

The SCAAT



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Ameca splendens
Hemiloricaria eigenmanni
Biological Approach to Aquascaping



Club Notes



Our Mission Statement: Meetings of the St. Catharines & Area Aquarium Society are held on the first Monday of each month, 7.30p.m., at the Seafarers & Teamsters Union Hall, 70 St. Davids Rd. E. Thorold, Ont. No meetings are held on Mondays that are holidays. Those meetings are held on the second Monday. There are no meetings during the months of July and August. *The Society, established in 1958, is a non-profit, educational organization dedicated to the task of promoting interest in the breeding, raising, maintenance and study of tropical fish, both at the beginner and advanced levels.* The St. Catharines & Area Aquarium Society is a charter member of the Canadian Association of Aquarium Clubs Inc. (CAOAC) www.caoac.ca . SCAAS is also a member of the Federation of American Aquarium Societies (FAAS). More news and information about St.Catharines & Area Aquarium Society can be found at <http://www.scaas.info>

Our next meeting will be held on February 06.12 Start time is 7.30 pm ALL ARE WELCOME
This month's program will be Tom Mason on The Fishes of Costa Rica

2011 – 2012 Executive

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Membership Dues:

Family: \$ 25.00
 Single - \$ 20.00
 Junior - \$ 10.00 (under 16)
 Seniors - \$ 10.00 (over 65)

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Cover photo of a Dwarf Whiptail Catfish subadult (Hemiloricaria eigenmanni)
 Photo © by DAve Unruh

Jar Show

The fish of the month will be Loaches & Sharks
For March it will be Plants

President's Message

January's meeting is now in the books. The meeting went very well with Natasa's side show which was great and everyone enjoyed it. The monthly jar shows are doing very good with more fish coming out every meeting so keep up the good work. The auction was a great success with quality things being auctioned.

We had a group of members who made a trip to Toronto to some of the fish stores. We went to Finatics Aquarium. This place is just out of this world the tanks are crystal clear and the fish are so healthy. Michael Bandura who is the

owner went up and beyond to help us with some great deals. If you would like to know just how ask some of the people who went, they will be happy to tell you. We went to North American fish breeders, Big Als, Aquatic Kingdom, and the Chinese fish store across from Big Als on Dundas . We went for supper and then returned to St Catharines. Most everyone wants to go again which will be in the near future if anyone else would like to go just contact me. The members who went are Dave, Pat, John, Shawn, Erika, Dudley and myself.

President Tom

January 09, 2012 General membership meeting

submitted by Heather Krawchuck

Meeting Commenced at 7:50 pm.

Opening and Welcome: Tom Hillier welcomed everyone present.

Upcoming Events and Announcements: Read by Tom Hillier

-Contact Tom regarding details about the Durham dinner and presentation if interested in attending.

-Natasa Djermanavic has graciously donated one of her beautiful framed photographs to the club. Tickets will go on sale next month for \$1 each. A big thank you to Natasa for her generosity.

- An organization for children with autism has asked for our help. They have a thirty gallon tank and are looking for fish and other accessories. Tom Hillier will be looking into a corporate sponsorship and

will let members know if anything else is required.

- Tom Hillier received a letter from the food bank thanking the club for the \$85 cash donation in addition to the food donation. They are very appreciative and look forward to our continued support as it is very much needed.

- Tom Hillier brought up the possibility of a weekend trip to a store called "Fanatics Aquariums", which carries cichlids only. He asked that anyone interested speak to him to arrange a day/time.

- Roman will begin to contact those who signed up to have their aquariums filmed in the next few weeks.

Treasurer's Report: Bob Hayslip provided an update.

Float: \$167.66, Bank: \$2018.99, Total: \$2186.65

Breeding Award Program: Tom Bridges presented awards to Dave Furness for the Betta pugnax and the Julidochromis transcriptus. Dave was also

presented with a "Master Breeder" award for breeding thirty species of cichlids. Congratulations, Dave, what an accomplishment!

Horticultural Award Program:

Joe Krawchuk had no awards to present this month. Let's get working on those plants, everyone!

January's Program:

This month we were lucky enough to have Natasa Djermanavic present us with an historic, photographic journey of the flora and fauna on the wrecks of the Truk Lagoon Atoll in Micronesia. Not only were we treated to some absolutely breathtaking photos, but the humour that Natasa added to the presentation was great, as was the

historical background. I think that I can speak for everyone when I say that we all wish that we had the money to take a trip like that as well as the talent to take such incredible pictures!

Refreshment break supplied by Shawn and Shirley

Jar Show Awards: Pat Shriner presented the following awards:

Joe Krawchuk – 1st Place

Bob Hayslip – 2nd Place

Joe Krawchuk – 3rd Place

Door Prize, Nightly Raffle

Evening Auction

Meeting Adjourned at 10:40 pm.

