FOTAS

Fish Tales

vol 4 issue 2

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Betta patoti shot by Andrew Mills with a Canon EOS 5D Mark III, f/6.3 1/200 with an EF 24-105 mm f/4 IS USM Lens. Betta patoti is a large Betta species that becomes quite tame in captivity. Many owners compare them to puppy dogs.

Cover Photo:
Andrew Mills

Cover Design:
Gerald Griffin

Layout:
Gerald Griffin

Volume 4 Issue 2

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Fish Tales Submission Guidelines

Articles:
Please submit all articles in electronic form. We can accept most popular software formats and fonts. Email to herpchat@yahoo.com. Photos and graphics are encouraged with your articles! Please remember to include the photo/graphic credits. Graphics and photo files may be submitted in any format, however uncompressed TIFF, JPEG or vector format is preferred, at the highest resolution/file size possible. If you need help with graphics files or your file is too large to email, please contact me for alternative submission info.

Art Submission:
Graphics and photo files may be submitted in any format. However, uncompressed TIFF, JPEG or vector formats are preferred. Please submit the highest resolution possible.

Next deadline……
February 15th, 2015

FOTAS Recap

by Kyle Osterholt

FOTAS 2014 was a great event that didn't last long enough. The Hill Country Cichlid Club hosted the annual FOTAS convention in Schertz, TX (North side of San Antonio) on October 24-26th. For me, I started on Thursday loading my car and catching fish. My wife Monica got home in the early afternoon and we dropped off my dogs at my mom's house and headed South around 3:30pm. We made it to the Fairfield Inn around midnight and was able to unload all our goodies and hit the bed for as much sleep as we could pack in.

We awoke Friday morning and grabbed some breakfast before meeting some folks at Hinman Island Park in New Braunfels, TX to do some snorkeling in the Comal River. Clay Trachtman was instrumental in arranging this trip and we met up with him, Jim Valenzuela, Gerald and Kayla Griffin, David Andrews and Tom Benedict at the park around 11am. Sourced from the natural Comal Spring, the water was a cool 72 degrees and a little tough to get used to. Once acclimated, we did some exploring and found several species of fish. Largemouth Bass, sunfish and Gambusia were fairly common and several aquatic plants were in abundance as well.

Our main goal of this trip was to witness the invasive sailfin plecostomus which have been introduced to this river system. We hadn't had much luck (Later I found we weren't in the best location) except Clay stumbled across one over a foot long and caught it by hand. We stayed until the early afternoon and opted to head back to the hotel and clean-up to prepare for the evening festivities. After cleaning up, I took some fish over to Dave's Rare Aquarium Fish and then headed back to grab some dinner at Chili's next to the hotel along with Greg and Lee Ann Steeves, Gerald and Kayla Griffin, Clay Trachtman and Jim Valenzuela. We made it to the convention facility around 5pm and had enough time to wander around before the first presentation. The Betta show, Killifish show, Planted tank "Jararium" show and Photo show had already been set up as well as the Babes In The Cichlid Hobby silent auction tables.

Pam Chin was our first speaker with her presentation "Why I am Stuck in a Tanganyikan Rift" covering her trips to Lake Tanganyika packed full of great photography. Next up was the San Antonio Aquatic Plant Club covering setting up a basic planted tank setup which they actually covered in a powerpoint along with setting up an actual planted setup in person which was setup the entire event and auctioned off on Sunday. After the speakers we continued a recent FOTAS tradition with "Steve Edie's Aquatic Knowledge Challenge" which is sort of an impromptu gameshow for bragging rights. We ended up with 7 teams comprised of the Oklahoma Aquarium Association, Hill Country Cichlid Club

, San Antonio Aquatic Plant Club, Babes in The Cichlid Hobby, Southeast Louisiana Aquarium Society, "The Mexicans", and the Angelfish club. Steve Edie setup brackets and we drew for seeding. we made it to the final round but it was nearly midnight and we opted to postpone the final round between the HCCC and the Babes at the banquet.

Here our valiant explorers are preparing to enter the Comal River for the FOTAS 2014 PLECO HUNT!

Saturday started at 9am with a FOTAS board meeting in which we elected officers Greg Steeves-President, Kyle Osterholt-VP, Ralph DeBoard-Treasurer and Lisa Hufstetler-Secretary along with Jim Valenquela apointed to taking on the FOTAS Historian position to catalog and archive the FOTAS history into a more obtainable format rather than piles of boxes. TCA will be hosting the FOTAS convention for 2015, more information to come. The first scheduled speaker was Steve Edie but he was running late so Pam Chin stepped in with a presentation "River Trip - Rio Negro". Steve Edie followed up with "Lake Tanganyika Cichlids", Kathy England showed us a slide-show of their burned fishroom and rebuild as well as many of her pond plants and tips on growing many bog and pond plants. Our last speaker was Jose Gonzalez with "Life On the Edge, a perspective on Mexican and Malagasy endangered fish" which I found incredibly interesting. After the speakers, we adjourned for the the banquet. The banquet was set for an 80's theme for those who wished to participate. I ran back to the hotel and put on my best 80's garb and we headed over to the banquet location where I think we gave the neighboring wedding party a little scare with all the weirdo's running around. After the excellent barbeque buffet, they held the final round of the knowledge challenge in which the HCCC ended up winning a very close battle with the Babes.

Lori and Joe Green from Lone Star Betta hard at work setting up for the Betta Show.

