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Aqua-culturing the Jade Perch.
Meet Bruce Sambell, our February guest speaker

Bruce Sambell in the hatchery at Ausyfish. *Photo: Scott Lamond*

Bruce Sambell, often called the Perch Man, is the founder and designer of Ausyfish Pty Ltd, which he built in 1988. He developed Ausyfish into an industry leader hatchery, producing Jade Perch, Silver Perch, Murray Cod, Sleepy Cod and many other Australian native freshwater fish, and whilst he is not at Ausyfish anymore, he remains a business adviser to the enterprise.

Bruce has been involved with fish at a commercial level for almost 40 years. His role as industry consultant has provided cross sector experience at many levels and Bruce provides sound advice to existing industry participants and especially those considering entering freshwater finfish aquaculture.

Considerable experience has been gained during the commercial development of Australian native perch, with Bruce being the first to breed many species, including Sleepy Cod, freshwater Archer Fish, and a number of small Australian native varieties for aquariums. Bruce was one of the first to ever spawn Jade Perch. He has now been breeding them longer that anyone currently in the industry.

Bruce was the president of the Aquaculture Association of Queensland Inc. (AAQ) for about 15 years, and was also Vice President of the Queensland Aquaculture Industries Federation Inc. (QAIF) for over 3 years. He sat on the committee of QAIF for over 14 years.

Bruce has sat on a number of Government bodies as an industry consultant including the Queensland Department of State Development and Innovation's Aquaculture Reference Group, the Queensland Freshwater Management Advisory Committee, the Translocation Sub-Committee for freshwater fish, and Queensland's Stocked Impoundment Permit Scheme Sub-Committee (an advisory body for stocking freshwater fish in lakes and rivers throughout Queensland for recreational anglers.)

Bruce was also the industry "food safety" representative for a number of years. As part of his role as industry leader he coordinated many major aquaculture conferences and training workshops.

Bruce has sat on several regional advisory bodies, including, the Fisheries Regional Development Committee for Hervey Bay and the Fisheries Regional Development Committee, Bundaberg. In 1999 Bruce was made "Patron" for ANGFA ACT.


Bruce holding a Barcoo Grunter, *Scortum barcoo*, also known as the Jade Perch. *Photo: Scott Lamond*

In 2000 Bruce was appointed to the "working group" for the Conservation Genetics Inventory Project for Murray Darling River Fish.

Bruce is making a HD video for his presentation to us which will cover the Coal Grunter in aquaculture, from catching the breeders in the bush to rearing the fingerlings, including hormone induction; also some stuff on commercial production of rainbows.

Top left: Bruces "Queenslander" home at the Ausyfish property.
Top right: an aerial view of the Ausyfish fish farm.
Right: outdoor grow-out ponds.

One of two main dams on the property.

Contents

Editor's Note

Welcome to the first edition of VICNews for 2016.

As I promised in the last edition, I have written an article on that fantastic trip Phillip Littlejohn, Finn Wrigley and I did to the Tarkine Wilderness in Tasmania at the end of November last year.

There is an update from Cuz on the Specialist breeders group which is a good reminder that if anyone is interested in the important job of preserving rare species in the hobby, they can contact him at a meeting.

I have included an article from the IUCN website on the effects that large scale dam construction, for hydro-electric power generation, is having on freshwater fish species around the world.

Lastly, there is an article taken from the abc website on the hot issue of using a virus to control carp in the Murray-Darling river system.

President's Report February 2016

Welcome to another great edition of VICNews. I hope that everyone had a safe and happy Christmas and new year.

Once again, the committee has been busy organising interesting speakers for the coming year and also some great field trips for all who are interested.

As I always do at the start of each year I would like to acknowledge all of the sponsors who have supported ANGFA Victoria over the past year. As a show of our appreciation, I urge you to give these businesses priority when buying any aquarium, amphibian or reptile related products:

Amazing Amazon
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Exotic Aquatic
Subscape Aquarium
Upmarket Aquarium
Victorian Reptile Supplies

Contact details of the above are listed at the back of this issue.

We are always on the lookout for any new topics that you would like to hear about so please feel free to contact any of the committee members and let them know - we will do our best to find the best available speaker so that you can hear about subjects that you have an interest in.

Lastly, if you think you have something to offer the club- by joining our committee please come and see us - we always welcome any new help that becomes available.

Have fun and happy fish keeping. Kwai Chang-Kum.

Surveying for fishes and aquatic fauna along the coastal area know as Dartys Corner in northwest Tasmania last November during the Tarkine Bioblitz. We made such frequent stops that the aquatics team left their waders on all day. Here we are unloading gear from our 4WD at yet another little unnamed creek that drains from the teatree to the coast. *Photo: Greg Martin*

The Field Trip Files: Bob Brown Foundation Tarkine Bioblitz, northwest Tasmania, 19th-22nd November 2015

The Rapid River in Tasmania's far northwest. A breathtakingly beautiful and wild Tasmanian river in still-undisturbed forest.

Story and Photos by Greg Martin

The Bob Brown Foundation's 2015 Tarkine wilderness Bioblitz, held over the 72 hours of the 19th to the 22nd November 2015, was an opportunity for ANGFA members to be involved in not only a great cause but also an opportunity to visit a unique area with like-minded people; professional and citizen scientists, environmentalists, hobbyists and other passionate local and international people. Phillip Littlejohn, Finn Wrigley and I volunteered to assist with the freshwater fishes surveying on behalf of ANGFA Victoria.

