

AquaScapingWorld

Creating Magic In Glass Boxes

Aquascaping with George Farmer
Building an Aquarium Background
Aquascape in Focus: Sunny Grassland
Trial and Error Planted Aquarium Experiences
The Albino Bristlenose Plecostomus



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Letter from the Editor

Inside our August Issue

Well we've done it! We've reached our sixth issue of the AquaScaping Magazine. This month we feature exclusive articles on starting up a planted aquarium and lessons learned from the mouths of experienced aquascapers.

A true hobbyist, George Farmer, shares with us his aquascapes and his aquascaping philosophies. Learn something new from these experienced aquascapers, and take a gander at their take on aquascaping and planted aquariums.

Our Aquascape in Focus this Month features *Sunny Grassland*, a stunning planted aquarium. The aquascaper behind this beauty is William Ng, who creates colorful sunrise effects on his backgrounds. You'll be amazed at how simple he makes it look.

And, if you're looking for something a little different for your aquascape, why not try creating a custom rocky-type background with terraces? Kristen Danker recounts her experiences creating this unique element for her planted aquarium.

With the summer winding down, we here at ASW hope you have a great month aquascaping!

John Nguyen
Editor in Chief
AquaScaping World Magazine

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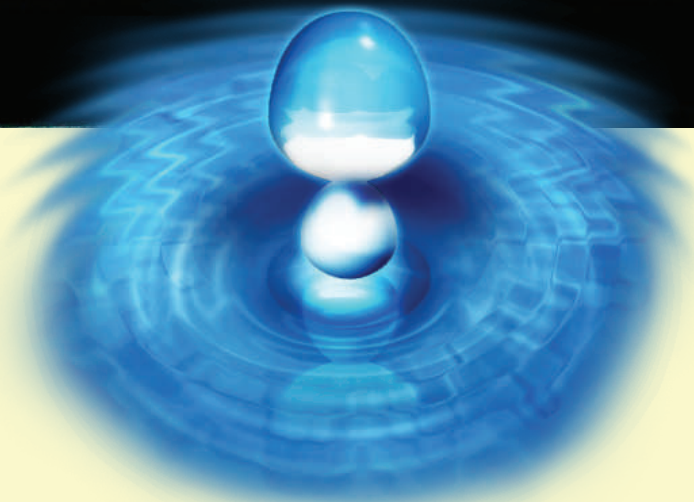




Trial and Error

Get Your Hands *and* Arms Wet

By Roy Deki



I started this planted aquarium hobby some 5 years ago. I can still remember the first time I laid my eyes on a planted tank. Perhaps, like many of you, it was one of Takashi Amano's Nature Aquariums that inspired me to design a planted aquarium. I immediately went to a book store to look for one of his books and found a copy of his "Nature Aquarium" Volume one. I

Become Inspired

Grow Aquatic

couldn't wait to get it home and learn how I could also create one of these planted aquarium masterpieces for myself.

At the time, I had a 46 gallon bow front aquarium. I thought to myself that this would be a great tank to attempt my first aquascape. I researched for many hours on the internet, and learned a great deal about this hobby. Most of the advice I received was very helpful but it only pertained to equipment requirements that I would need to have a healthy planted tank. At this time, my excitement was at a peak level and I started to buy lights, CO₂ equipment and plants.

I learned that I needed a lot of light, so I purchased two Coralife Freshwater Power Compact units; each with 130 watts a piece. I also bought an automated CO₂ setup and Onyx sand for my substrate. For my plants, I placed a large order of plants from an Arizona aquatic plant distributor. I was off and running and could not wait to create an aquascape of my own.

Everything was going

smoothly for the first week or so and I was very happy. Then some of my plants started to melt overnight! I had no idea that most of the plants I purchased were emersely grown (out of water) from a nursery. I thought it was something I was doing wrong, so I purchased fertilizers for my ailing plants. I found an "all in one" fertilizer on the internet and thought to myself "that's convenient." So I bought some and immediately started dosing the recommended dosage.

I'm sure all of you know where this story is going. Yes, the dreaded algae bloom. I must have had every known algae known to man and maybe some no one has ever seen. This tank took over a year to "balance out". I had no idea what I was doing. Trying to figure out my problem on the internet didn't seem to help either.

I tried black-outs, H₂O₂, split photo periods, and I even gassed all of my livestock with CO₂. I almost gave up but I'm glad I didn't. This aquarium finally

"balanced out" and I learned a great deal from my first planted tank.

This was a learning process that I believe has to be done for yourself and not entirely from what others tell you. Yes, there is a lot of great technical advice from some well accomplished aquarists and you can learn a lot from their experiences. The advice I provide I have learned from first hand trial and error. Remember just because something works for someone else does not mean it will work for you. There seems to be no right or wrong way to be successful in this hobby. The important thing is to find what works for you and stick with it.

Filtration

This is a very important topic to me and seems to be overlooked when we all talk about planted tanks. Over filtration is the way to go whether you have a low light or high light set-up. The more light you have, the more biological filtration you need in order to "balance " your

c Plants

Aquascape Living Art



The author's first planted tank developed under trial and error experiences. After a year of frustration, melting emerged grown plants, and algae woes, this 46 Gallon Bowfront Aquarium is now mature and balanced to support healthy aquatic plant growth.

tanks eco-system.

It will also help to cycle your aquarium before starting an aquascape. I have learned that my re-aquascapes with a well established filter have always been less problematic than a totally new set-up. It also helps to add some nitrifying bacteria after water changes. A product called "Cycle" by Marineland can be found at most local fish stores. I use this after water changes as well as post filter cleanings.

Aquariums Height

I highly suggest that all beginners should start their first tank with a shallow aquarium. Since my first tank was a 46 gallon bow front (21" height), I felt I needed more light in order to

grow a healthy ground cover like *Glossostigma elatinoides*. A shallow tank requires less wattage because light doesn't have to penetrate as deeply through the water column. I am really fond of the dimension of a 40 gallon breeder. I have successfully grown compact and low *Glossostigma elatinoides* in a 40 gallon breeder with only one 96 watt power compact fixture.

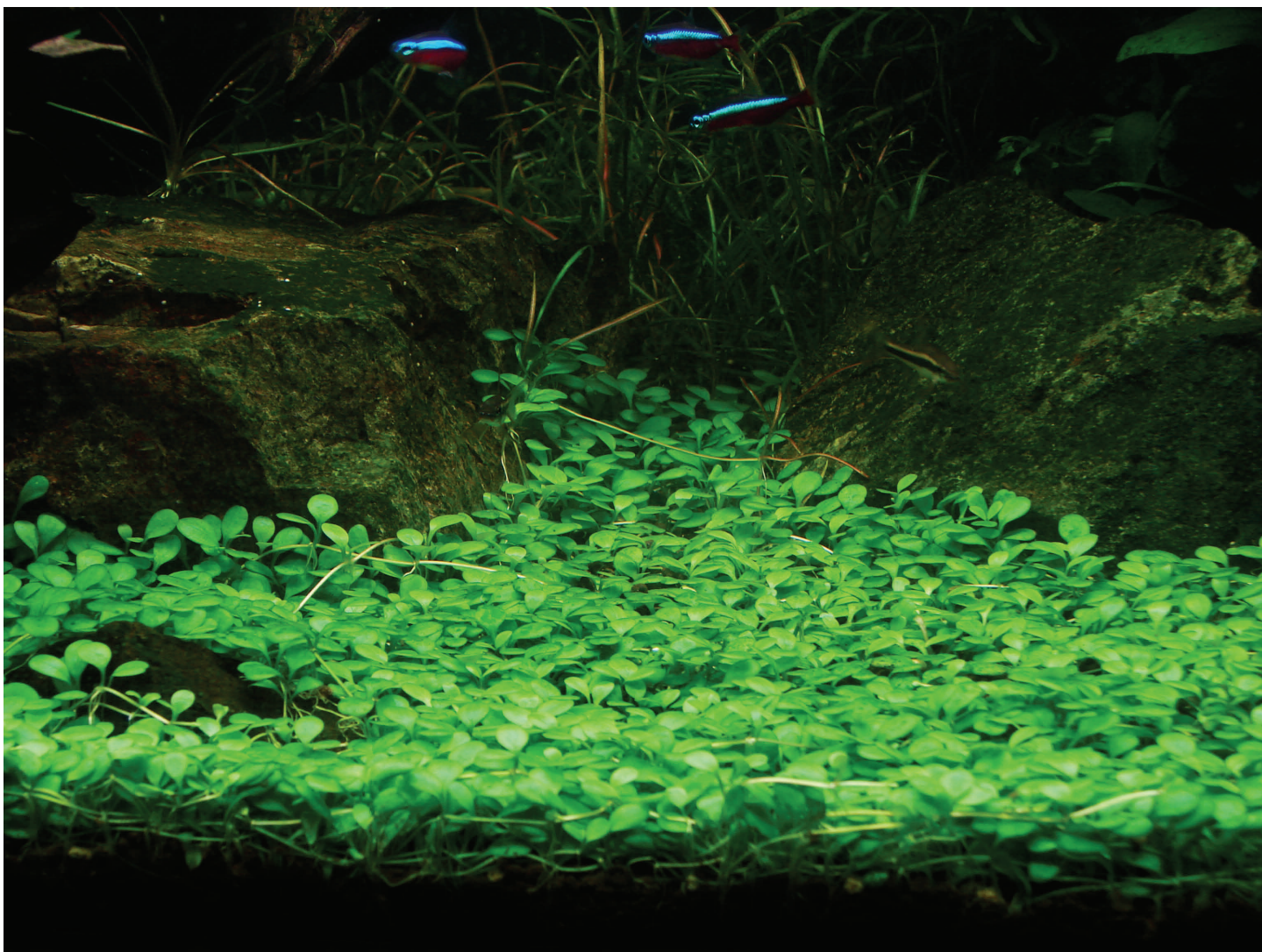
A 40 gallon breeder has plenty of depth and the three foot length makes buying light fixtures a breeze. Overall, the shallowness of this tank makes it a perfect beginner's tank.

