Liquid

02
2013

NATURAQUARIEN
NATURE AQUARIUM EN
MEANDRY AKWARYSTYKI

All about
The**Virgin**Stream

Aquascaper in focus
Piotr**Dymowski**

Step by step
Choosing**Lighting**

Test and reviews
Eheim **Reeflex**UV

Are they all the same?
Scissors

peHa:68

Nature Aquarium Studio

Store and Aquascaping Studio

Like us on facebook

peHa:68

Ogrodowa 39/41 lok P1
00-873 Warsaw, Poland

http://peha68.pl
biuro@peha68.pl

mo-fr: 11-19
sat : 10-16

In this issue

XII Targi i Wystawa Zoologiczno-Botaniczna

ZOO-BOTANICA

• WYSTAWY I KONKURSY AKWARYSTYCZNE I TERRARYSTYCZNE
• FESTIWAL PSA I KOTA • KONKURSY DLA ODWIEDZAJĄCYCH
• PROFESJONALNE WYKŁADY • IV OTWARTE MISTRZOSTWA KREWETEK

13-15 WRZEŚNIA 2013

HALA STULECIA, WROCŁAW

www.wigor-targi.com

www.facebook.com/ZooBotanica

Organizator:
Agencja Reklamowa Wigor, ul. Sokolnicza 34-38, 53-660 Wrocław,
tel./fax: +48 71 359 62 71, e-mail: office@wigor-targi.com

Sponsor wiodący:

Tropical®

Patroni i Partnerzy:

Liquid

Word from the editor

Liquid team


DariuszMaśniak


KrzysztofOtrząsek


NorbertSabat


MarcinWnuk


RobertKujawa

Here we meet again after a break longer than planned. The popularity of the first issue was very pleasant on the one hand, but required us to prepare the English and German version on the other, which influenced the date of release for this issue.

We are glad to welcome new faces among the staff: Robert Kujawa and Jörg Buhlmann. We should really be talking about three people. This issue features an article by Piotr Bęczyński who shares his experiences with growing Mini-Pellia. I hope that his presence is not a one-time affair and we are looking forward to more of his editorials.

As a reference to the branches of aquaristics, we would recommend an interview with Piotr Dymowski. He talks about several observations regarding non-mainstream nature aquarium trends, giving them a wider context, more than "underwater landscaping". We are looking forward to expanding on this matter in future issues.

We were also hoping to give you a special report, but did not deliver.

We had the chance and pleasure to accompany Piotr Dymowski in his trip to Pet Fair in Łódź, where he was working as a member of the jury for the aquarium contest called "Yellow Submarine". On site however, we found that the contest was the only bright point of the fair, at least as far as aquariums are concerned. Another exposition yielded yet another surprise. If only this meant a positive surprise.

As far as the contest is concerned, we would like to take this opportunity and thank Małgosia Tarczyńska for her involvement in the process of organizing the event. Perhaps we are looking at the opportunity to give a better community support and make this contest a yearly event; and not another one shot effort. This could be a venue for a yearly meet-up, as Piotr Dymowski mentioned and longed for.

All things aside, our congratulations go to the contest's winners and we declare our full support for this initiative in the future.

Enjoy reading.

Piotr Dymowski

The VirginStream

Aquarium

Size :
120x60x50cm
Gross volume :
360 l
Glass :
Optiwhite 12mm
Started on :
2011.10.10
Photo taken:
2012.03.12

Lighting

Fixtures :
6x T5 54W
Tubes :
4 x Philips TLD 865
2 x Arcadia Plant Pro
Lighting period :
9 h

Filtration and Heating

Filter :
Eheim 2228
Eheim 2226
Media :
Eheim Substrate Pro
Sponge
Eheim Ehfimech
Glass Pipes :
Gush oPipe 13
Gush gPipe 17
Heating :
None

Substrate and deco

Bottom layer :
- Ferka Aquabase

Substrate :
- Aquatic Nature Pro-Soil
- ADA Amazonia

Sand :
- Filtus

Stones :
- ADA Manten Stone

Driftwood :
- Red Moor Wood

Fertilisation and CO_2

Liquid ferts :
- Ferka Aquashade
- Ferka Aquatilizer
- Ferka Balance-N
- Ferka Balance-K
- Ferka Stemma
- Ferka Rosetta

CO_2 :
- CO_2 1,5kg bottle
- Regulator CO_2
- Solenoid
- Diffiser

Plant and fish

Plants :
- Anubias Petite
- Hydrocothyle sp Japan
- Microsorum pteropus mini
- Peacock moss
- Rotala indica
- Staurogyne repens
- Taiwan moss

Fishes and shrimps :
- Rasbora hengeli
- Caridina multidentata

Anubias Petite

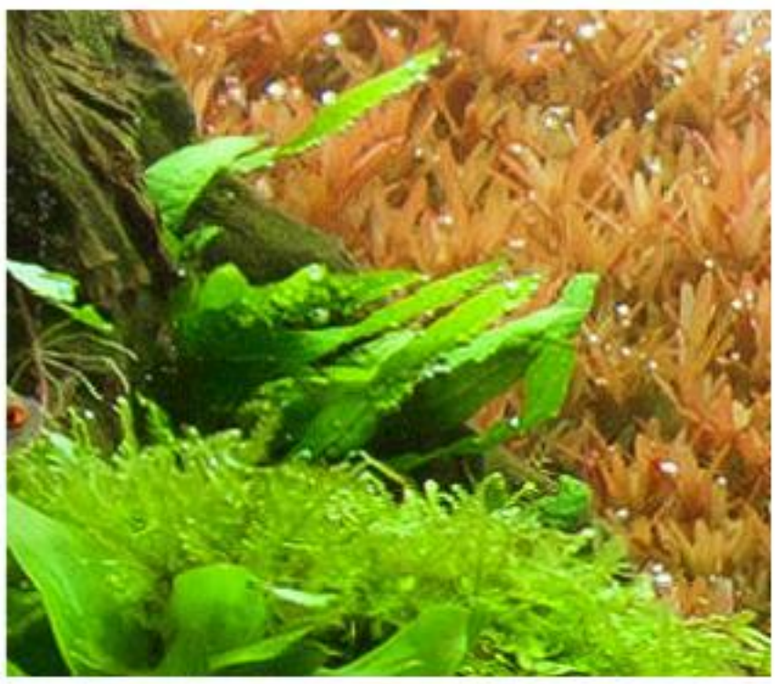
Light : Low
Growth rate : Slow
Origin : Undefined
Requirements : Low
Temperature : 20 to 30 C
Height : to 5 cm
CO2 : No

The plant also known as Anubias nana mini. Slow growing plant with dark green, stiff leaves growing out of a rigid rhizomes. Propagation by division of rhizomes. The plant is well suited for growing on the roots and rocks. When planting in the ground to avoid filling rhizomes. Plant recommended for beginners.

Rotala indica

Light : Average - Strong
Growth rate : Fast
Origin : Asia
Requirements : Moderate
Temperature : 20 to 28 C
Height : to 40-50 cm
CO2 : yes

The plant is very similar to Rotala rotundifolia, but its leaves have a lush red color in good conditions. Looks best planted in dense clumps. Its growth rate makes it needs to be trim very often. Ideal for the third plan.



Microsorum pteropus mini

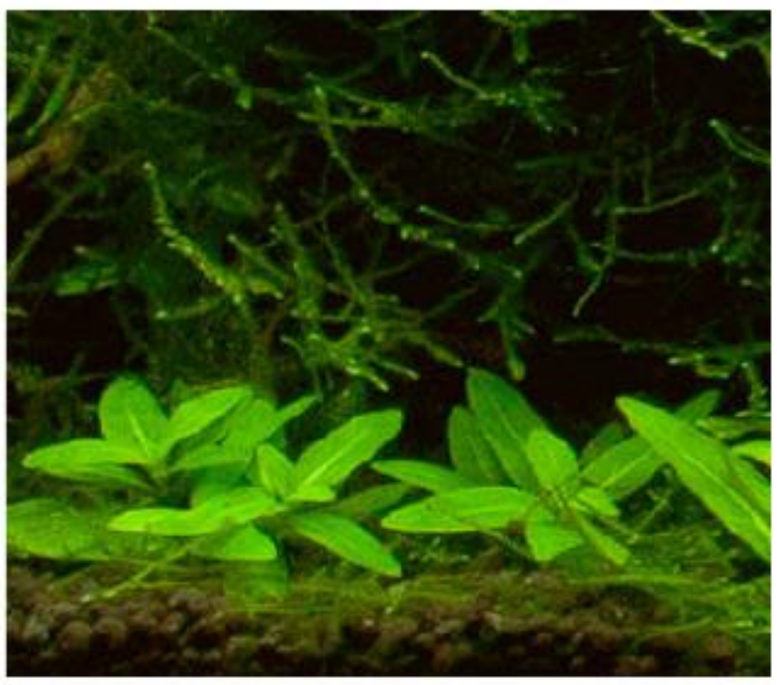
Light : Low - Average
Growth rate : Slow - Moderate
Origin : Asia
Requirements : Low
Temperature : 18 to 30 C
Height : from 5 to 10 cm
CO2 : No

One of the smallest Microsorium. The leaves are up to 10 cm, with a luscious green color. Shape resembles leaves of Microsorium Pteropus. The plant is perfect to small tanks such as nano aquariums, where can be planted on rocks and roots. Propagation by division of rhizomes. Plant recommended for beginners.

