

## Goin' South: Cichlids of the Americas - The South American Cichlasomines

### The Columbian Connection.

By Wayne Leibel

In this continuation of our discussion of the South American cichlasomines (after a brief hiatus since the last installment in the March 1996 issue) we will look at four species that hail from northwestern South America in the rivers west of the Andes. These include "Cichlasoma" atromaculatum, "C." festae, "C." ornatum and "C." umbriferum.

As a group, these "cichlasomines" are much more like their relatives of Central American provenance than their counterparts east of the Andes in terms of appearance and behavior. In fact, it has been suggested by more than one author that the ancient cichlid species ancestral to the Central American cichlid fauna arose in this geographic area: hence the title of this article, "The Colombian Connection."

#### The Red Terror ("Cichlasoma" festae)

Perhaps the most generally available and recognizable of this quartet is "Cichlasoma" festae (Boulenger 1899). Originally imported in the mid-1970s from western Ecuador (trans-Andean Pacific slope), along with "Aequidens" sp. affin. rivulatus, the two fish were dubbed "red terror" and "green terror" respectively for their apparent lack of manners in the aquarium. While they can be belligerent, in fairness to both fish it is necessary to note that the first specimens imported were huge 10- to 14-inch monsters that sold for between \$50 and \$100 in 1970s dollars!

An excellent article by Betty Les (1975), a Peace Corps biologist stationed in Ecuador, gives a revealing overview of the life histories of these sympatric (occurring in the same area) cichlids. According to Les, western Ecuador is a wet conglomerate of rice fields, streams, rivers and shallow lagoons. The two cichlid species, known locally as viejas ("old women"), occupy caves in the soft mud riverbank where they remain for most of the day. The fish can be caught by positioning a large hand net over the opening to the cave and poking the resident with a stick. The cichlids feed primarily at night, and gut analysis reveals a diet of small fish (primarily Astyanax sp. tetras), insects, snails and plants, with "C." festae being the more herbivorous of the two.

Both species are continuous spawners, but exhibit a peak in reproductive activity coincident with the rainy season in January through May. Wild red terrors are found to be reproductively competent and active at sizes as small as 5 inches, although they grow to average lengths of about 9 inches (maximum observed by Les was about 10.5 inches). In the aquarium they can attain lengths of 16 inches or more — particularly older males.

One interesting addendum to Les' observations was her assertion of the apparent ability of both cichlid species to "breathe atmospheric oxygen." That seems doubtful, though she writes: "Fish netted at night by fishermen were still alive when they arrived at the early morning fish market despite the fact that they had spent five to six hours out of water. If put into water, they revive and swim without listing. This high tolerance of low oxygen levels adapts them well to an aquarium existence." Indeed, the red terror makes for an easy and excellent aquarium resident, either by itself or in the "rowdy" cichlid community.

In terms of general appearance and coloration, particularly when breeding, the red terror is exceptional. "Cichlasoma" festae is a rather "chunky" cichlid of overall

References: Bleher, H. 1989a. The second Darien breakthrough, Part I. Tropical Fish Hobbyist (TFH) 36 (5):54-67. Bleher, H. 1989b. The second Darien breakthrough, Part II. TFH 36(6):57-68. Conkel, D. 1993. Cichlids of North & Central America. T.F.H. Press. Neptune City, NJ. Pp. 191. DePiro, T. 1980. Cichlid of the future? Buntbarsche Bull, J Am Cichlid Assoc 79:2-3. Eigenmann, C. 1924. Fishes of Northwestern South America. Memoirs of the Carnegie Museum, Vol. IX:1-346. Fromm, D. 1989. Review of "Cichlids From Central America" with Remarks on Southern Central American Cichlids, Part II. Buntbarsche Bull 132:2-12. Goldstein, R. 1970. Cichlids. T.F.H. Press. Neptune City, NJ. Pp. XXX. Golstein, R. 1973. Cichlids of the World. T.F.H. Press. Neptune City, NJ. Pp. XXX. Hopp, J.H. 1981. Cichlasoma festae Regan 1905. American Cichlid Association (ACA) Index 5(8):1-2. Konings, A. 1989. Cichlids From Central America. T.F.H. Press. Neptune City, NJ. Pp. 224. Langhammer, J. 1980. The Blue-Freckled Cichlid. Buntbarsche Bull 79:4-7. Les, B.L. 1975. The Biology of Two Cichlid Species in Ecuador. TFH 23(11):56-59. Loiselle, P.V. 1980. The Cichlasoma species of South America: Part One. Freshwater and Marine Aquarium (FAMA) 3(12):39 et. seq. Loiselle, P.V. 1981. The Cichlasoma species of South America: Part Two. FAMA 4(1):15 et. seq. Stawikowski, R. and U. Werner. 1988. Die Buntbarsche der Neuen Welt: Südamerika. Reimar Hobbing Verlag, West Germany. Pp. 288. orange-red to red coloration.

