

Bramble Freshwater Tropical aquarium

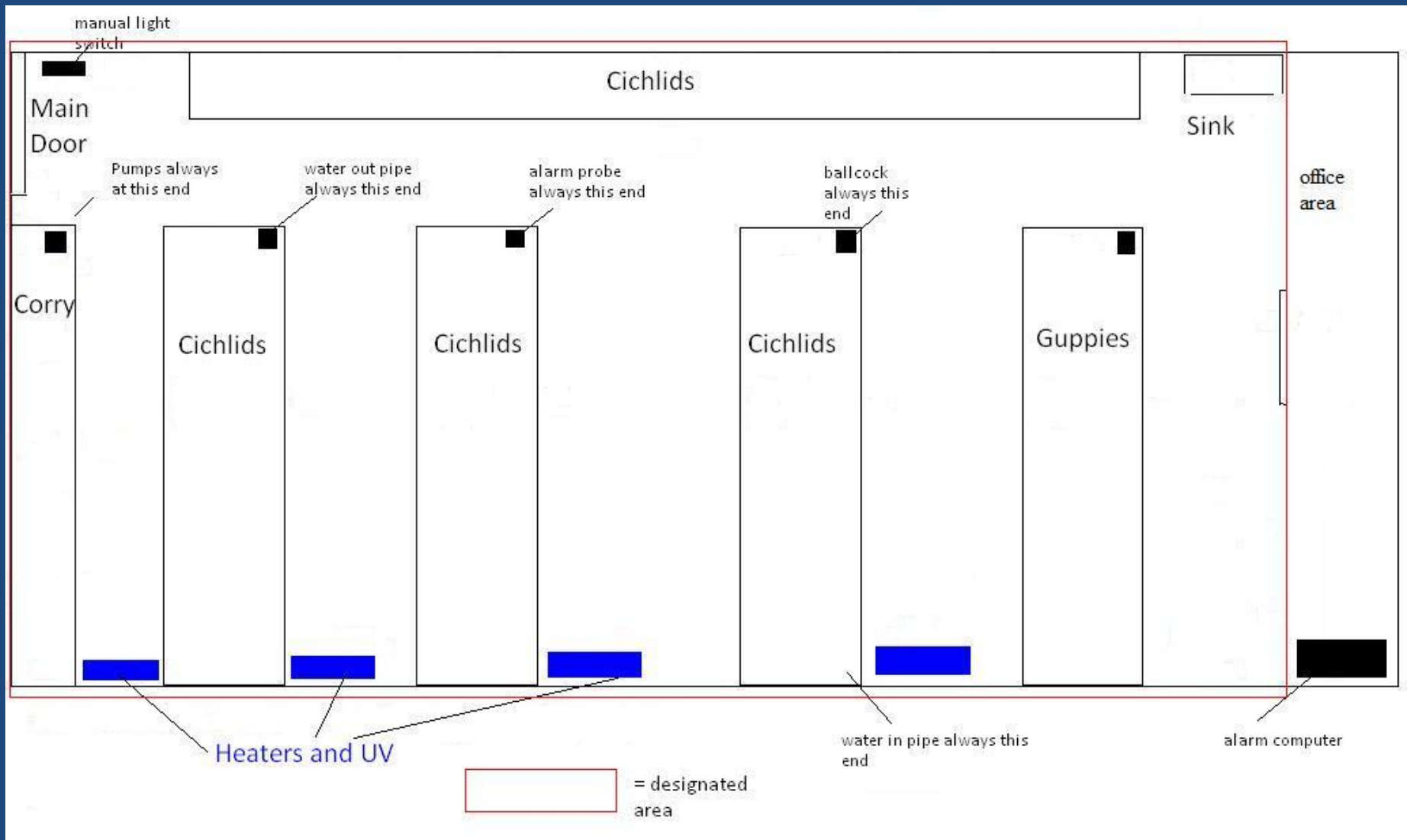


Bramble Freshwater aquarium

- Bramble building basement, old workshop backs on to the CT rooms.
- Finished and ready for fish September 2009
- A consequence of the room itself is the freeing up of other facilities – CT rooms etc
- Fantastic selling point of the School and research here in Bangor

