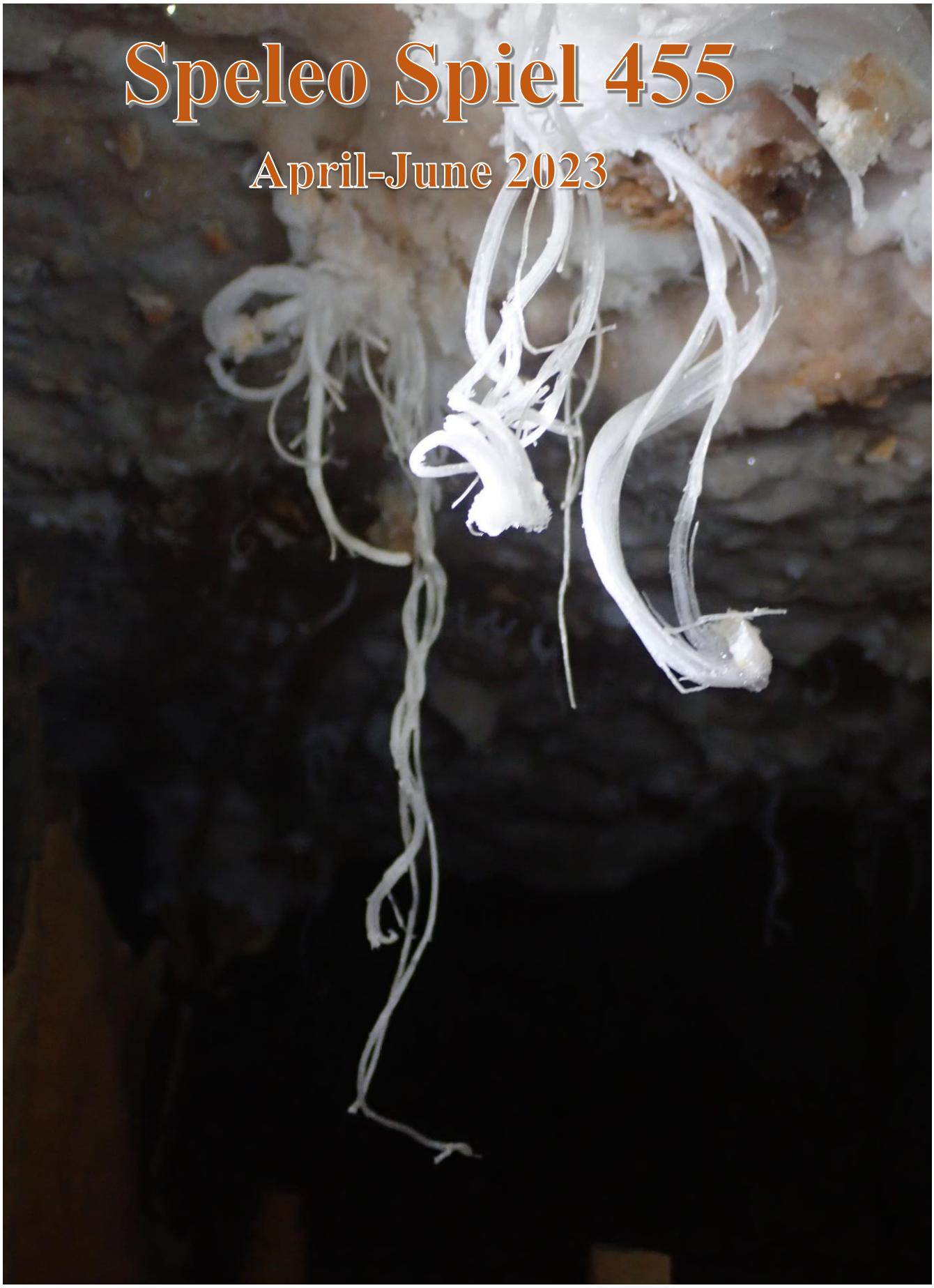
Speleo Spiel 455

April-June 2023



Newsletter of Southern Tasmanian Caverneers Inc. ISSN 2208-1348

STC Office Bearers

President: Janine McKinnon
Ph: 0427 889 965
jmckinnon@caverneer.net.au

Vice President: Chris Sharples
Ph: 0408 396 663
chris@sharples.com.au

Secretary: Russell Fulton
Ph: 0427 956 297
FultonRL@bigpond.com

Treasurer: Karina Anders
Ph: 0478 228 639
karina_anders@hotmail.com

Equipment Officer: Alan Jackson
Ph: 0419 245 418
alan.jackson@lmrs.com.au

Librarian: Greg Middleton
Ph: (03) 6223 1400
ozspeleo@iinet.net.au

Spiel Editor: Janine McKinnon
Ph: 0427 889 965
jmckinnon@caverneer.net.au

Search & Rescue Officer: Jemma Herbert
herbertjemma@gmail.com

Training Officer: Karina Anders
Ph: 0478 228 639
karina_anders@hotmail.com

Archivist: Stephen Fordyce
Ph: 0437 356 322
stephen.fordyce@gmail.com

Public Officer: Ciara Smart
Ph: 0438247337
ciara.m.smart@gmail.com

Webmaster: John Oxley
Ph: 0409129 908
joxley@bigpond.com

Social Secretary: Henry Garratt
Ph: 0474 356 195
hwgarratt@gmail.com

Front Cover: *Thampana cave, Nullarbor Photo: Deb Hunter*
Back Cover: *No Tassie caver was injured in these games. Photo: Ciara Smart*

STC was formed in December 1996 by the amalgamation of three former southern Tasmanian clubs: the *Tasmanian Caverneering Club*, the *Southern Caving Society* and the *Tasmanian Cave and Karst Research Group*. ***STC*** is the modern variant of the oldest caving club in Australia.

Speleo Spiel

Newsletter of the Southern Tasmanian Caverneers Incorporated

PO Box 416, Sandy Bay, Tasmania 7006

http://southerntasmaniancaverneers.wordpress.com/

ABN: 73-381-060-862

ISSN 2208-1348

Issue No. 455, April-June 2023

Contents

Editorial

We have a wide selection of reading options this issue. New Zealand takes prominence for our trip reports, courtesy of Ciara Smart, with help from other participants. It is always interesting to see what other caving areas are like, and sometimes the differences in how the locals go about doing things.

We also have several interesting articles, with a recap on the Anaspides project undertaken by a group of German entomologists over the last couple of years. They spent a lot of time here and collected from a huge number of areas, both under and above ground. They were very thorough; although I suspect they liked coming back here, which aided their enthusiasm.

Stuff 'n' Stuff

Report from the ASF conference at Ceduna:

April 2023

Deb Hunter

Thanks to the Mirning people for their permission to access the caves and their land.

Important news first: "Team International" won the Speleosports competition (two Tasmanians, an Australian-mainlander and one UK caver).

Speleosport winning team. Yeh STC (and ring-ins)

Photo: Conference photographer

Team International navigating the snakebite in Speleosports. Photo: Douglas Irvin

One highlight of the field trip for me was Lejeg Cave off Bunda Cliffs.

Another highlight: the first tourist trip into Cryptography, Thampana Cave, courtesy Alan and Megan Pryke.

Gypsum flowers and halite crystals Photos: Deb Hunter

Achievement of the trip: Jack Overhill (Red Rose Caving and Pothole Club) and Deb survived >8,000 km of Eyre Highway and up to 50 km of Nullarbor tracks in a rented hatchback.

I look forward to hearing of Stephen's adventures…

New Zealand cave tragedy

Those of us caving in Tasmania in 1990 had an unpleasant reminder of the Mystery Creek cave tragedy recently when a school student died in Abbey Caves, near Whangārei.

According to the media, on 9 May, 15 students and 2 teachers were on a year 11 outdoor education course trip into the flood-prone cave when one of the students was swept away by high water flow. His body was recovered late that evening.

The original plan had been for a day of rock climbing, but the activity changed to caving due to a severe weather warning for heavy rain. Subsequently, 60 mm of rain fell in the three hours to midday with continuing heavy falls throughout the afternoon and evening.

More details can be found here:

https://tinyurl.com/45ryhy57

Trip Reports

January 2023 JF Surface Days

Stephen Fordyce – text and photos

4 January 2023. Satans Lair Area

JF-365 Satans Lair sits in an interesting spot in the JF and is the only half decent cave in a big gap between Voltera and Junee. It's also right over where the 5 km gap in the master cave should be. For all that, it's had surprisingly little attention, and I'd been meaning to get back since last surface bashing (and checking Satans Lair) in April 2018 and recently spending a lot of time ogling LiDAR data and coming up with optimistic theories.

High summer was a lot more pleasant and I stayed high, trying to match the contact rather than following the Satans Lair route. Some LiDAR targets yielded lameness, but one was worth tagging and naming. JF-773 None Swallet (a partner to the nearby and even less exciting JF-679 Buckleys Swallet) is a small vertical cave in a gully, with dry streambed that would flow in winter. 3 m deep, but a squeeze/dig to at least a bit more. Cold and hint of an outward draught.

Remembering negotiating some nasty cliffs below JF-258 The Cherry, the approach to JF-678 Blackberry Hole from the west (and exit to the east) was much preferred. Ironically, the blackberries which were there in 2018 were gone, hooray! Fluorescein was released and a note made that it was (still) definitely a viable dig (in a really cool spot), cold and a hint of a draught. The spot to dig is against the solid wall of the doline where the water goes – there are as many logs as there are rocks.

The Blackberry Hole dig put off for what hopefully wasn't another 5 years, I headed east and uphill back to the contact. The next gully over had a big catchment and no recorded swallet, so had been haunting my dreams as the next potential Delta Variant. Well, there was a decent stream (a similar size to that feeding Blackberry Hole) in mudstone, which disappeared at the base of a small cliff at the contact with limestone. Definitely a swallet and named "Black Yaris Swallet" in honour of the trusty little car Jemma had very kindly lent me while mine spent two weeks at a mechanic in Hobart. It wasn't super obvious what the water was doing and where the best spot for a tag was, so I elected not to tag it until a follow up visit. In hindsight it might be interesting to follow the gully down from there to Buckleys Swallet.

I headed east again along the contact, checking a few dud LiDAR targets including a big blurry patch which was exciting (the shear-sided JF-202 Tyenna Tomo doline is also a blurry patch on LiDAR). A comparatively disappointing cave was found, right on the contact, at the base of a 2 m cliff and was tagged JF-774. Two entrances 3 m apart lead into a single chamber on 45-degree slope, approx. 4 m deep and 6 m wide. Possible leads at bottom but looks pretty dead. It was cold but no hint of draught. While ABC Radio Hobart broadcasts on 936 kHz (AM), 774 is the equivalent (and a well-known one) in Melbourne – thus the cave was named "ABC Radio Melbourne" with much chuckling.

I continued around and hit a big stream which presumably fed Satan's Lair, casting about a bit as I followed it down to the cave. Some tiny streams and creek beds were crossed which might indicate more swallets. From the Satans Lair entrance I did a short detour up the parallel gully (finding nothing of interest), picked up the taped route, cursed my way up the steep climb and then followed it back to Chrisps Rd.

"JF-774 ABC Radio Melbourne" rolls off the tongue with your best radio voice

8 January 2023. KD track

For ages, a draughting slot near the entrance of JF-261 Itchy had been on the punchlist (thanks Alan). It's in an interesting spot vaguely over the end of Cauldron Pot but sideways enough to probably do something else. Not a terrible afternoon walk really (the day after the long day aid climbing in Porcupine), and there were a bunch of LiDAR targets to check out too on the way – a couple of dolines but nothing exciting.

The JF-261 tag was relocated using the photo from when it was discovered

I gather Itchy was named for proximity to Scratch Pot (i.e. Itchy and Scratchy from the Simpsons), but I discovered another reason. There was an entrance slot down to the only chamber, which was so full of cave crickets and Hickmania spiders that I very nearly pulled the pin and went home. The draught wasn't as exciting as I'd hoped, but it yielded to modern enlargement techniques readily, and I could shimmy down a ~3 m vertical section which promptly crapped out in

tiny fissures without much in the way of draught or promise. Oh well, question answered.

On the way back via some more useless LiDAR targets, I stumbled on a hole just worthy of a tag – JF-775 Poker Machine. 2 m deep slightly off vertical, but with a noticeable draught coming from a hole between a large rock and the wall the size of a coin (hence the name). It would yield pretty easily, but I was well and truly over it by then, so tagged it and escaped.

In case you really wanted to see Slot Machine, here it is

23 January 2023. Garths Creek

There was a detector in Black River (Growling Swallet) that needed a release well upstream of the Growling main entrance, so for something a bit different I parked at Porcupine and traversed some new terrain. The 900 m of off-track stuff was painfully thick, especially near Garths Creek and took well over an hour. I did a stream audit, marking gullies and their states in QGIS, and marked a few other things with names like "fricken awful thick shite around here". The east bank of Garths Creek near the fork I was shooting for was a 2-4 m cliff of eroded conglomerate and it was actually hard to get down, and even harder to get back up later.

Lots of LiDAR targets and things were checked, no new karst features were found. The only sort of weird thing was that on my way back (higher up in much easier going) I didn't cross the stream feeding JF-035 Gormenghast as I had on the way over.