Lights

This key component goes hand in hand with the height of your

aquarium. As we have already discussed, having a shallow tank allows you to get away with less light. This is a very important factor in helping you to be more successful with less frustration. Over the years, I have learned that plants listed to have "high" light requirements will grow with much less light. They will, however, grow at a much slower rate and some also take on a slightly different appearance.

When it comes to color temperatures with regards to light bulbs, I prefer a combination of 6700k and 10000k bulbs. Since I do not use high intensity lights anymore, the 10000k bulbs will help you achieve more red in plants that usually require higher wattage.



A carpet of *Glossostigma elatinoides* grown in a shallow 40 gallon breeder aquarium with a 96 watt compact fluorescent fixture. Total amount of light equals to 2.4 watts per gallon. For a full view of the tank, see the article cover.

My favorite light fixtures are the Coralife Freshwater T-5 Aqualight Double Strip Light. They are available in 24", 30", 36" and 48" lengths. They are also a normal output T-5 and the bulbs last longer than the over-driven or high output T-5 bulbs. They have a very low, slim profile that rest below the frame of your aquarium, which eliminates a lot of ambient light bleeding into your room.

Another reason I use these lights exclusively is due to the color temperature that these fixtures come with. They have a 6700k bulb along with a "color-max" bulb that really makes your red plants "pop". They are also very affordable and the replacement bulbs are much cheaper. I have had great success with these bulbs in conjunction with a shallow tank. I use them on my 60 gallon tank which is 48" x 16" x 16". This tank has a total of 168 watts which equals 2.8 watts per gallon. To my surprise, this set-up was more than enough to grow *Hemianthus callitrichoides* (H.C.) low and tight to the substrate while helping make my *Ludwigia arcuata* a blood red.

Fertilization

I have tried many different types and a few different dosing schedules. What works for me is somewhat of an unconventional style. Whether I use dry or liquid fertilizers, I do not have a set dosing schedule. The only thing I do religiously is at the beginning of a new aquascape. I will only dose Micros and Potassium for the first 2 to 3 month of a new set-up. Even that is not done on a regular basis. I tend to dose by "feel" and, by that, I mean I look at my plants very closely and often. When I visually notice the beginning of a nutrient deficiency like holes in the leaves, plant discoloration or limited growth, I



Hemianthus callitrichoides and Dwarf hairgrass combination grown with 2.8 watts per gallon.

will dose fertilizers. This technique is not for everyone, but seems to work for me.

I believe overdosing your tank with all the nutrients can only lead to problems if your plants are not healthy enough to uptake the nutrients. Some will come back to find an algae bloom because they could not find someone to continue the dosing schedule.

Consistency is the key factor when it comes to nutrients. If your eco-system is accustomed to keeping a certain level of nutrients at all times, then you must continue this in order to maintain "balance". I'm not a scientist, nor will I ever feel the need to be one, when it comes to this hobby. Although some well-known aquarists with some very impressive college degrees will disagree, dosing by "feel" really works for me. This technique also allows me to go on vacation and I don't have to worry about my tanks. My aquariums have learned to be fairly self-sufficient, therefore, I believe I have achieved "true balance" in my eco-systems. Keep in mind that

this technique will not work on a "high light" set-up. The more light you have, the faster your plants grow and the more nutrients they will require.

Less is more

I, like some, have a grow-out tank, however, my grow-out tank may differ from many others. I do not have CO₂ or high intensity lights over this tank. Instead, I only have 1.86 wpg over a shallow tank. I will plant many species of plants in this tank in the hopes of learning more about the true light requirements for aquatic plants. So far, I have not come across any plant that will not grow in this tank. Given the fact that this tank is only 12" high, I have learned that it's not really about how much wattage you have over your aquarium, but more about how much water depth that light needs to penetrate. Obviously, less water height equals more lumen down to the substrate.

Less light will also increase your optimum viewing time in your aquascape. Like many, I have seen so many beautiful

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This 15 gallon tank with 6.2 watts per gallon was very difficult to balance. The excessive light demanded more nutrients and regular maintenance than lower light intensity tanks.



This 60 gallon with only 168 watts of "normal out-put" T-5's was easier to maintenance than the above tank despite having more species of plants.

aquascapes that I would love to have in my living room for all my friends and family to enjoy. However, the photos we all admire are just snapshots of a "moment in time". Aquascapes are forever changing or evolving and require a lot of maintenance. After a large plant trimming our tanks will look nothing like that "moment in time".

By utilizing less light and dosing only the required nutrients necessary, you will lengthen that "moment in time". I like to

achieve a "balanced" eco-system while slowing growth down.

Some say your plants are not at optimum health, I have to disagree with that wholeheartedly. My plants are just as healthy as the next. The only difference is, I don't have to dose, trim, re-plant tops or fight algae blooms as often as others. What I do get is that "moment in time" for a little while longer. 🌱



Aquascaping with



By George Farmer

George Farmer



My name is George Farmer, 31, and I'm very lucky to be married to a wonderful and very understanding wife, Janine, with two joyful and incredibly bright daughters – Emily, 12 and Florence, 3. I live in a beautiful rural village in Lincolnshire, England. I count my blessings every day, it has to be said!

My full-time career is as an aircraft weapons engineer in the Royal Air Force - in fact I'm writing this whilst on a 4 month tour in Afghanistan, as we speak! I'm also a freelance writer and photographer specializing in planted aquariums and aquascaping. I mainly contribute to Practical Fishkeeping (PFK) magazine, writing between one and three articles regularly every month. As a member of their 'Ask the Expert' panel, I help out readers with their planted tank problems. I write blogs for the P F K w e b s i t e (www.practicalfishkeeping.co.uk) and have presented a step-by-step video/podcast on setting up a nature aquarium. I have also written articles for Pet Product Marketing, a publication for the UK pet retail sector.

I'm in the privileged position

of being able to work with Tropica, the Danish plant grower, who supply me with their excellent plants and products. Recently I have tested out some brand new plant species which has been very exciting. I get to test out a lot of new products for various manufacturers, the most recent being the new LED lighting from TMC.

At one point I was a moderator of five Internet forums, but have limited myself to being active on two or three, when I have the time. Last year I helped to set up the UK Aquatic Plant Society (www.ukaps.org), with three other UK-based talented hobbyists. We have a very active forum with a fast-growing membership and considerable range of experiences. I would like to think that we all have helped to promote the UK planted tank and aquascaping hobby significantly in the relatively short time we have been established.

I started the aquarium hobby relatively late, five years ago, and kept an off-the-shelf 125 litre (33 US gal.) aquarium ready-supplied with filter, lighting and heater. I filled it with non-aquatic plants, not realizing my mistake at the time. Of course, the plants died and algae took over. Determined

to succeed, I read some books and began to use the Internet as my main source of information, being careful who I listened to. I enjoyed learning about the Estimote Index (EI) fertilization principles and continue to practice this method with great success by using Tropica fertilisers, at the moment. I'd like to thank Tom Barr for his guidance in many matters.

As I became more informed and skilled as an aquarist, the hobby turned into an obsession. I discovered Takashi Amano's work and bought all of his books, reading them back-to-back several times over. I also enjoy reading the ADA Aqua Journals and catalogues. Mr. Amano changed my whole philosophy towards fishkeeping and I discovered a passion for aquascaping as an art form. More recently I have become a very keen photographer and find the link between aquascaping and photographing very interesting. Takashi Amano is the ultimate master of both, in my view.

Aquascaping Fundamentals

I believe the first fundamental lesson to learn before even designing and implementing a successful aquascape is to learn how to grow plants effectively. No layout will be successful with dying or algae-infested plants. Once plant growing has been mastered through appropriate lighting and nutrient levels, whether they be high light, CO₂, etc. or 'lower-tech' methods, one is then free to concentrate on the creative side of aquascaping and layout design. It took me about 12 months to realize exactly what I needed to grow plants well, without algae issues. Good light, CO₂ and other nutrients, including NPK, with plenty of water changes, are my main



My first aquarium aquascape, an 80 cm tank that I call "Dutch Jungle".

'rules' for success and more recently I have learnt the importance of good levels of flow. Most of my set ups will have at least 10x filter turnover, with my most recent two layouts, 'Little Mountain' and 'English Summer' having over 20x turnover.

Choosing plants according to one's individual aquarium set up and size is also a vital element. Some plants require more light and nutrients than others, or different water chemistries, so do some research, or better still, experiment to find out what works for your aquarium and its conditions. I have had success with most plants I have tried, even though I have hard tap water. The key, as mentioned, is appropriate light and nutrients. Patience is also very important, as some plants will take a good while to adjust to their new environment.

One element that really only comes with experience is learning how plants grow together at different rates and sizes and how these influence

the whole aesthetic of the aquascape. Pruning techniques become a priority with foresight into anticipating the evolution of the aquascape. Most of my aquascapes contain few or no stems plants at all, so the end result is more predictable with lower maintenance, which suits my somewhat hectic daily schedule.

Shape Your Inspiration

Gaining inspiration is a very important element in aquascape design. For beginners that can grow plants well, I often recommend copying an aquascape they like, as they will immediately choose appropriate plants and composition. Through the process they will learn how their plants grow in their set up and may be confident enough to evolve the aquascape by changing species or layout as they see fit. The whole experience will be beneficial and after some time they may be able to come up with some innovative creations without resorting to

copying aquascapes, or elements there of. I still gain much inspiration from others and will use some aspects to the designs in my own work. I don't consider myself a 'natural' artist so creating an innovative design is hard for me. However, like anything in life, I know it will become easier with practice and I can see my aquascapes improving with every new attempt.

As for the actual layout materials when considering an aquascape design, the importance of good hardscape selection and position, if used at all, is incredibly important. Rocks and/or wood should often provide the 'bones' to the layout with the plants providing the 'flesh'. Even if the hardscape becomes invisible over time, they help to provide a basis for which to build upon. Only recently, in the UK, have decent hardscape materials become readily available and this has boosted the quality of aquascapes produced considerably.



From start to finish, this 120 cm "Harlequin's Haven" took five weeks to complete its aquascape.

