

# JF-8 Junee Cave

## ASF Diving Expedition Report, January 2019

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VSA and STC

*With input from team members Patrick Fitzgerald, Stewart Donn, Andrea Russo, Stefan Eberhard, Grant Pearce and Dave Apperley*

**A** CREW from four states (three Victorians, one South Australian, one New South Welshperson and divers from both southern and northern Tasmania) assembled in the height of summer with the goal of making an assault on Junee Cave (JF-8).

This is the resurgence of just about all the caves in the Junee-Florentine karst, lying under Mount Field, which includes such well-known caves as Growling Swallet and Niggly Cave (the deepest cave in Australia).

The cave is at the centre of the Junee Cave State Reserve, managed by the Tasmanian Parks and Wildlife Service. It is well known for flooding and even summer weather can include snow and torrential rain in the mountain catchment above.

While we were lucky to enjoy mostly rainless weather, the nearby bushfires had to be carefully monitored and planned around.

Junee Cave has seen a number of heroic pushes over the years by many of the who's

who of Australian cave diving. Those hoping to dive to the current end of Sump 2 can expect a thorough spanking from the cold water (6-7°C), depth (max ~65 m) and access (short Sump 1 dive, plus streamway walking both sides, not to mention the cave entrance being 400 m from the carpark).

Doing productive 'working' dives is even more challenging. As usual, seeing the progress made by previous teams was mind-blowing, especially given the modern technology to which they did not have access. Full respect was paid.

While the local Tassie cavers complain about the Sherpa loads for two-tank dives in other JF caves, this dive was an order of magnitude more gear — we collectively used about 40 SCUBA tanks for various things in Junee, plus a scooter, rebreathers, and various other exciting paraphernalia.

Having informed the *Spirit of Tasmania* that we had too many SCUBA tanks to unload (and couldn't empty), they were kind enough to make special arrangements so

that we could leave them in the cars.

The Australian Speleological Federation (ASF) was also kind enough to contribute \$500 towards consumables for the expedition — rebreather sorb and helium.

The team arrived at different times and split into groups with different focus and timings. Even with this many people, there was enough space so that nobody got in anyone else's way, and with some considered planning, minimal impact was not compromised.

The Victorian contingent spent a leisurely two days setting up gear, portaging everything into the cave and preparing to dive Sump 2. For Pat and me, our plan was to stage near Sump 2 everything that would be needed for the entire week of diving (sorb, oxygen, diluent, reels, food, tools, etc.).

With odds and ends added by everyone else, this staging area was soon known as 'The Corner Shop'.

By replenishing our rebreathers in the



STEFAN EBERHARD

*The obligatory team brag pic. Left to right: Stefan Eberhard, Stephen Fordyce, Patrick Fitzgerald, Grant Pearce, Andrea Russo, Stewart Donn, Dave Apperley.*





STEWART DOWN

*The Juneer River emerges at the base of the mountain range from this spectacular entrance (complete with tourist viewing platform).*

cave, we avoided having to carry them out each day and saved a great deal of time, energy and misplaced heat. A pair of 7L tanks were used to transit through Sump 1 (about 200 m long and average depth 12 m).

The dedicated setup and clean-up days were an excellent investment and this system made it possible to do long Sump 2 dives on consecutive days.

Once the cave was set up, it was on to the diving, which proceeded according to the fancy of each diver. It is a whole lot of effort, so some preferred to dive only every second day; others had gear to test and, of course, getting a feel for exposure limits had to be done with a good deal of caution.

For Your Eyes Only is a spectacular piece of decorated streamway cave between the

sumps, and was the subject of several dedicated photography and video days (camera work by Stefan and Stewart, with lighting by Grant, Andrea and anyone else who was handy). It was Stewart and Andrea's first experience in Tassie caves and they did a great job of hauling more than their share of gear, as well as doing some survey dives in Sump 2. They even professed to having enjoyed it.



STEWART DOWN

*The streamway cave between Sump 1 and Sump 2 named For Your Eyes Only is extremely spectacular and seldom visited. It's also good for photographers taking pictures of models looking speculative.*





*Impressively proportioned and decorated passage in For Your Eyes Only.*

The end of Sump 2 has been pushed by several very capable people, so it was always going to need something special to yield anything new.