Fresh cherries from a local orchard were much preferable to thick JF undergrowth

Puttering in Piopio

An extraordinarily wet caving trip on New Zealand's North Island

29 January- 6 February 2023

Ciara Smart

Participants: John Oxley, Ciara Smart, (STC), Patrick Larkin, Don Matthews, Phil Maynard, Alan Pryke, Megan Pryke, David Rueda Roca, David Stuckey, Tina Willmore, (Sydney University Speleological Society)

Background

Piopio is a township and karst region in the North Island of New Zealand, 60 km from the famous caves of Waitomo. The landscape is agricultural, largely sheep and cattle county, but pickpocketed by impressive streamway caves. If you've ever read the cartoon *Footrot Flats*, you can probably visualise Piopio (*peew peew*). It is quintessential New Zealand farmscape, complete with feral goats atop karst towers, heavily accented farmers in gumboots, forgotten sheep wandering scrubby back blocks, and cattle crap everywhere. Under the banner of Sydney University Speleological Society, Alan Pryke has been running an annual exploratory trip to Piopio for 16 years, aided by Phil Maynard. Some major caves were discovered in this area in the 1960s, but otherwise the area has seen little visitation. It is still relatively easy to discover large caves here, although many of the more obvious entrances suffered explosive demolition treatment in the 1970s as they sit on prime agricultural land. The caves in this area are warm at about 14C, relatively horizontal, sometimes extensively decorated, and typically have large beautiful streamways. The trip has particularly focused on extending several major systems discovered in recent years including the Redirected system and the Off-Gorse system. I last attended in 2018 and 2019. This year, a local farmer generously offered us a large farmhouse on his property, 'Rotomate', to use as our base.

29 January

I'd had an eventful drive from Wellington to Piopio the previous day, navigating landslips and flooded roads. Weather records confirmed that we had timed our visit to coincide with the wettest month on record in nearly two hundred years. Perfect. The previous day, Auckland had received 240 mm in just 24 hours. This extreme rain event limited our options as every cave in the region was in flood. On my first day we decided to visit some prospective holes within walking distance of the homestead as we didn't want

to chance driving on the damaged roads. We set off on foot in the rain and trapsed up and down, visiting various steep scrubby dolines. We found a few holes but nothing viable. We gave up and descended a steep gully to the road, hoping to find the long-theorised resurgence of the Redirected system. On the way home we investigated a small resurgence just a few metres off the road. To our surprise this turned into a viable cave, with about 50 m of passage before a climb. We decided to come back to push and survey on a drier day, for the meantime this cave is called 'The Cutting Edge'. David and Don departed the trip today as they had already had several days of caving.

Lazing around after a good start to the trip

Photo: Tina Willmore

30 January

Since our last trip, one of our friendly farmers, Matt Sherriff, had taken on a significant new lease, 'Pahiere'. This gave us the opportunity to traverse a large block of karst likely to yield new entrances. I set off with Alan, Phil and Megan on foot. The bucolic landscape looked promising, with karst towers and sinking streams in every direction. Compared to the frustrations of Tasmanian scrub, it was an absolute delight to prospect on open rolling farmland. In this terrain, the presence of a cave entrance is often conveniently indicated by a fence line enclosing a small patch of scrub in an otherwise open field. We investigated dozens of dolines but to our surprise we found zilch. I suspected many entrances were now inaccessible because there was a tremendous amount of surface water disappearing into various large sumps surrounded by boulders. Along the way Phil fell into a flooded creek, we all got tangled in blackberries and we had to negotiate several paddocks of inquisitive but humungous bulls - welcome to North Island caving! On the way home we partook in some disaster tourism and went for a drive to ogle at the flooded township of Piopio where the floodwater was threatening to breach front doors.

31 January

It was still raining heavily. The seven of us drove about ten minutes up the road to head up the Kihikihi valley into untraversed territory. We scrub-bashed along some very steep cliffs, tracing the limestone contact. We soon found a cave of about 40 m in length which quickly sumped. While some of us were investigating, the remainder of the group attempted to rescue three trapped sheep which had fallen between some boulders.

The sheep's fleeces were soaked through, making them too heavy to be hoisted. We had to abandon the doomed creatures to their miserable fate. Further up the valley we reached Understorey Cave. This cave was discovered in 2020 and is large and exquisitely decorated. We only went a short distance before we reached a tight section which was likely to become impassable in the predicted afternoon thunderstorm. We surveyed out from there, mapping 290 m of passage. On the walk home John got zapped by the electric fence (a hazard in this area) and we walked through heavy showers, making us glad we were not in the cave.

Wandering up the Kihikihi valley

Photo: John Oxley

While we had been at Understory, Pat Larkin had been off surface prospecting in the region south of the Redirected system. He had had some luck! The huge amounts of water in the caves had made it easy to spot resurgences. Pat finally located what we believe to be the resurgence of the Redirected system. It was spewing a vast quantity of water from a relatively small hole, making it impossible to trace upwards. Its location suggests there is still a large quantity of cave left to uncover, and the system is already almost 3 km in length!

1 February

We awoke to another day of bucketing rain. Alan, Phil, Pat and I drove about ten minutes to the airstrip on Matt Sherriff's block. Our objective was to check out two undescended holes. These holes were within striking distance of the major cave, Redirected, and we were hoping that they might provide an alternative downstream entrance into the main streamway, ideally bypassing a terminal rockpile. We changed in the pouring rain in the superphosphate shed, attempting to keep the explosive chemicals off our suits to save later trouble with airport security. The first hole looked promising. The cave had some significant formations and went about 35 m in total distance before choking in a tight and decorated rift with a stream below. The next hole was also at the base of a large doline and appeared to begin with a 6 m pitch which proved free climbable. Unfortunately, the cave bottomed quickly, except for a small hole with a 7 m drop below it. Phil managed to chimney down the pitch. He reported a further 3 m pitch, and then it choked out.

We had lunch in the pouring rain and went to investigate a few further dolines in the vicinity of Redirected. At the base of a large doline, we noticed a small hole blocked with barbed wire. After clearing the wire, I could see a 4 m drop which we quickly clambered down. Immediately the cave trended steeply down a tight but negotiable rift.

Then it reached a small horizontal streamway that was reasonably decorated. I raced about 30 m down the passage until the streamway became blocked by formations. After some rearrangements, I was able to just squeeze through a rather painful gap. Phil followed through after a bit more effort. We continued along a serpentine streamway for about 40 m, until we reached a short downclimb. We were suitably impressed by the passage, but we agreed to come back with a tape and survey gear. We hoped that this cave would join into the main streamway in Redirected, ideally on the downstream side of the terminal rockpile.

Emerging victorious from the then as-yet un-named new cave. Photo: Ciara Smart

2 February

We awoke to a day without rain! Phil, Alan, Megan, Pat, and I headed off to our new cave. Alan and Phil surveyed, while the rest of us rattled down the chute. After a bit of gardening, everyone was able to fit through the formation choke. The climb that had stopped us yesterday was easily negotiable with a tape although it was tricky to anchor as the surrounding rock was crumbly soapstone. After the climb-down, the cave continued to trend downwards, alternating between crawling and standing serpentine passage, sometimes in a streamway. We soon reached a major junction with another stream, we hoped that we'd reached the stream from Redirected on the downstream side of the terminal rockpile. We headed downstream, hoping for the unlikely possibility that we might pop out at the resurgence on the surface. The cave became gloriously spacious serpentine passage which broke down into rockpile far too quickly. Megan and I followed the stream under the rockpile through a very wet squeeze. Unfortunately, the streamway became smaller and smaller, until it eventually went through a very wet flattener.

The streamway floor was easily diggable, but the flattener was closer to a dive than a squeeze in these exceptionally wet conditions. We left a flagged cairn and resolved to come back in a drier summer.

While the others were lunching, I tried to find a route over the top of the rockpile to bypass the flattener. I succeeded in this, but I reached a bellowing 5 m climbdown through exceptionally treacherous and unstable soapstone rockpile. Looking down the climb I was able to see the other side of the flattener, confirming that the passage opened out again. However, there was no way to get down the drop, it couldn't be freeclimbed and there was no way to get an anchor in the crumbling ceiling which looked like it would collapse with the slightest nudge.

We headed back to the junction and then upstream. Again, we hit outrageously pleasant serpentine passage enabling fast travel. We continued ahead, through progressively smaller streamway passage until we were crawling. We popped out in a very small chamber, with a blind aven to the left. Unfortunately, the stream now went through a small muddy slot. With a bit of digging, I was able to fit through, becoming thoroughly soaked in the process. I was glad to be wearing my fleece undersuit. Unfortunately, there was another squeeze on the other side, which will probably be passable in drier conditions.

The three of us headed back downstream to the junction. There we met Phil and Alan who had surveyed to that point. I hung around to give Phil and Alan a hand with the survey. We surveyed all the passage that we had just explored, minus the terrible grovel to the flattener and the loose traverse across the death rockpile. There were 88 stations in total, and 480 m in distance, quite respectable for the soggy conditions. To everyone's surprise, we had not broken into the Redirected system, despite the entrance being only 200 m away and heading in the right direction. We tentatively decided on the name, 'Prime Directive,' to align with the naming scheme for the Redirected system but also as a nod to the 'Prime Directive' in *Star Trek* – to make no contact.

Prime Directive entrance. Photo: Ciara Smart

On the walk back I decided to have a look at a nearby doline which Alan said was unexplored. An apparent entrance was blocked by an actively decomposing sheep. I wrote off that hole and immediately found another significant entrance taking a considerable flow of water. It turned out to be a reasonably sized cave. I journeyed about 30 m into the cave before turning around to catch up to the others. That evening it rained heavily.

3 February

We awoke to torrential rain. This northerly system just wouldn't shift. After some time spent despairing over breakfast, I decided to return to the cave I had discovered yesterday. Phil and John came with me. By the time we had suited up it was only lightly drizzling. The cave began in a canyon, darkened by a dense roof of blackberry. There was a significant flow of water going into the cave, and before long another two streams joined the main streamway. We surveyed about 30 m before we reached an easy formation choke at which point we stopped surveying because of the sheer volume of water. I went through the choke, followed by Phil but not John as it was slightly too tight. The passage became smooth walled and serpentine. After about 15 m we came to a 3 m waterfall that was completely impassable in these high-water conditions. The waterfall appeared to end in a deep swirling pool in a spacious chamber, before going down another drop of unknown heights. The sum of water going through the cave, and its strategic position, makes it likely to connect to the Redirected system. It will have to wait for non-catastrophic weather conditions for a proper investigation.

Ciara in Raincheck. Photo: John Oxley

In the afternoon Phil and I headed out to the Ronaldson's property, conveniently just across the road from Rotomate. This area is of interest because we want to find an entrance into the Moia system. The upstream entrance to this system is just below the Ronaldson's homestead but it is unfortunately no longer accessible. The resurgence emerges about a kilometre downstream but is also now inaccessible. We suited up in the rain and headed into a scrubby doline. While fighting a particularly vicious patch of blackberry, I felt a tingling inside the sleeve of my oversuit. From the corner of my eye, I caught a glimpse of a striped insect buzzing about my head. To my horror I realised we had stumbled upon a European wasp nest, and there was a wasp caught inside my suit. I barged headfirst into the blackberry but I didn't move quickly enough, and sustained half a dozen stings on my head and arms. They had obviously liked my red suit. Phil, in his black suit, wasn't bothered at all.

We continued prospecting after some wringing of hands in the endless blackberry scrub. In our excitement, we didn't double-check the map and we inadvertently rediscovered a known cave. It was an exciting find, with an easy 3 m tape climb followed by an 8 m pitch which we did not descend. We made it back just in time for dinner and for Alan to accurately describe the details of the cave we had just 'discovered.' It was still raining.

4 February

Today was heavily overcast, but not raining! We seized the opportunity to do some non-project work and enjoy a fun day underground. We headed to Rimu, an A-list cave of the area known for its spectacular wet streamway. The cave was at the base of a beautiful gully filled with native bush. After passing through some highly decorated passage, we reached the main streamway which was spacious and highly scalloped. The streamway was deep in places, and it was more like an underground canyoning trip than caving as we hopped from pool to pool. Although we were wet to chest-level, the water was relatively warm. The cave concluded at a large window looking out into a scrubby valley, with a waterfall dropping away through the gap. The window was decorated with windblown epitrophic speleothems growing towards the light. To exit, we retraced our steps up the stream and climbed steeply up the Togyp side stream. There were a series of tomos, and we had some trouble picking the exit. We scrambled up a treacherous mudbank, which I doubt was the traditional exit, and emerged into the sunlight. From there we climbed steeply up an exposed cliff line to ascend out of the valley.

Ciara in Rimu. Photo: John Oxley

5 February

It had been 36 hours since the last rain event so we decided to chance visiting Off-Gorse to push a low roof-sniff. On the drive we serendipitously ran into another local farmer, Andrew Neale, whose farm is adjacent to Matt Sherriff's. This gave us an opportunity to ask for permission to visit his property.