Thursday 19th November.

Having been notified late Wednesday afternoon that Inland Fisheries Service Tasmania had granted us our permit, we flew down to Launceston the next morning, hired a 4WD and headed south then west to Davenport on the A1. On leaving pretty Launceston we travelled out through splendid countryside, not unlike parts of southern Gippsland Victoria but with different Eucalypts and a truly staggering number of small dead wallabies and other macropods littering the roadside. We noticed some very interesting crops as well; fields of opium poppies loosely fenced off with token signs warning against trespass. After Davenport the A1 winds its way through more routine farming country joining the coast at Howth, then along through Heybridge, Chasm Creek, Wivenhoe and finally Bernie. The coastline along the northwest is so beautiful and there are so few houses it made me wonder why everyone doesn't move down to this part of Tasmania...?

West of Bernie the road follows this stunning coast through Parklands, Cooee, Ocean Vista, Camdale and Somerset only heading inland at Doctors Rocks on the outskirts of Wynyard. From Wynyard and on to Smithton the road travels through flatter country as the mountains are set further back from the coast. In this area are floodplains as the rivers meander slowly to the sea. Little deltas wiz by - picture postcard snapshots of perfect cool climate estuarine habitat begging for exploration at a later date…

At about Hellyer what looks like an "island of the coast" comes into view; this is "the Nut", a sheer-sided bluff - all that remains of an ancient volcanic plug, that sits just to the east of Stanley and is connected to the mainland by a narrow spit. If one takes the B21 road off to Stanley, as we did, you come to a quaint

Galaxias brevipinnis from the upper Nelson Bay River

little fishing village perched on the side of this amazing natural rocky feature.

From the coast at Stanley the road heads inland to Smithton, the location of our base for the weekend. In order to provide infrastructure for the expected 100 or so volunteers, The Bob Brown Foundation had hired a large hall called Riverbend Youth Centre, on the outskirts of the town. This building was perfect for the "base camp"; plentiful accommodation, several large rooms for the sorting of specimens and the subsequent data entry thereof, a lecture room for scientists to show slides or movies, and a fully equipped kitchen where a skilled team of people cooked up splendid vegan food to feed everyone.

Thursday afternoon was allocated for familiarising ourselves with the facilities, getting to know one another, formulating a plan for the required surveying and then a trip out to see one of the two main areas we would be working in over the next few days: a remote area on the northwest coast just south of Temma at Big Eel Creek, about an hour and a quarters drive through the Tarkine from our base camp at Smithton.

Phillip Littlejohn and I, having been put in charge of fishes and aquatic fauna surveying, teamed up with Stuart Rose who was survey leader for macroinvertebrates; Stuart replaced John Gooderham who was at the last minute unable to make the trip. The three of us formed the core of the "aquatics team" that concentrated on sampling the waterways we found. Our initial objective was to sample, as best we could with the available equipment, freshwater creeks at a couple of specifically chosen coastal sites, as mentioned above, and several rivers in the Tarkine wilderness. We were looking for fishes, crustaceans and macroinvertebrates, and as I had never been to Tasmania before I especially hoped to see a Giant Freshwater Crayfish *Astacopsis gouldi*, and we were slap bang in the middle of some of the only remaining *Astacopsis gouldi* habitat!

After being shown which wing our accommodation was in we were briefed, prior to heading out, by Dr Nick Fitzgerald, chief scientist for the Tarkine Bioblitz. Nick ran through the aims

"The Nut", all that remains of an ancient volcanic plug that dominates the horizon as you drive west past the turnoff to Stanley.

for the weekend describing how data would be captured by people of various specialisations and disciplines covering the following fields: plants, mammals, birds, spiders, fungi, bryophytes, moths and butterflies, orchids, rock pools, bats, footprints and scats, invertebrates, macroinvertebrates, reptiles and amphibians and of course fishes and aquatic fauna. We were given data entry sheets to be filled out at each site, recording GPS waypoint (or Northing and Easting), position accuracy, site name, species name, date and the name of the survey leader and scribe.

Biosecurity was an issue that required special mention and Magali Wright talked us through how there would be sterilisation stations at the various sampling locations that we would be required to use for our footwear to prevent transmission of foreign pathogens, Phytopthera and Chytrid funguses and unwanted weed seeds etc from being spread into these pristine locations.

After these important briefings we headed out to the coastal site to get a feel for the area. To get to this site one drives up into the Tarkine wilderness, crossing over several beautiful rivers, on through alternating wet and dry forest until the road finally comes out, it seems within a few metres, into wild coastal heath; impenetrable, dense, treeless and windswept. On the road

Dr Nick Fitzgerald briefs volunteers on the proposed strategy for surveys and data collection over the weekend.

Main photo: The beach between Little and Big Eel Creeks. **Inset:** A Sooty Plover Chick hiding amongst the Bull Kelp on the beach. The parents were noisily warning us to tread carfully so we gave this area a wide berth.

through the Tarkine there are frequent sets of speed mitigation humps that remind you to slow down for the wildlife; it was nice to be on the alert for Tasmanian Devils as we drove expectantly and carefully.

Through the heath one drives down off the plateau until the sea comes into view. The previously good road then becomes unsealed and follows the coast south to a small "town" called Temma - a group of half a dozen or so fishing huts with several locals eyeing you suspiciously as you drive by. After Temma the road changes to 4WD only, with several people in our group choosing to abandon their cars and walk the last couple of kilometres into the survey site. We drove.