Hydrocotyle sp. Japan

Light : Moderate
Growth rate : Fast
Origin : Asia, Australia
Requirements : Average
Temperature : 20 to 28 C
Height : 5 cm
CO2 : yes

The plant is also known as Hydrocotyle tripartita. Its origin is Southeast Asia. Hydrocotyle is characterized by fast growth and bright green color. It spreads via runners, from which little leaves grow on vertical stems. Under good conditions it forms a carpet. Unchecked growth may lead to Hydrocotyle covering all decoration and stunt other plants' growth.



Staurogyne repens

Light : Low - Average
Growth rate : Average
Origin : Brasil
Requirements : Average
Temperature : 20 to 26 C
Height : from 3 to 10 cm
CO2 : Yes

Plant with rigid stem and thick lush leaves with dark green color. Well kept forms dense clumps. Common trimming plant helps compact. Recommended for nano aquariums and for beginners.

Taiwan moss

Light : Low
Growth rate : Slow - Moderate
Origin : Taiwan
Requirements : Low
Temperatura : 10 to 29 C
Height : to 3-5 cm
CO2 : No

Moss also known as Taxiphyllum alternans is dense with dark green color. Easy to grow, ideally suited for aquariums of all sizes. Best for planting on the roots and rocks attaching by a thin fishing line or thread. Be sure to frequent trimming. Failure to do will result in decay and disappearance the bottom layers of moss from the substrate to which it is attached.

Peacock moss

Light : Low
Growth rate : Slow
Origin : Undefined
Requirements : Low
Temperature : 15 to 30 C
Height : to 3 - 5 cm
CO2 : No

Moss also known as Spiky moss, is lighter than the Taiwan moss. Feels Best at about 25 degrees. It is dense and soft. Recommended for shrimps.

ELOS

PrimaExpertLine

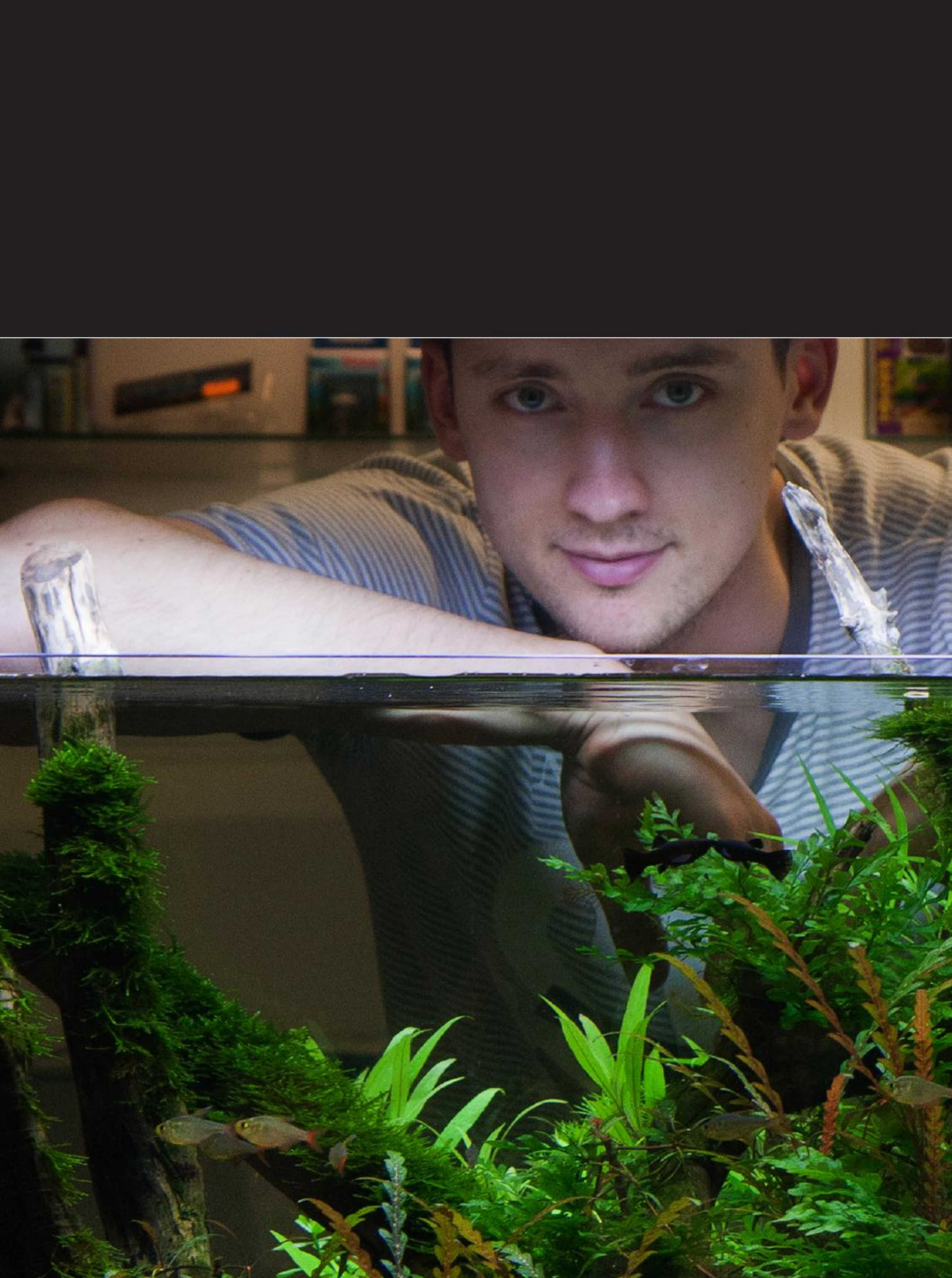
Built to be simple to use
Efficient and Elegant...
A master piece of design!

A full range of products for
Marine and **Freshwater**

ELOS

Made in ITALY

elos.eu



Aquascaper in focus

PiotrDymowski

Aquascaper in focus

PiotrDymowski

In the previous issue we presented Norbert Sabat, who is one of the founding fathers of nature aquascaping in Poland. Piotr, you represent the next generation.

For me, and I'm sure for many nature aquarium enthusiasts, Takashi Amano is the founding father. His works, magazines, ideas and his talent directly influenced mine. But if we're talking about "nature aquarium" in Poland, then yes: Norbert was such persona. His website and its contents inspired me from the very beginning and propelled my creativity. Of course, we have to recognize the input of other people who "imported" natural aquariums from Japan to Poland and were the first to present Mr. Amano's designs at Polish websites. I mean such people as Adam Paszczela, Grzegorz Guzik and the above mentioned Norbert Sabat. Personally, I encountered nature aquarium for the first time while browsing Polish forums, where I saw pictures taken by Mr. Amano. Right away I knew this was something amazing. I knew it was the aim I would be trying to achieve.

The difference between generations can be seen in the way a layout is created. The precursors seemed to be strongly attached to the classic rules and guidelines. Your works show different layout dynamics, more flexibility and uncompromising approach to the "means of expression".

I don't see it that way. If you have a look at the works by our Asian colleagues, both older and younger, you won't see those differences. I think what we're really talking about is the individual approach to what you want to achieve. I always assume that whatever I do, it needs to be unique and different. I don't enjoy copying ideas. Creating the same layouts over and over again, following the rules set by the general "nature aquarium" trend, traps us in a bubble. The bubble must burst, so we can step out of it. That being said, I don't find the development of aquascaping in Poland par-

2012 | 120x60x50cm

ticularly dynamic. There are several promising personas, but we came to a stop some years ago, when compared to our western neighbors... I blame the recurring layout motives that ceased to motivate due to being overused. They can even demotivate young aquascapers. Innovative layouts that break the rules stimulate creativity and can push you to action. They are also a means of self-fulfillment, if the design is recognized internationally.

This approach contributed to your recognition. Do you think we'll be talking about a "Dymowski's style" in the future?

It's hard to talk a particular style... Surely, we can talk about several layouts featuring the perfectly trimmed and colored rotalas, but I'm trying to step away from them and release my creativity in other projects. They are supposed to show the nature aquarium from different perspectives, ranging from rocky beaches to primarily minimalist designs. I'm not trying to work out any individual style.

What about an aquascaper's everyday life? Looking at your workshop, I can't say your equipment is well maintained. The notched aquarium panes, the CO2 canister leaning in a corner, worn light fixtures...

Yep, that's very accurate. To make matters worse let me tell you this: I haven't changed my fluorescent tubes in years (laughing).
I don't really have the time and no intention to get excited about all the surrounding equipment or the expensive gadgets. I'd rather focus on

a perfect execution of a layout, because it is my signature in the World. At home, the equipment is secondary. You're being evaluated on the basis of your achievements and layouts, and not your possessions. Someone once asked me if my aquariums live from a photo shoot to a photo shoot. No, they don't. I try to make them look appealing all the time. Actually, the fact that I can't observe a tank's development for more than a year, is not that bad. I would find it terribly boring. In order to create something new, once the final photo is taken, I tear down the layout to make room for a new one. But beside my contest entries, I also design layouts for my clients. My layouts can be seen publicly in peHa:68 studio at Ogrodowa and Diskus Zoo at Radzymińska. I think they came out well. I don't do the maintenance anymore, so their current condition isn't my doing, but I'm very pleased with them nonetheless. It's a kind of my own gallery; perhaps I'll have one someday.

How many contest layouts do you design yearly?

Sometimes it's just one tank a year; sometimes it's three (last year). It depends on the ideas I have and what nice hardscape materials I find. The creation of 3 layouts that enter the international TOP50 in two years isn't any kind of coincidence. This keeps me motivated with double force, as I feel that more is expected of me than just a nice and neat layout.
Every year bumps the bar.