Next up was the awards presentation for the photo show and a special HCCC award to Diane Tennison for her dedication to the club over the years. Next, they handed out everyone in attendance an envelope of funny money and then Greg Steeves quizzed the audience awarding more money until all the funny money had been distributed. This money was then used to fund an auction of donated items. I think everyone ended up bringing something home whether it was a signed Ad Konings book, mini-aquarium, power-head, filter, fish food, LED

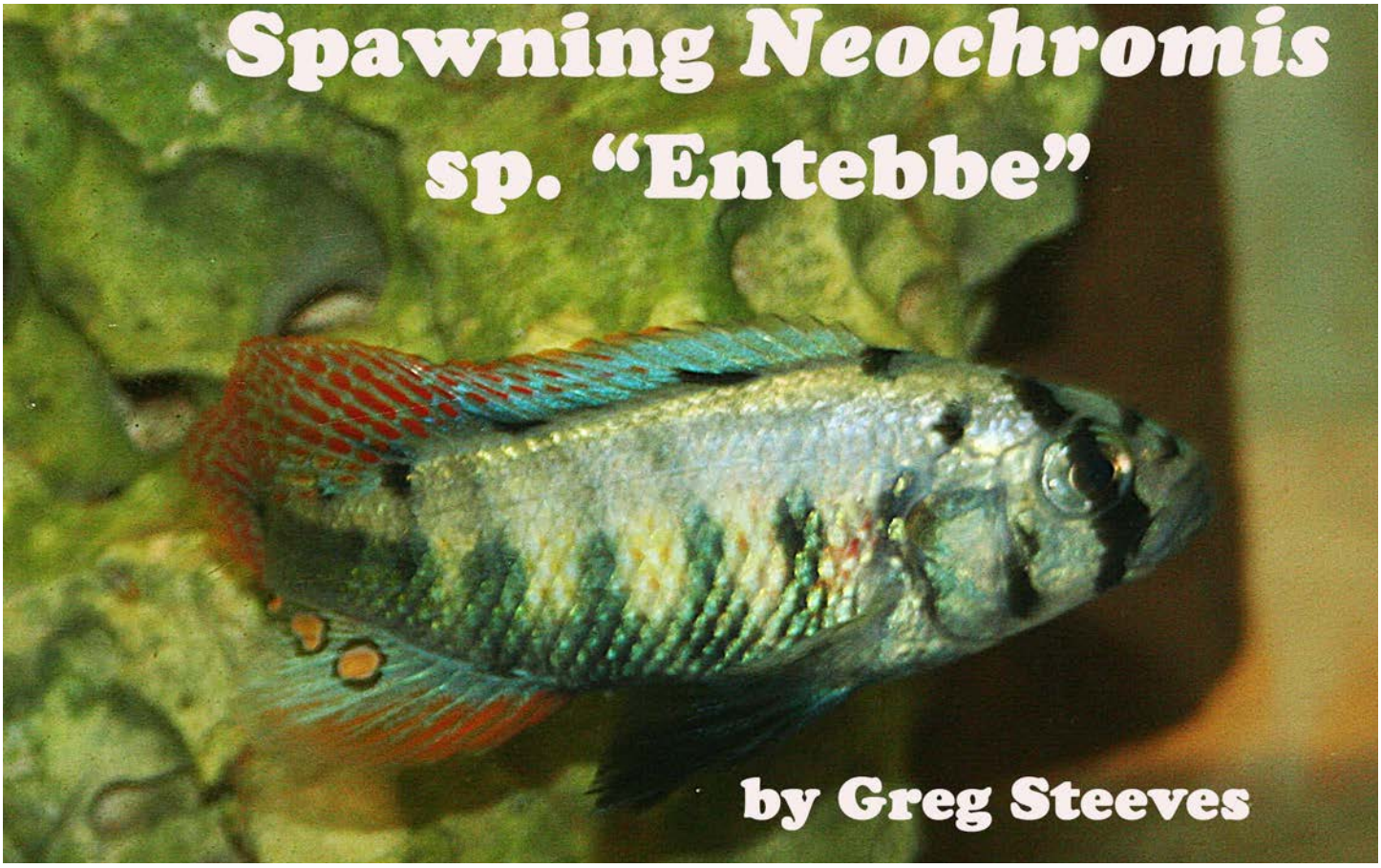
FOTAS Board Meeting on Saturday Morning.

lighting or some rare fish. Between Monica and I, we brought home a bag of Galaxy Rasboras donated by C&R tropicals, a bag of *Mchenga cf. conophoros* 'Otter Point' donated by Dave's Rare Aquarium Fish, a bag of *Melanotaenia duboulayi* donated by C&R tropicals and a bag of *Corydoras* sp. "Violetta" donated by C&R tropicals. I'm not aware of anyone who didn't have a blast between the food, fellowship, fun events, awards and prizes.

Sunday brought forth a HUGE auction.. There were over 800 items and we struggled to get them all through in the time we had the facility rented for. There were all sorts of fish, plants, invertebrates, food, decorations, aquariums, filters and any other sort of hard good you can think of. On top of the 800 items, Dave's Rare Aquarium Fish supplied numerous bags of rare pleco's for a raffle (I didn't get a chance to see them so I can't tell you what species). We ended up bringing home a couple huge Roseline Shark's, a pair of brown bristlenose pleco's, a pair of longfin brown bristlenose pleco's, a bag of albino bristlenose pleco's, a pair of *Copadochromis borleyi* "Taiwan Reef", a pair of *Fundulopanchax sjoestedti* 'Loe', a reverse trio of *Thoracochromis* sp. "flavenentis", a couple bags of *Mbipia lutea* 'Makobe Island', and several plants, food and driftwood. After loading everything up, we headed back to Chili's with the Steeves and the Cajuns for a last meal before heading back to the room to re-bag everything for the trip home.