At the end of the track there were two houses - huts real ly - that were perched right on the beach in this wild and windswept landscape. We were told that one hut belonged to a "save the Tarkine Wilderness" sympathiser and other one (most

Looking west along Big Eel Creek, almost at the mouth with the ocean in the background. As the creek is higher than even the high tide mark, the water was surprisingly fresh, although the prevailing winds would bring some salt drift.
We we found *Galaxias maculatus, G. truttaceus*, two eels and also congoli *Pseudaphritis urvillii* in its tea-coloured, and surprisingly warm water.

Stuart Rose examines his net for macroinvertebrates in Big Eel Creek.

emphatically) did not! The word red-neck was used by one of our survey team as she described the dangers of meeting an ATV head on, driven by a drunk local, as we negotiated the narrow sand tracks that crisscross this remote area.

The huts was as far as we could drive so the rest of the way to Big Eel Creek was on foot. Loading up with nets and our field tank, donning waders and cameras, we headed down the sand towards the other side of this exquisite little bay where the mouth of the creek meets the sea. Walking along the beach one chooses either firm wet sand where the progress is brisker and there is the risk of getting wet from a rogue wave, or higher up on the beach where the sand is softer and the going is tougher. We started walking where the sand was firmer but about half way around the bay

A Congoli *Pseudaphritis urvillii* from Big Eel Creek

we were harassed by Plovers who had babies in the kelp along the middle of the beach so we moved up the sand, to avoid disturbing the birds, and hugged the dune line at the top of the beach. Big Eel Creek, deep and tannin stained, looks almost as if it is looked after by a team of gardeners; the shrubs along the sides are cropped by the wind and the grass on either side is "mowed" by the plentiful macropods - I learned that this is called a marsupial lawn.

Some other volunteers joined Phillip and I for an afternoon of dipnetting and we quickly caught lots of juvenile *Galaxias maculatus*, some juvenile and intermediate *G. truttaceus* with gorgeous red in the fins, Congoli *Pseudaphritis urvillii* and a couple of intermediate sized Short-finned Eels *Anguilla australis*. More extensive sampling up and down the creek produced more of the same species so we decided that instead of returning to this creek the next day as scheduled, we would sample some of the surrounding areas behind the dunes between Little and Big Eel Creeks.

On our return to base camp that evening we were treated to a splendid meal of roast potatoes with lashings of spicy curry and a superb coleslaw salad followed by baked apples for dessert. After dinner we filled out our data sheet for Big Eel Creek and looked at macroinvertebrates with Stuart Rose under the microscope.

Above: Looking east upstream along Big Eel Creek: the grass on either side beautifully manicured into a 'marsupial lawn' by the plentiful wallabies and other small macropods that call this place home. **Above right:** *Galaxias truttaceus* with beautiful red finnage from Big Eel Creek.

A shallow pool surrounded by Teatree, behind the dunes between Big and Little Creeks.

Friday 20th November

Friday morning was an early start with some teams leaving before six. After a delicious breakfast and much needed freshly brewed coffee we waited to see who was allocated to join us (the "aquatics team" now incorporating macroinvertebrates), then we headed back to the coast to investigate some areas we had seen behind the dunes the day before.

After arriving at the coastal site, we walked up Little Eel Creek to see if it was fed by a large "pond" we had found behind the dunes. As we walked up this creek progress became more and more difficult as the teatree growing on either side of the creek eventually formed an impenetrable wall, stopping us from getting any further. So we then walked back around and up through the dunes past an ancient Aboriginal midden strewn with mollusc shells from a thousand feasts, then down the back of the dune to the pond that we think probably feeds Little Eel Creek.

Myriads of morphing Common Eastern Froglets *Crinia signifera* were caught in each sweep of the net in our first sample site on Friday at Dartys Corner on the coast.

Site one: This beautiful little pool tucked behind the dunes was quite shallow (not more than about 2 feet deep) and was tea coloured from the Teatrees that almost completely encircled the water which was teeming with tadpoles! We set up our field tank on a lovely patch of sand where the dune is slowly advancing away from the ocean into the pond. Very soon we had a white tray seeming with tadpoles, water beetles, snails and various other macroinvertebrates including Clam Shrimps (Conchostraca). We put various animals into the field tank so that anyone who wanted to could take macro shots of what we found. Stuart Rose and Phillip Littlejohn took samples of the macroinvertebrates for identification later on.

Whilst we saw some "fish-like" things darting before our nets in this pond, we couldn't actually catch any, so after a fairly exhaustive attempt to do so we eventually packed up the kit and headed off to the next area. The "swamp" that the first pond we sampled was a part of was quite extensive and so we followed it south, accessing the water where we could through the Teatree. We found no fishes but lots of Ostracods and extremely small newly-morphed frogs in an area where the water had recently receded - indicated by great mats of algae that would have been flourishing in the shallows but which was now exposed and drying.

This little Common Eastern Froglet *Crinea signifera* climbed out of the white sample tray as we watched.
A little later in our search for open water to sample in the same system as the teatree lined pool that this frog came from, we found absolutley tiny recently morphed froglets, even smaller than this one.
This specied of frog was abundant in huge numbers at Dartys Corner.