This base color is broken by a series of seven black to mahogany, more or less equally spaced, vertical bars extending from the caudal peduncle forward to the insertion of the spiny dorsal fin. An eighth partial, radial band swings down from the forehead to intersect the seventh vertical band just above its center, and a ninth supraorbital band connects the eyes over the top of the head. These bands, which are apparent in juveniles of both sexes and in adult females, disappear in older males (and reappear again when fry-tending).

Both sexes, but particularly males, develop iridescent blue centers to the scales of the rear one-half to two-thirds of their bodies, and this same iridescent blue spotting is evident in the unpaired caudal, dorsal and anal fins. One further diagnostic marking is the pronounced ocellus (black spot encircled with white-blue) found in the upper half of the caudal peduncle and into the tail. Large males (and they are usually larger and somewhat more elongate than their consorts) additionally develop what I can only describe as fleshy corrugations on their "faces" (i.e., preoperculars and operculars), giving them a rather "craggy" appearance and perhaps (along with the fleshy lips; Les 1975), the reason for the native name of vieja or "old woman."

A second species, "*Cichlasoma*" (*Nandopsis*) *urophthalmus*, found from the Yucatan Peninsula southward into Nicaragua, and particularly in coastal (estuarine to full marine) habitats, looks remarkably like the true red terror and is often marketed as such in the aquarium trade. In fact, they are strikingly near identical, although "*C.*" *urophthalmus* is somewhat drabber, particularly the adults.

One near foolproof way to distinguish the two species (and I have learned through experience) is to note the size and positioning of the "caudal ocellus." In "*C.*" *festae* the ocellus is a round blotch encircled by a conspicuous ring of iridescence and restricted to the top third to half of the caudal peduncle. In "*C.*" *urophthalmus*, the "ocellus" is more like an additional vertical bar and extends well beyond the halfway point of the peduncle. Given the choice, "*C.*" *festae* is definitely the more desirable fish.

The red terror should be handled in the aquarium like any large cichlasomine. They need space, food and clean water. This translates to larger tanks, power filters and regular water changes. Extremes in pH and hardness should be avoided, with neutral and soft to moderately hard being the preferred water chemistry values.

Shelter, in the form of large clay flowerpots or ceramic drainage tiles, or even PVC piping, works wonders for eliminating the belligerence of a group of juveniles or young adults. Even wild fish (excepting very large adults) are not fussy in their dietary tastes, and grow well on a rotational offering of pelleted foods, floating sticks and — to help them maintain their red coloration — freeze-dried krill. Obviously, frozen foods and live earthworms are relished and helpful.

Despite their potential large adult size, "*C.*" *festae* will spawn at much smaller sizes, starting at around 4 to 5 inches. At this size they are much easier to handle, require less tank space and are much less aggressive with each other. Large adults (around 8 inches or larger) may require handling using the "incomplete divider method" — a tank divided with plastic egg crate (i.e., light diffuser) cut to size serves well. With proper positioning of the power filter return, the male's milt will be blown across the divider to fertilize the eggs laid by the female either directly on the bare bottom by the divider or on a rock so positioned. The fry hatch and swim in either direction of the divider to be cared for diligently and gently by both parents. Large pairs can easily crank out 1000 to 2000 eggs (Hopp 1981), so partial fertilization is actually a blessing!

While attractive and interesting when not spawning, the red terror — particularly the female — becomes dramatically beautiful when courting or tending eggs/fry. The first time I ever encountered the radiant incandescence of a spawn-tending "*C.*" *festae* female was in 1983 on a visit to Ginny Eckstein's fish room. Ginny and Charlie (her husband) had a pair of *festae* (named Ginny and Charlie) housed in a breeder 50-gallon tank (i.e., 36 x 18 x 18 inches). The male was perhaps 18 inches long and the female easily 12 inches, and they were separated by an egg-crate divider. The male could hardly turn around, but obviously life was/had been good because hundreds of fry swished back and forth between the two compartments.