Scat Ads Scat Ads Scat Ads Scat Ads Scat Ads Scat Ads

Wanted A 6 foot by 15 or 18 " deep by 12 " wide aquarium. It must hold water and I will pick it up. Please contact Pat at 905-354-1367 or gpshriner@sympatico.ca

For Sale — Proven breeding pair of *Nanochromis parilius*, peaceful West African Cichlids, wild fish \$25.00 for the pair. contact DAVE at 905 684-9860 or dunruh@cogeco.ca



Female



Male

Breeding the Ameca Splendens

Text and photos by Joe Krawchuck

Before being introduced to the St. Catharines and Area Aquarium Society I thought that the only types of livebearers were the common platy, molly, guppy, and swordtail. However, I quickly learned that there was a whole other group of fish called Goodeidae.



A bag of Ameca splendens came up for auction one night at our regular meeting and I was the highest bidder. The bag contained six fish and after a little bit of research I knew that I had three males and three females. After learning that adults can grow upwards of 4.5 inches each, I decided to place them in a 40 gallon community tank. Although these fish are not aggressive, their sheer size can sometimes stress out smaller community fish, such as neon tetras, in my case. After relocating my neons to another aquarium (I knew having multiple tanks was a good thing, despite what my father might say!) I was now able to focus my attention on the Ameca splendens.

From what I read, these fish were quite tolerant in terms of water conditions and no special water treatments were needed for them to thrive. I kept the pH of the water close to 7.0 and the temperature around 76-78 degrees. A few club members commented on how well these fish work as algae eaters, and I can say myself that they are constantly picking at small strands of algae that form on the sides of the aquarium and on the leaves of some of the slower growing plants I had in the tank.

I was expecting these live bearing fish to act similarly to a molly or platy with respect to producing fry. As such, I was anticipating that the females would plump up and drop many fry every

four weeks or so. Sadly, I was mistaken, as two months passed and there were still no signs of fry. It wasn't until I introduced a higher amount of vegetable-based foods into the aquarium that I noticed the females looking a little on the heavy side. Sure enough, soon after that, I also noticed some fry in the tank. But wait, where were the 30 or 40 fry that I was used to seeing with mollies and platies? Are these fish known for eating their young?

Another trip to the internet enlightened me as to why there were so few fry in the aquarium. It turns out that Ameca splendens very rarely have more than ten or so fry at a time. Although this seems like a small number of fry for a live bearing fish, the fry are quite large when they are born with lengths of two centimetres possible. That would explain why the fry looked as though they were a few weeks old even though they were born within a day or two of me noticing. In total my three females produced around fifteen fry that I could see; not bad for their first batches in my aquarium. The fry were large enough to eat crushed flake food and some frozen brine shrimp. They were basically able to eat the smaller bits of food that I offered to the adults in the tank.

Despite starting out as a large fry, I noticed that the growth of these fish were not as fast as a molly or a platy fry, as it seemed to take them longer to grow and reach a decent size.

However, these fish make a perfect addition to a community tank, and are great algae eaters. Despite the slow growth of fry, it is very interesting to see quite large fry at birth and watch as they develop and grow.





Biological approach to aquascaping

by Joe Schwartz

Reprinted with permission from the Ottawa Valley Aquarium Society's newsletter "OVAS Currents" Jan.2012

Watching two dog owners walking their dogs, one with a leash, choke chain collar and muzzle, the other walking freely at heel, ask yourself which owner understands how to work with the biology of their dog.

Technology is a poor substitute for understanding nature. Marine aquarists were taken in by the appeal of more technology in an attempt to make up for their lack of biological understanding of live rock's role in the marine ecosystem. Adoption of the Berlin style aquarium, and authors like John Tullock writing chapters titles "more biology less technology" resulted in better biologically balanced marine tanks whether F.O.W.L.R or invertebrate reefs.

Today freshwater aquarist are repeating a similar pattern and missing the same opportunity to work with and understand freshwater ecosystems.

One key mistake is being in too much of a hurry. Nature at a minimum works on a yearly cycle or even a cycle of years – that should be obvious.

When one tries to grow organisms either too fast or too large, the end result is poor. Anyone who has had a large dog get hip dysplasia, raised white rock chickens till they became crippled, grown a horse too fast till it developed O.C.D. and had to be destroyed, over watered tomato plants till they fell over, even young men growing too tall, too fast are more prone to a collapsed lung. These examples illustrate the folly of maximizing rather than optimizing growth patterns.

Nature always provides periods of consolidation due to the seasonality of ecosystems. We want our aquaria to run at "full steam" for 365 days a year – that makes no sense at all!

Why are light timers set for maximum intensity and photoperiod year round? Heaters are set at a constant mid-day high temperature forcing fish (corydoras), invertebrates

(cherry shrimp) and plants (aponogeton) to live at abnormal temperatures. An organism's enzyme activity curve for a temperature is determined by the last 100,000 years of evolutionary history, including several ice ages, not the water temperature at the retail store. As paleoclimatologist Dr. Curt Stager says: "our present climate conditions are not normal" (www.curtstager.com). Meaning this 10,000 year interglacial period is abnormally warm for Planet Earth.