Along the path through the long grass we saw what someone in the group described as Tasmanian Devil scats. Eventually we wound our way back to Big Eel Creek which we re-sampled after all. After comprehensive dip netting performed both from within the creek and carefully from along the banks, we were told to head back along the beach to the "carpark" area as weather began to roll in from the ocean to the west! Through driving rain (very heavy but not icy cold) we trudged back along the beach (once again avoiding the baby Plovers) and re-joined the other groups for a splendid lunch that had been prepared and packed for us by the kitchen team very early that morning.

Clam Shrimps (Conchostraca) found in the pond behind the dunes at Dartys Corner on the west coast. If you look closely you can see eggs at the bottom right of the photo.

Tasmanian Mudfish *Neochanna cleaveri*, found in good numbers at site 2.

Site two: After all the groups had eaten lunch together, we reconvened back into groups again and headed off towards home, deciding to sample as many little creeks along the ways as we possibly could. We had not yet found any Tasmanian Mudfish, *Neochanna cleaveri*, and this coastal stretch was prime *Neochanna cleaveri* habitat. Just north of the collection of fishing huts they call Temma, we stopped at the first drainage ditch, one that Phil had noted might be worth checking out. Whilst it didn't look like it would harbour much being just a thin sliver of water under thick Teatree cover, Phil soon had Mudfish in the net and a Tasmanian

Engaeus lengana one of 3 species of non-spiny freshwater crayfish that are found on the west coast of Tasmania. Phil found 2 of the 3 species.

endemic freshwater crayfish *Engaeus lengana*, one of only 5 that are recorded from the northwest of Tasmania. Bingo!

Our second stop - not far up the road from the first creek - was a bigger creek with a large but shallow main pool. There was evidence of this creek being used by cows as a thirst quenching water hole and despite the water being very muddy, we found lots and lots of *Neochanna cleveri* and some more juvenile *Engaeus lengana*.

Site three: Our third stop, a small creek about another kilometre further up the track, was full of *Galaxias truttaceus* and *G. maculatus* but interestingly, had no sign of Tasmanian Mudfish.

Site 3. A fairly deep creek situated behind the dunes. At wet times of the year this would flow out between the dunes to the sea. Although this creek was just up the road from site 2, there were no Mudfish.

Site four: We drove up through the coastal heath back towards the border of the Tarkine forest where we found our fourth afternoon stop, the upper Nelson Bay River, which was also not flowing at this time of year but had a fair bit of water. Phillip headed upstream and Staurt, Finn, some volunteers and I worked our way downstream from the road over pass. We could hear frogs and we were finding tadpoles and lots of macroinvertebrates but no fish, so we retraced our steps and joined Phil who had by this time disappeared from view around a couple of corners in the river.

Whilst we had had no luck, Phil had caught several Galaxias in his part of the river so we set up the field tank to have a closer look at what he had. These fish were stunning, exhibiting a vivid stripy colouration leading us to (half-jokingly) call them Tarkine Tigers! To add to our excitement, whilst we were photographing these stunning fish Phil spotted a couple of parasites on one of them - *Dolops tasmanianus* - very exciting for Phil who had never seen any Dolops in the wild before and these were a local Tasmanian species. These Galaxias were later confirmed by Tarmo Raadik to be *Galaxias brevipinnis*.

Stunning *Galaxias truttaceus* and an enormous *G. maculatus* found in the creek at site 2.

Galaxias "Tarkine Tiger". These would later be identified by Tarmo as *G. brevipinnis*. These fish came out of the upper Nelson Bay River and exhibited wonderful stripy colouration - hence the name we gave them on the day.

From Nelson Bay River it was a good hour's drive back to our base for another splendid meal, after which we wrote up of our data sheets while Phil examined the freshwater crayfish he had collected for identification back at base.

Dolops tasmanianus, a seldom seen Copepod that parasitizes fish and is endemic to Tasmania.
These two little animals excited Phil very much indeed!

Saturday 21st November

We had by now teamed up with Helen Keenan (freshwater algae) and Saturday was our scheduled day to be spent sampling in the Tarkine forest rivers.

Site 1: Arthur River. This spectacular river is what one might think of when wild north-western Tasmania is brought to mind. At our sample site this river lies within a deep gorge with large boulders strewn hither and thither. Large chunks of 'driftwood' tree trunks pushed up against rocky islands in the river indicate that it must have, at certain times of the year, a very high flow. It was flowing quickly although the depth of the main river made it hard to calculate just how strongly. The forest lining each side was made up of tall eucalypts, various wattles and dense beech in the wetter gullies.

Here we found beautiful *Galaxias truttaceus* in a pool isolated from the main part of the river by rocks. Sampling for fishes in the main river was very difficult due to the depth, current and slipperiness of the rocks, however we were able to find representatives samples of various macroinvertebrates and some Parataya shrimp.

Arthur River. Deep, fast flowing and pristine, very much the archetypal Tasmanian wild river.

The Julius River: a tributary of Arthur River and a beautiful cool water stream that babbles over moss covered rocks under Tree Ferns and Beech Trees. With all the fallen timber and leaves in the river, this is prime nursery habitat for *Astacopsis gouldi*.