Basics

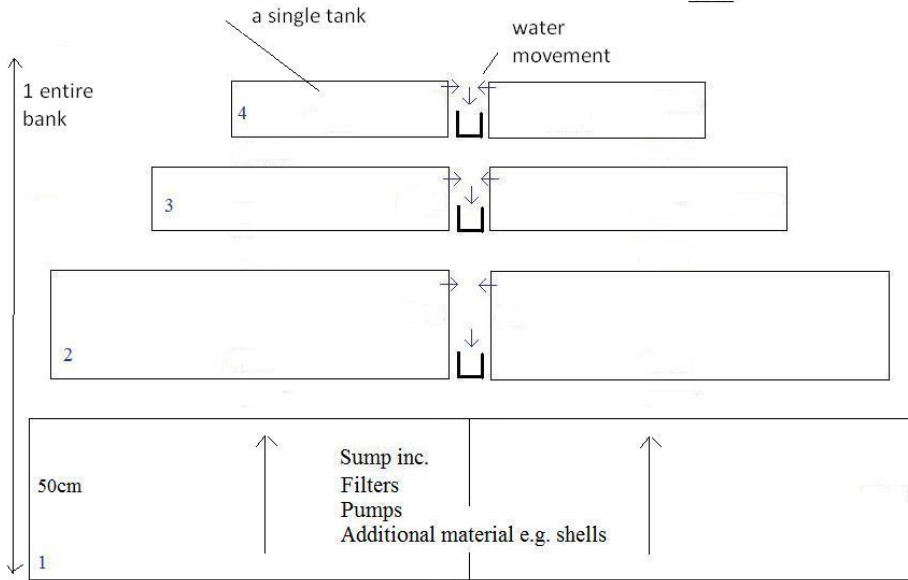
- 23 000 litres of filtered, treated and heated fresh water
- 7 isolated “banks”
- 3 ½ tiered banks
- 1 uniform bank
- 2 x 8 metre experimental tanks



Tiered banks

- Each full tiered bank has approx. 4300 litres
- Tiered banks have 4 levels
- Level 1 = Sumps – pumps/filters/alarms/ (4 x 400 litre tanks)
- Level 2 = 8 x 195 litre tanks
- Level 3 = 16 x 30 litre tanks
- Level 4 = 32 x 9 litre tanks
- ½ tiered bank against wall and exactly half of 1 full tiered bank