Jody McManus points out (OVAS Currents Nov-Dec 2011) that "he feeds his cichlids every two days to prevent growth deformities and improve overall health". He says wild fish are smaller than tank raised specimens due to less fat and protein in their diet. Fish will grow throughout their entire life, it's why biologists can use scale patterns to determine a fish's age.

Bob Fenner writes in his article Going Nano (TFH dec 2011) that he feeds his healthy Maroon Clown Fish **four times per year!**

Overfeeding is too much, too often and too rich in fat and protein (try detritus). It's just part of our general pattern of overdoing everything!

Every aquarium is overstocked. You don't see 1 or 2 fish per gallon of water in natural bodies of water. You see a few minnows in 100,000 gallons of water. We have to cure our need to cram everything we want into the same aquarium.

We are smart enough not to place marine and freshwater together, but how often have we seen goldfish and tropical together, fish with very different pH and kH values together, big fish kept with much smaller fish. None of these ecologies are natural.

So how can we recreate beautiful aquascaped aquariums which reflect the natural beauty of aquatic environments? Slowly and with biological understanding of nature's creatures. "slowly" means selecting slow growing plants

– a “no brainer”, eh? What that really means is they must have the ability to sustain themselves with less light, heat, and nutrient during consolidation without disappearing to survive as a seed, tuber or rhizome. If they do, they were not pushed to exhaustion during their growth phase. Example species: *Microsorium.*, *Vesicularia*, *Bolbitis*, *Cryptocoryne*, *Aponogeton*, and *Anubias*.

The trend to add CO₂ to aquascaped tanks stems from the availability of emersed stem plants, which are neither true aquatics, like *Cabomba* sp., nor amphibious like *Cryptocoryne* sp. To test a stem plant just grow it close to the surface. If it pops out and grows rapidly as it would in nature with receding water leaves (dry season) to be able to flower and seed, then you have your answer.

Plants with emergent stems have similar leaf structure (i.e. stomata) to land plants. They rely on the 0.04% CO₂ in air verses water which ranges from 10 to 40 mg CO₂ per litre for desirable plant growth. Note 0.04% = 400 ppm (parts per million) not equal to 400 mg CO₂/L.

Professor Ole Penderson (University of Copenhagen) and Claus Christensen (Tropica’s R&D Manager) reported in their article CO@ light and growth of aquatic plants reprinted in planted aquaria Spring 2001 plant growth of 1.1% with 0.7mg CO₂/L at 1400 Lux and 4.1% at 35.2mg CO₂/L. At light levels of 15,200 Lux, growth was 6.5 and 14.8 respectively.

Hence plants grow at any CO₂ level with adequate light, but not in a linear fashion. It took CO₂ increases of 500% to increase growth by 10 to 40% depending on light level. Air has from 10 to 40 times as much CO₂ as water. Emersed plants grow slowly under water as they lack the required cellular adaptations – that is until they reach the air.

Plants have two methods of CO₂ intake:

1. Free absorption of CO₂ via stomata as free gas into cells involved in the Calvin-Benson cycle.
2. Active transport involving ATP which pumps CO₂ into cells with a ribulose Bi Phosphate (RuBP) Carboxylase enzyme.

But I’m getting ahead of myself here. Photosynthesis is made of two different but interconnected reactions:

1. The **light reaction** which produces ATP (Adenosine triphosphate) and NADH (Nicotinamide adenine dinucleotide phosphate). Recall your high-school biology – both these compounds are “high energy molecules” which energize the...
2. **Dark reaction** which fixes CO₂ into the Calvin-Benson cycle to produce sugars, the building blocks of starch, cellulose and lignin, the structure materials of plants.

Refer to Diagram 1 for an overview.

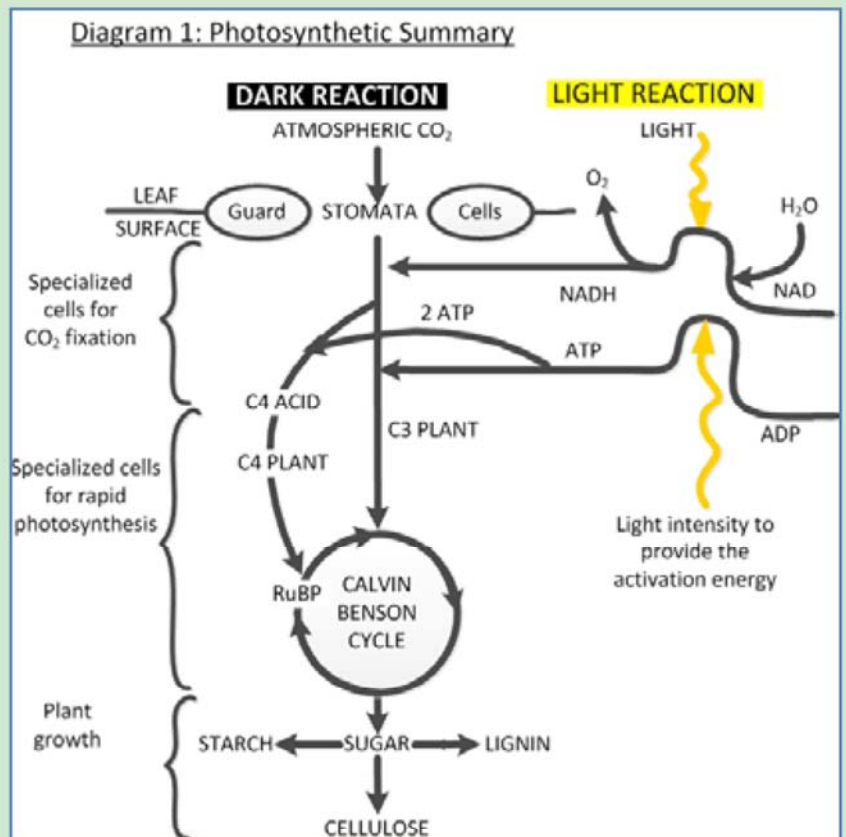
Increased light intensity will increase photosynthesis until excess ATP/NAHD is synthesized for the dark reaction, which is limited by CO₂ availability.