Can we be talking about the

2011 | 120x60x50cm

Polish Oliver Knott?

I think we're completely different people, who represent dramatically different approaches to this trade. Unfortunately, commercial tanks are copies of something that has been done before, although I always try to create something unique and meet the owner's needs. As far as templates are concerned, we all know that even Mr. Amano has some layouts similar to one another in his gallery. Is that a drawback? I think it's not.

Let's talk about contests... Lately, your presence in them has been strengthened. Do you long for something more spectacular than last year IAPLC's 20th ranking?

Contests are the cherry to top the cake. My work put into every layout gets its recognition. Of course I'm pleased that for some time now I had the privilege to triumph as Poland's representative. Previous years' rankings, being 20th, 33rd, 45th in the International Aquatic Plants Layout Contest (about 2000 entries) are surely very satisfying, no less than the 1st place in the AGA contest. The contest organized by ADA is probably the most prestigious in the World, so winning the GRAND PRIZE is every aquascaper's ultimate dream.

Did you watch the ceremony live? Or did you wait?

I couldn't go to sleep knowing that the results are being revealed. I was waiting patiently till the break of dawn. The website with live footage was being refreshed constantly as I didn't want to miss the

show and then it started... Introduction and then the Nature Aquarium Party hosts kept doing their thing for half an hour, meaning the introductions of the jury, discussing the contest's details before they moved to the apical moment. My throat was clenched. I wanted to hear my surname coming as the last one, which would mean winning, but it appeared at the 20th ranking. I think that's not bad, although the layout might have been ranked as the 5th just as well... the score differences among the top tanks were minute...

Did you get any calls with congratulations?

Yes, of course. I got some texts still that night and lots of congratulatory calls in the morning. It was a very pleasant experience. I hope it will happen again.

Encouraged by your 20th ranking, we had high hopes for your entry in the contest organized in Hannover. It is an entirely different affair, as the layouts are designed live.

Yes, that's right, the contest in Hannover is an entirely different story. You have to fit right in in order to participate. Preparations start several weeks before the contest. I bought a tank that had the same dimensions as the contest tanks in Hannover and started designing the hardscape. The hardscape layout alone is not enough. The jury pays a lot of attention to the plants, their condition and abundance. I took the liberty to start the tank at home with plants that shortly formed a nice composition. Moving the tank in untouched condition posed a problem

Part of layout for IAPLC 2013 | photo by Norbert Sabat

2010 | 120x60x50cm

but somehow I managed. The layout has been rebuilt on site, like puzzles. The entire contest is full of smiles and good relations between entrants. But the spirit of rivalry is in the air. This was an opportunity to meet the best aquascapers from Germany. I wish we had that kind of event, I would gladly participate in a competition like this. Unfortunately, there are more judges than entrants in Poland, perhaps they're afraid (laughing). I bet you'd like me to give you my opinion about the results. Taste is not subject to discussion, so I'll just say that the results were controversial and left me with ambiguous feelings.

By taking part is such contests, you have the opportunity to meet your competitors as people, not just signature under tank pictures.

It's great meeting people in real life, not just nicknames from forums. During my several visits to Hannover I've met the elite of the aquarium world there: Oliver Knott, Adrie Baumann, Chris Lukhaup and many others. They're really great people and you can see that they enjoy what they do, and they enjoy meeting one another. I have fond memories about Oliver Knott, who always creates a positive show around himself and his aquarium. We have a lot to learn from our western neighbors. We don't have a meeting, where everyone with no exceptions, without finding other things to do, would just come together, talk, laugh and spend quality time aquascaping. Pity...

One of the reasons for this state of affairs is the lack of a place and opportunity for a real meet up. There are mainly single initiatives. The reasons are probably very simple: the lack of funds – no stable sponsor. And the lack of teamwork in our aquascaping environment.

What's your opinion about the "Yellow Submarine"? Do you think it has a future?

The main motivator for action is the reward. The pricier the prizes the greater commotion a contest sparks. I wish more people wanted to do something together, meet in a nice company, talk, confront their skills and ultimately, promote nature aquariums to a greater extent. Many people who have a small aquarium at home, with a guppy and some pondweed, don't even realize that natural aquariums exist. The problem lies with promotion. That's all we need to make things speed up. The more people get hooked the greater are our possibilities.

The "Yellow Submarine" initiative is a good beginning to something that may come to fruition. It is a good direction for sure.

I had the opportunity to be the judge in this year's edition of the contest and I saw some interesting layouts. They weren't exactly international level but the direction is good. Let's be optimistic.

We discussed aquarium dreams, let's talk now about plans for future.

I want to keep creating and self-fulfill in what I do. Those are the plans for the immediate and distant future.

How do you see the future of nature aquariums? T. Amano broke many conventions in the ways we think about aquariums. He showed that an aquarium is something more than a tank with water, fish and plants. In his recent works, what used to be elevated substrate in order to lift the horizon of the layout and remedy the "flatness", has been raised almost to the water's surface.

I think that the openness of nature aquariums must evolve towards something that these days can be called an aquaterrarium. Nature aquarium has changed the way we think about aquariums, which were focused on keeping plants and fish. As the scope is broadened, and we move above the water, new possibilities and even greater means of expression arise.
I even got a commission to create a tank with a cascade, which will undoubtedly be a curiosity. It's nice that it was my client's idea. Together with Marcin Wnuk of peha:68 we took the challenge. A detailed description and photo shoot will be available online shortly.

We're discussing the future of nature aquariums, but as you mentioned earlier, there is little understanding what nature aquarium really is.

That's what I'm often asking myself: what is nature aquarium? We've got the Dutch style, which represents beautiful underwater gardens, where pretty plants function as decorations. Why isn't it called the natural style? Those are real plants after all, not plastic. To answer this question, let me go back a bit and give you some facts. Takashi Amano is the creator of nature aquarium, a well-known aquadesigner and photographer. According to him, Nature Aquarium is the recreation of a bit of natural landscape underwater, using plants, wood and/or stones. He backed it with his works. Tens of years passed since he

started creating, thousands of people followed. The style came under different influences over the years. Everyone has a different view on this art – it would be boring otherwise. These 5 cents that every aquascaper puts in through his or her creation, help us to define nature aquarium. Back to present day, I can just say that Nature Aquarium is everything that we create underwater, which was supposed to represent our view on nature.

Do you think that there's a chance to enter some kind of art gallery in Poland, like it was the case with Tate Modern in London? To cross the boundaries of the internet forums.

I wish I could! There's always a chance. You just need to want it.
It's a great idea; showing this art publicly. The opportunity to present the best underwater compositions in the form of an art exhibition, would surely broaden the group of hobbyists. That form of presentation is the best promotion imaginable.

The list of aquarium dreams grows. We would need a face for the next Muse, and it should be a female face…

It's going to be hard to find one… I guess.

As we're back to the point of designing a layout, we're going to have a section, where aquascapers advise newbies on the aquascaping techniques.

What can I say… Several years ago, when I was beginning to pick up aquascaping, I realized that hardscape is crucial. This is the skeleton, the foundations of the layout. I don't always think about a layout and then look for the decorations to create it with. I sometimes find very interesting elements and scape with them. It is vital that we're satisfied with the hardscape; it mustn't be a halfhearted effort. Creating a hardscape takes days, sometimes more than ten. I must get it perfect. Then comes the selection of plants. We need to take their specifics into consideration; they need to fill in the layout over time, exactly the way we planned.

It is like sculpturing in stone, where every hit with chisel reveals new info about what's inside. The final outcome is a creative compromise between what we originally wanted and the material structure itself.

Exactly. The layout's entire development, since the very first grains of sand to the fully grown garden, depends on us. Even if two people choose similar hardscape materials, the outcome is never the same. Individuality takes over.

What about inspiration?

It's everywhere, you just have to look.

...looking at "The Virgin Stream" I can't help but notice it is the Polish countryside with our willows.

The aquarium as is sends no message. It happens to be one of those tanks where I found some pieces of wood that went together well. And that wood has been wrapped with history... It's true that the "trees" look like willows, but notice how they lean together, which creates a natural feeling and is thought provoking. Paweł Szewczak, who's an expert on bonsai, could tell you more about it. There's the sunrise in the background, created with red rotalas, and there's the pristine stream flowing down the middle, untouched by a human hand. As

you can see there's some kind of story.

So the tank does send a message after all?

Well, it's always easy to write one (laughing).

Many people that dealt with aquascaping reach out to photography at some point. It's driven partly by the desire to capture the image of the tank, or the natural inspiration.

Many, if not all of them, take on photography in order to capture what is most beautiful in aquariums. It is also driven by the desire to share what they created. On the other hand, a true "orthodox" aquarist wouldn't share the photos of his tank. He would leave it for himself, in the quiet of his home, his very own bit of nature. Perhaps it is driven by the desire for self-fulfillment? The applause and compliments coming from others. It's hard to tell, but there's definitely something. There are some who take photos just for pleasure's sake. Take Norbert Sabat for example, who's passion for photography is on par with aquascaping and they're not tightly bound. Well, sometimes they are (laughing).

Does Nature Aquarium change the way we look at our surroundings?