At Off-Gorse, Phil, Megan, and I entered through the Main Course entrance which involved negotiating a very slippery 7 m tape climb into a doline. Alan and John wisely decided to avoid this risk and enter via the low and wet, Off Course entrance. Of course, that entrance was sumped, so they never re-joined us. The three of us proceeded up the main streamway through the Main Course and Concourse sections. This main streamway was aesthetic and spacious. After the Side Course passage joined the main streamway we entered the rockpile in the Off Course section and reached the roof-sniff. To our dismay, the 12 m roof-sniff was definitely sumped. I made a few dejected pokes at the rockpile attempting to find an alternative route while Phil dug into the streamway to lower the water level. Both attempts were futile. We know that there is at least 200 m of unsurveyed passaged beyond this roof sniff, but it will have to wait.

On the surface we reunited with Alan and John and decided to spend the afternoon prospecting on Andrew Neale's land. We jumped the fence and went to look at some obvious dolines which we could see on satellite imagery. There's a good chance that there are additional branches of the Off-Gorse system travelling under this farm. There were dolines everywhere and many sinking streams.

Sadly, it quickly became clear that many entrances on this farm were blocked. We found about half a dozen obvious but impenetrable entrances. We located one passable entrance in a redwood plantation which went for about 20 m before sumping. This cave appeared to contain a whole car engine. After some hours we called it quits, but there are still plenty more dolines to investigate on this property, likely requiring the assistance of some heavy-duty secateurs. That evening we had dinner at the local restaurant, where we ran into another local landowner. This provided the opportunity to ask for permission to visit Murder Canyon. The group visited this the next day while I flew back to Hobart.

Although our intentions were frustrated by the outrageous weather conditions, the trip was still great fun and good company. After two years stymied by Covid, and one by weather, Piopio's going leads can wait one more year. Thanks as ever to Alan, Megan, and Phil for their organisational efforts.

Roads damaged in all the rain (note the person in blue for scale). Photo: John Oxley

South Island Caving: A Report in Three Parts

9-26 March 2023

Ciara Smart (with contributions from Karina Anders and Jemma Herbert)

Party: Karina Anders, Jemma Herbert, Ciara Smart (Southern Tasmanian Caverneers), Keith Chatterton, Alex Williams, Kristin Wills (RMIT Outdoors Club), Marcus Thomas (Wellington Caving Group), David Ellacott (Auckland Speleo Group) and many others

Part 1: New Zealand National Deep Cave SAREX

Background: Every three years the New Zealand Speleological Society runs a national rescue exercise. This year the exercise was run in Bulmer Cavern, NZ's longest system at 76 km and counting. The patient was extracted from roughly -300 m in an exercise running continuously from 6 am Friday until 10 pm Saturday. New Zealand has a dedicated Cave Search and Rescue organisation (CaveSAR). With police support, CaveSAR coordinated the involvement of over 90 participants in this logistically complex and lengthy rescue exercise.

9/3:

Ciara: Jemma, Karina and I landed very late in Christchurch. Customs thoroughly frisked our tents but ignored our gumboots and cavesuits. We were greeted at the airport by a mutual friend, who introduced us to our trusty steed, an early 2000s Subaru Impreza purchased by Jemma's partner for the princely sum of $1500. The vehicle was immediately christened 'Scratchy,' for its aesthetics and supplementary mechanical soundtrack. Scratchy had been patiently sitting on the streets of suburban Christchurch for several months awaiting our arrival, only once having a window smashed in. It was fortunate that there were only three of us as we struggled to stuff our 113 kg of gear into Scratchy's insubstantial interior. We departed Christchurch close to midnight and drove north for several hours until we pitched tents beside the road, unwisely close to the highway.

10/3:

Ciara: After a few snatched hours of sleep, we were back on the road to finish the drive to Mt Owen. We were not sure we were on the right dirt road until we rounded a corner and came across a field of dozens of parked cars, and a long queue of people beside a helicopter.

Police HQ and the Incident Management Team were stationed here in two large control trucks.

Being unavoidably a few hours late, we had conveniently missed what I am sure was a thrilling briefing, but we were just in time to catch one of the last helicopters up the mountain. Somehow, we had missed the memo that this was a helicopter assisted exercise. It was a mad rush to unpack the car and throw caving and camping equipment into our bags, which were then placed in a cargo net to be flown up the mountain. We all managed to forget something in the chaos. We later learnt that one unfortunate caver's bag fell out of the cargo net, swallowed forever by the thickly forested karst field below.

While we were waiting for the helicopter, one of the local cavers advised us to ditch our plastic suits in favour of cordura. We had anticipated using PVC as we'd been informed that the caves were 3.5°C, but we hadn't realised that Bulmer is a very dry and virtually mud-free system. In hindsight this was a good choice, as we found it comparatively easier to manage our body temperatures here than in the wet caves of the Junee-Florentine.

Helicopter adding to the wilderness experience at Bulmer Lake. Photo: Ciara Smart

While the chopper ride was only brief, it was worth it for novelty value alone. I think the Kiwi cavers were bemused by our excitement. It was also Karina's first time in a helicopter, and she let everyone know. The national SAREX is a funded exercise and this year over $NZ30,000 was reserved just for helicopter usage. The short flight allowed us to fully appreciate the spectacular landscape, with vast slabs of marble exposed on steep mountainsides and deep dolines in every direction. We landed at Forward Base, stationed at Bulmer Lake.

We were using the 'Panorama' entrance to the Bulmer system, a 30 minute walk from Forward Base.

We were directed to set up tents and rest until called upon, as there were already enough rescuers underground. Unlike our exercises, the NZ SAREX is run more realistically, with teams waiting on the surface until 'tasked' *(We haven't had the numbers - Ed)* The 'Hasty' team had been first in, at the exercise kick-off early in the morning, followed progressively by other carefully selected teams bringing resources in a coordinated process.

Forward Base was thickly forested with beech trees, and it was tricky to find a tent site. Luckily the three of us fit into the one tent, and none of us snore. At 3 pm, Jemma and I were 'tasked' with carrying two 20 L water tanks to the cave entrance. This proved a taxing job, as the heavy tanks were awkward to carry over the rough terrain. It did give us a chance to take in the spectacular alpine views during daylight hours.

That afternoon the three of us napped as much as we could. At around 7 pm Jemma was awakened and tasked with carrying equipment underground, see her separate report below. As it got later, Karina and I attempted to sleep, knowing that the exercise took a compulsory break between 1 am and 4 am, so we were unlikely to be called up late in the evening as we would not make it to the underground sleeping point (aka 'The Hot Spot') in time.

11/3:

Ciara: Bang on 4 am, Karina and I were woken and told to prepare. We were tasked with providing stretcher carrying relief and placed in a team with fellow Australian Keith Chatterton and Kiwi Paul Rowe. We grabbed a few dehydrated meals from the control centre and then walked to the cave entrance in darkness, hearing exotic keas keening in the pre-dawn stillness. At the cave entrance, another control centre ('Cave Entrance') was positioned. We reported for duty and launched ourselves underground.

It took us about ninety minutes of easy caving to reach the stretcher, which was still at 'The Hot Spot.' The route was well-taped so that anyone could follow. The caving itself was enjoyable, mostly walking with no real crawling or squeezing. There were a few short pitches, many of which had permanent fixed ropes. Here we encountered our first cultural problem. The Kiwi cavers exclusively use rappel racks because they tend to leave fixed ropes in place on what appeared to be a semi-permanent basis. The mega-chonky rope was excruciatingly slow on our Stops, so Keith showed us the 'C-rig,' effectively turning our Stops into a non-braking descender.

As we travelled, we periodically checked in with 'Cave Entrance' using the Michie phone line until we reached the Hot Spot. A 'CaveLink' system and VHF radios were also in play. The Hot Spot was a small chamber where most of the underground teams had spent their compulsory rest between 1 am and 4 am.

Here we met Jemma, who reported that it had been a very cold night with most cavers sleeping fitfully. There was a convivial atmosphere, with around 30 cavers squeezed into the small chamber, possibly raising the temperature from 3 to 5°C. By now, the exercise had been running for over 24 hours and some cavers were very fatigued.

We had a hot breakfast and then picked up the stretcher, the exercise was back on. Each team had a specific task: some teams were tasked with rigging technical sections, some with installing commuter rigging and others with communicating with HQ via the Michie line or CaveLink. We were first tasked with stretcher carrying. All of this was under the supervision of the 'Underground Controller,' who swapped out periodically and ensured that fatigued cavers also went back to the surface when necessary.

A bit of not stretcher carrying going on. Zoom in to note Karina's excitement.

Photo: Ciara Smart

We had a few hours of stretcher carrying, passing several short hauls and lowers, until we reached a long tyrolean, or a 'tirol-e-an' in Kiwi speak. It was interesting to observe the different ways that the Kiwis rigged their rescue setup, see Jemma's extensive technical breakdown below. They seemed to preference pulley systems over counterweights. Overall, their rigging was generally more redundant and thus arguably safer than the Tasmanian style, but slower to install and requiring more equipment. To an extent these differences can be explained as a function of their greater resourcing and manpower. I also speculated that the fact that at least some of their caves appear less wet and muddy means that hypothermia can be more easily managed, so redundancy becomes more important than speed. We took away many important lessons from observing their rigging which we will try out in Tasmanian settings.

The teams were switched up as more fatigued cavers exited the cave, and I went to rig a short haul with Keith. After some hours of stretcher carrying and technical ropework, considering the number of fatigued cavers, the decision was made to skip the next section of cave. This was a section called 'The Bypass.'

This section was twisty and narrow, with many short pitches. It still took several hours to get all the cavers through here in addition to the empty but bulky stretcher, with long queues forming at the pitches.

We picked up the stretcher carrying at 'The Powder Room,' and spent a few more hours transporting the stretcher through various passages and boulder fields. By 9 pm we were almost back at the Panorama entrance, just in time for the exercise cut-off at 10 pm. It was a relief to drop the stretcher and exit the cave. After the half-hour walk back to forward base, we had a filling dinner provided by the catering team and collapsed in bed by midnight.

12/3

Ciara: The helicopter started early, and we were flown off the mountain by 8:30 am. Back at 'Incident Management Base,' we had breakfast followed by the post-exercise debrief. This was run by the police with input from all the team leaders and control centre leaders. Every rescuer received a coveted item of merchandise in a mustard coloured Macpac down jacket!

A sea of mustard. Maybe that's why they were free.

Photo: Ciara Smart

Participants filtered away by noon, while 'the Australian team' stayed behind to scavenge for leftover food. From there we drove north to Nelson, stopping for a much-appreciated swim in a beautifully warm river, with a bit of deep-water soloing included for good measure. The group of us landed at Mike Allen's house in Nelson. Mike is the gear officer for Nelson Speleo Group. Conveniently he was quite happy to have a dozen dirty cavers crash on his living room floor. That evening we went for curry in the buzzing metropolis of Nelson. By this point several Kiwi cavers had seen our post on the STC Facebook page in which we described ourselves as 'Team Giggly.' For better or worse, the name came to stick.

Jemma's Report: My time at SAREX:

We had had a late night and a big day of travel, so we were making full use of our rest time at forward base on the surface, by taking a nap in our tent whilst waiting to be

tasked. I was fast asleep at 7 pm when someone came wandering through the campsite yelling "Jemma!". I groggily crawled out of bed, trogged up and reported to base asap. Whilst I stuffed my gob with a huge meal of pasta, provided by the amazing catering team, I was briefed on our task. Our team of me and Scotty, led by Mike Brewer, would be hauling in some gear, as requested by a rigging team in the Octopus Room. From there we would probably be retasked, so we expected to be in the cave a long time.

Within about half an hour we had departed forward base. We each had a half pack with all our personal gear, including camping stuff, and we had an extra two bags of rigging gear between the three of us. It was a half hour of bloody beautiful walking out along the karst on the surface to the Panorama entrance. Very *lotr*. That scene where Gandalf fights the Balrog, then everyone else escapes out of the Mines of Moria and is super sad about Gandalf dying - that was filmed just around the corner.

We checked in at the cave entrance base and proceeded toward the Octopus Room. The cave was awesome. It was mostly open and dry and there wasn't any mud whatsoever. Not at all like caving in the JF. I can understand why there are so many cavers in NZ. The caving was generally easy and fast, but the casualty was heaps far into the cave. I didn't realise it at the time, but by the point I saw the stretcher, it had already been moved a really long way. Along the way we passed a couple teams rigging commuting lines, a team had set up a hot spot for resting, and further on there were a couple of rescue rigging teams.

Tyrolean rigging-NZ style. Photo: Ciara Smart

We delivered our load of rigging gear and got retasked to rescue rigging. We had a 17 m pitch that was kinda slabby and went around a corner, then through a squeeze at the top. We dropped a rope straight down it, and it looked really bad. But at this point it was almost the 1 am mandated sleepy time, and our brains weren't coming up with any solutions. So we left it and went back to the hot spot for a nap. There was mandatory down time between 1 am and 4 am. Everyone pulled out their sleeping bags and grabbed a few zzzs.

At 4 am we all got up, smashed a radix meal and got back to work, feeling surprisingly refreshed. It took a few iterations, but we ended up with a really clean haul. We had dual 3:1s, hauled from the chamber on the other side of the squeeze, with four redirects, including one on a squatting person. It ran smoothly.

