

## Goin' South: Cichlids of the Americas - More Demonfish

### Maintaining and spawning the demonfish (continued).

By Wayne Leibel

In the previous installments on the eartheaters we considered the demonfish — members of the geophagine assemblage split into their own genus, *Satanoperca*, by Sven O. Kullander. There are three other natural groupings of "Geophagus" in addition to the naked eartheaters, genus *Gymnogeophagus*. They are the "red humps," the "surinamensoids" and the "brasiliensoids" (the latter two will be discussed in upcoming installments).

Because the latter most resemble the "naked eartheaters" in appearance, behavior and geographical origin, we will consider both, as a unit, in this and the next installment. The subject of this article, therefore, will be the "red humps" and "surinamensoids," two appealing groups of geophagine cichlids with representatives frequently encountered in the aquarium trade.

In the same monograph in which Kullander (1986) resurrected and redefined the genus *Satanoperca* Guenther (1862) for the juruparoid demonfish (see Part 7, November 1992), he limited the usage of the genus name *Geophagus* Heckel (1840) to members of the "surinamensoid" clan, including *surinamensis*, *proximus*, *megasema*, *altifrons*, *harreri* and *camopiensis*. This, of course, left stranded two species groups formerly grouped under *Geophagus*, namely the "red humps" (*steindachneri*, *pellegrini*, *crassilabrus*) and the "brasiliensoids" (*brasiliensis* broadly defined). Pending reassignment, these should now be referred to, like we did with the blue acaras, as "*Geophagus*." That having been said, I'd like to start our discussion with the "red humps."

#### The "Red Hump" Eartheaters

Many of you are familiar with a small, horse-faced cichlid with a conspicuous red topknot — the red hump eartheater. Regrettably, most of you know it by the wrong name — "*Geophagus*" *pellegrini* — the name it's been sold under for the last 20 years. In fact, "*Geophagus*" *steindachneri*, the red hump of the trade, was introduced to the hobby by Walter Brind in 1943 as the "Magdalena Mouthbreeder." This common name was not inappropriate given its origin in the Rio Magdalena in Honda, Colombia. Having no apparent precedent in the hobby literature at the time, Brind named the animal *Geophagus* *magdalena*. The fish failed to gain wide popularity and was apparently lost to the hobby for nearly 30 years.

In 1970, this same fish, now dubbed the red hump eartheater and saddled inaccurately with the nomen *Geophagus* *pellegrini*, reappeared in the trade. Kappy Sprenger (1971) was perhaps the first American aquarist to document the reappearance of Brind's eartheater. In 1974, Paul Loiselle correctly identified the fish in question as *Geophagus* *steindachneri*. However, as many of you know, once a name is assigned in the trade, it tends to stick whether correct or not. The situation was complicated by Gosse (1975) who, in his seminal revision of the geophagines, relegated the name *steindachneri* Eigenmann and Hildebrand (1910) (along with Brind's *magdalena*) to junior synonymy with *hondae* Regan (1912), despite the historical precedence of the former name, *steindachneri*.

Gosse's authoritative pronouncement was immediately embraced by the aquarium publishing industry (see Richter 1979 and Axelrod 1980) and soon thereafter by the trade. The red hump eartheater was peddled, bought and written about variously as *Geophagus* *pellegrini*, *hondae* and, rarely, *steindachneri*.

After a series of pointed but polite taxonomic skirmishes that occurred primarily in *Buntbarsche Bulletin*, *The Journal of the American Cichlid Association*, Gosse (1981) conceded that *G. steindachneri* was, in fact, the correct name of the diminutive red hump eartheater from Colombia. The problem, though now resolved amongst taxonomists, enjoyed no such resolution in the aquarium trade.

The red hump eartheater is still sold and written about erroneously as *pellegrini* or *hondae*. While *hondae* is a junior synonym of *steindachneri*, *pellegrini* is a real fish, one whose limited geographic distribution had, until recently, precluded its appearance in the hobby. Along with *steindachneri* and *pellegrini*, "G." *crassilabrus* is the third species constituting the "red hump" triumvirate.

#### "*Geophagus*" *steindachneri*

The red hump "*Geophagus*" shares honors with "*Geophagus*" *brasiliensis* as the most easily bred and undemanding of the geophagines. In fact, I recommend it with no reservation as a beginner's first experience with a mouthbrooding cichlid. "*Geophagus*" *steindachneri* is particularly undemanding with respect to feeding and water conditions, and it can be

expected to present aquarists with offspring with little or no additional coaxing.