It surely does. Perhaps it sounds a bit weird, but a conscious aquadesigner alters his way of looking at nature. They tend to think in reverse... while in the woods, at a lakeside or in the mountains, you can't help but think... "how beautiful"... it would be great to reproduce this in an aquarium. It is common and addicting. Every time I'm collecting mushrooms in a forest and see a trunk covered in moss, I think: "it would look great in an aquarium". I keep wondering how to replicate it, which materials should be used, what kind of fern, and what kind of driftwood. Why? Because all nature around us is the inspiration for Nature Aquarium. That's beautiful. You don't have to go to the Niigata gallery or a Japanese forest. Have a walk by the Vistula or the White Wilderness and you'll feel it. Let our inspiration be our own, not a copy of someone else's.

In the next issue, we're looking to start a new section inspired by Vitruvius' works, paraphrasing the title of his book: "The ten books of aquascaping". It would tackle the techniques, layout rules and space perception. What do you think about this idea?

Wonderful. From a beginner's point of view, who's trying to enter the field of natural aquaristics, this would be the perfect handbook. Currently there's a glaring lack of a complete tutorial, which would guide us through the rules, possibilities and problems inherent to this art. When looking at a beautiful aquascape, it's easy to feel great motivation, but after a while spent looking for information, it's easy to lose interest. That's why I consider this to be a great idea and will save many young artists from failure.

Thank you for your time, on our and the readers' behalf. May your name be read as the last one this year.

Thanks for having me. It was very nice and I feel awarded. Best of luck with the magazine. See you!

RERIE
C0 stainless INOX

Scissors

Are they all the same?

Scissors

Are they all the same?

What's the story with scissors? Stores offer a great variety of scissors of different kinds and lengths. Which is the most versatile kind? Which is the best choice for a given task?

Truth be told, if you're stubborn you can keep using some generic paper scissors that cost 1€. As time passes by, you'll find yourself using them every day to keep your plants in top condition. Really large trimming in a large tank can take a significant amount of time.

Long or short?

Contrary to common assumption, small scissors are quite hard to use in a small tank. A complicated layout may prevent you from putting your palm into the tank. In those circumstances, scissors that are 20-25cm long will work best. Such scissors are also convenient in tall or wide aquariums. They will make reaching the substrate or stems in the back easier. They also come in handy in hard to reach places between rocks or driftwood. Shorter scissors are great for maintaining plants in the front or in the middle section of a large aquarium. They're lighter than long scissors and fit your hand better, which gives you extra precision.

Straight or curved?

Without question, curved scissors are more practical. They give you the same possibilities as straight and make trimming carpet plants easier. Curved scissors also facilitate shaping bunches of plants. I sometimes use them upside down, so the tip points down. Forming round bunches of plants is quite easy this way.

Scissors for trimming moss

They're shaped a bit differently than the other kinds. Smartly curved handles act as springs, so the tips come apart on their own. Trimming moss requires lots of small movements, but these scissors make this task comfortable. On some occasions they're also great for carpet plants.

The "wave" scissors

I consider them to be the most versatile kind of scissors. If you're on a budget this will be the best choice. Wave scissors are great for trimming stems, forming clusters and maintaining carpet plants. 20-25 is the most universal size here. Also, pay attention to the curvature: if it's too subtle, scissors won't be universal.

Blade's length

All the above mentioned advantages may be vain if the blades are too short. In that case, using them won't be pleasurable and comfortable. Cutting edges should be 4-5cm long. It is also important that they're proportional to the entire length of the scissors. Spreading the blades in scissors with extremely long handles may be quite impossible.

Metal and quality

If the producer used good quality stainless steel, the scissors will work for years and will be reusable. High quality material will guarantee that they stay sharp and don't oxidize. It is also vital that all parts of scissors fit snugly into each other. Screwing the two arms too tightly will make them hard to use. Fortunately, it's easy to fix with a flat head screwdriver. When choosing scissors, pay attention to the holes for fingers, as they shouldn't be too big: they'll keep slipping off your fingers.

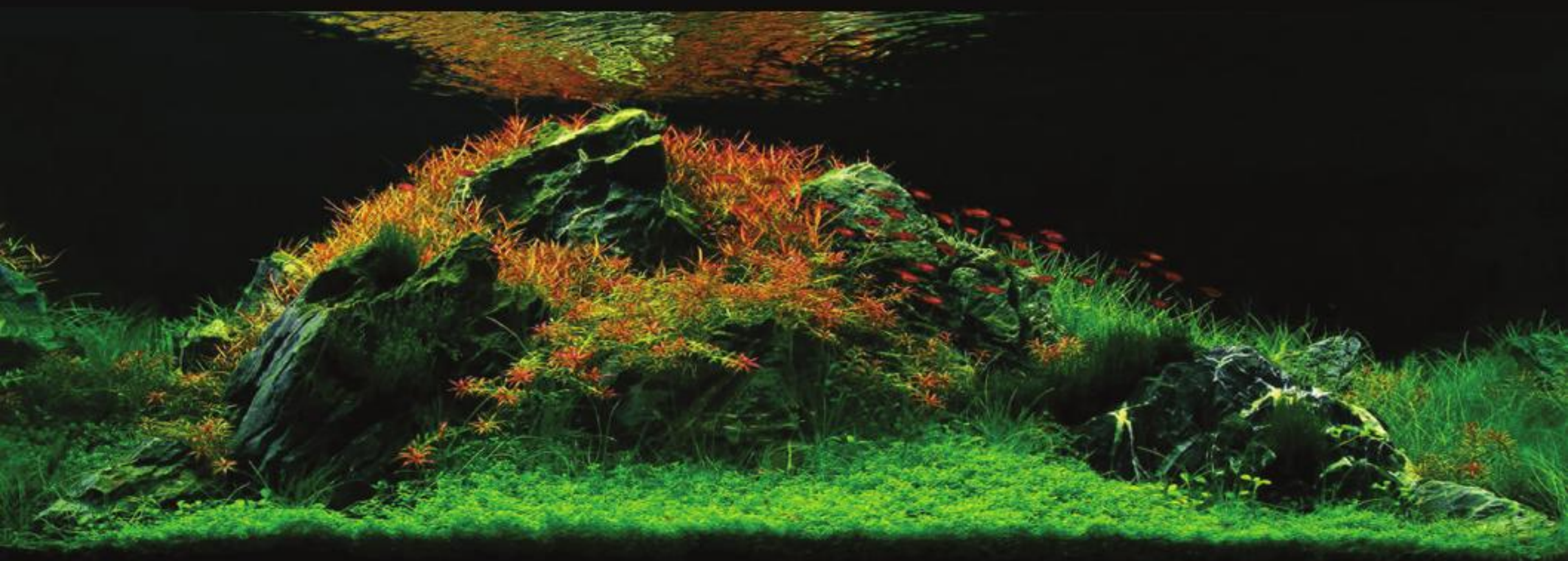
Maintenance

Even if the scissors are stainless steel, you'll need to do the basic maintenance which is drying them after every use. A piece of paper towel works best. When drying your scissors, pay particular attention to the hard to reach places between arms and the blades.

Summary

If cost is not an issue, the best set of scissors is the following: long curved scissors, 20-25cm long, short curved scissors, 11-15cm long, spring scissors for moss, about 15cm and wave scissors, 20cm long. If you can afford just one scissors, it's best to buy the most versatile wave scissors, 20cm long. Do not use your scissors for cutting wires, twigs and other harder materials. It will blunt the blades, damaging them. Good quality scissors is also a great gift idea for an aquascaper.

2013 AGA Aquascaping Contest



"Crimson Tide" by Sim Kian Hong, Malaysia, 2012 Winner First Place Aquatic Garden 120L - 200L

ATTENTION AQUASCAPERS!

The Aquatic Gardeners Association's 2013 International Aquascaping Contest opens **June 1st** & closes on **September 15th**.

Ribbons and cash prizes for the winners of each category! Winners have included both experts and novice aquascapers, so enter your creation today! You can enter entirely online with no entry fee.

Winners will be announced on the AGA web site **November 16**.

To see previous years' entrants and gain some inspiration, go to **showcase.aquatic-gardeners.org.**

Categories

Aquatic Garden

< 28L
28-60L
60-120L
120-200L
200-320L
> 320L

Paludarium

Biotope

Please see the AGA website for rules and details.

www.aquatic-gardeners.org

Designed by Evan Wright Design.
ewrightdesign.com

Step by step

Choosing **Lighting**

Step by step

Choosing **Lighting**

In the previous article we've chosen the aquarium. In this issue we'll be picking the right light. This time the number of factors to be taken into consideration is considerably greater. Let us answer the question: what is needed to light the aquarium and how do we do it?

With rapid advances in technology, come changes in the aquarium equipment. The last 20 years have seen a lot of change when it comes to lighting. We've moved away from incandescent bulbs, through T8 fluorescent tubes, T5 fluorescent tubes, compact tubes, HQL bulbs, HQI bulbs, to the newest trend, which are the Power LED lights. Hereunder we present our take on lighting, which is from the nature and planted aquarium standpoint. Some theory first...

Light sources

We'll leave incandescent bulbs out of this article – the European Commission's directive removed this light source from our reach. For a long time, aquarium lights were dominated by fluorescent tubes of the T8 variety, which can be easily identified by their diameter – 26mm. Their main advantage was uniform light distribution that made lighting the tank an easy task, provided the length of the tube matched the length of the aquarium. The technology also enabled us to use different spectrums and color temperature of light. In comparison to incandescent light sources, fluorescent tubes have significant advantages: they emit less heat, they're more efficient and have longer life time (about 8000 hours). Their greatest drawback was the strobe effect (very slight flickering).

150W HQI lamp - type R7s.
HQI lighting is recommended for high tanks.