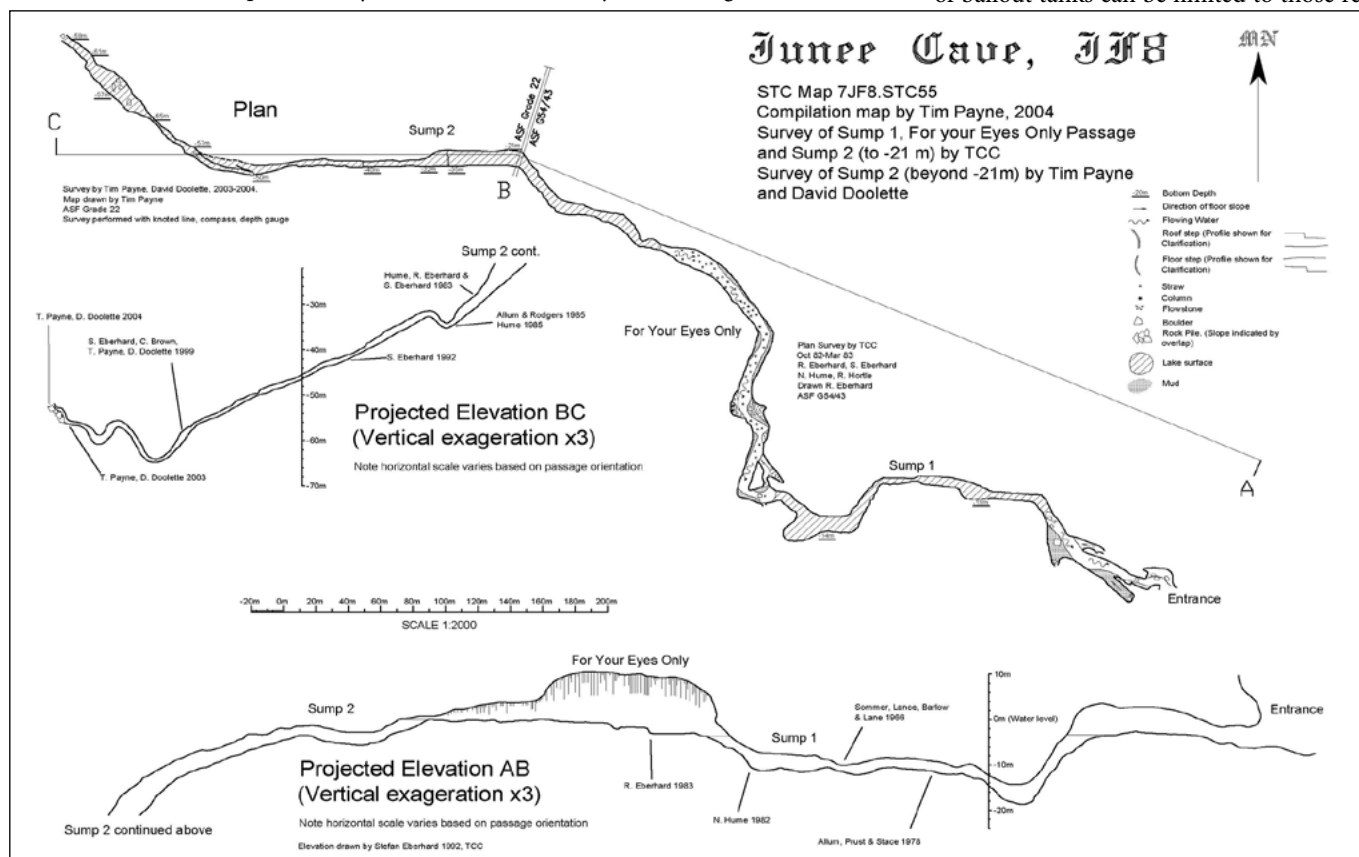
A good start to giving a push the best shot is to give it lots of shots and knowing this, our dives could be incrementally increased in duration and productivity.

A major advantage in the use of rebreathers is to reduce the amount of gas consumed each dive to almost nothing in comparison to 'open circuit', which also made the logistics of multiple dives much easier.

Rebreathers are also warmer than open circuit, a major advantage in cold water.

Backup 'bailout' tanks are still required against the possibility of rebreather failure, but by staging these through the sump and leaving them for the entire project, the amount carried on each dive is minimised without compromising safety.

This also means that the overall amount of bailout tanks can be limited to those re-



*Existing map of Junee Cave compiled by Tim Payne, including original survey from entrance to 22 m depth in Sump 2 by Tasmanian Caverneering Club*







Steve getting ready for a dive in Sump 2.

STEFAN EBERHARD

quired for the small number of divers in the water at one time, rather than a set each for the entire team.