The tank was positioned against a wall just opposite the entrance — via stairwell — to the fish room. As I came down the stairs I was totally blown away by the intensity of the red and orange banding on the female — colors as bright and saturated as any marine fish! In counterpoint to the Eckstein's setup, I've seen large pairs (well, maybe not as large) kept compatibly together in tanks of similar volume (e.g., Milo Manden, Chicago, Illinois).

Although most of the red terrors offered by shops these days are, in fact, "*C.*" *urophthalmus*, the real "*C.*" *festae* does still appear for sale either as tank-raised fry or juveniles (had through the ACA's Trading Post, or from shops trading with breeders) or as imported wild stock from Ecuador, brought in along with *Aequidens* sp. affinis. I've always kept *festae* since that defining experience at Ginny's (except for the few times I mistakenly bought "*C.*" *urophthalmus* being sold as red terrors, until I learned to definitively tell them apart). I've always been able to find them — with some effort —

for the last 10 years.

The Blue-Freckled Guapote ("*Cichlasoma*" *umbriferum*)

Perhaps the second best known of this cichlasomine quartet — but not particularly well-known — is the arguably largest American cichlid, the blue-freckled guapote ("*Cichlasoma*" *umbriferum* Meek and Hildebrand 1913). I mentioned this fish in the last article of this series, "The False Basketmouths," in which I suggested (based on similar expressions by ichthyologists) that this species may be related to those three South American *Caquetaia* species and the red bay snook (*Petenia splendida*) from Central America.

Whether the protrusible mouth used for gape-and-suck predation by "*C.*" *umbriferum* — and characteristic of these other four species — represents shared ancestry or is merely an evolutionary convergence is still open to debate. "*Cichlasoma*" *umbriferum* has been placed in *Nandopsis* along with the other guapotes, including "*C.*" *festae* and "*C.*" *dovii*, the latter with which it competes for the title of "largest American cichlid."

Whatever the case, the blue-freckled guapote is admirably adapted to chasing down and swallowing schools of *Astyanax* sp. tetras or livebearing poeciliids, which they have been observed to do in their native habitats (Conkel 1993). "*Cichlasoma*" *umbriferum* is found along the Pacific slope in the Rio Tuyra basin of Panama to the Rio Magdalena basin in Colombia on the Atlantic slope, and, along with the eartheater "*Geophagus*" *crassilabrus* and the acara "*Aequidens*" *coeruleopunctatus*, is one of only three South American cichlids to actually penetrate Central America. ("*Aequidens*" *coeruleopunctatus* has been taken as far north as the Rio Coloradito in Costa Rica, just over the Panamanian border, Conkel 1993, Fromm, personal communication, and my own personal experience).

As such, the blue-freckled guapote was first encountered in commercial shipments as an oddball contaminant of shipments of the red hump eartheater ("*Geophagus*" *steindachneri*) from Colombia. A number of aquarists, including myself, cherry-picked the usually one-of-a-kind specimens (first seen in 1975), but only a few brave souls raised them to their full size and subsequently wrote about them in the aquarium literature.

These included noted "large *Cichlasoma*" devotee Tom DePiro, then of New York, now of Florida, and Jim Langhammer, then curator at Belle Isle Aquarium, in Detroit, Michigan, who published back-to-back articles in the August 1980 *Buntbarsche Bulletin*, the *Journal of the American Cichlid Association*. Langhammer grew his trio up first in a 300-gallon and later an 800-gallon tank at the aquarium over the course of five years, and DePiro, known on the East coast show circuit for his uncanny ability to put size on his cichlids, raised his group at home in a considerably smaller setup.

DePiro writes in his article that his 5-year-old specimen, which he thought to be a female, was then 22 inches long, and a 2-year-old (probably) male specimen was tipping the tape at 20 inches. He relates that these fish, particularly the male, which he got at a size of 1 inch, "...seem(ed) to grow at a more rapid rate than any cichlid I have ever seen or maintained" (DePiro 1980). That's saying something, because Tom was notorious for the huge "*C.*" *dovii* he routinely hauled to shows and with which he won "best in show."

It was Langhammer (1980) who dubbed the fish the "blue-freckled" cichlid for the obvious and startlingly beautiful metallic blue iridescent spots that mottle the face of this fish, and cover the body (scale centers) as well. Conkel (1993) has chosen, instead, the common name of turquoise cichlid for this fish.