Soon after, a bunch of fresh faces turned up, bringing some much-needed energy, including Ciara and Karina. We had a couple minutes to catch up, then my team headed off again to shuffle gear around then rig a new pitch. We rigged another simple haul, with some jiggery pokery to manage the stretcher through the tight pitch head. We never got to see how well it would work though, because by the time we'd rigged the pitch, the message came through that everyone was too tired, and we were going to skip that section of the exercise. So, we derigged and made our way to the Powder Room where the exercise would continue.

Somewhere along the line my original team got split up and I ended up with another group. It was mid-afternoon by the time we got to the Powder Room and we'd all been underground for 20+ hours, so instead of waiting for everyone else to catch up, past the traffic jam in the bypass, and restart the exercise, we headed out for a rest. I had a relaxing evening of sleeping, eating, sleeping, eating, and socializing before the exercise officially ended at 10 pm and everyone else returned.

***Jemma*- Technical Analysis: Lessons I learnt at NZ deep cave SAREX:**

1. **Jiggers**. This is a piece of equipment in the NZ rescue kits that I had never even heard of. It's essentially a compact pre-rigged 5:1 (or 4:1) pulley system with a minded prusik. It allows you to set a length, lower out under load, or haul with progress capture. A jigger on your redirect point makes getting the stretcher past the redirect simple. You can also clip it onto a haul system for a quick and easy 5:1 or 9:1. A light one, with 10 m of cord is about 600 g and 1 L volume, not too bad. Downsides are that they cost money (2 double pulleys per jigger) and weight, and it would be unfamiliar in the short term. But I reckon they're awesome and we should totally play with these at training, and maybe make some up for the rescue bags.
2. **Edge kit**. This is another piece of kit I'd never heard of. It wasn't part of their rescue kit, but some of the riggers carried one as part of their personal kit. It's just 10 m of 8 mm rope, with a Purcell prusik on it. The idea is that you clip the rope into your anchor, and the prusik into yourself, then you can use it as a safety line or a positioning system. An access/positioning line is by no means an insurmountable problem with our usual systems, but in some circumstances, I saw distinct advantages to the edge kit.

- It's lighter than bringing an extra full-size rope.
- You have more freedom of movement than using existing commuter lines. If there are rebelays in the commute lines, it's not possible to swing far off line, but with an edge kit you can.
- The Purcell prusik is easier to move around on (over easy terrain) than being on your ascenders/descenders. It'd be no good if the terrain is too difficult to climb.
- The Purcell prusik has more shock absorbency and higher strength than ascenders and can't pop off the rope under weird loading.

Pitches with sections (particularly pitch heads) which are lower angle and easier to climb seem to crop up a bit, and they generally require some jiggery pokery to rig cleanly. Twice in the last two rescue exercises I've been part of, I've worked on pitches with awkward lower angle pitch heads. In these circumstances an edge kit would have been awesome. A couple floating around our kits, or at least the knowhow to whip one together when we want it could come in handy.

Edit: We actually made some up and played with them at training. Whilst the edge kits are good in theory, we decided that in practice a Stop on a short length of 9 mm is just as good, and its gear that we carry already. Any terrain which is low angle enough to move around on an edge kit, is also easy enough to pull through slack on the Stop.

3. **Underground controller**. This is a role which I had previously thought of as "Alan just being Alan". I.e., just kinda floating around, poking your finger in every pie, making sure that teams have tasks and the resources they need to complete those tasks, and generally just supervising and overseeing the whole operation underground. But in NZ they call that the underground controller. This role was essential at the SAREX for retasking teams, keeping track of the big picture, and moving gear to the right places. About a half dozen people were rotated through this role during the exercise. In our future exercises I think we should try get a few more people experienced in this role, in case, god forbid, Alan might need a little rest during a long rescue.
4. **Team composition**. Not every team in the cave needs to be a rescue rigging team. A bunch of teams were tasked with things like moving gear around the cave, or setting access lines to make commuting safer and more efficient, or manning a rest area deep in the cave with food and hot drinks and sleeping areas. In addition to filling these roles in the cave, having a variety of teams also lets you make better use of people with different skills. Teams can also be smaller than I was used to. Our team was just 3 people, which seemed pretty efficient, because everyone can always be busy, and it's easier for the team leader to coordinate.
5. **Redundancy**. They were using dual main systems, which means there are two ropes in the system, where both ropes are loaded and capable of completing the task should one fail. Apparently, they are moving away from the more traditional single main with single backup style, but a bit of that still slips in. Either way, they are rigging a more redundant system than we tend to. We saw a couple examples of this. For one of the hauls I worked on, we had two parallel 3:1 haul systems, both taking a portion of the load at all times. For a tyrolean that Karina was involved in rigging, there was a 3:1 on both sides of the pitch, in addition to the main tensioned line. Upsides of dual systems (dual main or main/belay) is that it's protection against several reasonably foreseeable risks. E.g., an incorrectly tied knot, a damaged rope, a ‘biner coming unclipped, operator error. Downsides are that it adds complexity, takes more time to rig, and more manpower and time to get the required gear in there. I don't know which is better for our exact circumstances, but it's interesting that the NZers have come to a different conclusion under similar conditions. Richard Delaney has an excellent discussion on realistic redundancy in his free eBook *Physics for Roping Technicians* (pg. 118-131).
6. **Safety factor >= 10** (on each redundant system). That means no mechanical jammers in a mechanical advantage system, as they will desheath the rope at 3kN or so. Instead, NZ use prusik loops (thick prusiks on thick ropes). Personally, I'm inclined to think that prusiks are a pain, and SF>=3 is probably enough. But considering we don’t use any redundancy, and a much lower safety factor, maybe we’re kinda burning the candle from both ends.

   Edit: Even without a large safety factor, we should probably be more conscious of the limitations of toothed devices than we tend to be. Whereas a toothed device will damage a rope at 3 or 4 kN, a prussik won’t slip until about 7 kN, and won’t damage the rope when it does. At the Northern Caverneers deobstruction training last week, we happily used toothed ascenders as the rope grab in our 3:1 systems, then put 4 people pulling as hard as they could on it. If each person is contributing 50

kg equivalent force, that's putting 4 kN on the rope grab, so we were lucky not to desheath the rope. That was a stupidly heavy rock that we moved, way heavier than a rescue load, but we should still be more conscious of the limitations of our gear.

7. **Pulse bolts**. This is a groovy piece of tech. They're a type of expansion bolt that's really quick and easy to insert and remove. You just poke them in the hole and hand twist the head a couple turns and you're done, none of this spanner bullshit. To pull them out you just untwist the head and pull them straight out. It's so quick. Apparently, they've revolutionized bolted aid climbing. They come in 12 mm and 8 mm. Unfortunately, they also cost about $100 a pop.

8. **Comms**. I haven't seen much of how we do comms, so maybe it's how we already do it in Tas, but most of this was new to me. The Hasty team (first crew into the cave, going straight to the patient) takes the CaveLink. Then they have immediate comms to IMT from the farthest point in the cave without spending hours laying Michie phone wire. Then another team does all the laying of the Michie phone wire to establish comms from any point in the cave to IMT. In addition, there were a few UHF radios floating about, providing comms across multiple pitches, and real time updates from the underground controller. The radios seemed particularly useful in the tight or vertical sections where it can be slow to send a messenger.

9. **Fatigue management**. In a difficult rescue, the rescuers can't just keep going non-stop until the casualty is out. That means IMT needs to account for people taking a few hours rest in the cave, and even rotating out of the cave completely. So, if you know it's gonna be a long rescue, you need to hold back some resources, keeping capable experienced people in reserve so that there are fresh teams to go in when the initial teams need to come out. The rescue exercise started at 6 am on Friday. My team was called in about 7 pm on Friday, Ciara and Karina weren't called in until early the next morning. Staying on the surface resting is lame when you could be underground helping, but it would be even lamer to have everyone exhausted at the same time and nobody left to swap in. In addition, this was the first exercise where CaveSAR mandated a rest period. Between 1 am and 4 am, all activities were to stop, and everyone was to try catch a few hours' sleep (*Have they been hit with the OH&S thing too maybe? - Ed)*. There were mixed reviews of this tactic. Most people reported feeling much more refreshed and alert after just 3 hrs rest, even though many people were cold and didn't really sleep. It is a bit inefficient making everyone rest at the same time, as some teams could have more conveniently rested at a different time. For most people, 3 hrs seemed sufficient to keep going throughout the next day, but they probably wouldn't have taken the rest if it wasn't mandated.

10. **Help from NZ**. If there is a big difficult rescue, NZ will be calling on us, and we will be calling on them. We do a lot of things a bit differently so it would be good to have more people familiar with each other's systems. We should make an effort to get NZers along to our exercises, and to get ourselves out to theirs. And they're just a good bunch of folk too. Their deep cave SAREX runs every 3 years.

I couldn't miss the opportunity to show the STC contingent showing their style…and free merch

Photo: Some random dude passing by.

Part 2: North Owen Expedition

13/3:

Ciara: To continue with the chaotic vibe of the trip, today was another manic day of packing and unpacking and packing again. The main purpose of the day was to complete the shopping for our 12-day expedition to North Owen. In principle this seemed a simple goal, but the day was complicated by two separate team members needing to visit the dentist, a lack of car seats, a critical road closure, and a tight deadline to leave for a post-work caving trip at 3 pm,

with everything needing to be packed into helicopter bags before this. Messy.

Keith, the expedition leader, had been uncontactable in the jungles of Papua for the previous month. He had flown back to Australia and then directly to New Zealand, without so much time for a shower at home! Understandably, as a result, we needed to improvise some of the finer details of expedition planning. Karina took charge of rapidly assembling a shopping list when we realised we had under an hour to complete the entire food shop. A basic shopping list was compiled in the record time of thirty minutes. Five of us assembled in the colossal warehouse of 'Pack-and-Save,' and spent a mere $NZ1500 on groceries.

Somehow, we managed to complete the bulk of our tasks by 3 pm, meaning we could join a few other Kiwi cavers on an evening caving trip to help with a significant dig in Deer Cave. The concept of an 'after-work' caving trip was attractive, and the Kiwi cavers couldn't turn down the opportunity to rope in extra grunt and enthusiasm for their longstanding dig project. Keith stayed behind to pick up Kristin from the airport and pack the boxes for the helicopter.

After an hour's drive, Alex, Karina, Jemma and I joined Mike Allen and five others on the Canaan road. We strolled no more than five minutes to the dig's entrance. This dig was attempting to break into the Middle Earth system. The dig was now (supposedly) only a tantalising few metres from breaking into the main system. We descended a 20 m pitch from the surface, and then stationed ourselves along a tight passage. We spent the next hour and a half passing buckets of material along the passage, which were then laboriously hauled up the pitch to the surface. The passage was tight and steep, making for awkward and slow work, and the rubble was at risk of toppling out of the buckets on the haul and hitting the people below. Eventually we called it a day and ascended to the surface. We would have stayed longer but we were running a tight ship as the road was going to close for roadworks that night, and we were at risk of becoming stuck on the wrong side. Later we learnt that the Kiwis have called this passage 'Anzac Avenue.' Like most digs, it remains a work in progress.

The Kiwi cavers told us to meet at a local pub named 'Spring Farm.' We struggled to locate this pub until I realised that they had actually said 'Sprig and Fern.' We made it back to Mike Allen's by the respectable time of 10 pm, I could get accustomed to this civilised 'after-work' caving business.

14/3:

Ciara: Today was the start of the North Owen expedition. We planned to fly back up the mountain and then spend a week searching for new caves on the northern slopes of Mount Owen. This would be followed by a week exploring in Bulmer Cavern, basing ourselves deep underground at 'Camp 2.5.'

We would be joined by two Kiwi cavers, Marcus Thomas and David Ellacott, for the first half of the trip.

We drove back to the Owen Valley East Road where we packed all our gear and food into a helicopter cargo net, about half a tonne in total. The helicopter flight lasted less than ten minutes. It dropped us off in Sanctuary Basin, about two hundred metres uphill of our bivvy cave where we were to spend the next week. We spent several hours shuffling cardboard boxes of food and gear to the bivvy cave across very rough terrain. Most of our gear was packed into cardboard boxes, which were awkward to carry, resulting in at least one sprained ankle. The bivvy was relatively comfortable, with a large overhang providing some shelter from the elements, and a small stream gurgling alongside.

Helicopter travel certainly encourages minimalist packing

Photo: Ciara Smart

Which turns into this at camp. Photo: Ciara Smart

That afternoon we had a session on knots where we learnt some new lightweight techniques employing 5 mm dyneema tied directly into the ropes, minimising the use of tapes and hardware. We were also introduced to 'wekas,' basically the New Zealand version of our Turbo Chook, although perhaps closer to a 'Turbo Duck' in appearance. Initially we thought the fearless flightless creatures were endearing as they brazenly wandered through our camp and inspected our tents. Unfortunately, they have kleptomaniac tendencies and are inclined to collect anything remotely loose, including cutlery and carabiners. They are utterly unfazed by humans. They soon became very annoying. *(Wait until you meet Keas. They take it up another level – Ed)*

15/3

Ciara: We awake to a day of glorious alpine sunshine. Keith and Marcus had a few areas in mind for prospecting, so we decided to split the teams. I went with Keith, Alex and Kristin to prospect the area to the northeast of Mt Owen, while Marcus, David, Karina and Jemma headed further to the southeast.