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My first "colony" of these fish was obtained by purchasing a single female seen "gargling" a clutch of eggs in a dealer's tank. She, somehow, had managed to lay and scoop up her eggs amidst the 50-plus fish crowding the 10-gallon tank she was in, and she continued to hold them through the stress of netting, bagging and transport home. Obviously, then, red humps could spawn and rear fry under almost any circumstances.

I, for one, am an avid fan of this cute/ugly fish. Males grow to a maximum length of about 6 inches, but begin to mature

sexually at 2 inches — with the appearance of the red nuchal hump on the crown of their heads. Males, additionally, have some iridescent spangling to their flanks, whereas females remain drab brown, and some two-thirds the size of their consorts. They also lack the distinctive red hump.

There are several color varieties of "G." steindachneri floating around in the hobby. The typical wild form from Colombia has an orange tinge to the spangling. I have, in my aquariums, a lime-green form whose origin is unknown. I have also seen pictures of a mottled black and white form. Of course, the intensity and extent of the spangling varies as well.

This apparent geographic polymorphism has been responsible for much of the misidentification of the common red hump as the "real" "G." pellegrini or as "G." crassilabrus — the latter two fish have very restricted distributions so caveat emptor (buyer beware) when offered fish bearing these identifications! Most of the wild red humps are exported from Colombia, but they are also available from Venezuela. Some mix-ins to watch out for include one of the blue acaras, "Aequidens" coeruleopunctatus (see Part 4), and the freckled cichlid, "Cichlasoma" umbriferum. We will talk about the latter fish later in this series.

### The Other Red Humps

So what, then, of the other two red humps, "G." pellegrini and "G." crassilabrus? Steindachner (1876), namesake of the common red hump, described "Geophagus" crassilabrus from Panama, while Regan (1912) described "Geophagus" pellegrini from the Pacific slope of southwestern Colombia, in honor of the French ichthyologist Pellegrin. The red humps then, as a group, are restricted in their distribution to Northwestern South America up to and just beyond the Panama Canal, with "Geophagus" steindachneri having the widest distribution of the three species.

What we know of these latter two red humps comes primarily from the efforts of enthusiastic amateurs who have traveled — at their own expense — to these rather remote areas. "Geophagus" crassilabrus was introduced to the hobby in this country, independently, by Daniel Fromm and Dale Weber and by Don Conkel and Paul Loiselle, both groups having collected them in Panama. In addition, Fromm brought back a second species from southern Panama, near Yaviza, where the Rios Tuyra and Chucunaque converge, which proved to be "Geophagus" pellegrini. Incidentally, Fromm's collection extended the known range of "G." pellegrini from the Rio Atrato in Colombia north into Panama.

Fromm's "G." crassilabrus perished before he had occasion to rear fry, although they spawned several times (they are mouthbrooders), while Conkel, proprietor of a cichlid-only fish farm, struggled through several small generations before he lost his. They were, regrettably, never released to the hobby. Fromm gave me his "G." cf. pellegrini, and the few aquarists I distributed them to, subsequently and regrettably lost them. There has been a fish sporadically available from Germany under the name "G." crassilabrus that I believe to be "G." pellegrini. A picture of this fish can be seen in Stawikowski and Werner (1988) and in my articles on "G." pellegrini (Leibel 1986, 1989).

So, given that "G." pellegrini and "G." crassilabrus are valid and distinct species, how can the aquarist identify them? For starters, both of them grow much larger, 8 to 9 inches (20 to 23 centimeters), than the common red hump. In addition, while both species get humps, (actually frontal promontories like the Tanganyikan *Cyphotilapia frontosa*, not huge crown-like knots), the humps are not red! Finally, either of the two species is much more colorful than "G." steindachneri.

The "G." pellegrini I've kept have dorsal, anal and caudal fins mottled in a mosaic of red, white and black, while their ground color is golden, again mottled with white and black (see color photo in Leibel 1989). Paul Loiselle dubbed "G." crassilabrus the "tangerine eartheater" for its altogether pleasing orange coloration. Thankfully, he recorded the animal photographically and that record is a part of the American Cichlid Association slide collection. I also have photos of wild-caught "G." crassilabrus from my British friend Ian Sellick, who also seined them in Panama. As the specific nomen would indicate (crassi = thick, labrus = lips), both males and females have huge lips.

These descriptions, of course, don't help if you are trying to identify juveniles. There is one diagnostic for "G." pellegrini that does work: a "hockey stick" pattern extending along the side and angling up into the dorsal fin, not unlike that of *Laetacara flavilabrus*. However, the best diagnostic is geography.