My First Aquascape

My first aquascape was a result of all my learning about how to grow plants within the first year of starting the hobby. I had not been influenced by the nature aquarium style back then, as I hadn't seen any of Amano's work, or other aquascapes influenced by his style. I hadn't seen any Dutch style layouts either, but rather I kept adding new plant species here and there, tidying them up and pruning as necessary. The end result is what you see here, which I was pretty pleased with back then!

I boosted my lighting from the supplied 2 x T8 fluorescents to 4 x T8 with reflectors and I added yeast-based CO₂ injection. Dosing ferts was via the Dennerle system which doesn't contain any sources of NP. This is why the lifespan of the aquascape was limited, because algae became an issue, due to nutrient deficiencies and unstable CO₂ levels. The tank also had a heater cable fitted, which in my opinion isn't necessary, as none of my aquascapes since have used them, despite their success. Plant growth itself was pretty good, but most of the plants were easy. Due to the large proportion of stem plants, I learnt about pruning technique and the way that plants grow at different rates.

Hardscape was non-existent, as with most Dutch style aquascapes, but this choice was made for me due to a lack of decent materials available in the UK at the time.

After this first aquascape I discovered the virtues of pressurized CO₂ injection and NPK dosing via the Estimote Index (EI). These two factors, in combination with discovering Amano's work, were instrumental to my progression in the hobby. I look back at this aquascape with fond memories and use it to remind myself of how newcomers to the hobby may feel.

An Aquascape Takes Time

My quickest aquascape to completion was 'Harlequin's Haven'. From start to finish it took around five weeks. This

was mainly due to heavy planting from the outset, in combination with some fast growing *Vallisneria*. I didn't keep it running for long, as the tank sprang a leak! Apart from that they were no problems at all with this aquascape.

My longest-term layout was 'The Shade' which evolved over around 18 months. It had low lighting (2 x T8, 1wpg) and slow growing species – Crypts, Anubias and ferns. The aquascape didn't have any problems until I went on holiday and the CO₂ stopped, melting all the crypts and causing a massive algae bloom!

Aquarium Maintenance

In all my set ups, except nano aquariums, I change between 1/3 and 1/2 water every



This 80 cm aquarium took 18 months to complete under low lighting conditions. It's called "The Shade"



A large school of Harlequin rasboras add a lively dimension to this planted aquarium.

week. In the early stages of the tank's life I will often change more water, more regularly. Plants are pruned as and when required, from weekly for fast growing stems, to monthly or longer for slower growers. In nano aquaria I will change $\frac{1}{2}$ water 2x per week minimum.

Algae is cleaned from the glass using magnetic algae scrapers, razor blades and toothbrushes. I rarely vacuum gravel as there is too much plant cover, so I wave my hand above the substrate, lifting up any detritus and siphon it out during a water change. I also 'fluff up' the plants to remove any collected detritus from the leaves etc. Any uprooting of plants or hardscape will be followed by a $\frac{1}{2}$ water change to minimize algae. In fact, almost any maintenance is followed by a water change.

I dose TropicA Plant Nutrition+ in all my tanks, generally at a rate of 5ml per 100

litres per day for higher lighting, down to 2ml per day 100 litres for lower lighting. This is a great all-in-one liquid fertiliser that works brilliantly in all my tanks. I will adjust dosing as the plants require.

Filters are always over-rated for the aquarium size and are cleaned every couple of months. In larger tanks (120cm+) I'll always use two filters, as I like to achieve a minimum of 10x turnover. I only use biological and mechanical filter media, no carbon or Purigen etc. Lily pipes and filter hosing are cleaned as and when required.

I often use a CO₂ drop checker with 4dKH solution and pH reagent to maintain good CO₂ levels. Once an ideal bubble rate has been achieved, I may remove the drop checker for aesthetic purposes. Glass/ceramic diffusers are cleaned regularly in bleach to maintain maximum efficiency.

The Solution to Algae

The maintenance regime outlined above will normally keep algae at bay. I always plant very heavily from the outset and change plenty of water. I will normally dose fertilizers on the lean side in the first few weeks. There is plenty of discussion on whether or not this is necessary, but it works for me and saves on fertilisers. A good nutritious substrate will allow more forgiveness with lean dosing too. It's also worth noting that most new plants require an acclimatization period in their new environment, so dosing may not actually do any good at all. Most aquarium plants are grown emerged in the nurseries and will have a lot of nutrient stock in them too.

I always have an algae-crew, right from the start, normally consisting of Amano shrimp (*Caridina multidentata*) and *Otocinclus sp.* I will stock around



Not as commonly used as its relative the Cardinal Tetra, these Black Neon Tetras form a tight school and provide a unique “mature” presence to the aquascape that a Cardinal Tetra does not.

10 Otos and 20 shrimp per 100 litres. In nano tanks I like to use Nerite snails and smaller shrimp.

Algae, in my experience, is caused by neglecting the tank (poor/fluctuating CO₂ and other nutrients, blocked filter or lack of water changes), or by running excessive lighting for too long. With good CO₂ and other nutrients, it may be surprising how little light one can use to grow plants well. I can grow most plants in most tanks with 2 x HO T5 and good reflectors spanning the length of the aquarium.

Plant Selection

Plants are chosen according to the layout design and how much maintenance I wish to perform. These days I tend to avoid fast growing stems due to their high maintenance and my lack of spare time. However, I will sometimes use them if I know the aquascape is going to be a

short-term affair and I wish to experiment with any new ideas. My favorite slow growing and low maintenance plants are Java ferns, *Anubias* and crypts, and these will appear in most of my larger aquascapes.

Fish Selection

Fish selection is an obsession for me! I will wait until the aquascape is at least three to four weeks old before adding fish and think about their selection a great deal before choosing. They must match the planting design and the tank’s dimensions. Taller fish suit taller tanks etc. and sense of scale is essential. I will always prefer to use larger shoals of smaller fish over a few larger fish. One exception is half a dozen large discus that I plan for a new 180cm layout next year.

Fish coloration is another important consideration, as they must not clash with the planting. I am not a fan of gawdy colors

generally, unless their contrast suits the planting. For simple aquascapes I will always choose one species of display fish and for more complex layouts, I will have a few species. If I do mix species, they will be from the same continent i.e. I won’t mix South American tetras with South East Asian *Rasboras* or *Danios* etc.

I also tend to understock with fish as this helps to maintain water quality, reduces risks of algae and lowers maintenance times. I am very lucky to have an excellent aquatic shop nearby that stock a huge selection of fish suitable for planted aquariums. I am spoilt for choice. They also give me a good discount, as I’m a regular customer who always has time for a nice chat with the staff!

Get that Perfect Photo

Photography is such an important factor in getting that “perfect shot” for a layout. I



Most people won't have full photographic studios, but here you can see it's important to have a lot of light when taking that final photo of your aquascape. This will help bring out the colors of the fish and plants.

currently use an old (2003) Canon EOS 10D DSLR camera, sold to me by my wife's uncle for a good price. It's regarded as outdated now but I like the results. It only has 6MP but it's plenty for publishing in magazines and on the web. Eventually I will upgrade to a 5D or even a 1Ds Mk.III, as I'm becoming more interested in landscape photography where the full frame sensor and higher pixel count come into their own for larger prints.

Currently I only use a Sigma 17-35mm f/2.8 lens for full tank shots in confined spaces and a Canon 100mm f/2.8 macro for close-ups. It is best to buy the best lenses you can afford, as they will outlast the camera and are interchangeable when you upgrade to a camera from the same manufacturer.

Unfortunately, decent lenses tend to be very expensive!

For final photo shoots I will get as much light above the tank as possible, normally 4 x HO T5 or more if I can fit it. I do not own any flash guns yet but intend to invest in some soon. The more light the better, as it results in a faster shutter speed for capturing fish. Also a greater depth of field (DoF) can be used to ensure the whole tank is in focus, front to rear.

I will often use ISO 400 or 800 to help maintain fast shutter speed and higher DoF. However, high ISO can result in grainy images, depending on the camera. This is why flash guns are good, because you can use a high DoF, fast shutter speed and low ISO for best quality images.

I will shoot in the dark, except for the aquarium lighting,

as this prevents reflections. A tripod is useful and I also use a remote shutter release to help eliminate camera shake further. The self-timer can be used but it's harder to capture the fish in the right spot.

I will sometimes use backlighting to enhance the background of the aquascape. This is normally achieved by an old T8 tube and reflector against a pale wall. These days all my aquascapes do not have a background, as I like the extra sense of depth this creates.

Generally I don't use Adobe Photoshop too much, as I prefer to get the shot right at the start. I may boost contrast and saturation a little, as well as use unsharp mask to improve the overall effect of the shot. Some see this as cheating, but as long as you aren't adding things that



The next up and coming UK aquascaper, Florence, my daughter stares off into my 60 cm aquascape called "English Summer".

aren't there already, I don't see any problems. For me, Photoshop is simply used as a digital darkroom. Recently I have started shooting in RAW for my most important shots, as these are higher quality and provide more flexibility with image parameter adjustments without loss of image data. When I return from Afghanistan I am treating myself to a nice new 24" Apple iMac, that is far superior to my current PC for dealing with images.

Popularity of Aquascaping Around the UK and the World

The UK planted tank and aquascaping hobby is enjoying a rise in popularity, but the vast majority of aquarium keepers are still more interested in fish than aquascaping. We still are a long way behind many other countries in terms of aquascaping talent but the potential is certainly there. Last year we had just three UK entries into the ADA contest but they'll be more this year. I'd like to think that the UK Aquatic Plant Society and my work with PFK are helping to promote aquascaping in the UK.

Most UK aquascapers I know of are influenced by Amano's work and the nature aquarium style. The Dutch style is rare to see over here. I don't believe there is a UK style yet, as the UK aquascaping community is still in its infancy and has yet to reach the mainstream fishkeepers, but we do see new members every day joining UKAPS. There are some notable young and upcoming UK aquascapers, such as Dan Crawford, Graeme Edwards and Tom Messenger who have produced some very exciting work.