What a playground. Photo: Alex Williams

The landscape was spectacular, with dolines and shafts in every direction, and no scrub to be seen! I felt overwhelmed by the sheer number of prospective holes. I started looking at dolines in a small valley while Keith stayed on the ridge to gain an aerial perspective. Over several hours I inspected dozens of dolines, but to my frustration, none went more than a few metres. Finally, I found one that was blowing and appeared to go. Once Alex joined me, we negotiated an awkward 5 m downclimb. The passage trended down another few metres, becoming tighter. We reached a 5 m pitch that was unfortunately very constricted at the top, blocking access without significant gardening. The pitch was drafting strongly, and appeared to open up below, but it went in the 'next time' bucket.

From there we continued back up over the ridge, noting the location of various vertical shafts. On the way back I made a detour to look at Curtis Ghyll, a deep cave in the area. That evening we started the first of many caving related challenges as we attempted to squeeze through the legs of the camp chairs and negotiate various human traverses.

Peek-a-boo. Photo: Keith Chatterton

15/3

Karina: We all headed off from camp together, climbing up the steep long hill that would become the daily routine. When we reached the saddle, we split into two teams, Marcus, Dave, Jemma and myself went off in search of a mystery cave Marcus had been told about. The others went prospecting for new caves a bit closer to camp. We walked down to the tarns and from there headed down the East Owen Valley, south of Mt Bell. We spent the morning looking in that valley for cave entrances, Jemma and I stayed high while Marcus and Dave stayed low. We poked our heads in a few caves, most only went a metre or two. We didn't have any caving gear as it was a prospecting trip, so we couldn't go in very far. The rocks were also a lot sharper than what we have in Tassie, making it sub-optimal without a trogsuit.

After the valley we had lunch and then started walking down the scree field, along one of the many goat tracks. No one in our team had been to this location before so we stopped frequently to route find. We ended up walking right through the karst area which was riddled with rifts and boulders.

It reminded me of a glacier field. We had heaps of fun scrambling up and over the rifts heading up to the opposite side of the valley. We continued up the ridge line and made it to another saddle where we had our second lunch. From here you could see the farm where we had left Scratchy, it

was a specky view. Marcus went to have a look ahead, he said it was probably a 100 m down walk in a steep scree field to find the mystery cave. As it was already mid-afternoon, and it took quite some time to get to this point, we decided to call it a day and head back.

On the way back we went a different route, avoiding the karst rifts and boulders and instead via the ridge along Mt Owen. This was quite a lot easier and quicker, even though it was uphill. About mid-way back we spent a bit of time looking for new holes and to Marcus' delight we believe we found Pavement Pitch, a very round hole that dropped down about 15-20 m amongst a very smooth bit of glaciated marble pavement. A beautiful hole. Heading back up to the track we stopped via Curtis Ghyll and then we called it a day.

Holes everywhere but almost none go anywhere. Is this a caver's joy, or hell? Photo: Jemma Herbert

Jemma ponders the vast array of dinner options in the highly organised camp kitchen.

Photo:Ciara Smart

Then she created this. Looks good from here.

Photo: Ciara Smart

16/3

Ciara: We again split into two teams to revisit some of the shafts we'd identified yesterday. I headed up onto the ridge with Jemma and Marcus. Karina had come down with a cold so stayed at camp to rest. Jemma rigged the first shaft which was a 35 m drop down to a small chamber. It went nowhere. I rigged the next shaft where I learnt how to make anchors off 5 mm dyneema while also learning how to rig off a rack. I found rigging off a rack much more awkward than a Stop because of the amount of rope used in the lock-off, meaning I easily miscalculated rebelay loop lengths. However, the quality of the hard marble was fantastic compared to the hit-and-miss choss of the Junee-Florentine. The pitch was a nice 25 m drop into a small chamber. There was a large chunk of ice in the chamber, but no way on.

Ciara checking out some of those everywhere holes.

Photo: Jemma Herbert

The day continued in that fashion for some time as we dropped various vertical shafts, all of which went nowhere. As I understand it, this is typical for this area, as most vertical entrances tend to be blocked by aeons of frost shatter. Eventually Alex took us to a hole with a howling draft. It begun with a sloping rifty passage that headed downwards before reaching a significant pitch head. We dropped many boulders down in excitement, they suggested a pitch of 30-40 m. We started rigging but bailed as the weather was coming in, with visibility on the surface rapidly diminishing. On the way back we briefly inspected another promising hole that needed rigging. That evening we strung a large tarp across the front of the overhang to give us some protection from the elements. It rained extremely heavily that night, and the stream beside camp became swollen and threatening.

17/3

Ciara: Today was a designated rest day as the weather was dreadful. After breakfast we abandoned camp which was becoming unpleasantly sodden and headed to the nearby public hut. That afternoon we amused ourselves with various games and challenges within the hut, including a very large jigsaw puzzle. We attempted various squeeze challenges, including through the rungs of the ladder on the bunks. Other games included the notorious cereal box challenge, partnered balance games and a few wrestling games. Unfortunately, a few team members were injured during the shenanigans. Keith badly bruised his sternum during a squeeze through the bunk bed rungs, possibly even cracking a rib. Alex fell during the cereal game and hurt his shoulder, and Jemma knocked Marcus in the face and gave him a bloodied nose. A few of these injuries were to impede caving in the days to come.

18/3

Ciara: Alex's shoulder was bad enough that he needed to take a rest day, as did David, while Karina and Marcus went again to locate their long-lost cave in the East Owen karst field. Keith and Kristin went off on another objective which left just Jemma and I to investigate some of the holes Alex had identified. The first cave had an impressive entrance on the side of a steep slope. It begun with a very large and loose scree slope which dropped steeply downwards, funnelling loose rocks into a small hole. Inside the cave we immediately hit a pitch. This was a 40 m pitch which Jemma rigged over four rebelays. This was not easy as the rock was poor quality, and Jemma was at constant risk of being hit by loose scree from the slope above. Unfortunately, but not unpredictably, the cave did not go.

We then moved to the promising hole we had begun to rig two days previously. I finished rigging the pitch-head and dropped down an impressive 40 m shaft in an almost clean drop. I expected the base of the pitch to be frustratingly blind, like all the others we had identified thus far. At first it appeared so, but after a bit of a poke I noticed a tight sidewards squeeze that looked like a goer. Jemma followed me down, bringing additional rope, and we began what turned into a very enjoyable and exciting push. We spent the next three hours pushing steeply downwards, and to our delight the cave kept giving. We had to negotiate multiple squeezes and downclimbs.

At points the cave broke down into rockpile and it took considerable trial and error to find our way through. As we got further in, there was less breakdown, and the cave became more spacious. Eventually we rigged another pitch which proved to be about 15 m. After this the cave took on a more vertical flavour but we were largely able to freeclimb the big drops. The cave spiralled steeply downwards, with many inlets. It appeared to be drafting strongly inwards. We turned around at 6 pm when we reached another pitch. We derigged on the way out as we had planned to spend the remainder of the trip in the Bulmer system.

Jemma on P2 of Bloody Box Game. Photo: Ciara Smart

We decided to call the cave 'Bloody Box Game,' as a homage to everyone who had to sit out the initial exploration because of overzealous participation in the cave games. We made it back to camp by 9:30 pm but unfortunately Jemma twisted her ankle on the way down. At camp we made the tough decision to shorten our planned time in the Bulmer system and instead focus on pushing our new find.

18/3

Karina: Marcus and I decided to have another go looking for the mystery cave, the others weren't as interested in the big walk again. We decided to go the alternative route and walked along the top of the valley instead of the time-consuming boulder field in the middle. It was pretty easy navigating our way and in 2-3 hours we had made it to our furthest spot where we had previously had second lunch. From here was new terrain. Marcus had described it as a steep scree field, which we would have to descend about 100 m. We started on our decent, quickly reaching a bluff, so we backtracked and walked down a route a bit further from the cliff wall we were looking at. This provided a better perspective of the wall where we were supposed to be able

to see the cave entrance from - allegedly something big enough to walk straight into.

We did in fact find a so described entrance. Getting quite excited, we headed that way. We had to scramble through thick forest and over steep scree to get a closer look, but when we did, we were rather disappointed as the entrance was above a 5-6 m wall which looked like a dodgy climb. Marcus wasn't convinced anymore that it was the entrance as his instructions had stated it was approachable from the top and you could walk straight in. We were approaching from below and had to free climb to get in. It didn't quite match up. We left it for the time being and decided to have a look further down the scree slope.

There were a couple of other potential leads, none really fit the description, but we had a look to rule them out. None went. We then regrouped and decided to try approaching the original entrance from the top. From the bottom you could see a grassy slope heading up from the entrance, this was what we were aiming for. At this point even I was getting invested and had quite the desire to get to the cave. So up we climbed, engaging mountain goat mode, right to the top. We had a second lunch break, absorbing the sunshine and the magnificent valley views. Then we headed down the ridge we believed would take us to the entrance. Upon walking down, we found a grassy slope, but it was very slippery - with only small looking beech trees which broke rather easily. I didn't trust myself to not slip down the bluff. I thought I could see the entrance, but I just couldn't reach it.

A simple hand line probably would have been all we needed but alas, we did not have one. Disappointed, we did not make it to the entrance. At this point we had exhausted all of our approach options and any other promising leads. We decided to call it quits for the day. I guess Marcus will have to go back at some point on his own and let me know if it goes or not. Alternatively, I will just have to go back to NZ at some point and find out for myself - definitely a tempting option.

19/3:

Ciara: Keith and I teamed up to survey our new find while Alex, Kristin and Karina went ahead to rig. Jemma took the day off to rest her ankle. Surveying was as it usually is: cold, wet, and slow. Unfortunately, at least the upper levels of Bloody Box Game appear to be closer in character to a cave from the Junee-Florentine than the nearby Bulmer, with significant mud, crawling, squeezing and considerable drippiness. There were very few barrelling passages of easy travel, making for a slightly tedious and damp survey experience. Nonetheless, we surveyed 41 stations, 174 m in length and 90 m in depth. This took us to the pitch where Jemma and I had turned around the previous day. We again turned around at this point as it was getting late. When we got back to camp, we discovered that Jemma had used her 'rest day' to ascend Mt Owen, having become bored after experiencing a full 45 minutes of sit-down time.

20/3

Ciara: Keith was still in pain from his heroic efforts in the bunkbed squeeze, so he finally decided to take the day off, along with Kristin who was feeling fatigued. Karina went off to climb the spectacular Mt Owen. Unfortunately, David and Marcus had to head off today and exited the mountain on foot. This left Jemma and I to pick up the survey while Alex continued to rig. We decided to wear our PVC suits today. This proved a wise choice as the cave became progressively wetter and drippier as we descended, and we were moving at surveying speed. The draft was strong enough to cause a considerable chill. We surveyed down the next pitch, again 15 m in height, then through more spiralling rifty passage. Eventually we hit a major pitch which turned out to be 50 m in height. This pitch was slightly complex to rig and very drippy. At the base of the pitch, it was apparent that we had broken through the upper levels of break-down. The walls were now clean-washed marble, and the passages were becoming much larger in size, with a considerable number of inlets.

Pre-caving clean. Photo: Ciara Smart (somehow…)

At the base of the 50 m pitch Jemma and I decided to call it as we had reached our designated turn-around time, and we were feeling the impact of our slow pace in the face of the howling draft and general dampness. This took the cave to a surveyed depth of -130 m, but Alex had rigged several more short pitches beyond this point. It was a shame to turn around, as the cave is very much open and going. However, no proper expedition would be complete without abandoning

a nagging unfinished project to duly play on the caver's imagination over the consequent months.

There is a teeny tiny, incey wincey possibility that this cave may turn out to be *very* significant. As confirmed by dye tracing, the resurgence of the massive Bulmer Cavern system is at Blue Creek (north of Mt Owen). This is nearly 10 km in straight line distance from the farthest point pushed to date in the Bulmer system. Despite serious effort, cavers have not yet found a way to connect Bulmer Cavern to Blue Creek - a connection which will easily push Bulmer over the 100 km mark, probably much more. Dare we imagine that this cave might break into this imperious system? It's highly unlikely, but you never know. And if it does, it means that there is a very significant quantity of *down* to push.

The exit was slow as the three of us were now carrying 240 m of wet rope, in addition to the rigging gear. We had to negotiate several awkward squeezes, crawls, and tight pitch-heads. We emerged just before darkness to wet and wild conditions on the surface. For once in our lives, it was actually the right decision to walk back to camp in our PVC suits as the surface temperature quickly plummeted and the rain lashed down. Camp was abandoned when we got there as the others had decamped to the public hut because of the miserable weather conditions. That evening we all slept in the hut as a huge storm swept over the range and the foundations of the hut rattled with the strength of a ferocious lightning storm.

21/3

Ciara: Today was a well-earned rest day before our three day through trip down Bulmer Cavern. The weather conditions were still abysmal, so we stayed inside, enjoying pancakes for breakfast, and otherwise amusing ourselves with stretching and drinking tea.