Diane Syvertson Tennison receiving the HCCC Fellowship Award for her hard work and contributions to Hill Country Cichlid Club.

Dave's Rare Aquarium Fish was planning to open Thursday and Monday for the day (he's by appointment only normally) and I had wanted some Tanganyikans (which were going nuts at the auction) so I went in and did some shopping. I ended up leaving with groups of *Telmatochromis brichardi, Neolamprologus pulcher* "daffodil", *Neolamprologus leleupi* 'Karilani' "Orange" and a group of *Julidichromis regani* 'kipili' "yellow". We made it home around 6:30pm Monday, found homes for all the fish, picked up my dogs and gave them a bath and found a nice soft place to crash for the night. Can't wait for next year, see you in DFW! Kyle



European hobbyists have been working with a fish called *Neochromis* sp. "Entebbe", or sometimes referred to as *Haplochromis* sp. "Entebbe" for sometime. The unwillingness of several prominent French and Dutch ichthyologists to recognize any genus erected by P.H. Greenwood (the most influential scientist of his time working with East African haplochromines) is beyond me but to have an intellectual conversation with someone whose mind is made up, is like beating a dead horse. I will not spend any more time or effort on the proper genus placement of this species however depending on who you are speaking with, keep in mind that it might go by a different genus name. From my novice point of view, given the cranial profile and tooth shape this fish adheres closer to the *Neochromis* grouping than any other.

This fish was originally brought to Europe by the well known German explorer Erwin Schraml. By 2005, *Neochromis* sp. "Entebbe" was well established with several hobbyists. Several years later this fish found its way to North America and in the hands of James Bryan, an expert haplochromine breeder who was able to reproduce and distribute the species to other dedicated hobbyists. Eventually we found ourselves in procession of a group of 15 young fish. After growing them out to a size of 6cm, we were disappointed that none of the fish showed the beautiful colors that some of the photos from other groups had displayed. As time went on, it became evident that the reason for the poor display was that our entire group was all female. Luckily, one of my go to friends Mike Helford, was also working with this species and after a short phone call, a small box containing two male *Neochromis* sp. "Entebbe" landed on my doorstep a few days later. This changed everything and the colony burst to life.

To say these fish are active would be a colossal understatement. They never stop moving and usually crowd together breaking the surface of the water in anticipation of feeding as soon as they see us. They are fed a diet of basic flake, pellets and algae wafers. Food choice does not seem to be much of a problem as everything offered has been greedily accepted. The group is housed in a species only 55 gallon aquarium filtered by two large dirt magnet type sponges. This, coupled with frequent water changes has worked well thus far.

Tank décor consists of several large rocks stood up towards the back of the tank. In our experience,

The pair is in the process of spawning.

"Entebbe" does not require or use rockwork made into caves. They prefer more open water close to rocks and spend the biggest part of their time grazing the rocks and substrate for anything edible. We use fine grain light colored sand in their aquarium. We had added several large Anubias to give their surroundings more color but these were promptly destroyed with the leaves being eaten right to the stem. N. sp. "Entebbe" seem be able to design their aquarium to their specifications so we've just gone with this. This must be to their liking because they are comfortable enough to spawn frequently and look very healthy.

Neochromis sp. "Entebbe" spawns in a typical manner comparable to most other Lake Victoria haplochromines. The male may dig a very small depression at the base of an object and use this as a focal point to lure a gravid female. The two will circle each other, she will drop an egg or two, quickly turn to pick them up and then nibble the egg dummies (ocelli) on the males anal fin. It is at this time that the milt is released and fertilization takes place. The female will hold her brood for around 14 days however this may go longer in cooler temperatures and more quickly in warmer weather. The average would be at around 80F. We have gotten several broods in excess of of 40 fry but more normally, one can expect between 25-35 larvae out of an adult female.

The female *Neochromis* sp. "Entebbe"

Male size is typically 12-15 cm while the females remain slightly smaller. The females are tan colored with seven faint vertical black bars lining the body. All fins are hyaline. The male is beautifully colored with a yellow tinge to the top third of the flanks merging to black along the bottom portion. The same black bars seen in the female is present on the male only much more vibrant. There is a slight reddish tinge behind the gill plate. The pelvic fins are solid black whole the front portion of the anal fin is red and fades to light blue towards the back. Two or three bright orange ocelli with a clear orbit are positioned towards the back portion of the anal fin. The caudal fin is red with a black base where it joins the peduncle. The dorsal fin is bright cyan with a red trim; towards the back portion the red engulfs the entire height of the fin. The pectoral fins are clear on both the male and female.

The fry are tiny but hardy. We raise our broods in a 5 gallon rearing tank until they are large enough to be moved (usually about a month of age). They are then put into a 20 gallon high tank, no décor or substrate, and an air driven sponge filter to grow. There has been a solid demand for these beautiful cichlids and we have had no problems parting with the young. Hopefully there are enough people working with *Neochromis* sp. "Entebbe" now that they can become a staple in the haplochromine hobby. They are always in demand and have no special needs in the aquarium.

Shrimp keeping is a new frontier in the hobby of aquariums and growing fast in popularity in the USA. Whether you're a seasoned pro with a hi-tech planted tank setup with CO2, dosing fertilizers using the E.I. method with reverse osmosis water or a beginner that has kept traditional fish like Neon Tetras, Mystery Snails, and the beloved pleco… venturing into this corner of the hobby is a challenge for some, but can be achieved by anyone. This article will give you an idea of what to expect should you decide to take on shrimp keeping. Everything you would need for a basic setup, maintenance, the different types of shrimp and how to care for them.