Through evolution, T8 tubes were replaced by T5 tubes. The diameter has shrunk to 16mm, and this is the easiest way to tell them from the T8s. The basic principle remains the same, but electronic ballasts enabled greater light emission and energy savings. Color rendition is also better, not to mention longevity, which in some cases reached 20000 hours. The light emission remains high throughout the tube's lifespan. The price is the main drawback. In aquarium uses, T5HO tubes are the most popular (HO stands for High Output – greater flux). The T5HO tubes combine maximum flux with

Infinity Giesemann 150W HQI + 2x24W T5 lamp over an aquarium. The use of suspended lighting can allow the plants to grow over the water.

The difference in thickness T8 to T5 tubes is quite substantial.

good power efficiency. It's safe to state that these days they're the most common type of light in aquariums. Smaller diameter allowed for thinner fixtures, which did wonders to their aesthetics.

The technology and technics used in T5 tubes are also present in PL light sources. They're also fluorescent tubes, but designed to get power from a single socket (single sided), with reduced lengths.

HQI bulbs are a discharge type of light, and luminosity is created by an electric arc in a mixture of noble gases. They provide strong, focused light. They also emit a lot of heat. This is the outcome of a broad spectrum produced by the source. All things considered, this appears to be the best type of aquarium light, especially with tall tank, over 45cm high. By altering the gas composition we get light warmth ranging from 3000K to 20000K. They also require a dedicated starter unit, which is either mounted in the fixture, adding a lot to its weight, or placed on a cord, but it remains a source of considerable heat. It is advisable that HQI fixtures be placed at least 15cm away from the water, so it basically rules out any modestly sized canopies, given the heat production. Similar lamps utilizing LED technology are decidedly more expensive.

The last on our list are Power LED light sources. Diodes have been known for decades. They were used in the electronic industry, but high production costs banned them from the retail market for quite a long time. The technology allows the production of diodes that radiate warm white light, cool white, red, green, blue and other hues. Skillful choices: a power source and a driver for a cluster will yield a light source of varied color temperature, spectrum and intensity. Power LEDs that recently entered the market broadened the possibilities even further, so it's safe to say this is the light of the future. Minute dimensions of LEDs make it possible to design small, more elegant fixtures. The drawback is heat production. High efficiency, longevity and configuration options enable the creation of innovative products. As aquarists, we're glad that prices are dropping, and so are the electricity costs. There are also T5 and T8 tube-shaped replacements featuring LEDs, which are gaining market shares, and allow fluorescent light users to follow the progress.

Light parameters

When discussing light sources, we need to mention the parameters of light itself. Those are the factors that influence our success no less than the choice of a light fixture.

The basic parameters that should be of interest to aquarists are: light flux, light spectrum and color rendition.

Flux, or in layman terms: the amount of light produced by

ADA Aquasky 361 LED lamp and Cube Garden Mimi M aquarium

the source, determines the distance between the aquarium and the lamp. It is also critical to the amount of light that reaches the bottom of the tank.

Color temperature is a parameter given in Kelvins and tells us what quality of light we're getting. In the case of nature aquariums, it is logical to try and get a light as close to natural as possible. Therefore, color temperature of about 6500 Kelvins is the most desirable.

And lastly: color rendition. This is the parameter hidden under the Ra symbol. Most producers tend to hide this value on the packaging, especially in the case of fluorescent tubes. It is often given on the tube itself, for example a marking saying "965" denotes color temperature of 6500 Kelvins and color rendition above 90 percent. Thus, color rendition will be 90% true to that of natural light.

We also shouldn't miss the spectral characteristics of

LED lamp ove an aquarium

a light source. It is a chart describing wavelength ranges in which our source will emit most luminosity. This parameter plays a great role in aquariums: the deeper light has to travel into water, the more limited its spectrum becomes – it is absorbed by water. Depending on the wavelength, the absorption varies in intensity. This is crucial for photosynthesis.

Picking a lamp or fixture

Having discussed the technicalities let us focus on the other factors that influence your purchase decision.

The first decision to make is whether the tank shall be open-top or canopied. Both options have their respective pros and cons. A canopy protects the aquarium from such risks as the proverbial curious cat. It lowers the rate of evaporation. Its drawbacks include blocked access to the tank for maintenance, limited options when it comes to arranging the inflow and outflow tubes, and rising the water's temperature. Sometimes, condensation from the inside of the canopy may find its way outside, down the glass panes. To make matters worse, canopy producers usually fail to equip them with enough tubes, which are the standard light source in this case, and installing additional tubes may prove difficult or even impossible.

An open top aquarium gives us greater choice and possibilities. Even if the lamp will not be hung from the ceiling, but propped on the tank walls, it still offers superior accessibility for maintenance in the tank. Our layouts may gain additional space and develop above the water, crossing the aquarium's boundaries. A lamp which is hanging above the tank is less visible. Through varying the height at which the lamp is mounted, we can manipulate light intensity to some degree. Such lamps allow us to use HQI bulbs, or combinations of HQI and T5. HQI lamps offer better coverage for tanks of non-standard lengths, such as 80cm or 100cm. T5 tubes are not easily applicable in these; they may leave some poorly lit areas to the sides. Without doubt, choices other than HQI are pointless in aquariums tall-

er than 50cm. Using HQI gives you other eye-candy effects, impossible to achieve with tubes. Concentrated HQI light will reflect from the water's surface and create a shimmer effect on the walls and the ceiling, but also on the substrate in the tank. Fish will drop shadow as they swim by.

Choosing a lamp is no simple matter. Even more since this piece of equipment is particularly heavy on the finances.

Reflectors

Reflectors used in aquarium are commonly overlooked. Producers, especially those providing cheap lamps, treat this step as secondary. What makes a good reflector? Firstly, the curvature should resemble a hyperbole. Hammered surface will yield better spread and a more natural effect. It proves to be problematic... no one offers that kind of reflector – the best you can buy is a polished bit of aluminum which shape is far from perfect, although mounting it will surely increase the amount of light.

LED

Currently, LED lights are more popular in saltwater aquariums, but it's slowly making its way to the planted aquariums. The high prices of lamps and stereotypes about Led light being unusable for plants are discouraging. Among many producers who offer LED lights for natural and planted aquariums two stand out: ADA from Japan and Elos from Italy. The latter is a precursor in using LEDs in aquariums. Apart from the perfect design, great quality materials and LEDs, we are offered a control panel, the usability of which seems to be limited only by our imagination. The firmware enables us to program the lamp operation as a function of time, adjust the color of light and its intensity. ADA offers a lamp called AquaSky. Perfect, discreet design is tailored to the aquariums in the Cube Garde line. The body is made from excellent quality, crystal clear acrylic sheet. It also features great quality LEDs of color temperature about 7000K.

All things aside, we need to remember that if our aquarium is placed in a living room, office, or some other exposed place, the lamp mustn't blemish the looks. The entire set: the tank, the layout, the cabinet and the lamp must work as a whole perfectly. When picking a spot for your tank, make sure you pay attention to the available lighting solutions, and adjust the tank's size accordingly, so it is well lit.

LED fixtures can have a small profile | ELOS E-Lite 3s

History of

AGA International Aquascaping Contest

On June 1st, the 2013 Aquatic Gardeners Association International Aquascaping Contest began accepting entries for this year's contest. In the past 14 years, the contest has grown from its modest beginnings of about 75 aquascapes to more than 350 aquascapes entered into the contest.

With the continued growth in popularity of the planted aquarium within the hobby, the AGA hopes to see the contest continue to grow and to present to the public a portion of the hobby that is underrepresented but gaining recognition.

The AGA's aquascaping contest was the first of its kind starting in 2000 and primarily represented by hobbyists from the United States with a sprinkling of entries from Asia and Europe. Since that time, numerous technological advances in equipment and nutrient supplementation, the development of innovative aquascaping techniques, but especially the ability to identify and use information from the Internet has resulted in a dramatic increase in the hobbyist's involvement with planted tanks. Today, there

2012

Home of angels | Kim Pulkki, Sweden

Aquarium:
120x60x50cm, 360l
Lighting:
6x54W T5, 8h/day
Filtration:
2x Eheim Professionel 3e 2078

YouTube:
http://youtu.be/8ooow1v27jM

Plants:
Bolbitis heudelotii,
Microsorum pteropus, Trident,
Cryptocoryne parva,
Ehinodorus tenellus,
Anubias barteri var. nana Petite,
Sagittaria Subulata

Fishes:
Pterophyllum scalare,
Hemigrammus bleheri,
Otocunclus sp., Corydoras julii.
Dekorations:
Rocks and sand from Sweeden
Red Moor Wood roots

