

Super Annual report for Austrop 2020.

Wow - what a year!

Issues - loss of volunteers and interns due to coronavirus.

We had quite a slate of potential volunteers and student/interns - and then the Corona virus struck. We've been extremely lucky here in Far North Queensland - no local coronavirus cases - so all the restrictions that are impacting southern urban worlds are not affecting us, other than the crazy toilet paper grab (that emptied our local Woolies). I haven't seen a single mask. Some establishments have barriers up - but that's more to keep the Qld. Dept of Health happy.

PK's closed and other closures - "community"

As a result of the corona virus (and the installation of the Telstra/Optus mobile service tower on their property) PK's (local backpackers) has been closed for about 8 months and is not expected to reopen for another 6 months! The Cow Bay Hotel, has also been closed (it was the social centre of the Cow Bay area as well - no idea when or if it will re-open). This has caused some disruption in the social scene here, such as it is.

Mobile telephone installation - issues with land line.

Our area was declared a "Black Spot" for communications - so we now have mobile communications - Optus and Telstra! So the idea that this place can be a haven where the boss (in USA or where-ever) can't phone you to get the figures in by 4 am has vanished. We'll get used to it, but the corollary is that we will probably lose our land lines (currently working) as they are affected by this very corrosive climate and maintenance costs are high. A substantial number of the locals didn't want mobile, but there was no opportunity to object. We really need a UHF Handheld mobile net, but such gadgets have short lives in this environment.

Flying foxes - Cairns Council and impacts here and elsewhere,

Cairns City Council declared war on the endangered spectacled flying fox colony roosting on the grounds of the Library (despite the fact that they have probably been roosting there before Cairns was invented.). It seems that the real reason is that the Council wants "development" - to make Cairns look like Southport (Qld). The realities of our global future just don't even seem to register.

The Federal and State Environment departments just stand by and wring their hands - but won't stop the process.

As a result, we have lots of very discombobulated spectacled flying foxes all over the region - and they are not surprisingly, very skittish. Three years ago we had a maternity colony here of about 4-5,000 (and 70+ rescue babies that went

off to release). In 2019 there were hardly any bats. This year (2020) there have been several thousand bats, who change locations daily (although things are calming down now (Jan 2021). This has been an issue over the whole area. Anyway, the Station (Cluster Fig Nature Refuge), seems to have become a favourite place for the bats - and we get woken up in the morning by the bats carrying-on in the trees above the cabins.



Flying foxes in the morning!

Littoral forest issues

This is becoming a very difficult issue. Some beachside (littoral) areas are now almost completely overtaken by coconuts and Singapore daisy despite the fact that they are in World Heritage areas (for instance Wonga Beach to the south of us). There seems to be a total reluctance by either Council or Wet Tropics Management Authority (who are actually responsible for their maintenance and protection) to do anything about this) plus they have a strong antipathy to anyone else doing anything about it!

Bureaucracy (which is getting progressively worse) and their fear of WPH&S, (“keeping my job is more important than the environment”) seems to be driving this. They cannot acknowledge that someone operating outside their bubble is assisting them. “If we can’t fix the environmental problem, then no one will”. Plus, in the case of Wonga Beach, the Council is now permitting off-road vehicles to travel the 10Km length of the beach (including the WH areas!).

South and North Noah beaches are now cleared of SD

So despite the above, there are areas that fall in the regulatory “invisibility” zone. We have two major beaches, South and North Noah beaches, - about 5 km of almost unvisited beach. N Noah has the QPWS camping ground adjacent, but no QPWS attempts at weed control. S Noah was once the of Noah Valley Farm) and had been cleared for camp sites. Now the coastal section has been bought by State Government and is part of Wet Tropics World Heritage, but the coastal margin was seriously over-run by Singapore daisy (and almost no coconuts!). After 4 years of work by our volunteers and myself, Singapore daisy is almost completely eliminated. (<http://killsingaporedaisy.org.au>). Needless to say, none of the “authorities” will acknowledge what we do or assist in any way.