The Shrimp Only Tank

You can keep shrimp in an existing community aquarium with fish, how long they will survive is another story. While it is possible to keep shrimp with fish or other other aquatic life, it is best to keep shrimp in their own tanks so they

The first step is to decide what kind of shrimp you want to get. From here you can move forward in setting up the tank. A great starter size tank is 10G, smaller is an option but requires close attention to water parameters.

There are two kinds of shrimp that are most popular, *Neocaridina* "Neos" and *Caridina* species. Of the two, Neos are the easiest to keep and are a good starter shrimp. There are a variety of colors and designs to choose from, here are some beautiful examples.

Neos are easy to care for and once the tank has been setup and fully cycled (water parameters are stable and biofilm established). Much of your time will be spent gazing at these beauties. They are so interesting to watch walking around or maybe the males are "dancing" around the tank in search of a female. Which means you may have a "berried" female soon and shrimplets soon to come. Just like *Caridina* species, they require good filtration, appropriate substrate, hiding spots (cholla wood, moss,

Feeding time! Pic by Amber Martinez

and water testing. A big difference that makes keeping Neos easier than *Caridinas* is that Neos can be kept in tap water, unlike cards, where a low pH is ideal and ro/di water is highly recommended with active substrates like ADA Amazonia, Fluval Shrimp Stratum, or other available premium shrimp substrates.

Its important to note their sensitivity to water. Metals, chlorine, and contaminants in the water column can wipe out your entire colony. It is very important to supply your tank with the cleanest water you can by using a water conditioner like Prime by SeaChem.

Filtration

Filtration is very important. The most preferred and popular method is the air powered sponge filter, you can even supplement this with a hang on the back or under the gravel filter.

Sponge filters are the preferred method because they provide an amazing place for the shrimp to graze upon. Powered simply by an air pump, these are very affordable and many shrimpers are successful using this as their only way of filtration!

When using anything other than an air powered sponge filter, or adding to your sponge filtration, it is important to cover the water intake area in order to prevent any shrimp from getting sucked up and into the filter. There are multiple options, a sponge over the intake is a favorite choice, and there are also stainless steel mesh guards. Each has its pros/cons and is essential for this type of filtration.

Species only tank. Photo by Eric Martens.

Substrate

Neos do well and thrive in a pH around 7.6 or lower. Because of their ability to live in harder water, you can use tap water in a neo tank and the substrates normally used in these tanks are gravel, or sand. Depending on the plants you may or may not want to furnish the tank with, there are pros and cons to both and even more alternatives to choose from.

Caridinas, on the other hand, require a lower pH and many shrimpers have great success using active substrates to achieve this. An active substrate modifies the water chemistry to lower the pH level. These substrates also provide a stable pH which is extremely important. This is ideal for *Caridina* shrimp as they do best in soft water and there are a few types of active soils/substrates to choose from. Fluval Shrimp Stratum and ADA Amazonia are some examples that are the most widely used amongst the shrimp keeping community today because it's most available. I have tried both and would recommend them equally.

Tank Décor

Hiding spots are a shrimps best friend. Shrimpers use cholla wood, moss, heavy planting, caves created from strategically placing driftwood or clay structures to give their shrimp hiding spots. Natural choices are always better. These help to do things like provide berried females a place where they can feel safe and hold on to their eggs until they hatch. It also gives you more surface area for biofilm and algae to grow and that is a staple food to a shrimps diet and supplemented to.

Maintenance

Its really not as bad as you might imagine. Once you have the tank setup there are a few items you need to have in order to check the water parameters. The important parameters to keep an eye on are pH, GH, KH, and TDS(total dissolved salts/solids). Shrimpers use TDS pens to measure the conductivity of the water and gives you an idea of where your pH, GH, and KH levels are at. Not so important

for keeping neos, but a must have for keeping *Caridinas*.

Besides the testing and coming up with your own schedule of when to test and what to test for, its important to keep the water temperature at a cool 70-76 degrees. While they can survive at higher temps, this is the ideal range to keep them in.

Water changes are recommended weekly and at a maximum of 10% of the tank volume. Another method is to use distilled or RO water to top off the tank. This is done by replacing the water that has evaporated out of the tank already over the past week or so, and dripping in water(always drip, this slowly changes the water chemistry so it doesn't shock them). Distilled or RO water has a TDS reading of 000ppm, its pure water, so your just putting back in the tank what came out as evaporation beforehand.

Feeding schedules vary from shrimper to shrimper and there are many products to choose from. I have also tried many different brands and I do have my personal favorites. A staple to every shrimp diet is definitely something that adds bacteria to the tank, like Shrimp King or EbiKen Ei.

Anything else that is added to as food must be done with precaution. These kinds of shrimp are sensitive and any foods you include into the water column may foul the water, so many of the directions recommend taking out what's not eaten in 2 hours. Feeding dishes are popular amongst shrimp keepers to ease this process.

A good rule to follow is "less is more". It's better to feed less because too much will foul your water. Remember most of the shrimps diet is being satisfied by the biofilm in your healthy tank, hard foods are just a supplement.

This is just a crash course to give you an idea of what it takes to successfully keep shrimp. While just grazing the surface, there are many more things to learn about shrimp. The hobby is full of knowledgeable and helpful fellow shrimpers who are willing to help and that's one thing I really love about the hobby, so many good natured people who all share the same passion for aquatic nature.

With these basics in mind you will be an official shrimp keeper and breeder in no time.

Awesome close up pic by James He.

Orange Shrimp, photo by Travis Parkening.