Our early dives focussed on staging bailout cylinders, identifying (and videoing leads), checking exposure tolerance and adjusting thermal protection, laying and surveying knotted line, and fixing existing line, with little time spent at the end. Intermediate dives saw the end reached quickly and smoothly, for maximum time pushing. The final 'clean-up' dives were for the retrieval of gear, line and bailout.

Much time was spent and technology used in Sump 2 (my dive log records 14 hours in there across five dives) and some progress was achieved.

Sump 2 meanders up and down a bit until dropping to 18 m or so and then heads steeply down until hitting 64 m maximum depth after 200 m.

The deep section meanders along at 54-58 m depth for 100 m and then ends in a rock pile which blocks the (upward trending) passage.

Descriptions from previous trips matched the video and my impression of the end quite well.

An open and well-defined tunnel of perhaps 6 m wide and 3 m high was trending up and then blocked by rock fall. Straight ahead in the middle of the tunnel was a triangular-shaped hole at 55.5 metres salt water (MSW) with an enticing void behind it, but no chance of getting through. There was a definite flow coming out, although not a gush.

Two metres to the left of the centre lead was a dubious-looking lead 1 m lower and heading horizontally (i.e. most likely further into the rock pile) that would require some serious wriggling in sidemount or no-mount gear.

Flow was not noticed, but not really checked either.

To the right, the passage trends around

the rock pile and up for a surprising few metres more to 53 MSW. There is then a horizontal lead which might be negotiable in sidemount gear and upwards in the rock pile would be worth another look.

Of particular interest are many blocks of black/ribbed, thinly-bedded Benjamin Limestone (kettle to microwave size) which do not match the bedrock walls and ceiling which are formed in the thickly bedded, lighter coloured Cashions Creek Limestone and appear to have rolled down from higher up.



Near the end of the right hand lead - black/ribbed Benjamin Limestone block against Cashions Creek Limestone walls and floor rubble

STEPHEN FORDYCE (GOPRO STILL)



The centre lead/triangle hole, with the Armageddon Room beyond.

STEPHEN FORDYCE (GOPRO STILL)

The presence of these erratic boulders of Benjamin Limestone, which are the next stratum in the geological sequence heading north, lend optimism to the prospect of an upward-trending continuation of the sump. Flow was not observed, but not really checked either.

The centre and right-hand leads were most prospective and in fact the rest of the trip was dedicated almost entirely to the centre lead and to accessing the void behind it.

Two subsequent dives were dedicated to careful and painstaking gardening, as well as some other jobs like surveying, and making a way to access what was named the 'Armageddon Room' up and around to the left.

The push dive was a tricky one and involved a great deal of planning — if things went well, the cave would open up, mirror the other side, and a barrelling tunnel would head towards an airspace and dry cave.

This would allow a break out of the water and, more importantly, a reset of thermal and decompression obligations. While very optimistic, it would be a shame to have the time and motivation to achieve this if opportunity presented, but to be lacking a thorough plan or some small but crucial piece of gear.

To this end, even a stick of salami was carried for energy while exploring dry cave on the other side.

The trouble was that if things didn't go so well and the theorised air chamber could not quite be reached, a brutal decompression obligation and extended exposure would be experienced due to having to go back down to depth and return to the known surface at the start of the sump.

In reality, it was acknowledged as unlikely that a remote airspace would be reached on this dive and that a careful decision would need to be made according to what the dive presented.

Getting into the Armageddon Room was via the 'Fridge Restriction' and required the removal of butt-clipped reels and suit inflation cylinder, and a bit of wriggling, which took some time.

Even at this early point in the push dive, the possibility of surfacing in a new air chamber was quickly evaporating. The enticing void beyond the triangle hole was found to be a squalid, nasty thing, although trending up a slope, with enough space to turn around and tie off the reel but not much else.

The highest point reached was 52 MSW, a couple of metres beyond the tie-off point, with rubble and rock pile pinching off to the ceiling.



While a second set of eyes never hurts, I sadly pronounced the centre lead a 'no go'. Getting in and then out again is not a trivial exercise and would only be possible for an experienced sidemount diver.

About 10 m of 3 mm orange line was added (not surveyed) and left in place — it will be interesting to see what this does after some time in higher flows.

Compared to other parts of the cave, more flow would have been expected; most likely this is just due to flow filtering through small gaps in the rock pile, but it is also possible that there may be a bypass and another way on.

Other sump dives further upstream in the master cave system have been in relatively small, uncollapsed passages that I feel may be recent bypasses of more ancient collapses and rockpiles.

In the spirit of leaving the cave environment in better condition than we found it, a good deal of old line was retrieved from Sump 2 and brought out — particular kudos goes to Dave for the time he spent on this task.