Part 3: Bulmer Cavern Through Trip

22/3

Ciara: Today was the start of our three-day through trip down Bulmer Cavern. We had coordinated a helicopter to come back and pick up our excess gear, then to fly us across the mountain to the 'Castle Keep' entrance. In theory, this would save us a 4 hour walk in our cave suits across steep mountain terrain. We spent a frantic morning dissembling camp and lugging half a tonne of gear to the helicopter net. While this was only two hundred metres uphill, the terrain was rough and the gear was awkward, making for heavy work. The helicopter was due at 11 am, and at 10:50 am we had the net packed. We then had our next iteration of 'hurry up and wait.' We waited, and waited, and waited. Keith repeatedly ran several hundred metres up the ridge to make phone contact while the rest of us napped in the sunshine. Eventually, the chopper appeared, only four hours late. It flew us across the landscape to the 'Castle Keep' entrance of the Bulmer system. Our cunning plan to save time was now in disarray. We didn't enter the cave until 4:30 pm.

Giggle squad keen beans. Photo: Keith Chatterton

Despite the late start, we had an extremely enjoyable descent to 'Camp 2.5.' This was vertical caving at its finest, negotiating pitch after pitch as we dropped around 500 vertical metres on fixed ropes. There was minimal crawling and squeezing, and no mud, making for easy and pleasant travel! Along the way we were introduced to Kiwi rigging, and the three of us came to understand that southern Tasmanian standards of fixed rigging are not universally shared. The ropes in Bulmer appear to be left on an almost permanent basis, with perhaps less attention paid to rub points than in our caves. On about pitch three we had to cross a knot where the rope had severely frayed. We also noticed that the Kiwis seem averse to rebelays, preferring long pitches. I can understand this as they mostly cave on rappel racks, which are much smoother on the long pitches than our Stops, however it did mean that the ropes were heavy to load into our devices and we couldn't have many people on the pitch simultaneously. I started the trip on my Stop but soon switched to a rack because the rope was too chonky to feed properly. The rebelay loop lengths were often either quite short or quite long, generally requiring muscle power rather than technique to cross. It should be noted that the Castle Keep entrance is normally descended, and rarely ascended, so this may be of less importance, and the ropes may have shrunk over their extended instalment. Two of the long pitches ended in huge pendulums across very wide gaps. We were not expecting these pendulums, and it was fun to have to improvise the best technique for managing them. We also saw some preserved moa bones, from an extinct giant bird unique to New Zealand.

We got into camp late, but we were pleasantly surprised by the amenities and aesthetics of 'Camp 2.5.' This site is so called as it is approximately halfway between Camp 2 and Camp 3. Keith had suitably primed our expectations by warning us that Camp 2.5 was more unpleasant than the infamous Tennis Court campsite in Niggly. Good job Keith. Camp 2.5 was delightful. The camp was in a flat and *dry* room, some of which was sealed off with plastic tarps, making for a comparably warm and draft-free environment. There was a stone 'bar' for cooking upon, and a surprisingly

comfortable rock sofa. We did not have to trog up to get water, which was only about a 100 m stroll. Some sleeping bags and mats were stashed there permanently, saving us from carrying them in. I was sceptical at the lack of desiccant in the garbage bags containing the sleeping bags, but they only exuded the slightest whiff of cheese and sweat. That night we ate our first meal that was not pasta-sauce based. By this point we were seriously struggling to get through the generous allocation of half a stick of salami per person per day.

Camp 2.5: Sheer luxury. Photo: Alex Williams

...And who can pass up this shot. Photo: Ciara Smart

23/3:

Jemma: Whilst the keen beans headed off for a big day of miserable wet surveying, Kris had a sick day at camp, and Karina and I decided to do some touristing. Our plan was to go look at the Crystal Pools, then we'd check out the huge aven in South Park with a 300+ m aid climb that's been in the works for 7 years and still going. I had plans to go touristing up the fixed ropes on the climb and maybe learn some stuff from their rigging… but that never eventuated.

We were told that both destinations were within 5 minutes of camp, we just had to head straight down the passage out of camp, South Park is the first left and the Crystal Pool is the second left. Sounded easy enough, so we had a lazy morning and left a bit after the keen beans.

We spent 3 or 4 hours going in circles, scouring every surface within 5 minutes of camp, looking for either the crystal pool or the huge aven. Whilst we found lots of interesting things, we failed to find either of the objectives. Embarrassed and disheartened we spent the afternoon back at camp prepping lunch for the next day and playing convoluted eye-spy. What animal kinda walks on 2 legs, and floats, but not on water or air? Karina: "I'm a zoologist damn it, there is no such animal!" It was an astronaut.

When the others got back, Keith took pity on our incompetence and took us out again to see the Crystal Pools. It was indeed only 5 minutes from camp, but in our defence, it wasn't as simple as taking the second left! Super cool though. Real deep, full of totally clear water, and surrounded by crystals.

23/3

Ciara: Alex, Keith and I headed off to survey and push the Snagglepuss streamway while the remainder of the group opted for a touristing day. The route to Snagglepuss was enjoyable, again involving very minimal crawling or squeezing. Eventually we joined the streamway and followed for a long distance. For the most part we stayed high in a rift above the streamway. After lunch we split, with Alex going ahead to rig the push front, and Keith and I to survey from the point they had got to on their previous trip.

At this point we were in the streamway proper, and we ascended a series of short waterfall pitches running alongside or in the water. Alex had assured us that the ropes had been rigged to keep the cavers out of the water, but it soon became apparent that he was referring to trips in normal flow conditions. Keith suggested that the waterflow was 2-3 times greater than the last trip, meaning we couldn't keep ourselves out of the water on the pitches. Suffice to say that surveying conditions were utterly miserable. We surveyed for a while, and I tried my best to keep the Disto dry. I was missing my PVC suit, and scepticism was building towards all the Kiwi cavers who had informed me that Bulmer was a 'dry' cave. We were soon totally soaked, and I couldn't physically fit any more warm layers under my suit. We were becoming uncomfortably cold, as we were only able to move at surveying pace. We had hoped that Alex would realise that conditions were untenable and turn around, but there was no sign of him, and we couldn't make voice contact above the roar of the streamway. Keith and I held a council of war, and eventually decided to abandon Alex and wait for him in a dry section of passage. Just as we turned around, we heard Alex' voice from high *above* us. This was decidedly odd, but we figured it meant that the passage had turned in on itself and was in fact a dead end. We attempted to communicate our intentions to an invisible Alex, and then went back to huddle in the speleoponcho in a dry section of passage.

Alex caught up to us in due course and confirmed that the streamway was indeed a dead end. While this wasn't the ideal result, it did mean that the lead was officially kaput,

and our surveying efforts were not for nought. On the way back, Keith took me for some touristing. We passed the route to the notorious 'Grimace Sump,' and had a look at the perpetual dig nearby. We also visited 'Black the Ripper' and the 'Crystal Pools.' I saw lots of sparkly pretty things and suitably oohed and aahed. We got back to camp early and were surprised to find Jemma and Karina there who had endured a frustrating day of being unable to locate a few things close to camp.

24/3

Ciara: Today was to be a long day. Unfortunately, I woke up feeling feverish and extremely unwell, what a day for it! We were out of camp by 8:30 am and started making our way back up towards the surface. We were exiting out of 'Eye in the Sky,' meaning it wasn't necessary for us to ascend the 500 m we'd descended on the way down. The exit route was very enjoyable and largely straightforward, with many pretties to ogle. The route was predominantly easy walking passage, with a few traverses or spacious crawls for variation. Along the way we visited 'Avalanche Alley,' a passage filled with hydromagnesite formations with the appearance of snow. We carefully crawled through 'The Soup-Mix,' a long section of passage littered with a plethora of decorations including delicate strands of angel's hair, gypsum flowers and cotton wool formations.

Avalanche Alley. Photo: Ciara Smart

Karina in The Soup Mix. Photo: Ciara Smart

By mid-morning I was feeling uncomfortably dizzy, shaky, and feverish, just what you want when negotiating pitches! I've never felt that ill underground before, and I hope I never do again. To my shame I had to briefly hand over my pack at 'Who Dares Wins,' an exciting, roped traverse with an awkwardly placed ladder in the middle. After lunch at the 'Awesome Aven' I took a cocktail of drugs, which made me feel significantly perkier. Yay for NoDoze and pseudoephedrine. After lunch we ascended the longest pitch of the day, only 30 m! Soon we had passed Camp 2 and Camp 1 and were back in the section of the cave used for the rescue exercise. From there it was only a short way back to the surface, and we were out by 5 pm.

Jemma: My favourite (and maybe Ciara's least favourite) part of the day was learning to sing Alex's 'Diggy Diggy Hole' song while awaiting our turn on the pitches. After many, many renditions we were all starting to get the words of the first verse, the tune can still use some work though...

Ciara: 'Eye in the Sky' was a spectacular exit. We climbed out of a yawning hole in the side of the mountain, and from there had to pick our way down a very steep series of cliff lines to reach the valley floor. This took some time, as we initially failed to locate a fixed handline in place to help us through the steepest section. We passed the 'Whale's Mouth,' a gaping hole in the mountainside apparently unconnected to Bulmer, and from there we joyfully glissaded down a series of scree slopes until we hit thick scrub. Along the way Karina was stung by four wasps but took it amazingly calmly. By the time we hit the valley floor we were all dehydrated as we had not had any water since lunch time. Unfortunately, the creek bed was dry and very treacherous, with both Alex and Keith taking painful falls on the slippery rocks.

Eventually we reached water and joined the main track. We reached the cars around 10 pm. There we were reunited with Scratchy. David had kindly packed Scratchy full to bursting with our flown-out gear. However, to cap off a long day, we could not locate the key needed to start the engine. David was uncontactable and so we decided to camp beside the cars. After setting up our tents, and unpacking the car, we had one final look for the key and located it inside the shocks after all! The car had been so heavily packed with gear that the shocks had been compressed when we had initially looked, meaning the key was hidden. Sorry David!

Unfortunately, the only water available at our campsite was running out of a cattle field. By this point we were badly dehydrated, so we took our chances and drank it anyway. It smelt and tasted like cow poo.

25/3

Ciara: We all awoke in various stages of dehydration. We slowly packed up and split up the group gear, attempting to ward off the fearless wekas who at one point made off with a bag of human faeces. We had breakfast in Murchison and then went for a swim in the local river where we inspected

some impressive bruises among the group. After this, Team Giggly bade farewell and we made the slow drive back to Christchurch with wet ropes tied to the roof of the car in a desperate but effective drying attempt needed to comply with our tight baggage allowance. Scratchy was voicing expressions of serious mechanical complaint but delivered us to Christchurch in time for dinner at Marcus' father's house, who had kindly offered us a floor for the night. We were up at 3 am for an early flight. Scratchy was abandoned on the suburban streets of Christchurch to hopefully sit patiently, awaiting our return. We've since heard he has found a new home.

Concluding Comments

Karina: I was very excited for this trip, and it did not disappoint. The vertical pitches were phenomenal, so long and so many of them, on day one we descended over 500 m. Just pitch after pitch after pitch until we were at Camp 2.5. There were a few crawly/climbing bits in-between to mix things up. I will note however the rigging was interesting… Short rebelay loops meant we were using our muscles to pass rebelays, or when ascending, some loops were so short, I physically couldn't reach my croll (neither could a much taller than me Jem) without doing a climb mid rebelay. It made the process a bit slower and inefficient. While we are strong Tassie cavers and had no problem using our big muscles, it did make me think our rigging is generally quite good, with the phrase 'work smarter not harder' coming to mind. Hopefully we will have some NZ cavers come visit soon, I'll be interested to see what they think of our rigging.

Ciara: Finishing up with a respectable quantity of survey under our belts, many giggles shared, and one nagging unfinished project to leave behind, we can call the trip a great success. We finally understand the fuss about the Bulmer Cavern which fully deserves its reputation as an outstanding vertical caving destination, and devoid of mud at that! We might call ourselves spoilt in Southern Tasmania for our hypothetically lucrative ratio of caver to undiscovered caves, but the South Island of New Zealand is on another level entirely. And the caving there is just so *nice*. Heartfelt thanks must go to the organisers of the SAREX for tolerating our overly enthusiastic presence, to Keith for coordinating such a fulfilling trip, and to all the Kiwi cavers who showed us such warm hospitality.

Fine Line Between Pleasure & Pain.

Mole Creek: Wet Caves Campsite.

March 11-13 2023.