side view of one whole bank

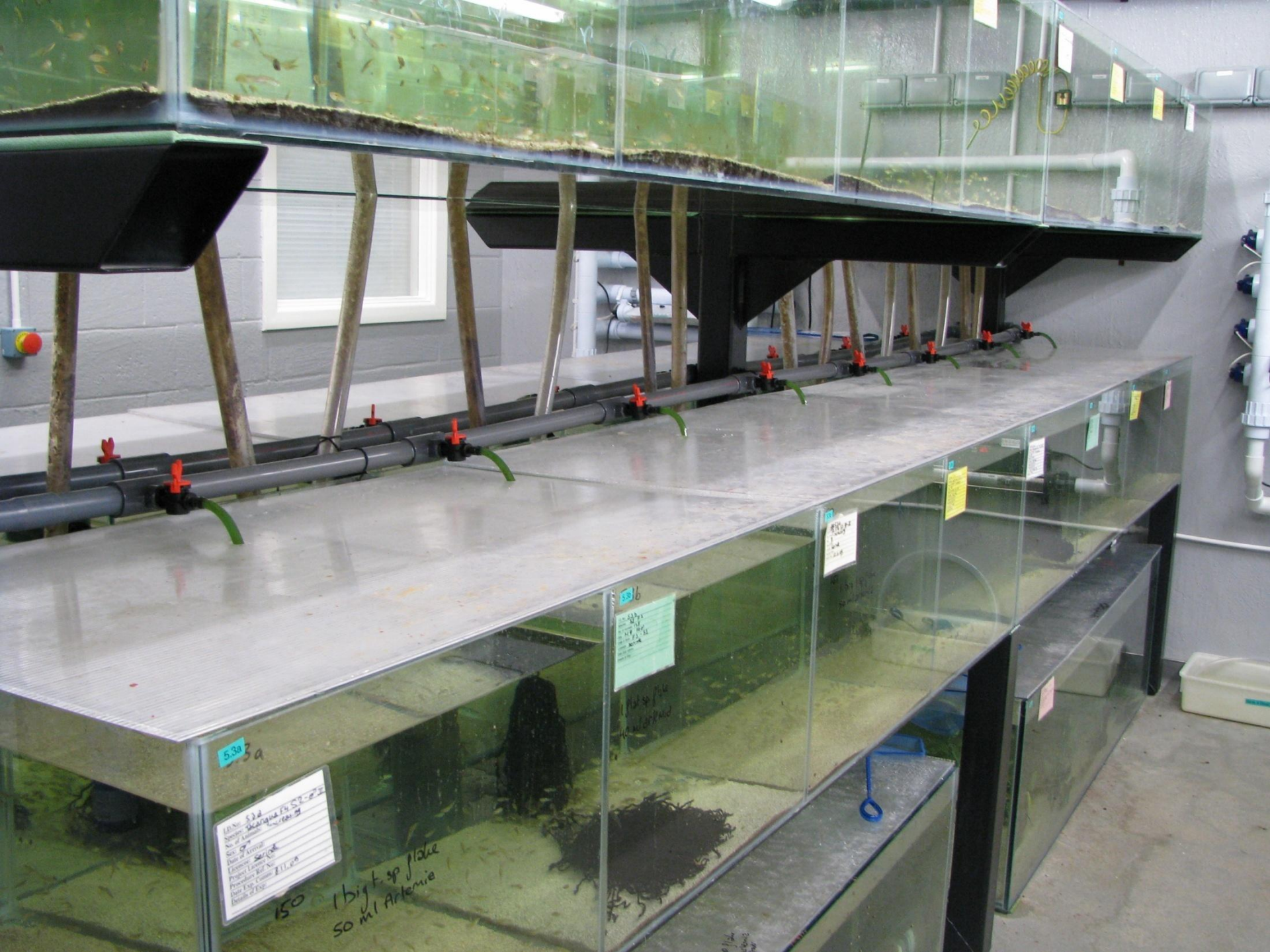


Having a tiered system has many advantages....



Uniform bank

- Level 1 identical to tiered banks (i.e. 4 x sump tanks)
- Level 2 and 3 have 16 x 120 litre tanks in each
- Therefore 32 identical 120 litre tanks
- Or 32 replicates of the same conditions at once!



5.3a

| | |
|--------------------|----------------------|
| Lab No. | 532 |
| Species | Shadiquei sp. SR-272 |
| No. of Animals | 1000 |
| Sex | ♀ |
| Date of Arrival | |
| Primary Location | SR-272 |
| Secondary Location | |
| Date Exp. Comm. | 8/1/08 |
| Initials of Exp. | |

150 1 big t. sp. fish
50 ml Artemia

5.3b

| | |
|--------------------|----------------------|
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Experimental tanks

- 8 metre long tanks = 1600 litres each
- Each has 2 x sump tanks
- Both isolated from each other and the rest of room
- Each can be partitioned multiple times depending on needs or not at all if you fancy a swim!