Site 2: Julius River. This gorgeous little river, tucked away down in a protected rainforest gully, was very reminiscent of many streams in the Victorian Great Dividing Range - there are Tree Ferns and Beech trees lining the river banks that drop those little round leaflets into the water, moss grows everywhere, bearded lichen hangs from low branches and the water is shallow and cold with an almost closed canopy overhead. We had been told by Stuart Rose of a medium sized Giant Freshwater Crayfish that he had been seen a couple of nights before, right where we were to be sampling. We worked our way up the river carefully turning rocks over and feeling underneath for anything. Before long I had a juvenile *Astacopsis gouldi* in my net, and then another one! I carefully brought them back down the creek to be photographed in the field tank. Some other survey team members also found small *Astacopsis gouldi* in this creek but no adults were seen. On reflection we thought perhaps a night survey would get better results for seeing an adult

A juvenile *Astacopsis gouldi* already showing some small spines forming on the body. Only a few were found in our surveying.

Closeup of the face and mouthparts of a juvenile *Astacopsis gouldi*. This was just a baby but in time, perhaps as long as 40 years, it could grow to over 5kg and 80 cm in length.
Named in honour of the naturalist John Gould these magnificent animals are found only in Tasmania. In order to breed successfully they require undisturbed habitat in cool, unpolluted rivers with lots of in-stream timber on which they primarily feed.

Lake Chisholm. A flooded sinkhole surrounded by rainforest.

. **Site 3: Lake Chisholm**. This picturesque lake is a flooded sinkhole surrounded by thick rainforest and is located about 500m from the carpark. The walking track to the lake winds through truly enormous and undoubtedly ancient Myrtles, Eucalypts, Blackwoods, Celery-top Pines and Sassafras; and we even saw Huon Pine. The forest was very dry at the time of our visit which we were told was unusual, nonetheless the staggeringly abundant Hard Water Ferns *Blechnum sp.* gave the understory a lush appearance. The shores of this secluded lake are completely lined with forest and the logs of trees that have fallen into the water over the years are covered in mosses. The tannin stained water is quite warm, perhaps due to its dark coloured. Sampling the water, we found tadpoles and various macroinvertebrates including Planorbid snails and Amphipods, but no fish.

We then headed across to Dempster Plains to join the other survey groups for another brilliant packed lunch. Whilst eating lunch we were shown a couple of tail feathers from an Eastern Ground Parrot that had been found during a survey walk through the heath. This was undoubtedly one of the highlights of the trip for me as this amazing parrot is incredibly rare, almost never seen at all and for us to see a couple of tail feathers was probably a once in a lifetime event! The beautiful pattern of these two feathers will stay with me for ever. Then it was back in the vehicle to the next site. After lunch we did attempt to find an interesting area where there was a couple of sink holes near Dempster Plains, but despite careful searching for over an hour, we were unable to actually find the site, so I'll skip straight to the next site.

The waters of the lake are tannin-stained and full of fallen Beech leaves.

Two tail feathers from an Eastern Ground Parrot *Pezoporus wallicus*. These were found by one of the bird survey teams in coastal heath.

Horton River, a tannin-stained tributary of the Arthur River. Finn Wrigley and Phillip Littlejohn look for any sign of movement in the dark waters indicating that a Giant Freshwater Crayfish is on the move.

Site 4: Horton River. This wonderful wild river is at the end (quite literally as the bridge is broken to the point of being impassable) of the Sumac road heading south from Dempster Plains. As is the case with so many of Tasmania's rivers, this one is very tannin-stained. Whilst the freshwater algae team looked for their specimens under and around the old bridge we headed upstream to do our macroinvertebrate and fish sampling.

As seeing anything in the water was almost completely impossible due to its very dark colour we had to rely on feel and luck in our (yes, still hoping) search for *Astacopsis gouldi*. Not long into our sampling Finn Wrigley shouted with great excitement that there was a large Crayfish just near where I was standing! Straining my eyes against the reflection on the water and the fact that I was looking for a black animal in black water I caught a glimpse of the crayfish and lunged forward trying to get my net in front of it. I missed and a cloud of sediment came welling up obscuring the crayfish completely. Randomly drawing my net across the rocks I wildly flayed around hoping to catch the animal by chance. This was to no avail, and despite meticulously going over the area a dozen times, we were unable to find that Giant Freshwater Crayfish.

A magnificent Stonefly nymph (Plecoptera) with red wing buds.

We weren't sure what these were - possibly snail eggs?

We did however find one large and one small *Engaeus fosser*, another freshwater crayfish to add to our species list. Stuart found some interesting macroinvertebrates including some huge stonefly larvae with quite red wing buds.

Sumac Road ends here, at this impassable bridge on Horton River. Travelling further south on this road is impossible, which is probably a good thing for the forest south of Horton River

Phillip Littlejohn surveying Rapid River upstream from the road bridge. This river was extremely difficult to sample with dipnets because large round rock, that were everywhere, prevented us from being able to manouevre our nets effectively.

Site 5: Rapid River. Our last sample site was the Rapid River yet another stunning tannin-stained wild Tasmanian river. Thick rainforest lines the banks and the bottom is strewn with large round rocks making scraping the bottom, with the net to flush out small aquatic animals, almost impossible. We did not find any fish in our dip netting efforts but there was a dead eel under the bridge. There were some interesting Caddisfly larvae that we found and also some strange pink 'egg-like' things under some rocks. Lots of Stonefly larvae casings, still clinging to partially exposed logs, indicated that there were probably lots in the river. After this exhausting long but exhilarating day in the field it was finally once again time to return for a welcome meal at our 'base camp'. Being so mentally drained I was unable to fill out any data sheets until the next morning although Phillip Littlejohn soldiered on into the night carefully keying out the crayfish from the Horton River.