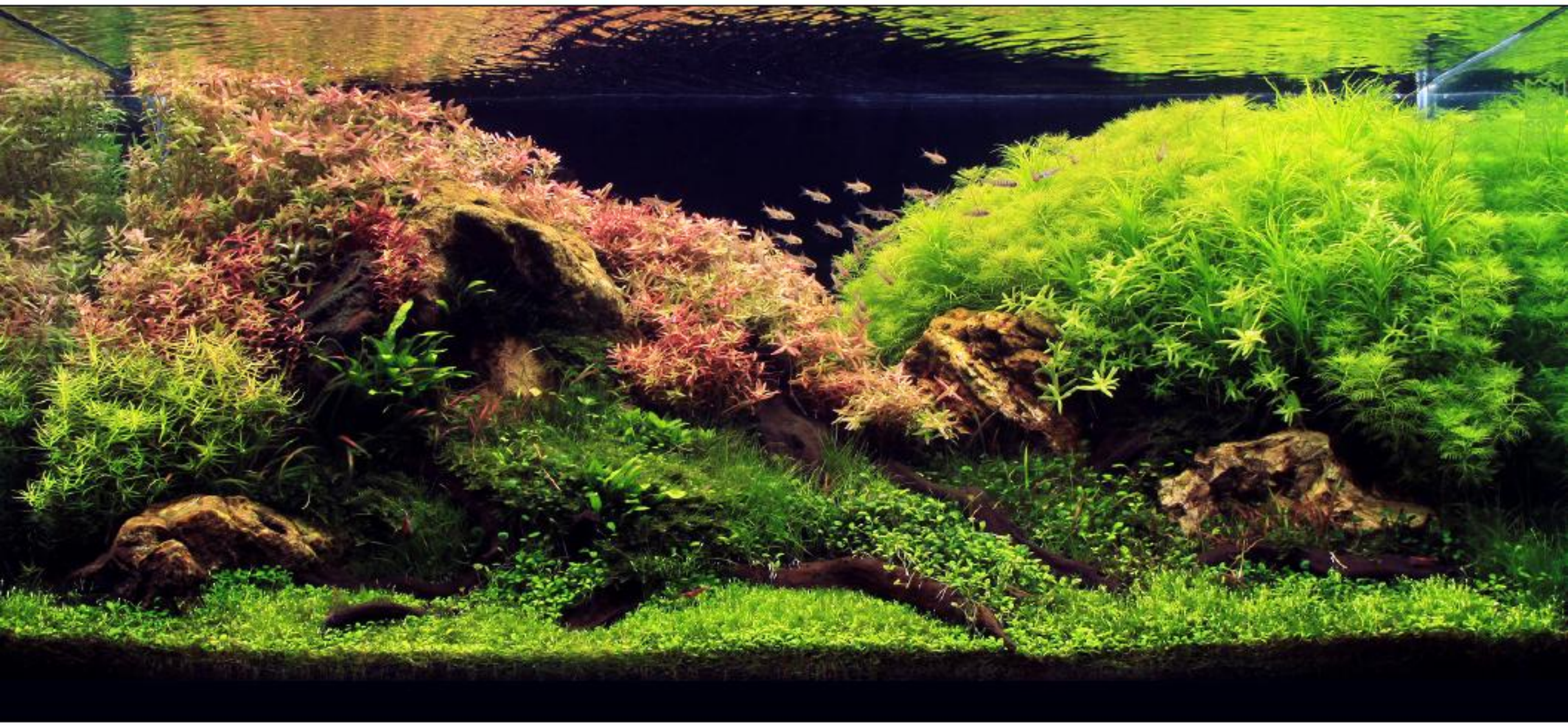
are numerous contests worldwide with aquascapes represented from all over the world. To see such growth within the hobby from such humble beginnings is quite astonishing.

The AGA's contest has evolved from its early beginnings where entries were often submitted as printed photos to the present, where all entries are submitted online. Contestants submit digital photos of their aquascapes using an online submission form and give brief descriptions of their aquascapes. Depending on the size and type of the aquascape, there is a choice of eight categories available to the contestant including tanks that fit in the nanotank category to aquascapes that can be hundreds of gallons in size. In addition to the more traditional planted tank categories, biotope and paludariums are also represented in the contest, each with their own set of criteria. The contest is open to both the novice as well as the hobbyist with more expertise. With the elimination of the entry fee and the awarding of cash prizes, participation in the AGA contest has risen dramatically in the past few years.

For the more traditional aquascapes, contestants can

2011

Years of solitude | Luis Carlos Galarraga, Brasil



Aquarium:
100x45x45cm, 202l
Lighting:
5 x T8, 8h/day
Fitration:
3 x Eheim Ecco 2236

Plants:
Rotala rotundifolia,
Rotala indica,
Didiplis diandra,
Myriophyllum matogrossense,
Blyxa vietii, Rotala sp. green,
Microsorum pteropus mini,
Staurogyne sp.,
Marsilea hirsuta,
Eleocharis minima,
Echinodorus tenellus blood,
Vesicularia sp.,
Glossostigma elatinoides,
Riccia fluitans

Zwierzęta:
Barbus bariloides
Decorations:
Amazonia Mbreda Substrate,
Rocks
Dreftwood

choose from six categories:

- <28 liters
- 28-60 liters
- 60-120 liters
- 120-200 liters
- 200-320 liters
- >320 liters

Recently, with the manufacturing of many nice nano-sized tanks, entries into the two smallest categories have exploded, enough so that the original "small" and "medium"categories were split into the first four categories to accommodate all the tanks entered each year.

Paludarium and biotope categories have also seen an increase in popularity in recent years. The paludarium category has evolved hugely from its early start and today the contest is seeing some very sophisticated entries that would rival and outclass many professional installations.

Another category that has seen a significant transforma-

tion is the biotope category. In the past, the rules that dictate what truly represents a biotope have often been a point of argument and the lines between aquascape and biotope often blurred. For 2013, the rules and requirements for the biotope category were clarified and new guidelines published to provide guidance to both the contestant and the judges. Our hope is that the category will be represented more accurately and can provide the public with a tool to learn about the biotope being shown.

The contest is truly international, with many aquascapes originating from Asia and Europe, as well as representation from the Americas, Australia, and Africa. The Nature Aquarium style of aquascaping, developed and made popular by Takashi Amano, has helped to drive increased interest in planted tanks both within and outside the Asian countries. Well before the Nature Aquarium method, the European countries revolutionized a style called the "Dutch Aquarium," which still has a dedicated following in Europe and elsewhere. And today, hybrid versions of both styles can be seen giving the contest a true international presence.

2010

Lofty Spirit | Chow Wai Sun, Hong Kong

Aquarium:
200x66x66cm, 870l
Lighting:
16 x 24W T5, 8h/day
Filltration:
4 x canister filter 1200l/h

Plants:
Glossostigma elatinoides,
Hydrocotyle maritima,
Echinodorus tenellus,
Hygrophila sp.,
Elatine triandra,
Microsorium pteropus narrow,
Limnophila sp. Vietnam,
Staurogyne sp.
Blyxa japonica,
Vallisneria nana,
Fissidens fontanus,
Fontinalis hypnoides,
Anubias barteri nana,
Taxiphyllum barbieri,
Vesicularia sp.

Fishes:
Puntius denisoni,
Otocinclus sp
Dekorations:
Driftwood,
ADA Seiryu Stones,
ADA Nile Sand

2009

Just Like A Cool Breeze | Shuqi HE, China

Aquarium:
68x40x38cm, 103l

Plants:
Cryptocoryne wendtii,
Bilbitis heudelottii,
Microsorium pteropus,
Vesicularia antipyetica,
Vallisneria nana

Fishes:
Rasbora heteromorpha,
Otocinclus affinis,
Crossocheilus cobitis,
Marisa cornuarietis

In addition to being exposed to various artistic styles of aquascaping, the AGA contest also gives hobbyists a chance to see the newest types of plants available in the hobby. Oftentimes, new cultivars of plant species, newly discovered species, or the reemergence and use of a forgotten plant are presented in the aquascapes.

The contest has traditionally closed in the month of September to allow time for judging. Once the aquascapes have been submitted via the online form, a panel of four judges (each with different backgrounds, expertise, and styles) then has the arduous task ofscrutinizingeachaquascape and rank ordering the best tanks. Criteria such as the cohesiveness of the aquascape,

proper use of fauna and flora, health of the plants, and other factors determine how well an aquascape does in the contest. One of the distinctions of the AGA's contest from other contest is the comments and suggestions left by the judges for many of the aquascapes. The encouragement and feedback is a great tool for the novice hobbyist to improve his or her

2008

Green Recess | Marcin Pęczek, Poland

Aquarium:
60X35X30cm, 63l
Lighting:
2 x 15W
Filtration:
Eheim Ecco 2231

Plants:
Echinodorus tenellus,
Eleocharis parvula,
Glossostigma elatinoides,
Hemianthus micranthemoides,
Microsorum pteropus Narrow,
Sagittaria subulata,
Taxiphyllum barbieri.

Fishes:
Crossocheilus siamensis,
Otocinclus sp.,
Paracheirodon simulans,
Caridina multidentata,
Neocaridina heteropoda red
Decorations:
Korzenie,
ADA Frodo Stones

aquascaping skills. Once the judging has been completed, the ranking from each judge is compared and tabulated and the best aquascapes are ranked for each category. Prizes are awarded for the three best aquascapes in each category and a Best in Show is chosen from amongst all of the first place winners. The results are opened to the public for viewing in mid-November.

The aquascapes are a showcase in the creative use of hardscaping materials such as driftwood and rocks blended with the careful growth, placement and pruning of appropriate aquatic plants. Striking the balance between optimal health of the flora and fauna while creating a planted tank that represents nature as art in a small glass box can be a supreme challenge. However, each year, the judges are surprised by the emergence of innovative techniques used to create these microcosms of nature. With the available technological advances in equipment and the plethora of information on the Internet, creating a beautiful aquascape has become less of a technical challenge and more of an artistic endeavor.

2007

Ashy Range | Chow Wai Sun, Hong Kong

Aquarium:
120x60x45cm, 324l
Lighting:
7x 38W T5, 9h/day
Filtration:
2 x canister filter 1200l/h

Plants:
Echinodorus tenellus,
Nymphaea lotus Zenkeri,
Aponogeton sp.,
Microsorum pteropus Narrow,
Rotala sp. Vietnam,
Vallisneria nana,
Nymphaea sp.,
Utricularia graminifolia,
Taxiphyllum sp.,
Vesicularia ferrie

Fishes:
Puntius denisonii,
Otocinclus sp.,
Crossocheilus siamensis
Decorations:
Driftwood,
Rocks,
ADA Bright Sand.