Common features

- Banks isolated from rest
- Tanks can be isolated from bank
- All tanks have compressed air – constant O₂ saturation – vigorous fish!
- “mature” biological and mechanical filtration – 0 ppm Ammonia, 0 ppm Nitrites, ~ 0 ppm nitrates
- UV sterilisation
- Automatic water changes
- Ability to vary water chemistry between banks (and in short term between tanks)
- Room is air conditioned



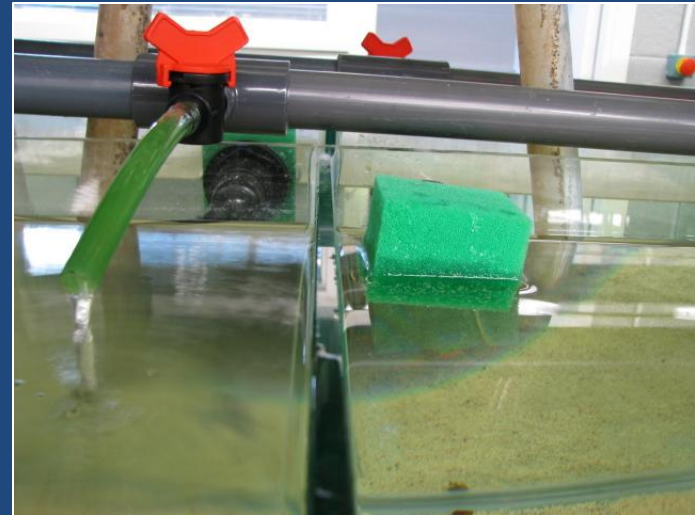
3 kilowatt
external heaters



Inline UV
sterilisation



Mixture of biological and
mechanical filtration



Simply turning off inflow
pipes isolates any tank within
a bank

Features of the whole aquarium

- Control of light timing (typically 12/12)
- Wet lab at rear combined with office
- Office has sink, 2 computers, phones, desks, whiteboard and storage areas
- All banks alarmed: power failure, temperature and water level – automatic dialler calls technician or myself, 24 hours a day
- All aspects of room involved consultation with home office to rubber stamp “designated room” and help with personal/project licenses etc

Finally...the fish!

- ½ Tier – Corrydoras, south American cat fish
- PI Martin Taylor and PhD student Markos
- 50 + species, many not yet described
- Polyploidy
speciation,
convergent evolution
- Many wild caught species

Finally...the fish!

- 3 full tiers – mostly African cichlids
- Approx 30 + species or insipient species across 5 + genera within the Cichlidae family
- PI George Turner, myself and Alix Tyers
- Answering questions regarding the explosive radiation of the African cichlids using behavioural experiments and genetic analysis
- Vast majority wild caught or 1st gen lab reared
- Won't find many of the species/populations in captivity anywhere else in the world!

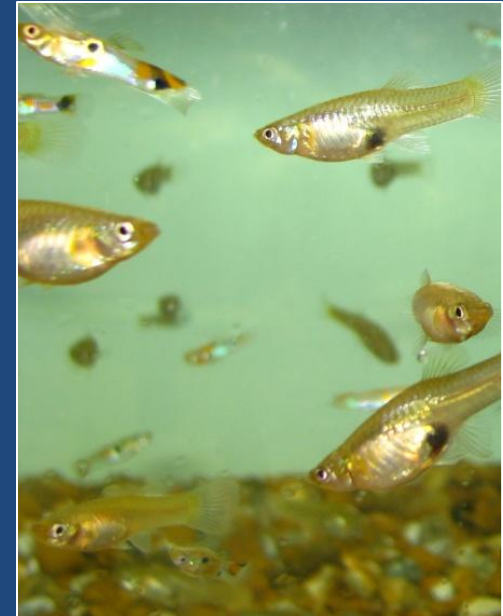


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The uniform bank

A model for fisheries-induced evolution

- PI Gary Carvalho and PhD Student Serinde
- Size selection on wild Trinidadian guppies (*Poecilia reticulata*)
 - Mimic size-selective harvesting by commercial fisheries
 - Compare magnitude of response to changes at genetic level
- 2500 maturing F4 fish in 32 tanks



Last but not least

- Technical help primarily from Ash Tweedale
- Number of 2nd year lab placement students and 3rd dissertation students, masters students, visiting scientists possible
- If you fancy a visit come down and I will be happy to show you what we have in more detail