The first method of CO₂ absorption as free gaseous CO₂ is Errol’s “fine mist technique” which simulates atmospheric CO₂ for his emersed plant stems, i.e. *Alternanthera Reineckii* (OVAS Currents Nov-Dec 2011).

The second active “pump system”, particularly used by C₄ plants, use a modified RuBP carboxylase enzyme, which is the most common protein in nature comprising up to 50% of leaf protein. Although RuBP is abundant it is also very inefficient. The details of this are likely beyond your interest, so I’ll omit them except to say this inefficiency can manifest itself during draught. Not a problem for true aquatic plants except the amphibious and emergent plants, as well as the Kentucky Blue Grass in your lawn which are C₃ plants.

C₄ plants are more efficient during dry periods as they have developed a combined structural and biochemical modification that has RuBP carboxylase continuously supplied with high concentrations of CO₂, to promote CO₂ fixation, even when the stomata are partially closed to help reduce water loss. Transpiration costs a plant most of its water, relatively little water is used biochemically, which is why you need to maintain high humidity when utilizing the “dry start” method to start your aquascape.

C₄ plants acquired this label as CO₂ is fixed into a four-carbon acid molecule. Do slow growing amphibious plants, such as *Cryptocoryne*, have an ability to switch from C₃ to C₄? I don’t know, but it might explain why the “dry season”





is not a problem for them, whereas C3 plants can only do well during cool/wet conditions. Plants that benefit from 30+mg CO₂/L are C3 plants without the high efficiency modifications.

Microbiologist Dianh Walstead set up some trials of planted tanks to measure CO₂ levels (Aquatic Gardener, Jan. 2010). Her data shows a well planted tank will drop the CO₂ levels from 10+ mg/L to 2 or 3 ppm in 4 to 5 hours slowing plant growth from 10% to 3% based on Ole Penderson's data. However CO₂ levels returned to 10+ mg/L if the lights were turned off for 4 to 5 hours. She set her timer to turn lights on for 4-5 hours in the morning, then off for 5 hours, back on for 4-5 hours, and then off for the night. This setting resulted in elevated levels of CO₂ twice a day for 8 to 10 hours, thus promoting plant growth in the 4 to 10% range depending on light levels.

Many tropical areas receive afternoon rain storms on a daily basis during the wet season with diminished light intensity.

Note that Walstead's tanks were not in total darkness – the lights were simply turned off during the day. Low light levels fail to provide the activation energy to synthesize ATP and NADH. Intensity is more important than photoperiod which is why extending the photoperiod of a low intensity lighting system fails to grow plants well.

Plants require other nutrients than CO₂, which can be provided by some combination of fertilizer pellets, natural soil and liquid fertilizers. My experience has been that certain plants –Cryptocoryne pontederiifolia, Aponogeton crispus, A. undulatus, and Nymphaea species – respond well to real soil. However all that is needed is a handful of soil under those plants. Natural soil also prevents "Crypt Rot" in newly set up tanks. Covering the entire bottom will just lead to a mess with tea coloured water, as humic acid is released. Soil placed over an undergravel filter plate will migrate to fill the space within the plate. Too much soil will have you stripping down your tank in two years. Other plants like A. rigidifolius prefer fluorite or quartz gravel.

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Water current is key to the dispersal of all soluble nutrients, whether ionic (potassium sulphate) or molecular (CO₂).

To design a beautiful aquascape, start by locating two focal points one third of the way in from the ends of the tank and offset on the diagonals to create a sense of depth (diagram 2). This allows positioning water returns and powerheads to be hidden by hardscaping and maximize the turbulence. Recall your vector math/physics; forces that intersect at 90° experience no loss of kinetic energy thus increasing dispersal of photosynthetic nutrients as well as producing a pleasing random motion of leaves. Eleven of the twelve top aquaria in the 2011 ADA International Aquatic Plant Contest used this basic design (TFH, Jan 2012).