For additional information on this year's contest or to view previous year's entries, please visit the Aquatic Gardeners Association website.

With over two months left before the 2013 AGA contest stops accepting entries, there is still plenty of time to put together a tank and submit the aquascape for this year's contest. Again, we at the AGA encourage participation from all levels of expertise and look forward to seeing this year's entries when the contest opens for viewing.

The contest can be accessed directly through the following link:

http://www.aquatic-gardeners.org/Enter/

Bailin Shaw,
AGA Contest Chair

Tests and Reviews

Eheim**Reeflex**UV **350**

Reeflex UV is a clarifier that uses UV light to help you combat green water, protozoa and diseases. It helps you keep the water crystal clear.

Eheim ReeflexUV 350 has been designed for tanks between 80 and 350 liters. The bulb is 7W and uses PL-S socket (UV-C G23). It's been designed to work with 12/16mm tubing (sterilizers are always mounted on the outflow tube of a filter). A flow rate of 200 liters per hour will yield the best results. Maximum throughput is 400l/h. It features a 3 year warranty. Eheim ReeflexUV boasts easily noticeable high quality all around. The main housing is aluminum and the plastic elements are well fitted. The cord is long and ends with a DC adapter with mounting holes, so you can fix it in your aquarium cabinet (screws for the DC adapter are not included).

To mount the unit you'll also need a philips head screwdriver to unscrew the top

cap and mount the UV bulb. Mounting in a cabinet is facilitated by a holder that can be screwed to the cabinet's wall with the included screws. Rotating outflows make connecting the clarifier easy. Additional reflectors are used inside the appliance to boost the effectiveness 1.8 times. The unique design prevents slowing the flow down. The top cap features a small glass opening, so you can see whether the bulb is working. The lamp also features a safety measure to prevent the lamp from working if the housing isn't put together.

Eheim ReeflexUV is an appliance we can recommend, it's thoughtfully designed and perfectly crafted.

Remember that the UV bulb needs replacement every 8000 hours.

There are also larger models for bigger tanks: Eheim ReeflexUV 500 and Eheim ReeflexUV 800.

Riccardia chamaedryfolia

PiotrBęczyński

I consider Riccardia chamaedryfolia, also known as Mini-Pellia, to be one of the most beautiful liverworts I have ever seen in aquariums. That's why it is, beside bolbitis heudelotti, my favorite plant that I try to use in a new layout.

It has been my aquatic dream, to create a layout where Mini-Pellia would be the leading motive; spreading on lava rocks and wood, to strengthen the natural feel of the tank.

I used the word dream, because it may not be that simple to create such layout. Mini-Pellia is a difficult plant, slow growing and responsive to water parameters. It also requires patience.

This may be one of the reasons it's not commonly used by Takashi Amano in his tanks, contrary to other plants and moss. In this article I'd like to share my experiences with Mini-Pellia, describe the way of caring for it and what maintenance it requires in my tank.

Let me emphasize that these are my observations and, as we are all well aware every aquarium is a different ecosystem, may not be yielding the same results in other tanks. However, I suppose the following description may become a basis for other people's cultivation methods.

Healthy Mini-Pellia is a dark green densely growing plant that attaches itself to objects and shows significant growth in a "short time" (meaning several months). If the plant you keep in your aquarium fits that description, it means it has met optimal growth conditions. It's worth noting down every water parameter that contributed to the plant's health.

One of the important factors that influence the plant's good condition is biological stability in the aquarium. In a well-established tank, with other plants showing no deficiencies, the probability of successfully growing Mini-Pellia is quite high. Therefore, if you plan on using Mini-Pellia as an "accent" or a subtle statement in a layout, I propose

you add it after the biological stability has been achieved. It is way more difficult if it's supposed to be the main plant in a layout and we're using it right from the start. You'll need to prepare for some "grumbling" on the plant's part, and the end effect might not be exactly stellar. I've experienced highs and lows when growing this plant. The highs include my layout called "Long time ago", where Mini-Pellia grew brilliantly from day one, with astonishing beauty and progress. Other layout however, despite unaltered factors such as lighting, filtration, tank's placement, has seen more trouble. In the case of my current layout the situation is quite different: I'm dealing with growth problems,

Comparison of fragments of Pellia and mini Pelloa.

algae and frequently returning brown dust, and loose structure. These are the early days of my tank, so I'm not giving up yet.

An important factor that influences the plant's condition is the placement. In other words: it matters what we attach it to and how. In my tanks it has grown better when attached to vertical decorations, such as trunk-resembling driftwood, lava or some rocks resembling mountain ranges. It grew more reluctantly when placed on horizontal stones as a part of the substrate, so it was supposed to look like undergrowth. Layers of detritus, other plants and moss invading, call for more frequent maintenance and hinder growth.

When talking about decorations, to which Mini-Pellia can be attached, it's worth describing the very process of planting. For sure, it shouldn't be tightly wrapped with fishing line, as is the case for most mosses. This technique will slow down the acclimatization process, with rotting and uprooting as a consequence. When I'm tying down Mini-Pellia, I put a piece of the

thallus on a piece of wood and gently wrap it once or twice with the fishing line. The next bit is then fixed the same way in close proximity. When using this technique, I've seen faster acclimatization and growth.

Trimming is another matter to consider. In my experience, trimming in the early stages, when the thallus isn't very thick, doesn't impair the plant's development. As the layer gets thicker, it seems better to tear away bits of the liverwort than to trim it.

Light is crucial for growing Mini-Pellia. A thick, rich and dark green bunch of Mini-Pellia was achieved with T5 tubes and about 0.8 – 1W/l.

As I was using an ADA NAG 150W HQI lamp over a 182l tank, I noticed slower growth, although not significantly. Paying attention to the early grow-in stages during the first weeks after set up, I limited the photoperiod to 5-6 hours at about 0.5W/l.

To conclude, I'd like to comment on the liverwort's fertilization and how it influences the growth. I have found the plant to respond positively to nitrogen supplementation. It's worth monitoring the NO3 levels and keeping them at about 15-20ppm. I have no particular tips regarding phosphorus and potassium, although I used them with moderation to keep algae at check.

Long Time Ago,
IAPLC 2010 - place 29,
Piotr Bęczyński

As far as CO2 is concerned, medium levels contributed to Mini-Pellia's development. Dosing liquid carbon, on the other hand, hindered growth and made the plant weaker.

An important tip: hobbyists very frequently use peroxide to treat blue-green algae. It is quite a nice method, if temporary, but it is lethal to Mini-Pellia. My last layout can serve as an example here, as I had some blue-green algae on my Mini-Pellia. With little consideration, I took it with the rock to which it was attached and sprinkled with peroxide. The plant got destroyed completely, as did the algae.

This article contains just my personal experiences with Mini-Pellia, and I wish everyone the best of luck growing this plant. I also encourage sharing your experiences. Mini-Pellia is great for natural aquariums and gives unmatched natural look, boosting the beauty and feel of the underwater world.


Canon
EOS 7D
EOS

How do a

Final**Shot**

How do a FinalShot

Norbert Sabat

In the previous article I have shortly described the main tools of our trade – the camera and the tripod. With no knowledge on how they should be used, they are nothing but useless toys, and we are little more than monkeys pressing the trigger. That is why we should focus on the main parameters that come into play when we take photos.

Everyone that has held a camera or browsed stock photo services has surely encountered such terms as ISO, exposure (EV), shutter speed and aperture (F). What are they and how do we approach them? I will try to describe them briefly and with no intention to delve into complicated definitions, which are abundant in books about photography. Most people do not understand them anyway.

ISO

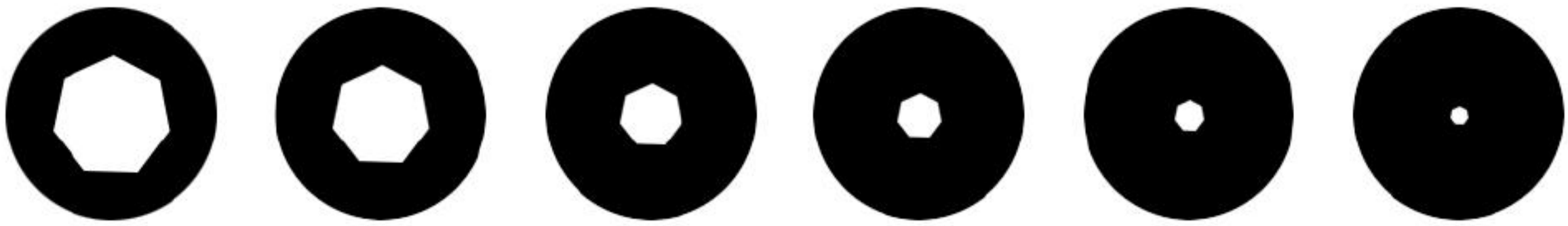
ISO sensitivity describes, broadly speaking, how responsive to light is the digital sensor in a camera. In other words, is determines how much light we need to properly highlight the photosensitive material under given conditions. The analog cameras used photographic film or slides. Nowadays, the term is also used with regards to a digital sensor. The unit's sensitivity usually starts from 100 or 200 (sometimes 50). The newest cameras go up to 6400 or even 12800. Some top models achieve even 204000. Every sensor has its native sensitivity, which is the lowest that can be set. Some cameras also feature a LOW setting, which is even lower than the native. In fact, it is the native setting but overexposed by 1EV. The lower the sensitivity, the less light we need, and therefore higher shutter speeds can be achieved. To check that yourself, take two photos with your camera in the A mode (aperture priority): one using ISO 200 and one ISO 1600, which should have several times

higher shutter speed. As we are taking photos of aquariums and want fish to appear frozen in time, sharp, the faster the shutter speed the better. Unfortunately, as the ISO values go up, so does the grain or noise (grey and colored spots), which degrades the quality, lowering the tonal range and color transitions. This will be particularly visible in the dark areas of the picture. I would recommend using the lowest possible ISO settings, namely 100-400. This is not a rule, because along with the advances in technology, arrive cameras that deliver sharp photos even with ISO 1600-3200. And I mean very good quality, because satisfactory quality can be achieved even with ISO 12560, as it is the case with Nikon D4.