Going Wild with Bettas

By Gerald Griffin

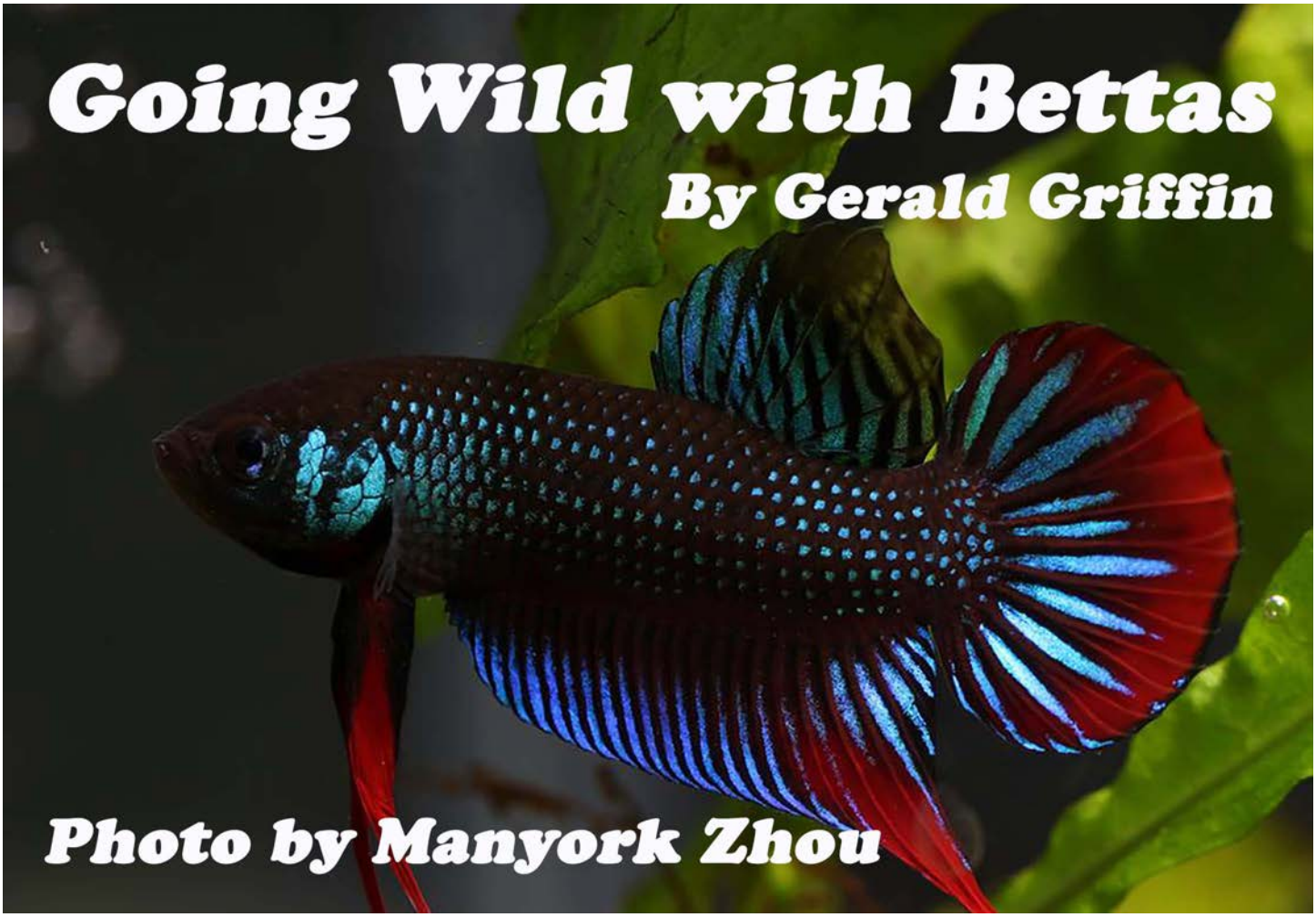


Photo by Manyork Zhou

So many times I get asked what do I need to do to work with wild betta species? This question is commonly asking about care in captivity especially with several new species becoming available in the pet market. Since this question is asked so often an article about general husbandry would be in order. Remember that many species are found in so many different environments from Salt marshes of Mahachai to the Blackwater Peat Swamps of Selangor to the hard alkaline waters of Krabi. So how important is it that I match those conditions for these wild species? Well in a word it not. The vast majority of species do fine in neutral water that is clean. I am breaking each complex down and going to cover the general conditions for each complex. There may be some exceptions in each complex but for the most part the general rules will apply. This is not intended to cover all species specifically but offer general patterns of husbandry that should allow one to keep any of the species available now and some that will be available in the future. If you wish further information I would recommend buying The Betta Handbook by Dr. Goldstein, it is well worth money and is filled with lots of invaluable information.

General Information:

With many wild betta species their wild instincts are intact and captivity can be very stressful. To minimize stress tanks should be painted or covered in paper so that they will not see movements outside their tank. In a typical painting scheme the bottom and one side and the back is typically painted so that the tank have a visible surface on one end and the front. If all of the tanks are painted in the same manor they can be used on racks without the fish being able to see the fish in the other tank which can cause stress. The bottom should be painted or papered also so the fish realize there is a bottom. All wild bettas are jumpers and their tanks must be totally covered to prevent them from jumping out. Do not underestimate their jumping ability, if there is a gap or a crack they can find it. If using outside hang on back filters I recommend using cross stitch plastic mesh siliconed into any gaps the filter creates with the tank hood. Many species do well with heavily planted tanks with flower pot caves and PVC pipe

sections or elbows. Most people report the male swallowing the brood around day three. It has been surmised that that is when the eggs hatch and turn into the wiggling stage and the slightest disturbance startles the male and causes him to swallow. For best results after spawning pull the female and do not disturb the male.

Betta patoti (Unimaculata Complex). Photo by Andrew Mills.