Plants should be planted in groups to replicate microclimate selection. With only a few specimens, use odd numbers (3 or 5) set out in a triangle or star pattern. Avoid “perfect” bilateral symmetry as nature seldom achieves such balance.

Selection of fish is key, as you want hardy, colourful, and active fish that match “average” plant water chemistry: pH 6.5 to 7.3, KH 3° to 10°, gH > KH, temperature 70 to 80° F. The fish should occupy all the “niches”: surface (hatchet fish), pelagic (rasboras), lower (barbs), and bottom (corydoras). Remember to leave pathways for “corys”.

All adult fish should be about the same size. Decide initially if you want 1.5”, 3”, or 5” fish. Most importantly, your fish must respect your plants as much as you do! Angels are anything but respectful when preparing an egg laying site by shredding an *A. ulvaceus* leaf you waited months to see

as the plant comes out of dormancy!

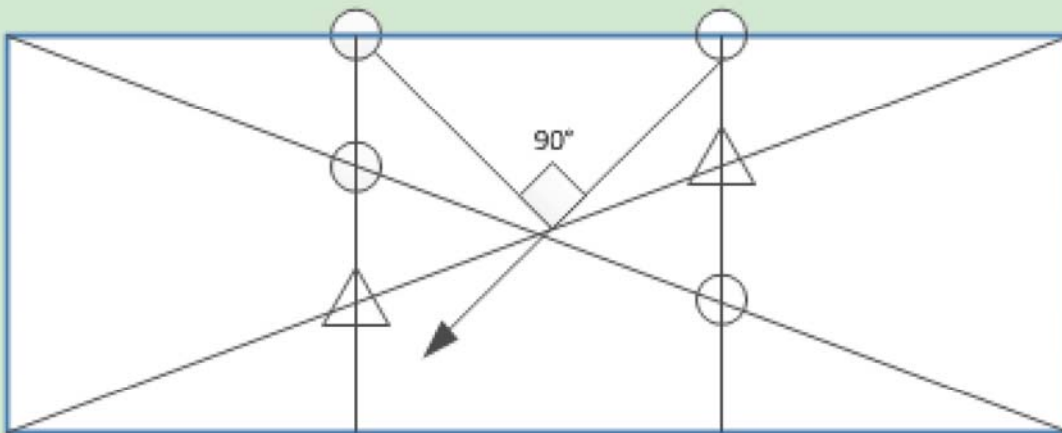
So get to know the behaviour of both fish and plants. Add your fish specimens as you build up your plant population. Consider using the “dry start method” for your amphibious plants (Freshwater and Marine Aquarium, Dec. 2009) to minimize the work and algae problems. If you introduce a specimen that does not “harmonize”, admit you made a mistake and “yank” it out for the OVAS auction.

For me the purpose of aquascaping is to bring together beautiful and interesting specimens to create something that is more than the sum of its parts and do it in as natural a way without breaking the bank, or turning it into an exercise in engineering. Thus producing a living piece of art which is also an ongoing biological experiment allowing me to continue learning from nature.

Feel free to ask questions at any OVAS meeting. Always remember, never start with the end goal! Just keep your eye on it from the start. It’s okay to take several years to develop your aquascape – nature does. This way, you stay in the hobby longer and that is a good thing. The creative and fulfilling aspect of aquascaping comes from time spent developing the design. Thus, the longer it takes, the more you can savour this aspect of the hobby.

As Gandalf tells Frodo: “Life is not about what you have, it’s about what you do with the time we are given.”

So, enjoy the time you spend on aquascaping!



Joe Schwartz
Vice-President

P.S. Special thanks to the aquarists who have brought plants to past OVAS auctions. Of all the plants in my aquascaped aquarium, only two were not acquired through OVAS. The fish were purchased from Big Al’s in Kanata.

Select one pair of focal points ○ or Δ for hardscaping rock or driftwood. Leave sides/central area relatively open to facilitate:

1. Observation of pelagic fish
2. Room to net fish
3. Ability to move gravel siphon
4. Open volume for water currents

Joe's Aquascape Summary

Tank Setup Date	December 2008
Tank Size	72" x 24" x 24" – rated 180 gallons; actual gallons 155
Light	T5 HO: 2 x 10,000K, 2 x 6,700K One bulb changed every 3 months
Photoperiod	Winter: 6 - 8 hours Summer: 15 - 18 hours, includes 4 hours off
Temperature	Winter: 70 - 76°F Summer: 75 - 80°F
pH	Winter: 6.6 - 6.8 Summer: 6.8 - 7.2 buffer adjusted
kH	2 - 4° gH > kH
Filters	1. Eheim Pro II – runs 24/7 2. Internal canister, daylight turbulence only 3. U.G. filter 3 sq.ft. under driftwood Eheim powerhead used as backup 4. Air pump / Hydrosponge – night only
Heater	300w used mid-Nov. to mid-March as tank is insulated with 1.5" polystyrene
Substrate	<50% fluorite, <50% gravel, some soil
Fertilizer	Flourish + Flourish Iron at 1/3 dose
Driftwood	Mopani + Native (Algonquin Park)