In his case, Langhammer cherry-picked several 3-inch specimens from a Colombian shipment of *Aequidens metae*. At three years of age his male was a whopping 17 inches.

In addition to the blue spangling, the unpaired fins are liberally peppered with spots, and males develop long and elegant extensions to their dorsal and anal fins. As juveniles in the 1- to 4-inch range, "*C.*" *umbriferum* are usually simply khaki brown with a conspicuous and slightly arched dark mid-lateral band that runs from the gills back to the tail, punctuated at the middle and at the caudal peduncle by a large and small blotch respectively. There are usually a few blue spots on the face.

Most of the "*C.*" *umbriferum* in the trade these days — and they are becoming progressively more available — are tank-raised or pond-bred stock rather than wild imports, although the latter are still available: Jeff Rapps of Metro-Pet wholesalers in Irvington, New Jersey, who in his avocational role as cichlid enthusiast has bred and distributed tons of "*C.*" *umbriferum* worldwide in the past several years, still finds the occasional wild specimen he cherry-picks from Colombian shipments to keep his breeding stock gene pool well-mixed. It may therefore come as no surprise that his stock and youngsters are exceptionally beautiful. But he is only one of several "big-*Cichlasoma*" devotees who have made room in their fish rooms for this exceptional cichlid — I've seen them in the breeding setups of many advanced cichlid aquarists in my speaking travels throughout the U.S.

They are well worth the effort. Mature, full-grown specimens of this fish — like that of Milo Manden most recently — routinely win "best in show" honors for owners who have taken the time and years to grow them up.

And grow they do. The maximum recorded size for an aquarium individual is roughly 30 inches (Konings1989).

Again, think generic "large Cichlasoma" — average water chemistry, good filtration and frequent massive water changes, coupled with a varied and liberal diet of primarily prepared foods and krill. Feeder goldfish are definitely optional. As is the case for any large cichlid, adequate shelter and appropriate tankmates should be provided.

How do you breed such a huge cichlid? By not breeding them at their maximum size!

As seems to be the case with the generality of large cichlasomines, "C." umbriferum will breed at relatively small size, when managing their aggression is less of a problem. DePiro (1980) reported the first spawns of this fish at a size of 4 to 5 inches. A group of seven was housed by themselves in a 40-gallon tank. When a pair formed, he removed the remaining five (the water was pH 7.4 and "very hard"). The 400 to 500 eggs produced were virtually all fertile. The female took on a gold coloration with black eyes and black finnage (exclusive of the tail fin) as she tended the fry with her consort.

Jeff Rapps has been working with larger fish (male around 12 inches, female about 8 inches) and manages them with the "hidey-hole" method, taking advantage of the size dimorphism of this species. He separates the pair with plastic egg-crate, into which he has cut windows large enough to permit the female access to the male's compartment, but not vice-versa. The female comes and goes as she pleases, and he has been very successful in raising large numbers of "C." umbriferum this way.

There is at least one colorational variant of "C." umbriferum, the so-called green cichlid, which may well be another distinct species. According to Konings (1989), the German aquarists Heiko Bleher and Hans Mayland discovered in 1983 a "large green cichlid" in Gatun Lake (Panama, an artificial impoundment lake west of the canal), that he describes as a "primitive predator." According to the American aquarist Dan Fromm (1989), this is, in fact, "C." umbriferum, which he and Dale Weber collected in 1983 from the Tuyra-Chucunaque drainage of Panama, farther east of the canal. Eigenmann (1924) indeed records the distribution of "C." umbriferum as including the Tuyra and Chepo basins of Panama.

Photos of this fish, caught by Bleher and Mayland in the Rio Sambu, can be found in Bleher's (1989) two-part account of a collecting trip to the Darien of Panama. He describes it thusly: "...we caught a 55-centimeter (22-inch) 'monster,' the largest I had ever seen. The natives explained that they had caught even larger specimens. This blood-red-chested green devil (what we called it) had unusually large teeth. An irregular black line began behind the posterior end of the dorsal fin. Covered by remarkable iridescent-white spots and being overall army-green colored, it had a power that was matched only by the crocodile! I collected a pair and carried the monsters — just don't ask me what it took to keep them alive..."

Photos of the "green cichlid" appear also in Stawikowski and Werner (1988) on page 84. Jeff Rapps believes he has a young pair of the green cichlid — I have seen them and they certainly don't look like the typical "umbis," but only grow-out to adulthood will tell.