The UK retail sector slowly is switching on to the rise of the planted tank hobby, with new products becoming available

regularly. When I started the hobby, pressurized CO₂ systems were rare and NPK dosing was unheard of. Today, we still see some shops refusing to accept that NPK dosing is acceptable with some reports of shops refusing sales of fish to those that dose NPK! It is find disappointing that many retailers and manufacturers still believe that nitrate and phosphate dosing cause algae in a well planted tank. Of course, these nutrient additions are often necessary to support healthy plant growth and prevent algae. I praise manufacturers like Tropica, Seachem and ADA that produce fertilisers with added N and P, who cater for today's modern plant grower.

Glassware and other specialist gear from ADA, Cal Aqua etc. are becoming more popular with two excellent outlets selling their products - Aqua Essentials and The Green Machine. Opti-white, high clarity glass is being used more by aquascaping enthusiasts. Nice wood and rocks are also available now, from many retailers, which were absent or very hard to obtain a few years ago.

My Aquascaping Competition Entries

I entered 'Meadow Zephyr' into last year's ADA and AGA contests. I also entered 'Mother Microsorium' and 'The Shade' into the AGA. I came 775th in the ADA and didn't win any awards in the AGA. The judge's feedback was worthwhile in the AGA and I am hopeful to gain a higher position in this year's ADA. I always value the comments from the AGA contest judges and with the ADA contest I can hopefully climb up the ranks as I become a more experienced aquascaper.

I like contests because they

give me an added sense of motivation and end goal. I also like to urge other UK hobbyists to enter into contests to let the aquascaping world know that we are here!

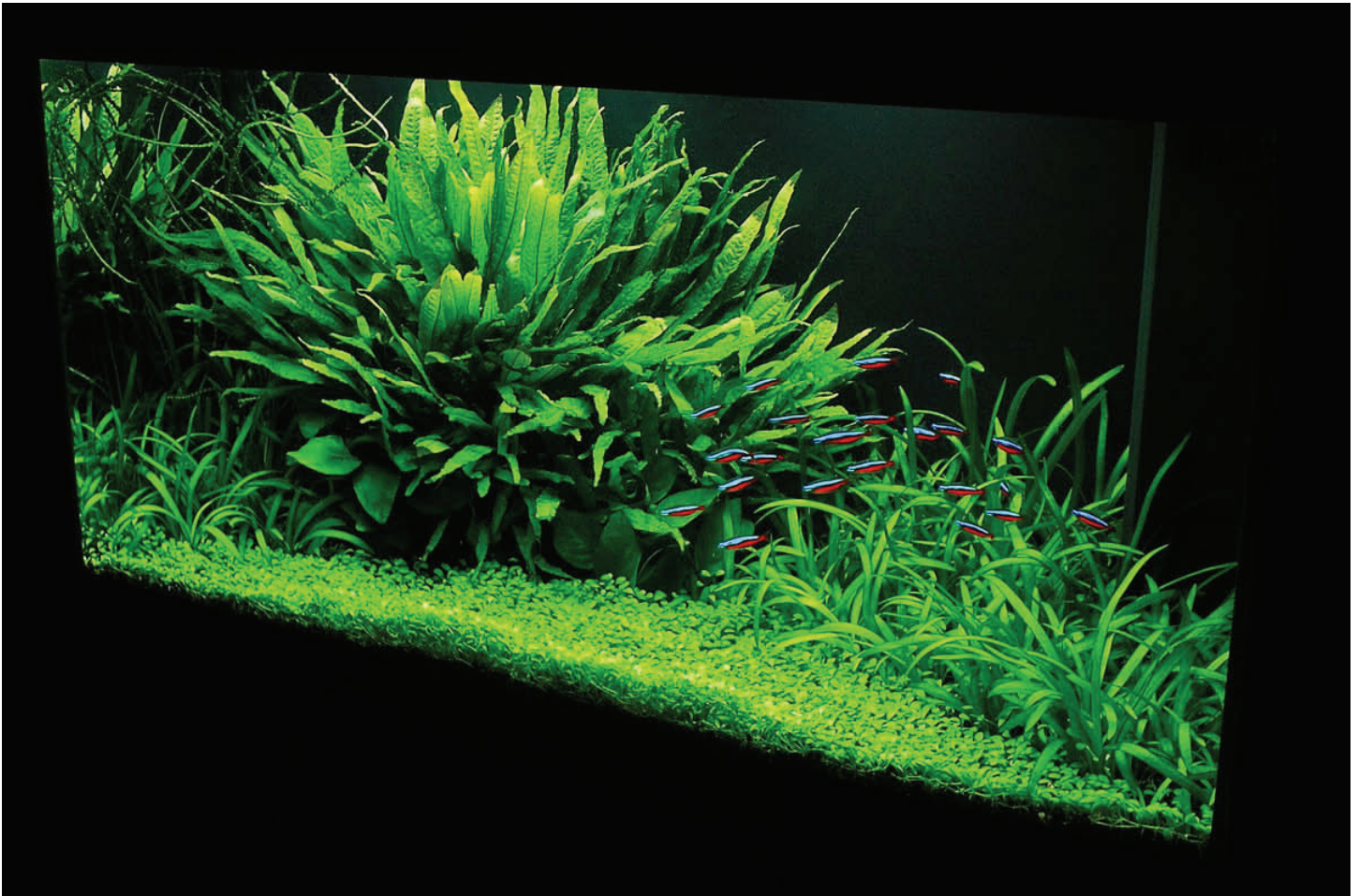
Why I Aquascope

For me aquascaping is the ultimate combination of living art, design and technology that is infinitely complex and never fails to hold my interest. I'm highly privileged and honoured to be able to contribute to the hobby through a variety of media and count myself as very lucky to have some influence on the promotion of aquascaping in the UK in particular. In the near future I would like to write my own book on growing plants and aquascaping complete with my own photography.

I would like to think that the aquascaping hobby will have a bigger influence on all aspects of fishkeeping. For me it just makes sense to have an aesthetically pleasing aquarium in one's living space, even if it is fish-only. As more manufacturers realise that aquarium plants and layout design are becoming more popular, I anticipate the market will adapt accordingly, providing the consumer with a greater variety of equipment making it easier for the newcomers to the aquascaping hobby. We can already witness this wind of change occurring in the UK and I remain very optimistic for the future.

Practice Makes Perfect

Finally, there will always be conflicting information as to what is the best way to grow plants, but in my opinion, there is no specific right or wrong way. Choose a method or combination of methods that works for you, experiment and learn from your mistakes. Practice makes perfect. 🌍



Mother Microsorium

Dimensions: 80x35x45 cm

Volume: 125 liters, 33 US Gallons

Light: 2 x T8 Fluorescent

Photoperiod: 10 hours

Substrate: Black quartz and Dennerle Deponit

Fertilization: Estimative Index with KNO₃, KH₂PO₄ and dry trace powder mixtures

CO₂: Pressurized CO₂, 24/7 into a filter at 1 bubble per second

Plant List

Glossostigma elatinoides

Sagittaria subulata

Anubias nana

Microsorium pteropus

Crinum calamistratum

Fauna

Otocinclus sp.

Cardinal sp.

Amano Shrimp





Chocolate Gourami Biotope





Meadow Zephyr

Dimensions: 30x20x20cm

Volume: 12 liters, 3 US gallons

Light: 24w PC T5

Photoperiod: 8 hours

Substrate: Tropica Plant Substrate, 1-2mm gravel

Fertilization: 1ml Tropica Plant Nutrition+ with each water change, 2 x 1/2 water change per week

CO₂: Pressurized with solenoid, Dymax microdiffuser, 30 bubbles per minute

Plant List

Elecharis acicularis

Riccia sp. 'Dwarf'

Fauna

Micro rasboras nana



English Summer

Dimensions: 60x36x30cm

Volume: 60 liters, 15 US gallons

Light: 2x24w T5HO

Photoperiod: 8 hours

Substrate: ADA Aquasoil Amazonia

Fertilization: 2ml Tropica Plant Nutrition+ per day 1/2 water change per week

CO₂: Pressurized with solenoid, Rhinox 1000 diffuser at 1 bubble per second

Plant List

Staurogyne sp.,

Pogostemon helferi

Blyxa japonica

Anubias nana

Cryptocoryne wendtii 'Green'

Microsorium pteropus 'Philippine'

Alternanthera reineckii

Fauna

Black Neon Tetra

Otocinclus sp.

Amano Shrimp



Little Mountain

Dimensions: 30x20x20cm

Volume: 12 liters, 3 US gallons

Light: 18w PC T5

Photoperiod: 8 hours

Substrate: ADA Aquasoil Amazonia (powder)

Fertilization: 0.5 ml Tropica Plant Nutrition+ with each water change, 2x1/2 change per week

CO₂: EasyLife EasyCarbo

Plant List

Bylxa japonica

Staurogyne sp.

Pogostemon helferi

Hemianthus callitrichoides

Fauna

Oryzias sp.

Crystal red shrimp

Nerite snail

For the Beginning Hobbyist

Planted Tank Lighting

By Hector Ortiz



Light energy is an essential ingredient to making a planted aquarium lush and green. It drives photosynthesis and the plant's ability to consume nutrients from the water column. Without adequate light, plants won't be able to grow properly.

Planted aquariums require eight to ten hours of light, on average, to allow plants to metabolize the energy and complete their photosynthesis cycle.

The general rule of thumb for aquatic plants is that each tank needs at least 2.0 watts per gallon (wpg) in tanks that are greater than 20 gallons. Smaller tanks will need a little more wattage. For the beginning planted aquarist, I recommend you start with a lower wattage, i.e. around 2.0 wpg for eight to ten hours. Once you begin to understand the nutrient balance and plant growth that's the time where you can experiment with increasing lighting. However, most times staying within this photoperiod range is more than adequate for plant growth.

One of the best ways to avoid algae in a newly set up planted aquarium is to use minimal lighting for the first few weeks. By minimal lighting, I mean reducing the photoperiod to seven to eight hours, and, if possible, switching off one of your bulbs in your lighting fixtures. By doing this, you'll give your newly planted plants time to adjust to your aquarium

conditions. It's like going out running for the first time. You wouldn't want to start off on the track at full speed because you'll know you'll burn out after the first lap. Instead you'll do a warm up lap and gradually work yourself up to top speed. The same goes with aquatic plants. Give them a chance to adjust to the new conditions and they will thrive in the long run.