Jar Show Results for October, November, December 2011 & January 2012

October 11 – Barbs & Tetras

FOM

1st Joe Krawchuk – 6 pts

Senior Open 1st Joe Krawchuk – 6 pts, 2nd

Joe Krawchuk – 5 pts

Best in Show Joe Krawchuk - Albino Cory Cat

November 11 - Rift Lake Cichlids

FOM 1st Joe Krawchuk – 6 pts

Senior Open 1st Joe Krawchuk – 6 pts

Best in Show Joe Krawchuk - Kribensis

Dec. 11 Jar Show Results

FOM – Swords, Platies and Mollies

1st Joe Krawchuk

2nd Adrienne Elson – 5 pts

3rd Ken Brady – 4 pts

1 pt for showing to Catherine Salmon, Joe Krawchuk,

Ken Brady (2 pts)

Best in Show – Joe Krawchuk, Male Swordtail

January 12 - Anabantids

FOM

1st Joe Krawchuk – 6 pts

2nd Bob Hayslip - 5 pts

3rd Joe Krawchuk - 4 pts

Others - Joe Krawchuk (1 pt)

Best in Show

Joe Krawchuk - Male Betta

Livestock – as of Dec. 2011

* = bred/reproduced in situ N = Numerous

6 Octocinclus	* eggs/fry
6 Black Phantom Tetras	
6 Rummy Nose Tetras	*eggs
8 Gold Line Pencil Fish	*eggs
8 Pygmy Corydoras	
6 Bloodfin Tetras	
N Cherry Shrimp	*
N Assassin Snails	*
N Malaysian Snails	*
N Microsorium (3 varieties)	*Spores/Adventitious
3 Nyphaea micrantha	*Adventitious
1 Nyphaea sp.	*Tuber division
N Vesicularia sp.	*Spores
N Echinodorus tenellus	*Runner
3 E. bolivianus sp.	*Crown division
N Marsilia hirsuta	*Runner
3 Crinum calamistratum	
N Cryptocoryne willisii	*Rhizome
N Cryptocoryne wendtii	*Rhizome
6 Cryptocoryne ponderiifolia	*Rhizome
9 Cryptocoryne balansae	*Rhizome
3 Aponogeton crispus	*Flower/seedling
1 Aponogeton undulatus	*Adventitious
1 Aponogeton ulvaceus	*Flower
2 Anubias barteri barteri	*Shoots a rhizome
2 Anubias barteri nana	*Shoots a rhizome
3 Bolbitis heudelotii	*Rhizome



Anubias caladifolia
photo © by
DAve Unruh

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Horticultural Highlight

By Joe Krawchuk

Red Ludwigia

Not only is this plant beautiful to look at, adding a splash of color to your tank, but it is also moderately easy to keep and maintain. Red Ludwigia, or *Ludwigia mullertii*, is a stem plant that does best in temperatures ranging between 65 and 85 degrees.

This plant is found primarily in North America and requires a pH of between five and eight. In terms of lighting, it needs medium lighting conditions at least. In ideal situations, it is known to grow rather quickly, but a lack of adequate lighting can produce a browning of the leaves. This, in turn, has the potential to degrade the entire plant.

In my tanks, I use Red Ludwigia as a mid-ground plant. It doesn't grow as fast or as

tall as some of my vals or swords, but at the same time it gets too tall to be in the



foreground. There are some who say that this plant doesn't do well without some sort of CO2 set-up. It has been my experience that while yes, it does grow and spread more with CO2 and fertilizers, it does grow without, too.

It is an attractive plant to have in any tank and, in my opinion, one that is worth a bit of extra fuss to maintain.

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Keeping & Spawning a Whiptail

Catfish Species – by DAve Unruh

Hemiloricaria eigenmanni

This quest to spawn *Hemiloricaria eigenmanni*, one of many species of the so-called whip-tailed catfish, started about 18 months ago when I was cleaning the small 13 gallon tank that I was keeping these whiptails in.



As I was siphoning some dirt at the bottom of the tank I was surprised by a sudden movement near the siphon tube. It was not one of the parents as they were in a couple of PVC tubes at the back of the tank and besides, they were much larger at about 15 cm (6”) & easily noticed. I stopped the siphon and looked around that area and after moving a couple of java fern plants I saw what had caught my attention. It was a small fish, in fact a very small duplicate of the larger adults in the tank. I had not even thought about trying to spawn these fish, in fact I did not even know I had a male and female, but the proof was in front of my eyes. I instinctively knew that now matter how hard they tried, two males or two females could not produce offspring. It was a good design, to need one of each sex to accomplish that.