A non-spiny crayfish sits in a shallow bowl waiting for Phil to go through the painstaking process of keying it out.

These pink egg-like things were under a rock in the Rapid River

Helen Keenan uses a microscope to identifies freshwater Algae in our makeshift lab at base.

Sunday 22nd November

Sunday morning was a day to tie up loose ends, complete data sheets and then head back along that spectacular coastline to Launceston. There were some people who got up before sunrise to do some last minute surveying but generally speaking everyone had completed their sampling by the end of Saturday. As things drew to a close there was an exhausted but euphoric atmosphere amongst all involved; so many great people had come from all over the country to be involved in an important event that added more to a growing foundation of scientific knowledge that, it is hoped, will give even more reason to preserve this unique area for further generations to enjoy.

Weary, inspired and very happy to have made the effort to be involved Phillip Littlejohn, Finn Wrigley and I joined the dozens of fellow volunteers all heading home to different parts of the country. Thanks for sharing your vast knowledge Phil and thanks everyone for an amazing weekend.

Stuart Rose identifies macroinvertebrates with the aid of a microscope.

Rainbow Group Report January 2016

Melanotaenia fredericki. Photo: Neil Armstrong

We are still sending eggs (& sometimes) fry across the country, the list of species available continues to expand, and we get useful tips from our members, such as this one from Tony Fowler in northern NSW:

"I'm not sure what has happened in the last 12 months but my production and fertility has increased quite a bit. Things that may or may not have helped are breeding very young, adding Seachem Tang buffer, Aquaclear filters on the tanks so high oxygen/flow, putting three or four mops in the tank."

Also some of our rainbows let fry survive in their tanks. One such is what we used to know as *Melanotaenia fredericki*, the Sarong Rainbow which is now very rare in the hobby. When they are young they have a pink-apricot metallic lateral stripe which is quite attractive. If you see a tank full of these, you won't forget it. Anyway we have been trying to increase the numbers of this fish & despite my best efforts, they'd only laid twice on the mop (5 eggs & 1 egg!) over the last few months. (From 4 young adult pairs.) When the one egg appeared, I scooped out some tank water to hatch the egg in & the scoop contained 3 fry of differing ages. Surprised by this, I scooped again & got a couple more. So they are laying, but I've no idea where. I had a large plant of fine-leafed Java in the tank & took that out to see if they were laying on that, but not one hatched. So it seems not the mops (or not often) & not some of the plants.

They have done this previously in a colony I had at Warrandyte, but because of the positioning of the tank I could see the fry then (and my eyes were younger). I had to take out the fry regularly because after a while the bigger fry would eat the smaller. So let's hope I can get them up.

If you've had a similar experience with any of the larger rainbows (not Blue-eyes), we'd love to hear about it.

We are still trying to expand our list so we'd love to have you on board.

Don't forget if you want to be part of the group, send me or Ross or Glenn your list of what you have (this remains confidential) and any species you would like to focus on. If you haven't got them we'll try to get them for you.

John Cousins

One third of the world's freshwater fish at risk from hydropower dam expansion

The Bhumibol Dam (formerly known as the Yanhi Dam) is a concrete arch dam on the Ping River, a tributary of the Chao Phraya River, in Amphoe Sam Ngao district of Tak Province, Thailand. It is located about 480 km (298 mi) north of Bangkok and was built for the purposes of water storage, hydroelectric power production, flood control, fisheries and saltwater intrusion management.
The Bhumibol Dam, among others in the Chao Phraya basin, was constructed beginning in the 1950s to exploit the agricultural and hydroelectric potential of the basin. *Source: Wikipedia*

From the IUCN website 8th Jan 2016

A paper released today in *Science* shows that an unprecedented boom in construction of hydropower dams in the world's most biodiverse river basins – the Amazon, Congo and Mekong – is placing one third of the world's freshwater fish at risk.

Findings from the paper "Balancing hydropower and biodiversity in the Amazon, Congo, and Mekong", highlight that whilst the planned construction of around 450 new dams will provide an energy needs solution, there is currently a lack of accounting for the negative impacts to freshwater biodiversity. Insufficient consideration is given to the cumulative impacts from multiple dams in the same watershed and to the economic losses faced by communities who depend on these river systems for their livelihoods.

Data from the IUCN Red List has helped to reveal the extent of this threat by providing information on the distributions of many of the world's freshwater fishes" says William Darwall, Head, IUCN Freshwater Biodiversity Unit and co-author of the paper. "The challenge we now face is to ensure this type of information is effectively integrated within decision-making processes for planning and operating hydropower dams in order to minimise the potential threat to these species."

At least 346 new dams have been proposed in the Amazon river basin and the impacts of these will include not only the direct effects on the rivers and the species within them but also forced relocation of human populations and expanding deforestation associated with new roads.

Six large dams have been built on the upper Mekong since the mid 1990's and at least 88 more are planned for the basin by 2030. To maintain food security for local populations due to projected fisheries losses, a further expansion of agricultural land between 19 and 63% would be needed.

The authors propose that in order to maximize societal benefits and minimize environmental degradation, more comprehensive and rigorous impact analyses must be mandated prior to the planning, financing and initiation of new dam construction. This should include basin-scale planning that account for cumulative impacts and climate change in order to minimize impacts in these biodiversity rich rivers.