Bubblenesters:

Splendens complex: This is the most common complex kept in captivity. Species include *imbellis, smaragdina, splendens, stiktos*, and *mahachaiensis.* All of these species prefer slightly soft, slightly acidic water with the exception of sp. Mahachai which likes hard alkaline water with some salt added. This complex will do well in almost any water condition. The best set up for these species would be a species tank with numerous hiding places that is well planted. The plants can be real or artificial as the fish do not seem to care. Some specimens can be very shy and some wild caught specimens will be ambush hunters that only feed when they feel secure and will come out of their hiding places to eat food. The majority of these individuals will need live food until they adjust to captive conditions. As to breeding pairs work best. The pair should be placed in a ten gallon tank with half the water level. A half styrofoam cup should be floated for the male to build a nest under. All species breed in the typical splendens fashion with the exception of *mahachaiensis.* Mahachai females will clamp their pelvic fins to hold the eggs so they don't drop and the male will pick the eggs out of her fins. The other exception is that males will build a satellite nest and after spawning will transfer the eggs from one nest to the other.

Betta simplex (Picta Complex). Photo by Brian Dickson.

Coccina complex: The red fighter complex has the most varied species in any complex. Three species have been confirmed mouthbrooding while the vast majority are submerged bubblenesters. These species are *brownorum, burdigala, coccina, livida, miniopinna, persephone, rutilans, tussyae*, sp. Pangkalanbun, and sp. Sukadana. These species typically come from the peat swamps where the pH is from 3.9 to 6.5. Many species are imported with various parasites which are not typical of their wild environments but are from the holding tanks they are placed in. Since many of these species have never encountered these parasites they can be quite deadly to them. All of these species can be kept in neutral water that is slightly soft without any problems and for tank maintenance this is the best way so you can have a biological filter. The vast majority of these species easily adapt to dry prepared foods but some may require a transition from live to frozen to dry food. These

Betta albimarginata (Albimarginata Complex). Photo by Natasha Patten.

species are best maintained in species tanks with numerous hiding places and is heavily planted. In the wild these fish come from sterile environments with little plant material other they few cryptocornes and overhanging vegetation where they feed primarily on insects that fall into the swamp such as ants and flying insects. Many of these species will spawn in pairs but sometimes need to see a rogue male to get the male into the breeding/territorial mode he needs to be in for spawning. Sometimes a gallon of distilled water with blackwater extract will stimulate the male to spawn. Males will often seek out dark submerged spawning sites such as large leafed cryptocornes. To give the pair spawning sites one inch diameter black PVC pipe cut in 2 inch lengths or black film canisters has been used with great success and males seem to prefer them over large leafed plants. Fry should be started on vinegar eels and switched over to baby brine in a week. Fry are slow growing reaching adult size in a year.

Bellica Complex: Rarely kept in captivity these are the big bubblenesters which can get to almost five inches in length but most never get more then four inches. Two species are recognized, *bellica* and *simorum* and their husbandry is identical. Males tend to be larger and have a spike caudal fin, females will have rounded abdomens. Because of their large size the breeding tank should be a twenty gallon or larger. These bubblenesters make larger bubbles and should have surface plants such as water sprite to support the nests. Water conditions should be soft and pH should be around neutral. To induce spawning high temperatures are sometimes required, high 80s to 90 degrees. Do not exceed 90 degrees F for any wild betta.

Mouthbrooders:

Picta Complex: These mouthbrooders are the most common kept in captivity and consist of *picta, simplex, falx, taeniata* and Goldstein places edithae in this group. The majority of these species rarely exceed two inches in length, taeniata will reach just over three inches and edithae can reach four inches.These species are quite adaptable to the aquarium except for taeniata which can be problematic. All of these species will eat prepared foods but relish live foods and live and frozen foods help condition them for spawning. The spawning tank should be a ten gallon aquarium around 76 degrees F. The tank should have some caves so that either fish could retreat if needed and plants are also helpful. The courtship can last a few days with the male displaying for the female. When the female is ready she will signal the male by nipping at his caudal fin and the two will em-

Betta simorum (Bellica Complex). Photo by April Ransom.

A good example of a planted tank set up for wild Betta species. Photo by Jessica Gibson.

brace at the bottom of the tank. Many embraces may take place before eggs are produced. Once the eggs are produced the female will pick up the eggs in her mouth and spit them out and take them up until the male takes them from her. Once the male has all of the eggs from the embrace the pair will embrace again. Spawning can take a day to complete. *Taeniata* can produce 300 eggs in a spawning. Although incubation can be from 9 to 12 days most species incubate for 10 days except for *edithae* which incubates for 7 to 10 days. Females should be removed after spawning as their egg cycle is seven days and a female could reinitiate spawning forcing the male to swallow or prematurely releasing the fry. These species are quite tolerant of pH and hardness but do require clean water conditions. Taeniata are prone to sickness when water conditions are not kept clean.

Pugnax Complex: These are also commonly kept in the aquarium and grow quite a bit larger then the picta complex with some species reaching 5 inches in length. This complex includes *pugnax, pulchra, breviobesus, enisae, schalleri, fusca, lehi, raja, pallida, prima, stigmosa*, and *cracens*. These species are typically a brown in coloration with green or gold iridescence. Males typically have a spike tail and long anal and pelvic fins. For spawning pairs should be placed in twenty gallon aquariums that are heavily planted with flower pots or PVC sections or elbows for retreat. Typically the male will display for the female like the picta complex and the female signals readiness by bit-ing on the males caudal fin. In some species non receptive males will be killed by females and females can be quite territorial chasing off or killing intruders. The species in this complex typically incubate the fry for 14 days but can go as long as 21 days depending on water temperature. Usually a pair will ignore the fry after they emerge if kept in a well planted tank. Fry are large enough to take baby brine shrimp and grow at moderate rate taking about a year to reach full size.

