inducing one or both species to spawn in captivity, and that subsequent generations of tank-raised basketmouths will become commonly available and easily spawned in the cichlid hobby.

References Cited