As I thought about these fish I realized that this had sort of started more than 10 years ago when I first got these fish in. At that time I was buying a lot of fish wholesale for resale (& a few I would keep for myself) from a few of the local fish wholesalers. But the wholesaler I bought from the most was Fish Place in Tonawanda, USA just across the border. They were the only wholesaler who would deliver

my orders to my door at no extra charge (through Canadian customs even). That’s likely why they are still in business (although they do not deliver here anymore) while so many Canadian wholesalers are gone. But, I digress. On one of the availability lists there were Whiptail cats, so I ordered a bunch of them, even though the actual species was not listed. They arrived in good condition, as usual, and I got the 16 that I had ordered. They were about 10cm (4”) long. I sold quite a few quickly and after a few months I was left with just two. They sort of got forgotten as I scaled back the business of selling fish.



After awhile they were relegated to a small 24 x 14 x 9W” (13 gallon) tank. It was a little cramped for them since fish like these don’t really care about the height of the water they are in, they are more concerned about the bottom space (if they are concerned at all). They had fluorescent light, a Tetra sponge filter, some java fern plants and some 4 cm (1.5”) diameter PVC tubes. Also a few pieces of 3 cm diameter bamboo tubes. They did not seem to prefer one over the other as I would see them in either from time to time. I fed them regularly along with the rest of the fish in the room. They got a staple of Tetra Bits, flake food, a bit of spirulina flake or pellets and once or twice a week they would get blood worms, brine shrimp or mysis.

When I decided to actively try to spawn these fish I began feeding them mostly meaty types of



Female *H. eigenmanni*
photo © by Dave Unruh

food such as frozen bloodworms, mysis and brineshrimp. I also gave them Tetra Bits as well as occasional feedings of live white worms. I left the water alone as it was at a pH of 6.5 and was fairly soft at about 80 μ S (microseimens). The temperature was around 23°C.

I knew that with many similar catfish types the size of the spawning site was of the most importance, rather than the material from which it was made. The fish do not seem to care that the tube in which they spawned was made from PVC, bamboo, clay or ceramic. It is the inside diameter that is important. They seem to like to be able to wedge themselves in the tube with their pectoral fins, possibly as part of the spawning procedure or perhaps for protection after the eggs are laid. So the tubes I had in their tank were likely OK, as far as I could tell.

The Spawning

After a couple of weeks of a better diet (and no eggs laid) I decided I would try to get things started by a cold water change. This is a common trick to do to get catfish laying eggs. I decided to start off with a 50% water change. I also took this opportunity to remove as much mulm and debris as I could while I performed the siphoning of the water. Then I took straight reverse osmosis water that was cooled to 16°C and added it to the tank.

The next day I checked the tubes in their tank and there was the male tending a nice sized

bunch of green eggs. At least it was most likely the male as the males are typically the ones that tend the eggs in the catfish group. The eggs were placed on the inside bottom and up the side of a PVC tube. The male was on top of some of the eggs but moving around the entire clutch of eggs. After observing him for a few minutes I left him to do his job, cleaning the eggs and keeping the water moving over the eggs. Three days later I could see the embryo developing in the eggs. Some of the eggs turned white and did not hatch. Two days later I decided to remove the tube with the eggs and allow them to hatch in a three gallon tank that I had prepared for this purpose. I had taken some water



Hemiloricaria eigenmanni eggs
Photo © by Dave Unruh

out of the main tank and used it to fill a hatching tank. A well aged Tetra sponge filter for biological filtration as well as a small power filter (with foam over the intake tube) to provide good water movement were used. I placed the tube on the bottom of the tank in such a way that the water movement from the power filter would flow through the tube and over the eggs.

The fry had hatched out of the eggs 9 days after being laid and were stuck all over the inside of the tube. Sometime late in the evening some of the fry ventured out of the tube and by the next morning most were scattered all over the tank. They still had a large green egg sac so

I was not concerned about feeding them but I knew I would have to provide some sort of food for them in a day or two. Two days later their egg sac was gone and they seemed to be looking for food so I gave them some crushed Tetra Bits



H. eigenmanni fry (with green egg sac)
on foam filter
photo © by DAVE Unruh

along with live baby brine shrimp. I did not think they would chase the brine shrimp (and they didn't) but I hoped that as the shrimp grew weak and fell to the bottom or got stuck on the sponge filter the fry would find it and eat it.. At first it seemed to work as the fry were eating something but the fry gradually died off. After a week there were only ten left out of the sixty or so that had hatched. Another week went by and there were only 4 left. These four survived to be raised up and eventually sold.

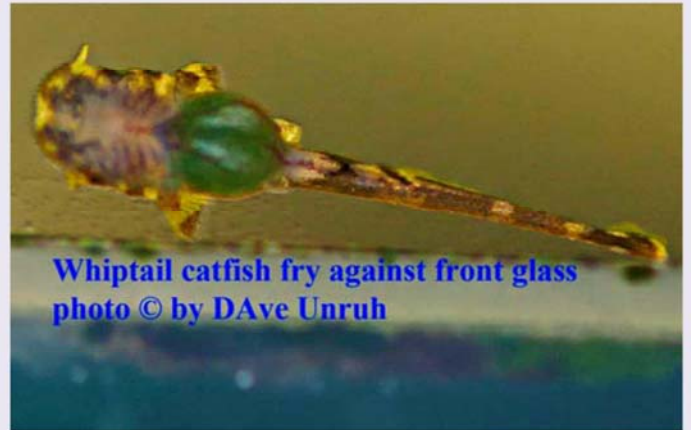


Whiptail catfish fry just hatched
photo © by DAVE Unruh

Another spawn was needed so I did the 50% water change on the adults and again it worked quite well. This time I left the eggs with the male until just before they hatched. I used the same method as before. But when the egg was gone I began feeding decapsulated brine shrimp eggs to the fry. These eggs will not hatch, but have all the nutrition as a newly hatched brine shrimp, maybe more even. The eggs fell to the bottom and also on to the foam filter. This

approach seemed to work as the fry ate the eggs evidenced by their swollen stomachs.