Waseri Complex: These are the big "yellow" bettas which are quite stocky, some species attain a length of five inches most stay a bit smaller. The species include *waseri, tomi, spilotogena, pi, renata, hipposideros,* and *chloropharynx*. All of the species are identified by their face markings and by location. Many of these species come from blackwater habitats that are less then 5.5 pH. Most of the species do well in almost any water condition however for spawning soft water is needed and sometimes a lower pH spike from blackwater extract added to a gallon of distilled water will initiate spawning. These species require area more then volume so thirty gallon tanks are best used for these fish. These fish are quite tolerant of each other and seldom have the aggressive displays that so many of the other species have. Spawning produces between 100 to 200 eggs and the released fry are large and take baby brine shrimp immediately.

Akarensis Complex: These are large bettas up to about six inches in length with green or gold iridescence. Species include *akarensis, balunga, chini, aurigans, obscura, ibanorum*, and *pinguis.* They are identified by the stripes on their faces and by location. These are medium sized bettas between three to five inches in length. Some species come from blackwater environments and others from more neutral waters. Feeding does not pose a problem as they adapt quite readily to prepared foods how ever to bring any fish into spawning condition live foods are best. The females of the species initiate spawning by nudging the male's caudal fin. Males hold for 12 to 15 days with 14 days being the typical. These species often produce

broods of 100 or more which are able to take baby brine shrimp immediately with the exception of chini which produce 40 to 50. The breeding tank should be soft water and neutral to acidic. Water quality is important for these species so good filtration is very important. Members of this complex have been noted spawning in mid water but typically spawn in caves. As with other species their tanks should be covered or painted and surface plants used to subdue the light coming into the tank.

Betta hendra (Coccina Complex) tending nest. Photo by Cori McWay.

Unimaculata Complex: Species include *unimaculata, patoti, pallifina, ocellata, gladiator,* and *macrostoma*. These are large slender wild bettas not exceeding six inches in length. These slender fish have a very pronounced jumping ability. In the wild these species come from swifter moving waters that vary in pH from alkaline to blackwater environments. These fish are quite adaptable to the aquarium and like the waseri complex can develop a pet like relationship with the owner. This complex appears to be very inquisitive and can be very aggressive. *Betta gladiator* was said to not tolerat any other fish in its territory hence its species name but those reports were highly exadurated. In this complex the female has definitely been noted as defending the male and the territory during and after the spawning. In captivity these fish are quite adaptable and will tolerate almost any water condition with one exception. *Betta macrostoma* is very sensitive during acclimation. To acclimate macrostoma use the saltwater method of using a baster and placing one ounce of water in it bag every fifteen minutes for about four hours. After that they can be released and will tolerate virtually any water condition. However the water must be well filtered and kept very clean. These fish should be definitely kept in pairs and not in communal settings. These fish also need caves and heavily planted tanks to feel secure. Spawning is in the typical mouthbrooder fashion and the males brood for around 10 days. They are very sensitive when brooding so a totally covered tank is the best option and periodically checking on the male as to not spook him. The fry can reach adulthood in 6 months to a year.

Albimarginata Complex: Currently species include *albimarginata* and *channoides* however there are many populations with distinct differences so they could be classified as separate species before long. As a general rule if you have location data for a species do not mix it with the same species without location unless no choice is available. These fish come from blackwater environments but are not required for captivity. *Albimarginata* can be kept in almost any environment but do best in soft acidic water. *Channoides* require some iron in its water for its health. Dry foods are not recommended. These species are not gluttonous eaters but are more of a foraging eater. For best health live foods that they can casually feed on is best. Examples would be grindal worms and daphnia. These species are high in demand because of their brilliant coloration which the males tend to keep in the aquarium even when not spawning however during spawning the already bright colors intensify beyond belief. They do best with a lot of aquatic vegetation and flower pots for hiding spaces. The pair will spawn at the bottom of the tank and spawning can take half a day. These species incubate under two weeks. Goldstein recommends moving a male to a livebearer trap at day 7.

Foerschi Complex: These fish come from blackwater environments and can be fragile in captivity. They do best in soft acidic water but will reproduce in non blackwater conditions. Tank size can be from ten gallon to twenty gallon, the larger the tank the better and tanks should be well filtered and these fish prefer leaf litter as or on the

substrate. Species include *foerschi, strohi,mandor* and *rubra*. All of these species are available in the hobby occasionally. Incubation is around 14 days and broods typically are around 40 which can take baby brine shrimp immediately. Hopefully this is enough information to get one started. Before purchasing any species one should do their homework but with a number of the new species coming in, there is no literature. By following these simple guidelines one should be successful in maintaining any of the species. If there are specific questions you contact me via the SMP website.

Gerald Griffin

References:

Goldstein, Robert J. The Betta Handbook, Hauppauge, New York: Barron's Educational Series, 2004

IBC-SMP Website, http://www.ibcbettas.org/smp/

Betta smaragdina (Splendens Complex) tending nest. Photo by Natasha Patten.

Betta burdigala (Coccina Complex) posing. Photo by Ronald Marcos.

Betta macrostoma (Unimaculata Complex), still considered the holy grail of Betta Collectors. Photo by Ronald Marcos.

Betta hendra (Coccina Complex) is one of the recently described species. Photo by Ronald Marcos.