Increasing availability of powerful analytical tools such as Environmental Flows, spatial data on biodiversity and our improved understanding of the ecological functioning of freshwater ecosystems provides new opportunities for governments, funding institutions and dam developers to select suitable sites

The Mekong giant catfish *Pangasianodon gigas*, is a threatened species in the Mekong, and conservationists have focused on it as a flagship species to promote conservation on the river.
The Mekong Giant Catfish used to be found from the lower Mekong in Vietnam (above the tidally influenced brackish water of the river's delta) all the way to the northern reaches of the river in the Yunnan province of China, spanning almost the entire 4,800 km (3,000 mi) length of the river. Due to threats and changes to its environmant, this species no longer inhabits the majority of its original habitat; it is now believed to only exist in small, isolated populations in the middle Mekong region. Fish congregate during the beginning of the rainy season and migrate upstream to spawn. They live primarily in the main channel of the river, where the water depth is over 10 m (33 ft). *Source: Wikipedia*

Julien's Golden Carp *Probarbus jullieni. Image: Fish Southern Thailand.*
Historically, this fish was found in the Mekong, Irrawaddy, Chao Phraya, Meklong, Pahang, and Perak River Basins of Southeast Asia, specifically in Thailand, Lao PDR, Cambodia, Vietnam, Myanmar, and Malaysia. Now, this fish is found mainly in the Mekong River Basin, however there are some small populations in the Phahang and Perak River Basins. In these river basins, Jullien's carp are found in fast rapids and clear pools of water. During the rainy season they live in deep waters, but during the dry season, which is also their spawning season, they live in shallow waters.
Since the Irrawaddy River Basin is one of the last areas of refuge for the Jullien's golden carp, the recent creation of the Myitsone Dam in Myanmar is further threatening its existence. However, as of 2011, the usage of this dam is suspended due to international, regional, and national conservation efforts. *Source: Wikipedia*

for dams so as to minimize impacts on natural resources, ecosystem services, and rural communities.

"If the advice given in this policy piece is followed it should lead to a reduction in the impact of the global hydropower boom on freshwater biodiversity and its associated services," says William Darwall. "Without more careful planning, we will see an increase in species extinctions and declines in fisheries and other ecosystem services."

The three gorges dam that spans the Yangtze River in China.
In 2014 the dam generated 98.8 TWh of electricity, setting a new world record by 0.17 TWh previously held by the Itaipú Dam on the Brazil/Paraguay border in 2013 of 98.63. *Source: Wikipedia*

The massive Itaipu dam, located at the Brazilian-Paraguaian border and not far from the Argentinian border, supplies approximately one-fifth of Brazil's energy. The water behind the dam took only two weeks, due to heavy rain, to rise 100 meters filling the reservoir.
Each year ITAPU generates 75 TWh of electricity and avoids 67.5 million tons of carbondioxide emissions - compared to coal power plants.
Source: Wikipedia

Murray-Darling carp plague requires urgent release of fish virus say farmers, environmentalists

Close up of a European carp.
In some areas, European carp have become so dominant in the Murray-Darling Basin that they now make up 90 per cent of all fish in the river.

An unlikely coalition of farmers, environmentalists, scientists and fishers has called for the Government to do more to protect Australia's largest river system from a plague of introduced fish.

European carp have infested the waters of the Murray-Darling Basin in their millions.

They churn up mud, making the water uninhabitable for native fish, insects and birds.

In some areas they have become so dominant, they now make up 90 per cent of all fish in the river.

For the past seven years, CSIRO scientists have been investigating the potential efficacy of an Indonesian strain of carp herpes as a way to control the fish.

The virus could kill carp only, leaving other fish and animals unscathed.

"We're getting toward the end of the scientific end of the work," lead researcher Ken McColl said.

"The main thrust of our work at CSIRO has been to look for any untoward effects of this virus on other species.

"We don't want the virus to affect anything other than carp.

"Over quite a number of years we've looked at about 13 species of native fish ... and we've not been able to find any evidence of disease or virus multiplication in any of those species.

"So we don't believe it does anything in any other species."

Dr McColl said the scientists have also investigated the affect of the virus on yabbies, mice and chickens and have also researched cases where humans have come into contact with the disease.

"We're fairly confident that it's not going to cause problems elsewhere," Dr McColl said.

Farmers, environmentalists back release of carp virus

Usually at opposite ends of Murray-Darling issues, the Australian Conservation Foundation and the National Irrigators Council have joined calls from the National Farmers Federation, the Australian Recreational Fishing Foundation, the Invasive Species Council and the Invasive Animals Cooperative Research Centre for the virus to be approved for release.

"People often focus on the difference in opinions between environmentalists and farmers, but we actually have a lot in common and healthy rivers is absolutely one of those matters," said Jonathan La Nauze, acting campaigns director for the Australian Conservation Foundation.

"Getting on top of carp is essential if we want healthy rivers and that's why farmers, fishermen and environmentalists are all standing united behind this proposal.

"It really would complement the work of the Murray-Darling Basin Plan, the hard work that we've been going through in restoring environmental flows.

"It's time our Government stepped up to the plate and funded this terrific work in releasing a biological control into the Murray-Darling Basin."

Matthew Barwick from the NSW Department of Primary Industries has added his voice to the chorus.

He said the approvals would take "a couple of years" to process, with hurdles in four separate pieces of Commonwealth legislation.

"It would be one of the largest control initiatives in Australia," Mr Barwick said.

Australia has a history of using viruses to control introduced animals.

The myxoma and calici viruses were effective in knocking down rabbit numbers.