If you don't do this, algae will flourish off the overdriven and dying plant matter that may result when there is too much light, not enough plants, and excessive nutrients (from the lack of healthy plants consuming it). Allow your plants to grow gradually with the conditions and you'll find algae will have a hard time infecting your tank.

Compact fluorescent lighting is the common main stay of aquarium lighting equipment. It offers an efficient and affordable lighting solution for most planted aquariums. T-5 High Output lamps are becoming more popular as the prices on the bulbs and its fixtures decline. T-5 High Output bulbs burn brighter and more intense than regular Compact Fluorescents. In deep aquariums (24 inches), T-5 High Output bulbs can penetrate deep into the water, where regular Compact Fluorescents could not. In a planted aquarium this aspect is very important when you're trying to grow a compact foreground of *Glossostigma elatinoides*.

Equipment aside, remember

that in order to have a healthy planted aquarium you don't need tons of light, but you do want to have enough for your plants to grow efficiently.

With High light comes great responsibility. Sound like a catchy phrase from a comic book movie? Well, it's true here, too. With more light (3.0+ wpg) you are essentially putting your plant's metabolism into overdrive. Sure your plants may start growing faster initially, but without proportional high amounts of CO₂ and fertilizers, this rapid growth will reach its ugly climax. So when in doubt, go with less light (around 2.0 wpg) and keep the fertilizers and CO₂ in adequate, small levels. You'll find the slower growth of the plants will make a much better aquascape than one you have to constantly trim to keep looking good. 🌱

Making A Custom Planted Aquarium Back *Lessons Learned*

By Kristen Danker

Imagine it. The perfect aquarium full of healthy aquatic plants in an eye catching layout. Yes, we have all dreamed of such a tank. Recently, I found myself staring into an empty large aquarium that would be the 'tank of my dreams'. Now, if only I could take that picture in my mind and put it into reality.

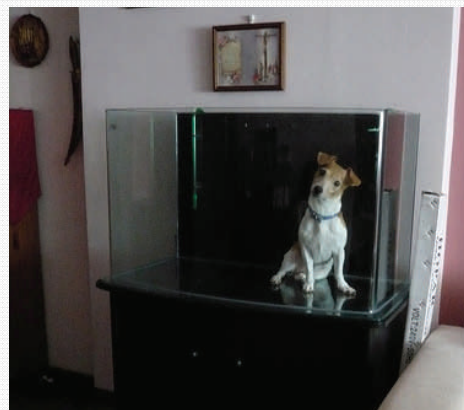
When researching possible aquascaping ideas and layouts, I decided to try something different. I wanted to create a custom, textured background with a terraced design. You might be thinking, "Why have backgrounds when the plants will be covering it as they grow in?" Well, I decided to take on this project for several reasons.

First off, my tank is tall and I knew I needed to add an element of terracing to use the height of the tank to its fullest. Light has a hard time penetrating the water in deep tanks, so many tall planted aquariums are limited to using large leaf plants that can fill up

the aquarium quickly. By terracing steps or layers inside your planted aquarium you can help raise your plants off the substrate, closer to the light and into a more interesting aquascape.

My other reason for starting this project was simple: it looked like something fun to do. I have an 'itchy backside' as we say here in Singapore (no, my butt didn't literally itch, this is a local phrase meaning taking on unnecessary effort). Building a custom background and terracing steps was a perfect opportunity to relieve this itch.

So, I looked up different tutorials for building a background. Many tutorials were for backgrounds and caves used in Cichlid aquariums. Despite this fact, I thought it would be very fun to make one for a planted tank. I will share with you my learning points, so that when you decide to embark on this you'll know exactly what to do and what to avoid.

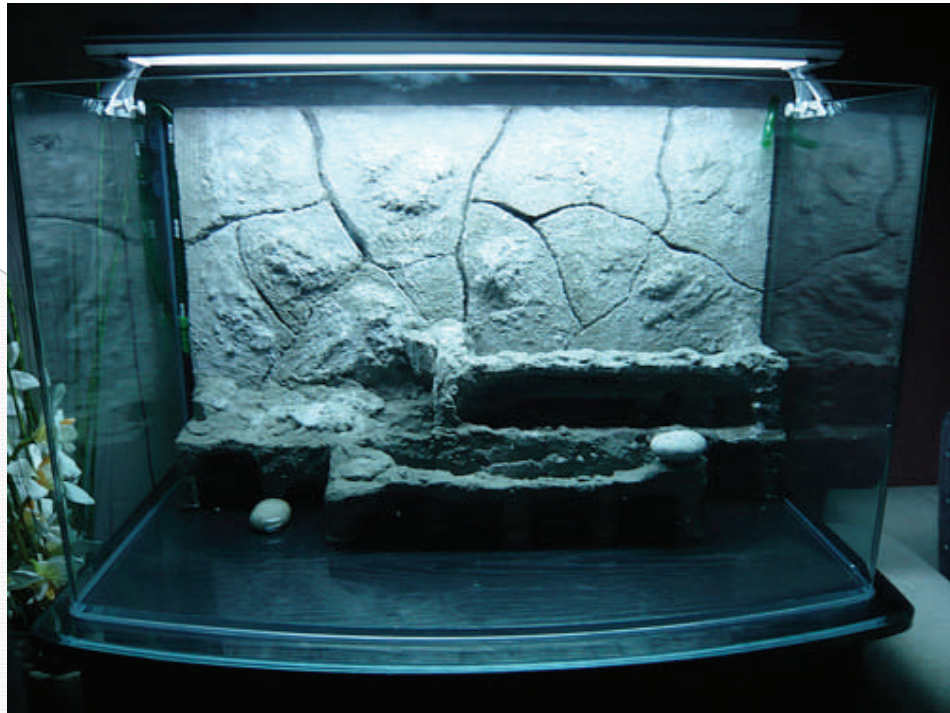


To start off, here's my tank with my "DogFish" above.

Learning Point 1: Styrofoam is available all the time except when you want it.

I hunted high and low for Styrofoam. From cooler boxes to unwanted vegetable foam boxes from the local market, I looked everywhere to collect what I needed. Local craft stores didn't have exactly what I needed, but don't rule them out. I ended up getting my foam board used in

m Background



Here is the final piece of the background for the aquarium before adding in the substrate and plants.

this project from such a store. Any Styrofoam will do, but I find that packing Styrofoam from television sets and what not are more densely pressed than the Styrofoam boards you can buy at the local crafts stores. In the end, the dense Styrofoam means less flying fragments of Styrofoam, better ability to get those fine details when carving, and less hassle dabbing cement into little nooks.

Learning Point 2: Styrofoam carving is therapeutic but messy.

For carving the Styrofoam, I used my mother's paring knife. She wasn't too pleased, but since I'd already used it, no amount of complaining would de-Styrofoam the knife so it is now, therefore mine. It's a messy job, with foam bits flying everywhere and sticking to your skin, but it's also strangely therapeutic. There's something peaceful about cutting things up after a long day. Just

make sure there's a vacuum nearby to clean up the mess.

You want to try to carve your foam to make it look as much like rock as possible. Remember, the idea with carving the Styrofoam for your background and terrace pieces is so that they look very natural and clean. I found using light grain sandpaper for the finishing touches would help smooth down the rough areas left over.

Learning Point 3: There's no need to use heat on the foam.

In other tutorials, I read that you needed to heat the Styrofoam with a hairdryer. The practice of using heat from something like a hairdryer would help flatten down curvy areas of the Styrofoam. I found this isn't necessary. It made the foam appear like it was covered in warts like a disease - which I found repulsive. In fact, I disliked the heated piece I created using this method so much that I didn't

even use it in the final design.

Learning Point 4: Sand down Great Stuff Foam if you happen to use it.

For those unfamiliar with the foam product "Great Stuff Foam" by the Dow Chemical Company, it is commonly used to provide extra insulation in homes. You can find it at your local hardware and craft stores. I used this to give my background some semblance of texture of rocks and to add three-dimensionality to the final piece. However, if you are using this product be forewarned things can get messy and sticky real fast. I still have a bit stuck to my nail that I haven't bothered to buff off yet. It also expands when it dries, forming a kind of yellow tube. You can sand these down and shape them into jagged edges for your rock formation.



Although newly planted, this planted aquarium already feels matured and developed. As the plants grow in further, the background will enhance the tank's appeal to its viewers.

Learning Point 5: Mixing cement with the right consistency for various coats.

I've never mixed cement in my life, and it's a mystery to me until my dad showed me how. Add enough water to your cement powder mixture so that it's a thick but still a slightly runny consistency. When you are satisfied with the shape of your Styrofoam piece, paint on a thin layer of cement. To get into every nook you've carved, your mix needs to be on the watery side. Use a paint brush to dab the cement into the extra fine spaces.

I painted on two thin layers, which I had no trouble drying. My third layer was the one which I sculpted the structure with cement. To fill in the gaps and make the structure look rocky, you need a thicker mix of cement. When using your brush, make sure you stipple or roughly paint on the cement onto the structure to make it have a natural texture. It will look unnatural if you paint the cement on smoothly.

Learning Point 6: Don't dry thick layers of cement too fast.

You need to dry the cement slowly now or it'll crack. I had to put on a fourth layer because I'd left the background in the open air and cracks developed. I closed the cracks with more cement and took the opportunity to add more detail. I repainted over with a thin layer and then proceeded to dry the cement.

Many background tutorials recommend spraying the cement with water, while other guides will advise wrapping the top of your tank with Glad wrap to slow down the drying process. I did a combination of everything, where I sprayed mine down, put a wet rag under the structure, and wrapped the whole thing in Glad wrap. I let the structure dry for over 48 hours to let it get as hard as a rock.

Learning Point 7: Make sure to silicone the bottom of your background.