The big success here - actually has being our ability to clear Noah Valley Farm (upstream) of Singapore daisy (which was infecting the beaches- during times of heavy rain). Luckily the new Farm managers are continuing this work, so we should see far less beach infestation.

Also, **Myall beach** (opposite the Station) is almost completely clear of Singapore Daisy – coconuts, however are another issue.



Noah beach south. This beach was a monoculture of Singapore Daisy 10 years ago – now clear (but will require once a year checkups – as Singapore Daisy seeds wash up in storms). The native littoral forest is recovering.

Microscopes - all dressed up and nowhere to go!

We had a great student group two years ago from Connecticut, and as luck would have it, we were able to get a collection of really good Leitz binocular microscopes from the USA on surplus; the kids used them to look at soil invertebrates.



Greens Farm Academy group looking at soil invertebrates with our new Leitz 'scopes..

Last year, a Sydney based second-hand Scientific equipment dealer, offered us a Nikon microscope which sounded great - so we bought it, Oh dear! they hadn't checked it out and it had been stored (Sydney Uni?) unused, in an area of high humidity – “fungus city”, and it wasn't the Nomaski system that they had told us. At least they reduced the price significantly, but it still needed the attention of a competent microscope technician (“The Microscope Lady”, Townsville) to fix it. It's fine now, and even has an inbuilt camera, so taking photomicrographs is going to be much easier.



The Nikon Eclipse – with its associated camera. Just push the silver button on the display, and the pictures are recorded on flash card.

However, as **we are now a really fully equipped field lab** - better equipped than most, **but how do we attract the students?** Our biggest issue is power - as of course we are **off-grid**. At the moment (mid summer), as it is almost always overcast and cloudy - there is very little solar available. So we are dependent on our little Yamaha inverter-generator. So running Gas Chromatographs becomes a very difficult energy issue (and we have a number of really interesting projects that require it!).

Our saviours are two station-designed and built dehumidifiers (made from bits of salvaged window unit A/Cs with new DC compressors). They all run on 24V and use isopropane as the refrigerant and are about 2x as efficient as the commercial equivalents (and use only about 250 watts each). Designing the correct refrigerant-flow restrictors was the interesting part. So we have both the main and electronics lab more or less humidity controlled (remember – it gets to 95% or more, humidity (and condensing) – which means that at night everything outside can get wet, and the fungal spores take off..



This is the condensing unit and compressor – which dumps the heat from the lab to the air.



This is the evaporator – which condenses the water out of the air – and cools the lab – much appreciated in summer! Also it means that the microscopes etc. don't rot!

The other important saviour, is the **power room** (aka the Dry Room). It stays at about 30+C and no geckos or cockroaches will live there, so all the solar system controls and the inverter (and the batteries) live there – as do all our sheets,

clothes etc. So our clothes and sheets don't get the famous Daintree pong – and the solar electronics work happily in a stable and bug-free environment. It's also where failed electronics etc. are put to dry out.

Upgrades to solar - power issues

Our solar power system started in 1995 (with the delivery of the Pyramid Power System, which is now dying - (rust and old age). We were also donated a collection of solar trackers from WA - which now no longer track because of the destructive nature of this environment. It all "grew like Topsy". This place is exceedingly rough on outdoors mechanics and electronics. So sooner or later the whole shebang will need to be rebuilt.



Disintegrating Pyramid - the front 'door' has collapsed.

We have just invested in another 2000W of solar panels - which will really only get much use when it's overcast (they will be mounted on the laboratory roof). I suspect we will require a major re-design and re-wiring of our solar system. It is very hard, in this environment, to be 100% renewable. In fact, the reality of the degree that we are dependent on fossil fuels is enforced daily!

Water

We rely on a solar powered bore pump for water. Luckily, the water is very free from mineralisation, and bacterial contamination (the aquifer is recharged from rainfall on Mt Sorrow). After a disaster several years ago when the bore ran dry but the pump didn't stop (destroying the pump), we have installed quite a bit of redundancy in the protection system and it's highly reliable.