There were about 20% of the fry that did not survive, but that was OK as this hatch was a bit larger at about 80 fry. I did daily water changes



Whiptail catfish fry against front glass
photo © by DAVE Unruh

of about 20% of the water volume for the first three weeks, then gradually lessened the frequency of the water changes. As the weeks went by there were some more fry that died till I was left with about 15 fry.

As they got larger I added some Tetra Bits and micro worms to their diet. The next spawn I eventually got a higher survival rate but it was still on the low side with only a 40% survival rate out of the eggs that hatched. After about one year the first of the offspring had grown to about 3.5 “.

I have learned that very high water quality must be maintained. All uneaten food must be removed within a day or so or the fry begin to die off. This fish may be fairly common and easy to spawn, but the challenge is in the raising of their offspring.



H. eigenmanni 8 month old fry
photo © by DAVE Unruh

SCANNING THE EXCHANGES

& etc.

with Pat and Tom



GOOD READING...

- ▶ ... in the Hamilton & District Aquarium Society's monthly bulletin – January, 2012
 - *Spawning the Super Blue Kerri Tetra by Charles Drew
 - *Setting up a Reef Tank: Part 1 by Marty Ziegler – First published in Gravel Gossip, Diamond State Aquarium

- ▶ ... in the Kitchener-Waterloo Aquarium Society's newsletter – 'Fins and Tales' - January 12, 2012
 - *Roadtrip: The Ohio Cichlid Extravaganza 2011 Articles and images by Zenin Skomorowski
 - *No Longer Just a Feeder Fish by Jeff Lowney The article is about Convict cichlids
 - *Pseudocrenilabrus philander-dispersus – The Copper Mouthbrooder by Al Ridley

- ▶ ... in the Greater Akron Aquarium Society's Newsletter – 'Tank Topics' – January, 2012
 - *Poeciliopsis Viriosa by Rich Serva

Most clubs' newsletters are on their web sites. If they are not available to you, let me know and I'll provide you with the article you'd like to read. PatB.



BAP ACHIEVEMENT AWARDS presented at the December meeting

Dave Furness
Betta pugnax..... 10 pts.
Julidochromis transcriptus 15

Dave was also awarded the Master plaque for breeding 30 species of cichlids.

Congratulations! Tom Bridges, BAP chair

UPCOMING EVENTS To June 24, 2012

- February 12, March 18, April 22, May 20 and June 24 – CAOAC meetings:
 - Executive meeting at 11 a.m.
 - General meeting at noon. Waterdown, ON
- February 19 – Tropical Fish Club of Erie County. Annual winter auction. For more details go to <http://www.caoac.ca/html> go to Calendar and the respective clubs.
- March 25 – Brant Aquarium Society. Spring auction and show. Details as above.
- March 31 – Calgary Aquarium Society speaker weekend. Details as above.
- April 6 – 8 – Aquaria Expo and CAOAC CONVENTION, hosted by the Aquarium Society of Winnipeg. Details as above.
- April 15 – Durham Regional Aquarium Society. Aquariama -- auction, Vendor Expo and a Nano Tank Show/display. Details as above.
- April 21 – Sarnia Aquarium Society. Spring auction. Details as above.
- May 6 – London Aquaria Society. Spring auction. Details as above.
- May 27 – 2012 Toronto Reptile & Tropical Fish Expo. Details as above.

ALWAYS CHECK EVENTS IN CASE OF CHANGES!

MONTHLY SCAAS AUCTIONS!

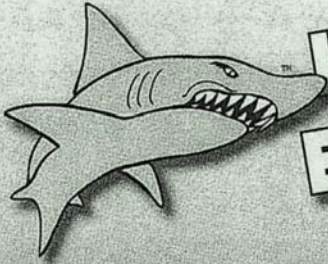
In the interest of time and better prices, please stick to the club policy of putting no more than three of one kind of item in the auction, (e.g. 3 bags of Hornwort, guppies, etc.). Thanks!



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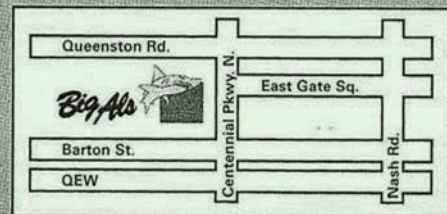
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