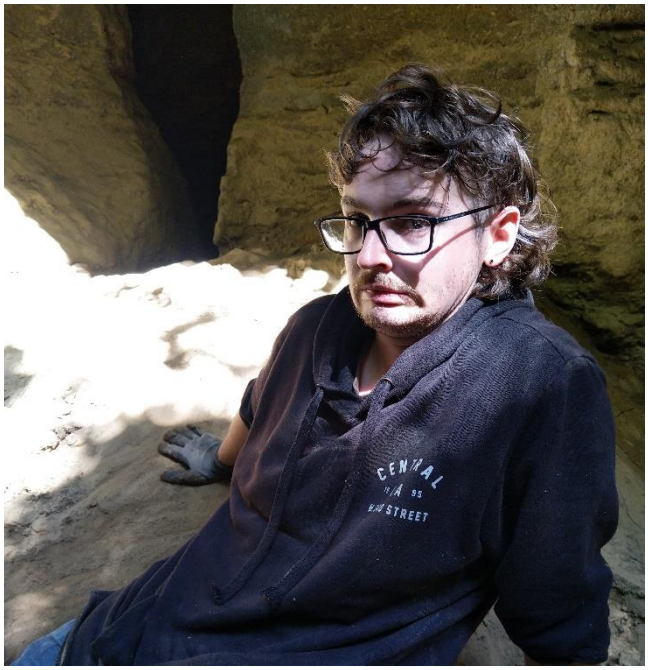
Bill Nicholson

Party: Bill, Liam, Callum, Tammy, Kirsten, Steve. Surnames have been omitted to protect the unwary.

More of a social event of people of questionable character with as always, the element of extreme danger thrown into the mix.

Suffice to say we all survived the occasion physically, not sure if the participants of Alone Australia would have coped well though. Time was found for a merry frolic through Honeycomb & the usual late-night stumble into Wet Cave.

Much more could be said but it's better not to.



Opposite: Callum has apparently crossed that fine line into pain. Photo: Bill Nicholson

JF-761 Delta Variant

14 May 2023

Karina Anders

Party: Karina Anders, Petr Smejkal

Meeting up at Petr's at 7 am, Jemma sadly handed us the gear she had organised as she could no longer make it due to injury. Petr and I decided to continue on as I really wanted to do the Black Super Giant (BSG). And that's what we did. The BSG was awesome. We used two 100 m ropes tied together and borrowed racks from the gear store. I threaded my rack with all the bars, not necessary.

I had about just as big a workout going down the first 100 m as coming up, having to rap the rope around my legs and pull it up through my rack to get down (*yeah, we all do that. It's called terror – Ed)*. The club racks are also very long which make bypassing the knot quite tricky, there is not much space between the hand jammer and the rack. I lengthened the rope attaching my hand ascender to my harness to manage it. Very glad we had practiced prior in the week at Fruehauf. Petr had a different technique, he put one cows tail in a safety loop and the other in the hand jumar which he was sitting in. Then he took the rack off, and put his chest ascender in.

Going back up was a lot of fun, we tandem prusiked of course. I had prepared and taken a sea-sickness tablet. This enabled me to simply enjoy the bouncing while Petr prusiked. I decided not to think about how we were dangling hundreds of metres on one very thin rope. I've done the maths, it's strong enough. We left the maillons in at the Y hang at the top of the BSG, they are Petr's and can stay there until we derig. We pulled the rope up but kept the knots in for the next people. There is sort of an access line but we didn't have any tape to make a natural anchor for it, up to others if they want to add that. On the way out we derigged the 60 m and switched the 40 m with the 60 m for the window pitch. The next people need to put the rebelays back in next time. A fantastic trip and I would highly recommend the BSG.

Midnight Hole IB-11 & Mystery Creek IB-10

21 May 2023

John Oxley

Party: Adrian Hills, Jackson Hills, Don Matthews (SUSS), John Oxley, Lauren Platzer, David Rueda Roca

David and Don were visiting from Sydney and managed to squeeze a JF cave and an IB cave into the one weekend. This trip was also Adrian and Jackson's first with the club.

We noticed that the water level in the creek crossing the track on the walk in was much higher than usual but the pitches in Midnight Hole were all quite dry as usual. As is customary we visited the waterfall on the way out through Mystery Creek but this time we also did a loop down the Cephalopod Creek canyon and return under the broken column.

Random Midnight Hole photo 'cause it always deserves one. Photo: Danny Wilkinson

Northern Tasmanian cave rescue practice

27 May 2023

Janine McKinnon

Participants: Phil Croker, Jemma Herbert, Alan Jackson, Janine McKinnon, John Oxley, Penny Player, Lauren Platzer, Ciara Smart, Ric Tunney (STC), Several Northern Caverneers, several Mole Creek Caving Club.

I know this is the northern show, run by them and thus one of their "trips", but enough of us went that it is worth a brief report.

This year was a bit different. We stayed on the surface and practiced "deobstruction" techniques. Yes folks, that is blowing rocks up. Before various people run screaming to their typewriters to complain I will quickly mention that it only involved VERY small explosives in the shape of a little thing not unlike a .22 cartridge without a bullet. We were very careful, very organised and there was only a tiny injury to a foot (suggestion: move all bits of anatomy from under where deobstructed rock might fall).

Cement Australia at Railton kindly supplied the boulders we practiced on. They moved quite a few very big boulders into place on their property the day prior. Their idea of how much we intended to "deobstruct" was impressive. I think we work on different scales.

The day was fine weather for a change, and we all practiced the various options of shaving off bits of rock: The capping mentioned above, using "feathers" to perform feathering (duh), and an angle grinder. All were fun.

Feathering has been used since the Egyptians and was surprisingly effective, if slow. We were all quite surprised at how large a flake of rock we could remove using this method.

Of course, some of us got a bit too ambitious and finished the day with a project that was just too much for the technique to cope with. Kudos to their perseverance though.

Because we are who we are we finished the day working out how to topple one of the large boulders positioned on-end (OK, Jemma gets a lot of the credit for the enthusiasm for this). Having determined theoretically that our ropes would do it safely we gave it a shot. As we are so clever, we were successful.

This was a very useful, informative and fun day finished off with dinner at the Railton pub.

Working on removing a projection to get a theoretical stretcher through a squeeze. Photo: Janine McKinnon

Several jobs on the go. Photo: Janine McKinnon

Our successfully deobstructed rocks. Photo: Jemma Herbert

Jemma is very proud of her work: Photo: Janine McKinnon

Working on it…Photo: Janine McKinnon

Revelation Cave IB-1 via Chorale Cave IB-233

11th June 2023

John Oxley

Party: Adrian Hills, Jackson Hills, John Oxley, Chris Sharples

This cave was chosen to give Adrian and Jackson some experience in SRT. There are three pitches (maximum 18 m) including one with a rebelay.

The walk to the cave took us about 50 minutes and we spent about 4 hours inside which was enough time to get to the very bottom and back at a leisurely pace.

Playing at the rebelay (opposite). Photo: John Oxley

Other Exciting Stuff

January 2023 – JF Deep Cave *Anaspides* Collection

Stephen Fordyce (text and photos)

Party: Karina Anders, Tom Elms, Stephen Fordyce, Henry Garratt, Lena Goetz, Jemma Herbert, Christoph Hoepel, Louisa Hoepel, Tom Maggs, Bogdan Muresan, Oxana Repina, Ciara Smart, Petr Smejkal

German researchers from the University of Rostock visited Tasmania as part of their ongoing study of Tasmanian mountain shrimps of the genus *Anaspides* (Christoph Hoepel's PhD, with supervisor Stefan Richter) and requested help from STC cavers with collecting the cave adapted species, particularly *Anaspides eberhardi* from various places in the deep JF caves.

In the course of trips over January, we were able to collect many *Anaspides* samples from abundant populations at base level in Growling Swallet, Niggly Cave, Porcupine, and Gormenghast *(SS* 454*)*. It was a good chance to do this while these caves were rigged, and the routes were familiar. All material will be deposited in museums, most specimens probably in the Australian Museum in Sydney, some in Hobart and a few in Rostock, where the researchers have a CITES-listed collection which guarantees that they will be kept forever. So, if someone wants to do (for example) a detailed genetic study with new technology down the track, they might be able to save a lot of effort collecting samples.

The eagle eyes of Christoph also found several specimens of an undescribed (and so-called "Unicorn") anaspidacean species of the genus *Eucrenonaspides* in the mid-levels of Gormenghast - the little bastards were only a few millimetres long, and only 1-2 samples had previously been collected several decades previous.

A register with survey station names, descriptions and XYZ co-ordinates has been created and will be put into the archive in the JF folder.

An interesting side note is that in the hunt for *Anaspides*, we actually noticed amphipods almost everywhere (but still much less abundant than *Anaspides*), including apparently cave-adapted individuals well above base level flood maxima. They are quite different little shrimp, characterised for me by their tendency to lie on their side and flip about weirdly. We collected some from Sesame in January 2022 (*SS*451, p18) and noted them in a few other places.

A pack of Amphipods eats a big dead Anaspides while a fellow Anaspides runs away in horror (or with a full belly).

These centrifuge vials were pre-labelled and filled with ethanol, so a GoPro video could record the details

The great Anaspides project – a Science Officer's perspective

November 2022 – February 2023

Chris Sharples (STC Science Officer)

Anaspides researchers: Christoph Höpel, Stefan Richter, Shane Ayong (Australian Museum) and assistants.

STC helpers (Alphabetically): Arthur Clarke, Rolan Eberhard, Stephen Fordyce, Janine McKinnon, John Oxley, Chris Sharples, Ric Tunney, John Webb and others.

Back in June 2022 the STC secretary passed on to me an innocuous-seeming email from one Christoph Höpel, who is a PhD student at the University of Rostock in northern Germany. Together with his supervising Professor, Stefan Richter, and Dr Shane Ahyong - a research collaborator from the Australian Museum in Sydney - Christoph had been working on a research project involving the Tasmanian Mountain Shrimp, *Anaspides*, since about 2017. The research was using modern DNA analysis techniques to unravel the mysteries of the evolution and diversification of the well-known pigmented and surface-dwelling Mountain Shrimp into several species of pale blind cave-adapted creatures. Some of Christoph's earlier field trips to Tasmania

involved collaborations with interested local cavers such as Arthur Clarke and Stefan Eberhard as well as other local academics including UTAS zoologist Alastair Richardson. Some of this early work has already been published (see: Höpel *et al.* 2021).

The pandemic had resulted in an unwanted delay in the fieldwork and thus in the completion of Christoph's PhD, so by June 2022 he was keen to get back to Tasmanian for a final and as comprehensive a collecting trip as possible. Which brings me back to that email, which was the trigger for about six months of activity by various STC members who answered Christoph's call for help in a variety of ways. I undertook to organise some guides (including myself) to help Christoph and his colleagues both above- and underground. Steve Fordyce generously devoted time to helping Christoph select appropriate caves and locations to target his collection efforts at, and (with STC permission) prepared "redacted" extracts from the extensive Junee-Florentine cave hydrology mapping he has compiled with STC data to assist their research effort. Christoph was mostly able to remotely organise the scientific collecting and cave access permits he needed himself. At the same time, Cathie Plowman and Dave Butler from Northern Caverneers were organising collecting trips for Christoph to a variety of northern caves, not least Kubla Khan, and indeed other collecting plans were afoot for other surface locations that I had only the barest inkling of! Steve and I had several Zoom meetings with Christoph and Stefan before they came out to Tasmania, mostly shortly after 5:00 pm our time, which was shortly after 9:00 am in Germany. I'm sure the fact we met at the end of our day and the start of theirs was of no significant detriment to either party!

First trip November-December 2022

Christoph, Stefan, Shane and several other assistants arrived in Tasmania at the end of October with boxes of collecting gear and various other paraphernalia of the sort required to study miniature cave monsters. They moved into a motel room in Sandy Bay only a few blocks from the University to get themselves sorted out, which made it easy for me to pop over and meet them before they set off into the bush. They then spent the first two weeks of November looking for *Anaspides* in various Mole Creek caves, as well as in tarns on the Central Plateau above (I think) and probably in other places I can't even guess at.

In mid-November the researchers moved south and set themselves up in a house at the Giants Table in Maydena. This commenced a period of specimen collection in the Junee-Florentine area with STC assistance. A small but reliable group of STC stalwarts provided guidance – or was it just company? - in the bush and in caves over the next few weeks. Christoph and his offsiders turned out to be pretty competent in the bush and underground. Over the next two weeks myself, John Oxley, Ric Tunney, Janine McKinnon, John Webb and Rolan Eberhard took the researchers to a variety of caves including Welcome Stranger, Cashion's Creek Cave, Satan's Lair entrance (and a nearby perched lake), Settlement Cave and Nameless Spring (in the Settlement block), Rainbow Cave, Burning down the House, Frankcombes Cave and others. For me, perhaps the highlight was the successful effort to penetrate the cryptic and tortuous rockfall guarding the open streamway passage in Risby's Basin Cave (RB-4), which I had previously tried to find my way into without success many years ago.

However, what was not a highlight for me across all of these cave visits was my remarkably poor rate of success in first spotting and then catching *Anaspides* out of cave streams with the little fishnets Christoph used for the purpose. Whereas he seemed to quickly see and capture a steady stream of research subjects (shrimps) in most of the caves where we looked for specimens, my success rate was close to zero. I suppose this is why I am a geologist and not a zoologist - rocks and landforms politely sit still and do not try to deliberately escape or hide themselves, see?

Christmas break

About a fortnight before Christmas the Germans went home for a holiday break with family Christmas gatherings and the like. However, Christoph's research budget was not finished yet, and by January he was back in Tasmania, minus Stefan Richter who could not make the second trip, but with a couple of new assistants (Alec and Birk) along to help, and further assistance for part of the time from Shane Ahyong.