Chances are, the fish in your dealer's tank did not come from Panama! On the other hand, if the red humps are swimming around with "*Cichlasoma*" *atromaculatum*, a rare cichlasomine from the Rio Atrato in Colombia, you could have "G." pellegrini! Ordering "G." crassilabrus from Europe at hefty prices will probably get you a beautiful fish that is most likely "G." pellegrini. It is worth the price, but they are particularly delicate and have yet to be established here in this country.

Before the political situation got out of hand in Panama three years ago, Dan Fromm and I very nearly traveled there to bring back, among other things, "G." crassilabrus and "G." pellegrini. It's amazing to what lengths and expense some fanatics will go!

### Spawning the Red Humps

As I've already indicated, maintaining and spawning "G." steindachneri is simplicity itself. All the red humps are immediate mouthbrooders. That is, after a perfunctory courtship consisting of the male's prenuptial dance (he snaps his head repeatedly and extrudes his lips), if the female is ripe and willing, she will pick a site — usually a stone — and begin cleaning and defending it. Note that no pair bond is formed: The male will interrupt his dancing to go court other females if they are present, and then return to check out the situation with amore number one (what a cad!).

After about 15 to 30 minutes of polishing, the female begins a series of dry spawning runs over the rock and is soon joined by the male. The eggs are laid one at a time and the female moves backward to scoop each one up immediately in her mouth. The male then fertilizes the rock after several eggs are laid and scooped. Presumably, fertilization occurs within the female's mouth as she scoops up the next eggs. There are no egg spots on the male's anal fin as are used by several of the mouthbrooder African cichlids to attract the female's attention.

Anywhere from 30 to 100 eggs are laid depending on the size of the female. She is abandoned by the male as soon as her ovaries are depleted! If there are other ripe females ready to spawn, the male will leave to court and spawn with them. All of the red humps are harem polygynists and are best maintained in ratios of one male to two or more females. An added benefit of this is that the more females there are, the less aggression any one female will have to sustain. This is particularly important when working with wild-caught fish — never buy just a pair of these fish!

The fry are released from the female at about one week post-spawn and feed ravenously on newly hatched brine shrimp and crushed dry food. Even though egg-carrying females can be stripped of their eggs/fry as African cichlid females often are, and the eggs can be easily reared in standing, non-aerated water (which African cichlid eggs cannot), there is no profit to doing so. Females are exemplary moms, as my opening anecdote illustrates.

Better to simply remove the female to her own 5-gallon tank (heated and sponge-filtered, of course) and allow nature to take its course. The female may be left with the fry for one to two weeks post-release. This will accelerate the growth rate of the fry and will also allow the female to begin eating again and re-fatten before subjecting her once more to the incessant ministrations of that piscine sex dynamo, the male red hump.

Usually, spawning will not be witnessed unless you are extremely fortunate. However, females brooding eggs can be easily identified — they tend to skulk toward the back of the tank, have a progressive "mumps"-like look to them, often appear to be "chewing" something (they are just aerating and rolling their eggs) and will refuse to feed.

The other red humps, "G." pellegrini and "G." crassilabrus, are quite another story with respect to ease of maintenance and propagation. We know from field observations by Fromm and Loiselle that these fish are found over stony bottoms from rapidly moving waters that are somewhat hard and alkaline. Specimens from Germany have proven quite difficult to maintain successfully — most individuals succumb to neotropical bloat. Clearly, extremely clean, well-oxygenated, hard, alkaline water is the prescription for success with these fish.

I was able to successfully rear young from "G." pellegrini only once, and this after five "successful" spawnings in which three females each carried fry to hatching. The eggs of this fish were huge (3 x 1.9 millimeters), orange and relatively few in number (30 to 50) given the size (5 inches) of the female. Yields of hatched fry were low (15 to 20) and I don't know if that was due to egg mortality or cannibalism.

My experience (Leibel 1986), and that of aquarists who I spread fry out to, was that the fry grew very slowly. While some of us reared fry to nearly 2 inches, none of us got them to full sexual maturity and the species was lost to the hobby. Both species are immediate mouthbrooders and harem polygynists, so they should be maintained in groups.

The next time I'm able to lay my hands on this fish I shall try them in a 6-foot, 100-plus-gallon tank with a huge trickle filter for optimum oxygen load and lots of power heads to simulate a fast-moving stream. They are very definitely a challenge to be reckoned with; another notch to be attained in the breeder's belt.