Politics - Council etc.

This is becoming a serious thorn in our side. Unfortunately the Governmental regulations which control Councils are becoming more and more onerous, so things that would not have been an issue 10-15 years ago, (and which really are largely irrelevant) now loom big as Councils have to abide by them. Dealing with weed issues becomes a major issue - especially if a member of the public objects to spraying (setting off a whole time and energy wasting exercise by Council officers to address the complaint – and “chemophobia” is becoming more common in the community). Our new Local Government is quite right-wing (the previous one was centrist), so environment is unlikely to get much support.

Tree fall -

While this place is amazingly different to what it was in the late 80’s when we bought it (grassland), some of the trees that we planted then have now reached their “use-by” dates, especially *Alphitonia* and several others. They die, and collapse. We had one fall on one of the cabins - and while it didn’t do as much damage as expected - managed to break a roof bearer and several rafters. Fixable.



The other issues are the changes in ownership of properties in the area - increasing numbers of **absentee owners** - who have absolutely no interest in rehabilitation or the area. So at the moment, we have over a thousand plants to plant out - and nowhere to plant them!



Happily growing – and nowhere to go.

Semi-feral folk.

At least the cabins are being used, so we get some minimal rent - as we have no students, volunteers or interns - the accommodation buildings are being used as accommodation for the lost and homeless. We have two long term residents - but as the area attracts many disaffected folk, we are providing 'sanctuary' - and it (sometimes) helps our finances (but not necessarily our psyches!).

Vehicles.

We have acquired a Mazda dual cab 4WD. It was abandoned near the orchard garden for about five years by another local volunteer. We were going to take it to the dump, but decided to re-habilitate it - it's cost us about 3,000 bucks, but it's a good vehicle (surprising given its history). We still have the Subaru - and the donated Toyota ute will go to the original owner of the Mazda (when he gets out of jail!), as the climate has not been kind to it (and he loves fixing things like that). The Subaru keeps on.

Gardening..

we have about 1/2 ha of garden space - currently planted out to purple sweet potato and NG spinach (*Alternanthera*). Gardening is something our modern culture avoids, which is a shame We also have pumpkins starting and as the soil here is 50% rock we were able to get two backpackers to de-rock most of it (a major exercise)! But the weed growth can be overwhelming Unfortunately

our soil is not volcanic so does not have the high fertility tropical soil you might get in Fiji!. In fact the soil fertility is very poor.

We really need to join up with WWOOF (Willing Workers On Organic Farms), as we really are operating in an “organic” farm mode, as far as the garden is concerned, and with everything else we have to deal with, we don’t have time to garden.

General lack of grant support -

Regrettably there appears to be less and less grant money available for environmental work - and that which is available is becoming more and more tied up with quite onerous conditions - which prevent us using it for funding work on public lands. In the past, that wasn’t a problem.

Bat House

- still closed, and unlikely to open any time soon. Queensland Health is quite paranoid about Australian Bat Lyssavirus, but oppose any moves to vaccinate exhibit bats. It is being used as a Community resource location on some days - depending on the energy of a couple of volunteers in the community. But everything here (in the Community) is **so fragile**, that it is impossible to rely on things happening.

Little rescue bat - (Melanie).

We have had one Spectacled FF rescue baby this year, orphaned by a falling tree branch (got separated from her mother). We suspect that she was about 2 weeks old when she was found. Needless to say - she has become very humanised (has been living in the lab), and has developed a strong attachment to Talia, which was quite a problem, as she insisted on flying onto Talia and embedding her many sharp claws in Talia’s leg! She is now being introduced to the big cage Melanie (now 3 mo old) is a very dark speccie, and we wonder if she has a significant admixture of black flying fox (they do interbreed). She’s very bright and interactive. (Not for nothing they get called “sky-puppies”!) Two babies born in captivity here (but not exposed to people) have gone off for release.



Melanie learned very quickly to drink from a drip bottle!