Alas, the deep section still has as many as four lines running in parallel.

Also recovered was a reel with 'Harry'

on it (the day before he became Australian of the Year — it's no doubt now worth millions) of approximately 2009 vintage, and a Chris Brown reel heirloom dating back to the 1990s.

Nothing was left in the cave apart from some of the 'clotheslines' set up to help keep the large amounts of gear tidy and out of the way.

We were careful to stay in the stream or below the winter high watermarks, with a few already well tracked exceptions, and we were confident that our impact was minimal.

Three discrete signs were placed in three areas with sensitive mud banks in For Your Eyes Only. The signs are small plastic plant tags about 50 mm x 40 mm, marked with permanent ink asking visitors to avoid the mudbanks.

No other protective measures were considered necessary.

In what turned out to be a supreme team effort, knotted line was laid, surveyed and retrieved, as most of the Sump 2 had previously only been surveyed via ready reckoning.

The result is not perfect, but a reasonably accurate survey is claimed and we



Historical Chris Brown reel (from the 1999 expedition) sees the light of day again.

have in fact reduced the length of the cave. Gathering more survey data should be on the list of future visits.

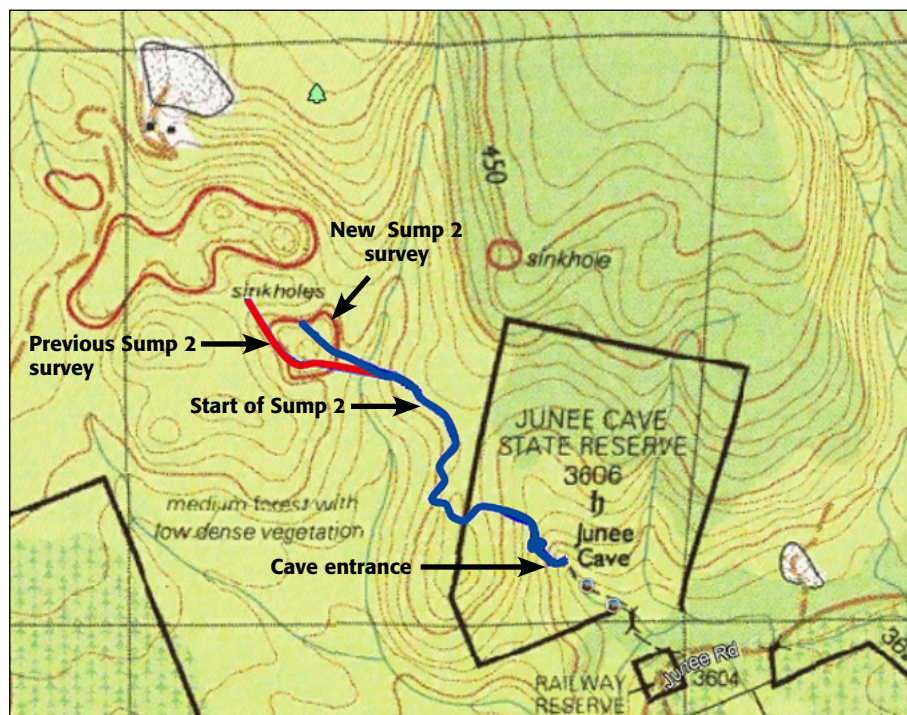
*Anaspides eberhardi*, a species of cave-adapted Tasmanian mountain shrimp, were everywhere in both sumps, and pale native fish with eyes (*Galaxias truttaceus*) about 20 cm long were spotted, including near the far end of Sump 2.

A lot of video footage was taken with a Sony A7iii and Keldan lights in FYEO and Sump 1, although it was quite silty when filmed, and while there is rather average GoPro footage available of all of Sump 2, it would be fantastic to film it with a better camera and video lighting; this would take some co-ordination and a bit of luck.

Sump 2 did not start crystal clear, and silt was disturbed easily, although visibility was never low enough to be a big worry, either in or out. At this stage, a return has not been written off, but it is not planned either. There are still things to do and leads to check and push — best of luck to any who venture there.

Thanks again to everyone on the team and to the ASF for their generous support. A special thanks to Andrea who, with assistance from Stewart, over-catered so drastically that the entire team was fed a delicious dinner on more than one occasion. Honourable mention goes to the owner of our accommodation for leaving a slab of beer in the fridge for us.

Further details — dive profiles, gas mixes, schedule, thermal considerations and more — are available from the author upon request.



Overlay of the cave showing old and new surveys