Sensitivity is somewhat bound to exposure (EV), which is the amount of light that is needed for a picture. The basic value of exposure is 0 EV. However, if the lighting is too strong, the exposure may be too long and the picture will appear burned: some areas of the picture will have a value of 255, which denotes full white. These areas will have no detail. In that case, exposure should be shortened (it is usually done in the intervals of 0.3 or 0.5 EV). If the picture appears too dark, we can increase the exposure time. This will prolong the time the shutter remains open. The picture will be lighter but will lose some sharpness.

Aperture (F)

The second, equally important parameter is the aperture, which defines the depth of field. In layman terms, it is the thickness of the layer, in which an object appears sharp. The lower the aperture number, the thinner the depth of field and the object looks only partly sharp. Its remaining parts and the background appear blurred. On the other hand, the higher the aperture number, the larger the depth of field (DOF): a higher percentage of the object will appear sharp and the background will feature more details. The obvious conclusion is to use large aperture values for taking photos of an aquarium (7.1-9). The physics, however, just like it was the case with ISO, is cruel. Aperture tells us how open the lens is while taking a picture, and how much light is getting



The aperture value and the amount of light reaching the sensor.

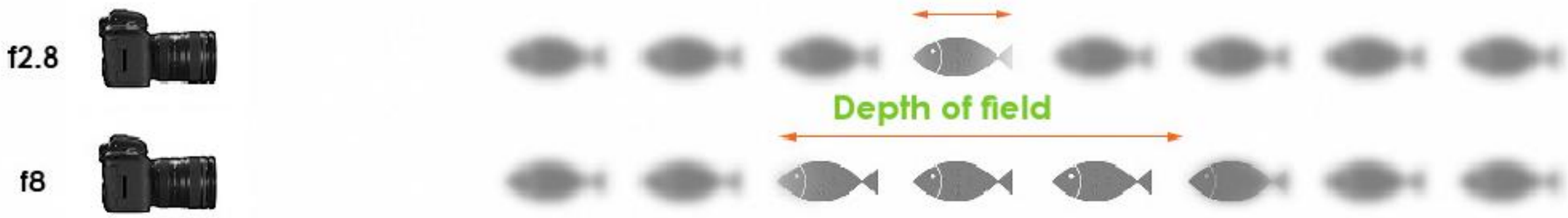
in. The larger the aperture, the smaller the opening and less light allowed, so the picture looks darker. The choice of aperture is dictated by what we want to achieve, what are the camera's capabilities and how far the compromise can go.

Time

The third parameter is the shutter speed. If it is high (the shutter opens for a short period of time, such as 1/125 – 1/200 of a second) we are able to freeze any movement in the aquarium, capture more detail and get a sharper picture. Low shutter speed (1/20-1/40) will probably result in a blurred picture, an effect caused by moving fish and swaying plants. It is advisable to use short times, though physics complicate things once again: the faster the shutter speed, the less light is allowed through the lens, resulting in a dark picture. Thus, we encounter the one factor that limited our possibilities both in the case of ISO and aperture settings, the most important parameter in photography, light.

Light will be the topic of the next article. For the time being I will dwell on the topic of lenses, which are the top "must have" for any ambitious enthusiast owning a DSLR.

Most DLSRs for beginners and advanced hobbyist are available as a bundle with one or two kit lenses. This is a cheap way to discover photography. One of them is usually a zoom with a casual range of flange focal distance, such as 18-105/135mm, which results in a decent angle of view and a slight "tele". The second one usually features flange focal distance of 55/70-255/300mm. This will allow for a greater zoom, but you should not expect taking pictures of the Moon's craters with it. These lenses are not sophisticated designs. They are made of cheap materials, have weaker motors, average optics, no seals and fluctuating brightness in a given range of flange focal distance. Let



Aperture and depth of field.

ISO 320 | 1/250s | F/2.8 | 55mm

Short exposure time can freeze objects in motion. The consequence of the short time there is a small aperture, which makes the depth of field is small, which means that objects in front of and behind the point where the camera focuses are blurred.

ISO 320 | 1/15s | F/14 | 55mm

Slow shutter speed makes moving objects are blurry, but you need to set a larger aperture gives a greater depth of field.

me begin with the first parameter...

Flange Focal Distance

Flange Focal Distance (FFD) is a value that describes a lens' angle of view. Shorter FFD results in wider angles and better depth of field. We are able to capture more space in the picture and almost everything will be clear. For example, if you have a look into a camera that has a 16-18mm lens attached (angle of view 110-90 degrees), you will see more than a human eye can capture. Conversely, longer FFD offers narrower angles. A camera with 500mm FFD lens will "see" just a fraction of the scene in front of it. The angle of view will be limited to about 5 degrees.

Prime lenses and zooms

In photography there are two main types of lenses: "fixed" (prime lenses) and "zooms" (variable FFD). As the name implies, fixed lenses have a set flange focal distance. In order to zoom in or out we need to get closer or farther back from the object. Zooms allow for zooming without moving. Prime lenses have fixed FFD, for example 14, 16, 28, 35, 50, 85, 100, 135, 200, 300mm and most producers stick to those values. They are harder to use and require some thinking on what we want to show. They usually have higher quality optics and are brighter than zooms (it is impossible to find a zoom lens with minimal aperture at 1, 1.2, 1.4 or 1.8).

The basic kit zoom lenses tend to have varying brightness dependent on the FFD: they are brightest when widest and darkest when narrowest. As an example let us have a look at Canon's lens EF-S 18-135mm F/3.5-5.6. With the FFD set at 18mm the minimal aperture that can be set is 3.5, but with FFD set at 135mm, minimal aperture estimates 5.6. Higher class lenses, such as Canon EF 70-200 F/2.8, have constant brightness throughout the entire FFD range. Their price is of course much higher. It is advisable to choose bright lenses, because every lens when fully opened (lowest aperture possible) is not very sharp (both in the center and in the corners) and may show some chromatic aberrations (spreading of light in the lenses, visible as color halos surrounding objects of contrasting hues). To remove those imperfections, close the aperture by 2 or 3 steps. This way, a lens of f2.8 closed to f4 still allows quite a lot of light to enter. On the other hand, a dim lens (for example 5.6) will exhibit the above mentioned problems. If we closed it by 2 or 3 steps, we would get aperture of f7.1 – f8, which is already a significant value and requires longer exposition and higher ISO settings.

If you have a look at any of the available systems (Canon, Nikon, Sony, Pentax, etc.) you will find a selection of lenses that have the same FFD but differ in terms of price by an order of magnitude. Those are the class differences between lenses. The top units have for example seals that allow them to work in light rain. There are also better and more efficient ultrasound motors, stabilization (sometimes with adjustable axis of action), AF-stop triggers (for setting a given point of the auto focus), setting of AF ranges (for example 6m to infinity), very high sharpness even with the minimal aperture, high resolution, excellent bokeh (blurred background) and quality craftsmanship. Zooms also feature balanced sharpness in the entire range of FFD. All those factors influence the price and generally speaking, the brighter the lens, the more expensive.

Are top lenses necessary for aquarium photography? Of course not! Under some conditions, every lens can take a good photo, but generally speaking the higher the class of the lens and the body, the greater the chances of success. I personally use Canon EF 24-70/2.8L and EF 17-40/4L for aquarium photography. Those are the top of the line Canon lenses, the so called "Ls", but their main role in my photography are pictures not related to aquariums.

In focus

Crystal**Red** Shrimp

Marcin Wnuk | Canon 40D | EF 100mm F2.8 USM Macro | 100mm | F13 | 1/60s | ISO 320 | external flesh lamp 200Ws

Crystal Red Shrimp

Caridina cf. cantonensis „Red Bee"

One of the most popular species of shrimp kept in aquariums. It is also known as the "Red Bee". The white and red strain has been selectively bred from the wild black-and-white variation in 1996 by Hisayasu Suzuki of Japan. The red and white variety has been gradually strengthened and popularized. Through selection shrimp with more and more white have been obtained. Their class is subject to a special ranking. Most highly valued shrimp have plenty of white areas and distinct lines that form red spots. Higher class shrimp may have higher requirements. Water temperature should fit between 19 and 28 degrees Celsius, pH fall between 6.2 and 6.8, GH 4-6, and KH 1-2.

In focus

Crystal**Red** Shrimp

Marcin Wnuk | Canon 40D | EF 100mm F2.8 USM Macro | 100mm | F13 | 1/100s | ISO 320 | external flash lamp 200Ws

Liquid

NATURE AQUARIUM

liquid-magazine.eu
facebook.com/liquidmagazineeu
info@liquid-magazine.eu