Second trip January – February 2023

Christoph's busy field season during January and February included a full traverse of the Western Arthur Range looking for *Anaspides* in some of the many alpine tarns and lakes along that range, albeit he confessed that his initial expectation of being able to stroll easily to most of the tarns was somewhat thwarted by the reality of dense tough scratchy Tasmanian alpine scrub! He also participated in the Junee-Florentine "deep cave" exploration activities with Steve Fordyce in January, which resulted in many specimens being collected and catalogued from base level locations in Growling Swallet, Niggly, Porcupine and Gormenghast caves by Christoph, Steve and a cast of dozens (this activity and the people involved is reported separately in *SS* 454). And just in case all this wasn't enough, during January/February Christoph spent some days with Stefan Eberhard in the Precipitous Bluff caves at New River Lagoon on the south coast.

After all this activity, myself and John Webb next ventured out with Christoph to the Florentine Settlement Block in mid-February, where he wanted to revisit several caves which had yielded only a disappointingly small number of *Anaspides* specimens in November. And indeed, specimen yields from Nameless Spring (JF-459) and Settlement Cave (JF-362) were better this time, perhaps partly due to lower water levels which allowed us to venture further into Settlement Cave this time. Since there are no plans or descriptions of Settlement Cave in the STC archives, we had no idea what to expect in the cave but were quite pleasantly surprised when after trudging through muddy knee-deep cave pools for several hundred metres we popped out of the other end of the cave on the pleasant and sunny banks of the Florentine River itself! We then rounded that day off by paying another visit to Cashion's Creek Cave (JF-6), where thanks to information from Ric Tunney we managed to locate the upper entrance of the cave which had eluded us on our previous visit in November. This turned out to give access to what is by far the nicest stream passage section of that cave in my humble opinion.

After all this activity - and more that I was not involved in - Jon Oxley and I spent a final three productive days underground with Christoph, Alec and Birk in the Hastings area from 22 to 24 February 2023. After accessing the eastern part of the lower streamway in Newdegate Cave

(H-1) via a slippery climb over the super-slick dolomite muds of the Binney Tunnel, I found *Anaspides* specimens surprisingly easy to collect - perhaps I was finally getting the hang of it? Or maybe it was just that the conditions were fairly dry and the shrimps were clustered together in smaller pools in the streamway? The next day we all went up the main Exit Cave streamway as far as Mystery Creek Passage for another long but specimen-rich day, before wrapping up Christoph's fieldwork on Friday 24 February with a visit to picturesque Lake Pluto in Wolfhole (H-8), where numerous blind white cave-adapted *Anaspides* were swimming free and easy near the lake shore. For Birc and Alec, the Wolfhole doline was their first experience of prusiking and of passing a rebelay, but they made it look easy enough, so I'd say it's as good a place as any to learn or teach the techniques!

On our return to the car, Christoph pronounced himself very happy with his by-now considerable collection of *Anaspides* specimens. A few days later he was back in Rostock ready to start his analysis. No doubt this will take some time, but I do expect some interesting reading and reminiscences when Christoph has finished his PhD and published his results for us all to read.

Reference cited:

Höpel, C., Ahyong, S.T. and Richter, S., 2021: Genetic structure and new occurrence records of the iconic Tasmanian Mountain shrimp *Anaspides tasmaniae* (Thomson, 1893) (Anaspidesidae: Anaspidacea) reveal relictual distribution in southern Tasmania; *Australian Journal of Zoology*, Vol. 68 (1), p. 45-53, doi: https://doi.org/10.1071/ZO20100

(L-R) Christoph and Shane unexpectedly find themselves at the mouth of Settlement Cave on the banks of the Florentine River. Photo by Chris Sharples

Spot the Anaspides! A patient zoologist awaits his prey in Exit Cave. Photo by John Oxley

Christoph and offsiders at Lake Pluto, home to many a cave-adapted Anaspides in Wolfhole. Photo by John Oxley

Never without a net in hand. Photo: John Oxley

Drill Comparisons

Stephen Fordyce

The drills most commonly used in Tassie are the little red 12 V Milwaukee – these come in brushed and brushless varieties and can still be bought for about $300 (i.e. from Total Tools, or ebay) sans batteries. Mine (brushed) has done a great job over the years although is becoming a bit untrustworthy. I also have a relatively pristine one I hacked away at. Presumably in the dim dark past, someone did their research and picked the smallest/lightest SDS hammer drill they could find, then everyone else copied that.

I've recently started using a green 18 V Ryobi SDS hammer drill (the brushed one, $229 from Bunnings sans batteries), and it's HEAPS faster to drill holes. Going back to the 12 V red one and drilling even 6 mm holes is noticeably tedious. Plenty of cavers have espoused the wisdom of moving to an 18 V system, and I have to admit I've joined them. Comparing these two drills, the 18 V is only 200 g heavier (1445 g vs 1640 g without batteries), although a bit bulkier. Drilling at arm's length is overall easier with the 18 V because it's over a lot quicker, and requires less fine control.

While I couldn't be arsed drilling a bunch of holes for a proper comparison of energy, I measured the current draw on the 12 V Milwaukee – an eye-watering 9 A (on the pristine one). Of particular interest, the hammering mechanism was always being driven, whereas with the 18 V Ryobi, it was only driven with pressure (i.e. while drilling). The 18 V is a lot more forgiving and doesn't seem to struggle like the 12 V frequently does if you aren't quite holding it exactly right.

There are already a few 18 V Makita drills floating about the caving community (I'm reliably informed by S&R Rep Jemma that her DHR181Z is the model of choice). So, in the interests of standardisation (for rescues and whatnot), if you are looking to get an 18 V caving drill, consider that one and/or discussing it with Jemma. They are $300 (excluding batteries) at Bunnings and a better brand quality than Ryobi.

Comparative size of 12V Milwaukee (left) and 18V Ryobi (right)

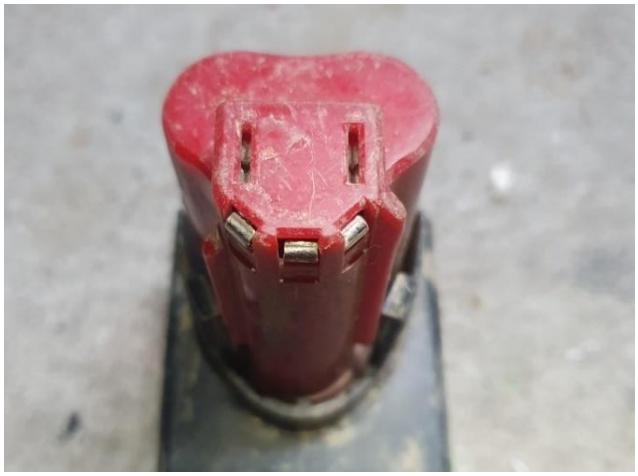
The 12 V Milwaukee Dreaded Flashing Lights

While I was testing, I discovered a useful tip for the 12 V Milwaukee – the cause of the dreaded flashing lights. This is where the four battery indicators on the drill flash in an alternating 1&3, 2&4 pattern when you pull the trigger. Sometimes it has been resolved by pulling the battery out and putting it back in, or by banging it around. The flashing indicates a battery overtemperature event, and/or the lack of an input from the sensor. Looking inside the battery socket on the drill, there are the two main power connectors, and one other. This is the connection for the temperature sensor in the battery, which has a corresponding terminal as one of the three exposed contacts (the other two are intermediate cell voltages, only used by the charger). It's a ~10 k-ohm thermistor, probably NTC – easy enough to solder in a new one if necessary.

So, there are a couple of possibilities for the flashing lights, some of which can be resolved in-situ:

1. Genuine battery overtemperature, probably caused by cave abuse. Feel the battery with bare skin. Unlikely if it happens as soon as the battery is connected.
2. The sensor terminals aren't connecting. Clean off mud or corrosion, consider bending them slightly on either drill or battery to make a better connection (use the point of a knife).
3. The sensor or connections to it inside the battery are defective or corroded. Check the resistance between the sensor terminal and ground using a multimeter – should be about 10 k-ohm.

Note: licking the terminals is not advised…



12 V Milwaukee battery, terminals anticlockwise from top left are: Positive (Cell 3+), Cell 2+, Cell 1+, Temperature Sensor, Negative (they are actually labelled in tiny, raised lettering).

Inside battery socket of 12 V Milwaukee drill – the temperature sensor terminal is circled.

IB-46 March Fly Pot

Ida Bay, Tasmania

7IB46.STC548

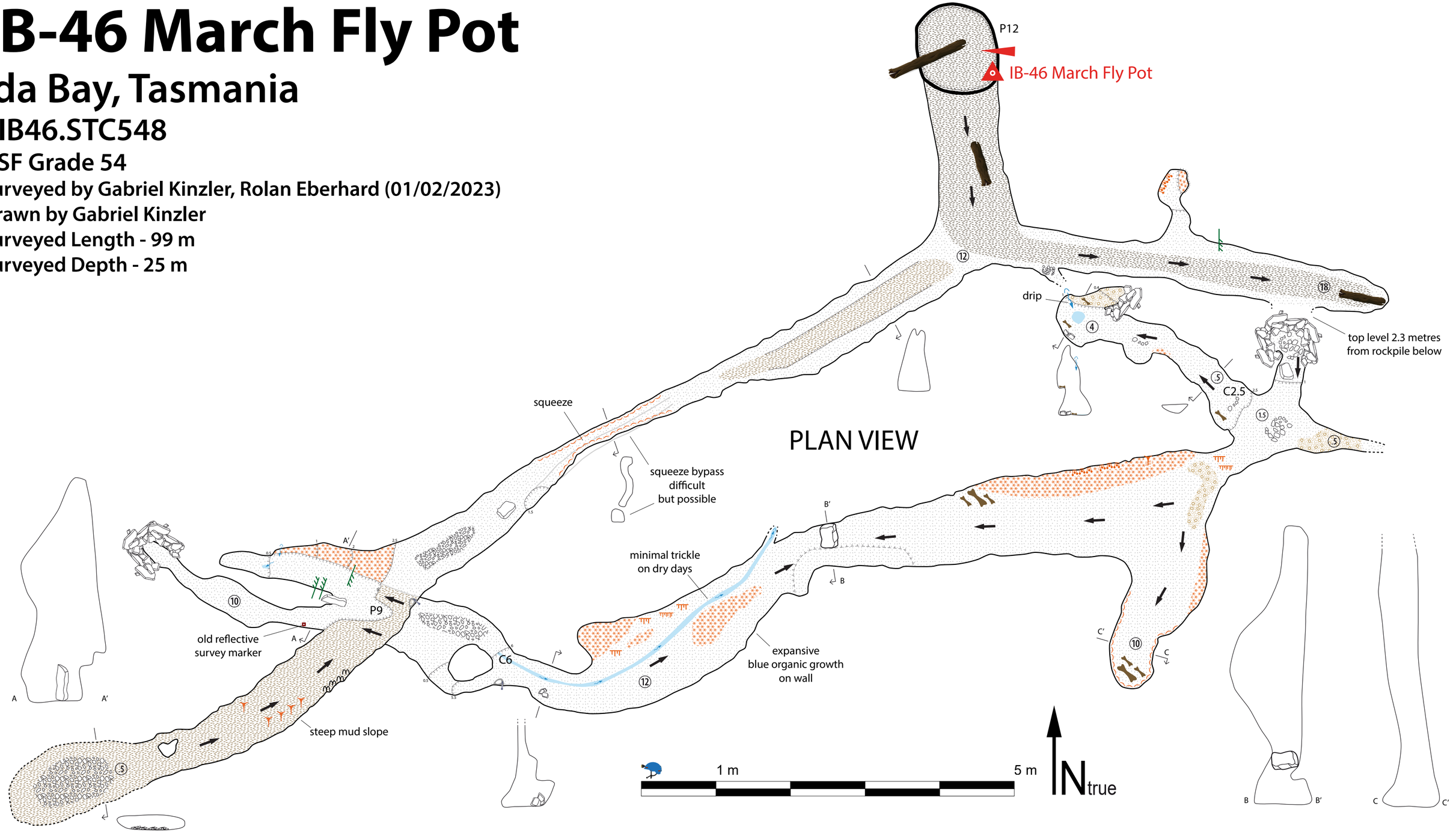
ASF Grade 54

Surveyed by Gabriel Kinzler, Rolan Eberhard (01/02/2023)

Drawn by Gabriel Kinzler

Surveyed Length - 99 m

Surveyed Depth - 25 m



LEGEND

- passage wall
- passage wall - conjectural
- passage wall - underlying
- drop/ledge with height (m)
- ceiling step
- drop from surface
- aven/rising pitch
- direction of floor slope
- entrance
- cave tag
- ceiling height (m)
- section with view direction
- permanent survey station
- permanent bolt and hanger
- large boulders/rocks
- log/timber
- fauna remains
- stalactite
- stalactite with helictites
- straws
- coralloids/popcorn
- moonmilk
- roots
- calcite/flowstone on wall
- calcite/flowstone on floor
- muddy gravel
- mud
- humus/soil organic matter
- cobbles
- small rocks
- water
- water direction of flow
- water direction of flow (inlet)
- water direction of flow (outlet)

The Last Page