Adding silicone to the bottom

of your background will help prevent the final structure from floating up. Unfortunately, I failed to do this step. In my defense, the stench of the silicone was so nauseating I wanted to get this step over with quickly so I forgot to silicone the bottom. As a result, the background fits nicely inside the tank, but when I fill it with water, parts of the background will float up a little. The weight of the gravel will reduce any stress on the background stuck to the tank.

After a long two weeks, the background was done at last. It was actually really enjoyable doing this, but sometimes downright frustrating. I know I made a few mistakes along the way, but in the end the final product is perfect in my eyes.

Over time, I hope to have a nice cover of green algae tinting the structure in a shade of green. Right now, the cement is buffering my water to pH10, so I need to change the water every three days to cure the cement completely. If any of you decide to do a custom background, you won't regret it! At least now I know I have a truly unique tank and my work looks more realistic than any overpriced mass-produced background that can be found at a local fish store. On top of that, the final planted aquarium aquascape will look unique and different from the standard tall stems and large plants. 🌿



dosing - made easy

The planted-aquarium hobby is growing rapidly worldwide. To make this hobby more accessible to everyone, pfertz™ has created an easy-to-use, innovative fertilizer system that makes growing aquarium plants so easy, that anyone can do it. The features that make pfertz™ unique are:

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A Ryoboku Aquas

T



By Kristoffer Willerslev Jorgensen

scape

The Beginnings



In past articles you have followed the creation of my DIY ADA stand. Now it's time to get to the fun part. Let's start aquascaping! I will use this article to show you the startup of my 60cm tank. I started planning for it in early spring 2008 and began to collect materials for the ADA stand and the equipment for the tank itself.

60cm Ryoboku step-by-step

My intention for this aquascape, was to create a simple design, that is easy to maintain with lots of open space. I didn't want an Iwagumi style aquascape, since I enjoy using driftwood, ferns and moss in the aquascape. From the start, I knew this 60 cm would be a driftwood based setup.

So, I looked around at various aquascaping styles which mainly focused on driftwood. The complexity of a convex layout appealed to me the most and would fit my needs to arrange a driftwood layout heavy on moss utilization and with some rough stones to contrast with an open foreground. The open foreground was something I had wanted to do for a long time, and it seemed perfect to use it in contrast to a heavier and darker driftwood.



Aquarium Equipment

I built my ADA stand to measure 70x60x30cm which would provide an ideal fit for my 60x30x36cm Optiwhite tank. In a planted aquarium it's a good idea to use more filtration power than what's recommend on the box, so an Eheim 2222 filter fit the bill nicely.

For lighting, I used a SunSun 3 x 24W T5 pendant with GroLuxe, LifeGlo II, 10.000K). I felt that this was the perfect light for a medium light setup and more than adequate for the plant species I intend to use.

I'm a strong believer that an aquarium is more than a fixture inside a home. An aquarium, especially a planted one, offers the chance to bring a slice of nature into the confines of a home. A rimless tank and its associate glassware helps

provide a clean look to the home and aquarium. For this reason, I decided to use the Flo brand of Glass intake/outlet pipes, a nanopollen glass diffuser, and a Rhinox glass beetle counter. A Ferplast professional CO₂ pressure reducer, automatic fertilizer system, and a glass CO₂ Dropchecker would round out the technical equipment to begin my aquarium.

An old trick to get the bacterial colonies started in a new setup is to add a handful of old substrate and mulm from a running tank to your new substrate. I applied this "live bacteria" to substrate and hardscape which consists of ADA Power Sand Special, ADA Aqua Soil Amazonia II, ADA Bright Sand, Mini Landscape Rocks, Mangrove roots, and Lava rocks (Fuji stones). Throughout

the scape, I will use Rexolin micronutrients powder to fertilize the aquatic plants.

Choosing the Plants

The plant selection for this tank will be kept simple with mainly mosses: *Taxiphyllum barbieri*, *Taxiphyllum* sp. "Peacock", *Microsorium pteropus* "Narrow", *Echinodorus tenellus*, *Didiplis diandra*.

Let's Get Started

There are many ways to setup a tank. With these slow growing species, I am able to adjust my tank as I work on it. I prefer this method since it gives me a lot of time to work on the hardscape, sit back and consider the placement again and again.

Developing the Hardscape

You start by placing a piece of cardboard as a protective measure between the rock and the glass. As you decide where to place your stones, the cardboard will protect the tank from scratches when you move them around. Remember to take out the cardboard before you fill up the tank. As you are designing, remember to also leave space for the plants in the back. Take a step back and don't overuse the rocks.

When you have achieved the "right" visual placement of rocks, it's time to cut a piece of cardboard, to use as a border between the sand and the substrate. This will help keep the two separated. Based on the placement of the rocks, you can decide where the sand/substrate border should be.

Driftwood Placement

Next, you place the driftwood. This is the trickiest part and you may have to cut some parts of your driftwood so that they can fit the right place. Again, remember to leave space for the plants.

Photograph Your Tank Before You Empty It

For both rocks and driftwood – it is important to have sufficient amounts, so that you have a lot to decide from.

Now here's a trick: take a photograph of your hardscape arrangement before you take them out. Remember to take the rocks and driftwood up and place them on a table as they were placed in the tank. Be structured. Empty the tank.



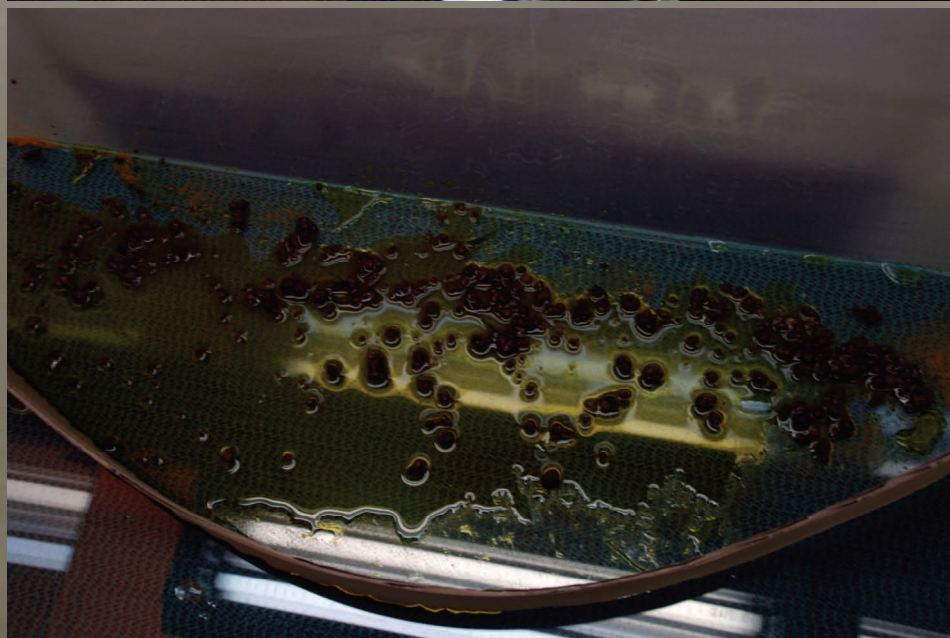
Tape the Cardboard

Now place the cardboard in the tank, and attach it with some tape on the sides of the tank. This will help keep the cardboard in a curved shape, while you set the stage for the substrate.



Sprinkle Micronutrients

Sprinkle micronutrients on the bottom along with some used substrate and mulm from another tank. This will give your substrate a lot of bacteria, so it will evolve faster, and provide enough nutrients for the plants to use.



Add Aqua Soil and Sand

On top of that, add a layer of Power Sand special and a thick layer of Aqua Soil. Finally add the bright sand in the front and use a substrate flattener to level out the Aqua Soil and the sand so that they give a nice slope and a little convex shape.



Remove Cardboard Separator

Remove the cardboard and carefully level out the difference between the sand and the Aqua Soil.



Insert Rocks

Now we place the rocks back in the tank. Press them down a little so the rocks look like they stick out of the sand.



Wrap Moss on Driftwood

Cover the driftwood with *Taxiphyllum barbieri*, and wrap some cotton string around the fronds very tightly. The tied down moss will be held directly in place by the string as it grows out from the wood. Over time, the string will be hidden by the new moss fronds or dissolve into the water. Remember to leave areas on the driftwood without moss because you want the viewer to see some of the wood too. Use the tiny cracks on your driftwood and stick bits of moss in those holes. The moss will grow out and creep along the driftwood very slowly and naturally. The effect is very nice, but it does require a lot of time for the moss to develop completely over the wood.



Wrap Moss around Rocks

I used *Taxiphyllum sp.* "Peacock" wrapped around small lava rocks (Fuji rocks), placed it in the holes and on the sides of the driftwood. This moss is more branchy than other *Taxiphyllum sp.* and grows moderately fast. As the scape develops, I hope a contrast will develop between the moss on the rocks and the moss on the driftwood. I trim and shape the mosses so that this contrast will develop.

When the moss grows too large, you can simply take out the stones, remove the moss and reattach it again. I have not seen this moss attach itself to the surface on these rocks as *T. barbieri* does, but maybe it just needs another trimming technique.

Attach Ferns to Driftwood

Attach the ferns to the driftwood – you can use the cotton strings used for the moss, or a plastic wrapped wire (like ADA Wood Tight). I use the ferns as primary focal points, so when they grow bigger, they should be trimmed to fit perfectly into these spots. For now, I just attach them where I find it easy for them to grow.

Fill slightly and then plant

Fill the tank a little so that the substrate gets wet, but not under water. Now, it's time to plant the *E. tenellus* along the sides, and the *Didiplis* in the middle.





Fill the tank Slowly

The *E. tenellus* and *Didiplis* will support the convex design and give color to the layout. They will be easy to trim into rounded shapes. After many trimmings, the *Didiplis* will hopefully make a nice reddish bush, in contrast to the light green ferns.

Finally, I fill the tank carefully with water and connect the filter and CO₂.

Now we wait

For the next three weeks, I will do 50% water changes every other day to remove the ammonia from the substrate. I will also begin dosing both macro and micro fertilizer after water change. I will monitor CO₂ with the CO₂ drop checker, and add 2mL Easy Carbo (Excel) every day, to keep algae from appearing (I hope).