About the Authors

Greg Steeves

I began keeping fish at a very early age. I can remember watching sticklebacks nest in the local pond in the 1st or 2nd grade (I would stop by on my way from school and usually arrive home filthy and late much to my mother's delight I'm sure). It was around this time I got my first aquarium and was instantly hooked on the hobby. As my age increased so did my number of aquariums. This got totally out of hand when I married Lee Ann, a fellow fish geek. With no check valve in place, we have expanded to two fish rooms with well over 100 aquariums and multiple ponds.

I started maintaining haplochromine cichlids over 20 years ago and they remain my passion to this day. Collectively, the Steeves' have bred more that 150 species of fish, the majority being African cichlids. When I moved to Texas from Canada, I helped form the Hill Country Cichlid Club and in recent years, taken on the presidency of the Federation of Texas Aquarium Societies. I am fortunate to be invited to speak regularly at organizations across North America on Haplochromine cichlids and Texas Natives. I've written for many magazines around the world that have been translated into twelve different languages (I've been counting). I have written three books which I am very proud of. Lee Ann and I truly enjoy attending fish conventions and seeing old and new friends, the element that makes this hobby the best in the world!

Greg Steeves

Kyle Osterholt

I have lived in the small town of Okarche, Oklahoma, all my life. I have always enjoyed the chance to go fishing and kept small aquariums off and on through childhood. After marrying my wife, Monica, in 2003, we found we shared the desire to keep an aquarium-- which quickly turned into over 60 tanks of various sizes.

We have kept all sorts of freshwater fish as well as some brackish and a short try with saltwater. One of the first fish that plunged us deep into the hobby was the tiny shell-dwelling cichlid from Lake Tanganyika, Neolamprologus multifasciatus. I have been keeping the same colony going for over 10 years now. I am a longtime member and official of the

About the Authors

Oklahoma Aquarium Association, and have been a member of the ACA, ALA, and AKA for several years. I'm also the current Vice President of the Federation of Texas Aquarium Societies. I have also been a member of several nearby clubs through the years.

Kyle Osterholt

Jay Marshal

Born 1980 in Hawaii, Jay Marshal, son to a U.S. Navy Sailor who found Mom in the Phillipines grew up in southern California until his teens where he moved with his family to Norfolk, Virginia. Many moultings later after the teenage years of hooligan like behaviors and normal young man shenanigans(rights of passage =P), a decision in 2001 was made to join the U.S. Army and fight in the war. After 5 years he moved to Texas close to family and continued his college education while working many, many different types of jobs. A beautiful day was hallmarked and a new life began when he met his wife at the local grocery store in Austin, Texas. Seven years later…a beautiful wife, three beautiful and healthy kids, family close by and working happily as a delivery driver full time at night and spending the day as a Father and Husband to his most cherished loved ones, his family.

Jay Marshall

Charles Jones MCing at FOTAS 14. Looks like he just come of the set of Miami Vice!

About the Authors

Gerald Griffin

I first started keeping fish at the age of nine and by ten bred my first fish species Colisa lalia, followed shortly by Colisa chuna (sota), Colisa fasciata and labiosa. At the age of twelve I read All About Bettas by Walt Maurus and fell in love with wild Bettas, the only problem was that in the 1970s I could not find any living in Oklahoma. By the time I went to college I found articles on wild Bettas in the school library and joined the International Betta Congress and started corresponding with various fish keepers and found some wild Betta stocks and started collecting them and writing articles.

Around the year 2000 I once again got hit with the Betta bug and again collecting them. I currently run over 80 tanks dedicated to a number of different fish. As I became more involved in my local fish club the Oklahoma City Aquarium Association I started keeping a variety of species and have since spawned various Barbs, African Cichlids, Killifish, Native American fish, American Cichlids, Livebearers, and a number of miscellaneous fishes and have recently diverged into salt water fishes (clownfish and seahorses) however wild Bettas and Anabantoids will always be my first love and the primary fish I keep.

I am currently the President of the International Betta Congress as well as the chair of the Species Maintenance Program, Color Conservation Chair and Co-Chair of the Education Committee of the IBC. I am also involved in my Local Aquarium Association serving as BAP chair of the Oklahoma Aquarium, the Treasurer for the American Labyrinth Fishes Association and also been the President of the Oklahoma Aquarium Association's Tulsa Chapter as well as have been their HAP and Presentations Chair. I am also the President of the multistate Betta Chapter SCUBA as well as the President of the Oklahoma Betta Breeders Association.

FOTAS Grants Available

F.O.T.A.S. GRANTS TWO RESEARCH AWARDS

Since FOTAS has not funded any research awards from the Braz Walker Program of Aquarium Science in several years, the committee sought out applications and received two from graduate students of Dr. Michael Tobler of Kansas State University.

Dr. Tobler and his students concentrate on the biology of livebearers in sulphur-water bodies of water. The award consists of five hundred dollars and may be used to fund the research per se or to support travel to a regional of national meeting to present a paper.

Courtney Passow submitted an application for her research on "Variation in routine metabolic rates of locally adapted extremophile fish". Ryan Greenway submitted his application for his research on "Assessing the diversity of sulphide spring fishes". Both applicants have excellent academic credentials and well thought-out research plans, so much so, that the committee had a difficult time deciding which student should received the award. Thus, with the concurrence of President Greg Steeves, the committee elected to grant an award to both students; given the time lapsed since the last award was granted, FOTAS is well able to fund these. FOTAS has asked that each recipient consider attending a FOTAS convention and presenting a summary of their research.

Keith Arnold, Chair, Research Grant Program

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8 pm EST, 7 pm CST, 5 pm PST

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Previous Issue of Fish Tales

What would you like to see in the next Fish Tales Magazine?

Contact the Editor if you have story ideas or would like to contribute to Fish Tales!