And a feline parvovirus was used effectively to control feral cats on Marion Island.

By Sarah Phillips
From ABC.net.au/news
Wednesday 13th Jan 2016

Club Meeting Details and the ANGFA VIC Trade Table

General Meetings:

ANGFA Victoria's meeting are held on the first Friday of every second month starting the year in Feb, at The Field Naturalists Club of Victoria which is situated at 1 Gardenia Street Blackburn. (Melways map 47 K11). Doors open at 7:30pm. Meetings start at 8.15pm sharp and aim to be finished by 10pm, followed by supper.

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Upcoming Meeting Dates:
Friday 5th February 2016
Friday 1st April 2016

ANGFA Vic Committee Meetings:

Venues: To be announced. Contact Kwai Chang Kum if you would like to be further involved (0430 434 488).

Trading Table

Any financial ANGFA member who has fish, plants or live food that they would like to sell is invited to bring their goods to the trade table. All items being presented for sale must be clearly marked: fish showing species name and location if applicable and plants identified by species. Goods will be accepted prior to 7.45pm and the Trading Table will operate between 7.45 and 8.15pm.

New items now available on the Trade Table from the 'ANGFA SHOP' include airline, valves, nets, fishfood, fish bags and more.

Other Fish Groups in VIC

EDAS
Meets last Friday of the month starting Jan.
Contact: Daryl Maddock (03) 9874 1850

EDAS Plant Study Group
Meets Second Friday of the month (at various members' homes).
Contact: Eddie Tootell (03) 9337 6435 (a.h.)

Aquarium Society of Victoria (AS of V)
Meets last Friday of the month, alternating with EDAS.
Contact: Daryl Maddock (03) 9874 1850

Marine Aquarium Society of Victoria
Contact: MASOV (03) 9830 6073.

Victorian Cichlid Society
Meets first Wednesday of the month.
Contact: Graham Rowe (03) 9560 7472.

ANGFA Vic key contacts

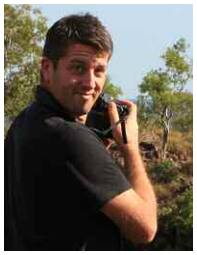
President: Kwai Chang Kum
Phone: 0430 434 488

Treasurer: John Lenagan
Phone: 0413 730 414

Secretary: Glenn Briggs
Phone: 0408 771 544

Vice President and Membership Officer:
Gary Moores
email: kathmoores@yahoo.com.au

VICNews: Greg Martin
Phone: 0407 094 313
email: greg@aquariumsbydesign.com.au



ANGFA Vic Website: Lyndon Giles
email: webmaster@angfavic.org

Contribute to ANGFA Vic on Facebook
ANGFA Vic Website: www.angfavic.org
ANGFA National Website: www.angfa.org.au

Postal mail: ANGFA Victoria
P.O. Box 298 Chirnside Park, Victoria. 3116.

Join ANGFA now!!!
New expanded membership package now applies

To join ANGFA or to renew your membership online, follow these 4 easy steps:

1. Go to www.angfavic.org
2. Click on membership
3. Select membership renewal tab for ANGFA then ...
4. Click the Paypal icon to pay with Paypal.

To pay with your Debit Card or your Credit Card talk to the Treasurer John Lenagan at a meeting.

If you want to use snail mail and pay by cheque, print out the form below, fill out your details and send it to:
ANGFA Victoria, P.O.Box 298, Chirnside Park. Vic. 3116

Join ANGFA now and enjoy benefits including regular meetings, digital versions of two regional club magazines and buyer discounts.

To the Treasurer, ANGFA Victoria, Please accept my application for membership to ANGFA.

(Please print)

NAME.....

.....

ADDRESS.....

.....

.....

Postcode.....

Phone Bus.....

A/H: .....

1. I enclose $45 for my ANGFA Membership which includes digital copies of Fishes of Sahul (FOS), VICNews and the ANGFA NSW magazine.
2. I enclose $65 (in total) to get a printed copy (at the end of the year) of the four editions of FOS for this subscription year, as well as the above items.

Forward application and cheque to: ANGFA Victoria, P.O.Box 298, Chirnside Park. Vic. 3116.

Businesses who support ANGFA Victoria

The businesses listed below actively promote Australian Native Fishes by making native fishes available in the aquarium trade. ANGFA suggests that members show their appreciation by supporting these businesses.

Amazing Amazon
Paul and Ben
365 Springvale Road, Glen Waverley
Phone: (03) 9545 0000
www.amazingamazon.com.au

Aquagreen
Dave Wilson
Phone: (08) 8983 1483
aqua.green@bigpond.com

Aquariums By Design
Greg Martin
Phone: 0407 094 313
greg@aquariumsbydesign.com.au

Coburg Aquarium
Greg Kirby
Phone: (03) 9354 5843
232-236 Bell Street, Coburg
www.coburgaquarium.com.au

Exotic Aquatic
Adrian
300a Neerim Road, Carnegie
Phone: (03) 9079 3899
www.exoticaquatic.com.au

Subscape Aquarium
Justin & Kim
Phone: (03) 9427 0050
310/312 Victoria Street, Richmond

Upmarket Aquarium
Greg Kirby
Phone: (03) 9600 9051
442 Queen Street, Melbourne

Victorian Reptile Supplies
Adam
Phone: (03) 8742 1283
6/75-85 Elm Park Drive, Hoppers Crossing