As the *Didiplis* reaches the surface, I will trim them down to half length. I will also trim the moss by hand. Remember to remove all loose moss from the aquarium after a trim or it will get into your equipment, plants and other parts of your aquarium.

When I think of this tank's future development, one of the goals with this tank is to make sure each plant complements each other as the overall

aquascape develops. I will carefully observe the slow growth of the ferns, and the faster growth of the stems of *Didiplis* and trim each as need. The moss will spread evenly and at a moderate speed. In the end, these three plants will form a cohesive and balanced aquascape. 🌍



Aquascape

Su



ape In Focus

Sunny Grassland

An Interview with William Ng

Our aquascape in focus this month features William Ng's Sunny Grassland. The hardscape here speaks for itself, with a strong presence throughout the layout. The varying colors of the background, which represent morning, noon and the setting sun is accomplished in a unique way. Read more to discover how William Ng does it.

Q: William, please tell us about yourself.

A: I am William Ng and I am 32 years old. Currently, I am working as a senior research and development engineer at a life science instrument company. Apart from planted tanks, I play table tennis and watch football during my free time.

I like Iwagumi aquascaping due to their simplicity. Iwagumi aquascaping focuses on rock formations and simple ground cover plants. It makes me feel calm and relaxed. Like most aquascapers, I admire the work of Mr. Takashi Amano. I feel he is the best aquascaper I have seen and the works he creates are simply amazing. Every single aquascape he's created has never failed to impress me.

Q: What is it like to live in Singapore, a culture that is rich in planted aquariums nearly everywhere?

A: Well, Singapore is a small country, but I think we have over eighty-five aquarium shops located all over Singapore. It is easy and accessible to travel around in Singapore, so we can get our aquarium supplies easily from almost everywhere. Alternatively, it is easy to order online and have the stuff delivered to your doorstep, too.

Singapore is a tropical country, so the weather is pretty hot (30-35°C) and humid throughout the year. The heat and humidity creates a challenge that most aquascapers face, since most plants grow better in cooler water. Fish are generally more affordable here, judging from the prices of Cardinal tetras in Europe and the U.S.

In Singapore, I am not aware of any unique aquascaping style created locally. However, I feel we get most of our inspiration



William Ng stands next to his 50 liter aquascape, *Sunny Grassland*.

from the Japanese Zen style and most of us improvise to create our own aquascape. I have seen a couple of great aquascaping layouts around Singapore but one particular tank I saw a few years back caught my attention. It was a huge planted tank (approx 8 – 10 ft) that housed a full grown arowana. The overall feel is nice and simple yet blends very well with a huge elegant fish.

Even though we have many stores, one problem I face personally is the availability of nice rocks. It is not easy to get suitable materials to create Iwagumi aquascape, therefore finding rocks of the right type, size and shape is a challenge.

Q: When did you get started in planted aquariums?

A: Well, I started my first four foot planted tank in 2004 with the objective of growing aquatic plants. I bought some plants from the local stores with a mindset of growing them without any particular aquascape in mind. I continued this for the next three years and over this period I successfully managed to learn

everything I could about aquarium plants. However, I didn't really improve much in terms of aquascaping. That was my next task.

In 2007, I decided to change my approach and start all over again. I wanted to understand the fundamentals of aquascaping and its approach before I started laying out my new planted tank. I researched and admired different aquascaped aquariums, and before long, I decided to go into smaller tanks.

With the focus on the aquascape this time around, I spent the next few months sourcing layout materials before I began working on "Sunny Grassland" in Dec 2007. This is my first real aquascape and my first experience in international contest (ADA 2008). I created an Iwagumi style tank that looks simple yet able to give me a feeling of calm and harmony.

Q: What inspired the creation of Sunny Grassland?

A: My aquascape "Sunny Grassland" is not created based on any specific inspiration. I was

on a flight back to Singapore when I saw a picture of mountainous grassland inside a magazine. I thought why not create something similar. At that time, I only had a very vague idea, but did not really know exactly what I wanted to do.

After some consideration, I knew I needed a huge rock to create a mountainous effect. This rock would be the main focus of my tank. Initially, my plan was to get a big Seiryu rock as my main stone. After some intensive searching, I could not find a suitable rock, thus, I settled on Okho rocks.

Looking at the bright side, Okho rocks are very brittle so they are easily shaped or broken into smaller pieces if needed. I used a large Okho stone as my main stone, and a smaller piece as its complimentary stone. Three additional smaller stones are placed near the main stone to make the scape look more natural.

For *Sunny Grassland*, I wanted to create an impression similar to what we see during sunrise. Therefore, I needed to choose a plant suitable for this scape.

Q: How did you choose your plant and fauna species for *Sunny Grassland*?

A: For this aquarium layout, I decided to use *Echinodorus tenellus*, since this plant stays short and grows quickly, making it an excellent lawn plant. Under strong lights and sufficient iron dosage, *Echinodorus tenellus* leaves will turn reddish. This is ideal since the contrast between thenn and red leaves reflects the colors cast on a landscape during sunrise.

I trim my plants when I feel they start to grow too untidy or too tall for my liking. Most of the time, I will trim the *Echinodorus tenellus* by cutting the top. I will trim the runners occasionally to thin down certain areas. After

trimming, I dose with ADA Green Gain, as it contains trace elements and minerals that can help the plants recover.

As for fish, I chose them based on their size. I felt a maximum size of about 2cm in length would be most suitable for this scape as they make the tank look bigger. The species *Hyphessobrycon amandae* fit this characteristic and their orange/red colors contrasted well with my blue background and the green plants.

My good friend, who is a breeder of *Cardinal sp.*, also gave me fifteen quality (solid stripes) shrimps to compliment my fauna. It is nice to see some shrimps crawling on the rocks and plants.

Q: Your aquascape has been setup for nearly eight months. Did you have any algae problems during that time?

A: Yes, the tank was setup in December of last year. I did have



William Ng uses a large Okho rock as the main center piece in a grassy field of *Echinodorus tenellus*.



The vibrant red colors of the school of *Hyphessobrycon amandae* add life and movement to the aquascape. The school contrasts well with the blue background and the rich green in the grassy field.

my fair share of algae problem as I like to use fertile soil and strong lights. The first four weeks seemed pretty fine as I started with low lighting hours before I gradually increased to a full eight hours lighting regime. I was away from home for the next 4 weeks and when I returned, my tank's walls and rocks were infested with green dust algae.

I removed and scraped most of the algae off and then did a 50% water change. I dosed a double dosage of *Seachem Excel* for a short period thereafter. I also restarted my normal fertilization regime and then reduced my lighting hours to my current regime (4 hours on, 2 hours off, 2 hours on).

With these changes in place, algae disappeared, and plants were growing well. I believe a healthy tank can keep algae away.

Q: How do you create the colorful background and sunset like you have? How did you achieve the ripple effect on the surface of the water?

A: I don't have a permanent background for my tank. This gives me flexibility as I use cardboards of different colors to provide different effects. For my current setup, I have chosen a light blue background. I have tried a white background and an orange background, but none seemed to provide the kind of effect I wanted. I placed a fluorescent tube between the background and my tank wall to make the background look more prominent. This also creates a brighter effect at the top of the background, mimicking the sun's rays.

The ripple effects can be created either by using a fan or a hair dryer to blow directly on the water surface. Different effects can be achieved by adjusting the

height and angle of the hair dryer to create different ripple effects.

Q: This 45 cm tank seems so large. How did you create such a well defined depth?

A: Some of my friends ask me about the *Echinodorus tenellus*. They thought I was using one taller species for my background and a shorter one for my foreground. In fact, I am using the same for both. My slope at the back of my tank is about 12-14cm on the left, whereas the front is only about 3-4cm thick.

Personally, I prefer a thicker substrate at the back, preferably three to four times thicker than the front, in order to create more depth.

Q: What are some of your favorite aquascapes that you've done in the past?

A: I have done a few planted tanks in the past, but I don't have a favorite because they're still in the process of growing. Additionally, my photography skills are horrible, so I didn't keep any of the photographs.

"*Sunny Grassland*" is my favorite tank so far. It is the one that I entered the ADA 2008 competition with. It is the first tank I've ever entered into a competition. I saw a lot of great aquascaping entries in last year's ADA contest. I think the 2008 entries will be similar and will be dominated by aquascapers from Japan & Hong Kong. To me, the ranking is not important as there are many better aquascapers than myself. Every participant is always trying to improve and create a breakthrough. I simply enjoy the process of putting my creativity into practice and it is great to learn from fellow aquascapers. This hobby allows me to make lots of friends, not just locally, but globally.