Climate change -

we are definitely seeing the effects here - although this area seems to be a bit of a "Goldilocks" zone - not too hot, not too cold. But we are seeing changes in fruiting patterns, especially of the big cluster figs (*F variegata*).

Research

Currently rather stalled - there are **so many** potential projects, but Station

maintenance takes priority (and a lot of our infrastructure is ageing). Plus - the lack of students and interns doesn't help. Cluster fig phenology is still of considerable interest - but requires a dedicated student to progress it (Sonja, hello??).

Stalled magnetism experiment - no tourists and volunteers.

We had hoped to get on with a much stalled project - looking at human magnetic sensibility (don't laugh - we (or at least some of us) do have it - but to use a favourite word - it's "Inchoate"). H has been working on this for years - and there's sufficient evidence to prove its existence - but it really needs a large sample "n" to be statistically valid. Unfortunately the coronavirus and the resultant closure of backpackers hostels, means we don't have access to the numbers of naive backpackers that we need. As there is no grid power here, it is a very electrically "clean" environment (which is necessary for investigating this). Talia has been using her programming skills to get the system ready. We wait.

Trigeminal Neuralgia

There is a continuing series of requests for help with Trigeminal neuralgia treatment from all over the world. One thing I am finding is how complex this condition is - and how complex people's reactions are. Surprisingly, I get very few "Hey it worked" or "Hey it didn't work" responses. Which is very unhelpful - as I'm trying to write this up (we have the responses of many hundreds of folk). Reminders help.

Flying fox behavioural observation.

We have a wonderful opportunity to do this work – not only do we have a captive colony, but, unless something happens, we appear to have a permanent colony as well right at the Station! We have acoustic recording gear as well. Talia's been looking at the behaviour of juveniles.

Student projects – there are so many possibilities – we know almost nothing about our soil fauna, the role of natural antibiotics in fig maturation, local fungi, role of worms, etc etc.

So your imagination is the limiting factor (Oh, no we can't do things like PCR!) but we do have basic analytical equipment (HPLC, GC, electrophoresis, microscopes, etc).

Financial

We are in the black - but, the realities are, we are currently funded by Hugh's and Talia's age pensions, plus some rental that we get from the unused cabins. We are no longer getting student groups (coronavirus) and the changing dynamic of student tour groups ("Kangaroo Touring" hop here, 2 days, hop there, 2 days etc! which we cannot support), and grant programs such as "Caring for Country" are no longer operating.

So we are OK - but feeling a bit restricted, as we have a number of projects on

hold - and what money we have is held as insurance against a possible cyclone. Unfortunately, Anna our book-keeper has been afflicted by the big C (recovering) - and we are way behind in financial reportage. And we can't access the many thousands of dollars the ATO owes us (GST reimbursement) as Anna is no longer a tax agent. Can anyone help?

Directors

This has been a serious disappointment - I had always hoped that our Directors would be actively interested and involved in the progress of this Station. John Sinclair (now dead, sadly) tried hard (even given his over-riding concerns with Fraser Island). I understand that we are all getting older and this place is in "Woop-Woop" - quite out of the mainstream - and we can't spend (Austrop) time and money being "seen" in the various capital cities. We have one new director, Talia Morris, my partner, but we need FAR more engagement.

How can we engage you? We need at least one new director who is committed to continuing this Station and its aims.

Unfortunately the continuing Governmental pressure to corporatise Universities, has made it almost impossible to get any engagement with University researchers, or get recommendations to their students to pursue studies here. We do get some.

What next? - we need someone to take over

Hugh is now 78 - and while hale and hearty - he may have 1- 20 years ahead of him. Who knows? We really need to find people, (preferably a couple), scientifically trained, enthusiastic about the tropical rainforest, who can keep this place running (and it's a big ask - as one or both will need to be technically competent - as this place's operation depends on understanding solar as well as a bunch of other issues (including plumbing) - and they have to be able to supervise student projects and somehow liase with the strange and fickle broader community.

Free Room and board!