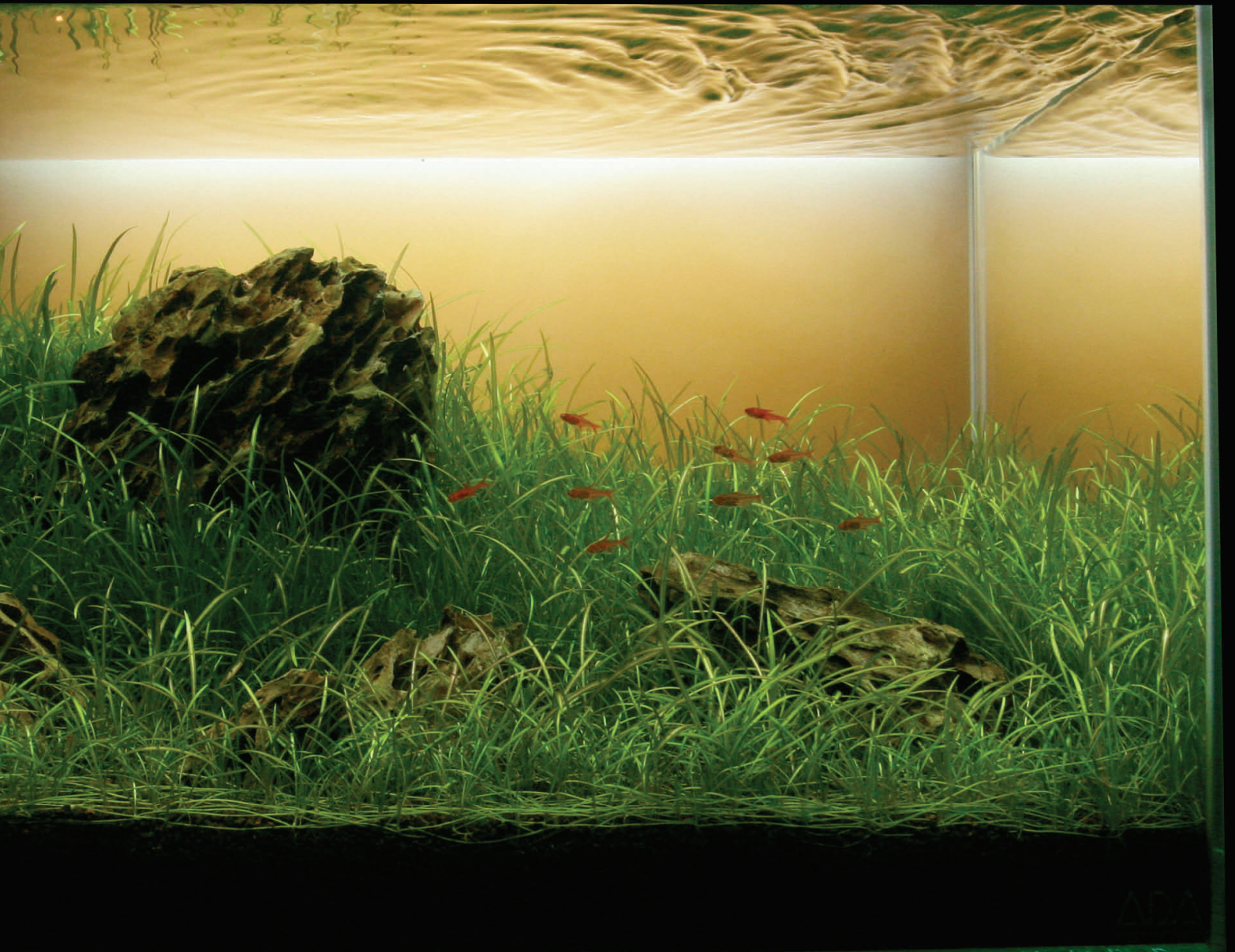
Q: William, what do you look forward to doing next in the hobby?

A: I hope I can continue to improve my aquascaping skills as well as create a few more new projects. My 45cm ADA tank will still be my main focus as I feel this is a good size to work with. I am planning to start working on a new scape. Right now, I am thinking of new ideas and checking for the availability of materials.

Personally, I like nano tanks so I am keen to explore these options. I always feel it is interesting to see an aquascape inside these small tanks, so I am planning to start my own nano project. I recently found a suitable tank, but finding good lighting fixtures for it has been a challenge. I hope to make it compact and less power consuming.

Lastly, I hope the aquascapers here in Singapore get together more often to learn and exchange ideas from one another. We do have a good forum (www.aquaticquotient.com) where people exchange ideas, knowledge and learn from each other. Personally, I feel we have some good aquascapers in Singapore. However, I feel we need to have more face to face gatherings to get some hands-on experience, and push our hobby further. 🌍





The sunrise effect background is created by strategically placing orange poster board behind the aquarium, and using the fixture light to cast shadows.



An extra fluorescent fixture on this white background scene helps capture additional shadows and provides texture to the background of the aquascape.





Sunny Grassland

Dimensions: 48x27x30cm

Volume: 50 liters

Light: 2 x 24W T5HO

Photoperiod: 4hrs on, 2 hours off, 2 hours on

Substrate: Aqua Soil Amazonia II, Power sand special S, Tourmaline BC, Penac W, Penac P

Fertilization: ADA Step 2, Brighty K, Green Gain, ECA, Phytton Git

CO₂: Pressurized with ceramic CO₂ diffuser at approx 2 bubbles per second

Plant List

Echinodorus tenellus

Fauna

Hyphessobrycon amandae

Cardinal sp.



Fish Profile

The Bristlenose Ple



Photo By Yhbae

costomus

By Aziz Dhanani



The Albino Bristlenose Pleco is a fish that is arguably an intriguing fish for the planted aquarium. I currently have an Albino Bristlenose Pleco in my 40 gallon planted tank and must say that it has become my favorite fish. Despite its size and appearance, it exhibits a peaceful nature and is quite animated in behaviour. On a daily basis, I often see the rest of my fish in my 40 gallon constantly chase one another. The Kribensis female cichlid constantly chases the male Kribensis away and the male often goes into hiding to avoid being battered. My Siamese Algae Eater will often give the black skirt tetras chase. Fortunately, there are three black skirt tetras, so the Siamese Algae Eater finds that s/he is only able to chase one black skirt tetra at a time. It gives the other two a rest period until it is their turn to play “chase”. Among all this chaos and turmoil, the only fish that seems to keep to itself and not bother any other fish is my Albino Bristlenose Pleco. What is even more interesting is that I have yet to see the Albino Bristlenose Pleco become the target of attack by any other fish.

I was so intrigued by the Albino Bristlenose Pleco I chose this Pleco to focus my next article on. The information in this article is not new and is gleaned from various sources off the internet. I have also added some

information based on my experience. The main purpose of this article is to provide information about the Albino Bristlenose Pleco that individuals would find helpful in caring for this fish. Those considering purchasing this fish may also benefit from this information.

In the wild the Albino Bristlenose Pleco is found in South America, specifically the Amazon River Basin. Obviously the ones that you purchase locally are bred and sold locally distributed to pet stores. While this pleco can grow up to five inches, it usually does not exceed three inches. This makes them an ideal addition to smaller tanks.

Fish Capability

As far as compatibility goes, the Albino Bristlenose Pleco is compatible with small and medium sized fish and problems are only known to arise when placed with other plecos or males of the same species. This apparently brings out their territorial nature. Although I cannot confirm, it is said that African Cichlids like to eat the eyeballs from common plecos, so I would probably err on the side

of caution and not put an Albino Bristlenose Pleco in the same tank as an African Cichlid. Interestingly as a defense mechanism, the Bristlenose is known to have stabbers which can injure fish that try and attack it. The Bristlenose is not as defenseless as it may appear.

Are they Plant Safe?

For most readers of this article who maintain planted tanks, a pertinent question maybe "Are these fish destructive to plants?" These fish are known to scrape algae off plant leaves, but some articles cite these fish may damage fine and delicate leaved plants such as Amazon Sword Plants. Therefore it may not be a good idea to place these fish in a planted tank where you hope to preserve such plants. Based on my own personal experience, I have not witnessed my Bristlenose Pleco eat or destroy any of my plants in my 40 gallon, not even the fine leaved java fern. Although I cannot say for sure why this may be, the fact that I keep my pleco well fed and give him some driftwood to chew on may explain this.

General Requirements

The Albino Bristlenose Pleco does not need special care but there are some minimal requirements that must be met. Plecos prefer a water temperature of 76-80 degrees Fahrenheit, a pH of 6.5 to 7.6 (but some have kept them in pH as high as 8.6), and low nitrates. This fish prefers a lot of hiding places and it is recommended that you provide caves for them to hide. These caves can be made from flower pots or large pvc pipes. A densely planted tank is also recommended to provide hiding places for this pleco.

Frequent water changes are recommended as part of caring for these fish. I change 40-50% of my tank water weekly, largely owing to the fact that I employ Tom Barr's Estimative Index method of fertilization for my planted tank and such water changes are necessary to prevent an excessive buildup of fertilizers. Weekly water changes also have the benefit of removing excess waste that plecos are known to produce. If your preference is to do minimal water changes (once a month), then it may not be a good idea to keep these fish. A heavily planted tank can also aid in partially compensating for any negative effects of high waste levels that these fish can produce. However, I would not recommend this in lieu of or in substitution of regular water changes. Also, since these fish are said to be sensitive to high nitrates, I would not place them in a tank that is undergoing cycling, especially if the tank is unplanted.

Feeding

As far as feeding goes, this pleco loves blanched zucchini, french cut green-beans, kale, romaine lettuce, green peas, spirulina and algae wafer disks. I feed my pleco a piece of cut



Photo By Dylan Lane



Photo By Brad Young

zucchini that has been in the microwave for one minute. S/he absolutely loves it and will patiently wait in the corner of the tank for the zucchini on a regular basis. S/he seems to almost know the exact time and location where the zucchini will be placed and patiently waits for it. One pet store employee once told me that he fed his Bristlenose Pleco, raw potato slices and the pleco would devour it in no time. I had no such luck.

As I mentioned earlier, driftwood is a good idea to have in an aquarium with a pleco. The pleco will chew on the driftwood containing lignin and cellulose which are important nutrients and needed by this pleco species for healthy digestion. I find that my pleco spends a significant amount of time attached to a piece of driftwood in the tank. S/he is either chewing on the driftwood for the daily dose of lignin and cellulose or it enjoys the sense of security that s/he may feel from laying on the driftwood.

Breeding Conditions

For anyone thinking about breeding Bristlenose Plecos, there are some requirements that



must be met to ensure success. A large tank, likely 55 gallon or more should be considered with several hiding places and caves placed inside. Once the male and female bristlenose pleco pair off, they will spend time together in their chosen cave and the female may lay 20-50 eggs. The male will tend the eggs and protect them until they hatch 3-6 days after they are laid. Once the eggs hatch, the fry will not immediately swim around but will remain attached to large egg sacks, which they will use as a nutrient source. Once the egg sack is absorbed, the fry will freely swim around. At that point, it is recommended, to separate the father and the cave. Feed the fry brineshrimp, microworms, and fine vegetable matter. Perform partial water changes 2-3 times per week to keep the water parameters in optimal

clean conditions. The fry can be placed in a regular community tank once they are one inch long.

I hope that this information inspires your interest in the Bristlenose Pleco. My experience with the Bristlenose Pleco has been nothing but positive and I have found little if anything negative about this fish in the literature. 🐟

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