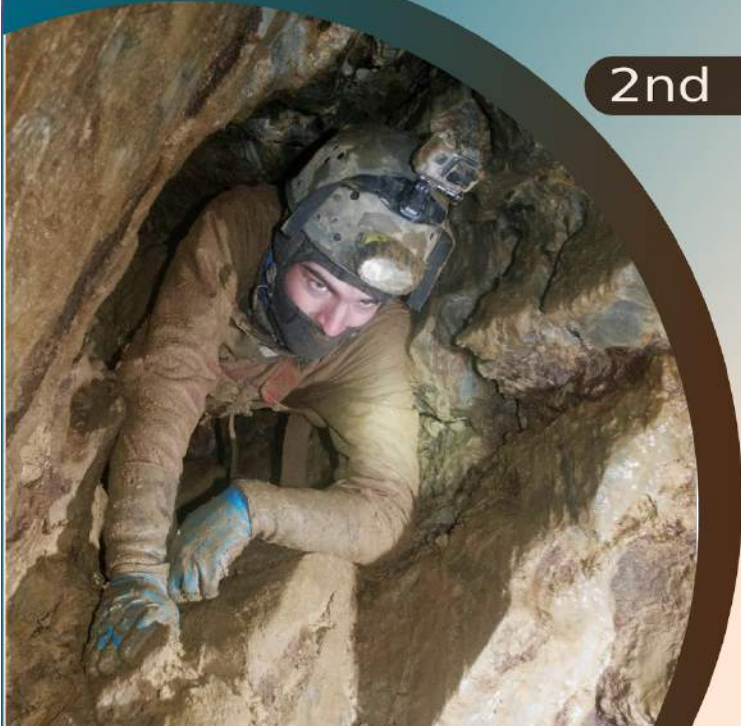




IMPERIAL COLLEGE CAVING CLUB

There Back Again

Exploration of Takaka Hill



2nd - 24th April 2015

Tanguy Racine
Rhys Tyers
Jack Hare
Cecilia Kan
James O'Hanlon
Chris McDonnell
Alexander Seaton
Oliver Myerscough

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Summary

Eight members of the Imperial College Caving Club went to the South Island of New Zealand for three weeks on an expedition to find new caves. Due to high winds and early snowfall, the original plan to base ourselves on Mt Owen had to be abandoned, and the expedition relocated to the Takaka Hills, a lower series of mountains in the same marble region as Mt Owen. With just over two weeks in the field, the expedition found new passage deep in an already discovered cave (Ed's Cellar) as well as finding several new caves (Weta than Ever, Black Helix and Red Dog/Dead Rogue) in the Canaan Downs region. These caves were surveyed to BCRA Grade 5.

Acknowledgements

We are deeply grateful to everyone who helped this expedition become a reality. We would like to thank Lorraine Craig for her experience and advice. We are grateful to the Exploration Board for their support, guidance and generous funding. Jarvist Frost provided excellent information on a huge range of topics from battery discharge curves to water purification, as well updating our website whilst we were in the field. Richard Bramley of the Nelson Speleological Group advised us on possible locations, helped us make contact with other cavers and was very supportive during our time in New Zealand. We are grateful to the Nelson Speleological Group for their fine hut and passionate members.

We would like to offer special thanks to Kieran Mckay, whose enthusiasm, advice, knowledge and generosity were essential for this expedition. We will be watching his future exploits with awe and envy.

The Mount Everest Foundation and the Ghar Parau Foundation offered a great deal of financial support, which helped immeasurably when plans had to be changed at the last moment.

Makita UK generously provided us with two 14.4 V rotary impact drills which enabled us to break apart rocks blocking passages and bolt caves deep below the ground.

Finally, we would like to thank our long suffering families, friends and colleagues for listening to us talk about caving for months and months before we even got to New Zealand, and doubtless for many more months to come now that we have returned.

Introduction

The expedition first appeared as an idea at the 2014 Imperial College freshers fair. As we convinced and coaxed, cajoled and coerced the latest batch of Imperialites into a life of mud and darkness we were approached by Dr Lorraine Craig, chair of the Imperial College Exploration Board. She told us that the Board were inviting clubs to apply for support. They wanted us to run an expedition, something novel and challenging. The reward was a generous amount of funding.

We had several ideas, ranging from China to Iran, Peru to Turkey. In the end language barriers, high altitudes and lack of support in the regions narrowed us down to one choice. New Zealand! With bountiful, beautiful, and accessible karst, friendly English speaking locals, and a well organised rescue service New Zealand was perfect for our expedition.

We first looked for local contacts to advise and help us. Not only is local knowledge invaluable for any expedition, but there are often permits and permissions to acquire, both officially, and to be polite. We contacted the Nelson Speleological Group as they were local to a large amount of karst and had a large active membership. They put us in contact with Kieran McKay.

As luck would have it he was in London, giving a talk at the Royal Geographical Society on his recent cave exploration. We met up with him in the Imperial College Union bar, where all good caving plans begin, and this initial conversation proved to be the major motivation for the beginning of our expedition.

On the advice of the NSG and Kieran we set a location - the north aspect of Mt. Owen in the Kaharungi National Park. We planned to use a helicopter to carry all of our caving equipment and food up the mountain where we would camp for three weeks.

Team Members

Rhys Tyers

Rhys is a fourth year undergraduate physicist and the leader of this expedition. With several prior caving expeditions and multiple foreign trips under his belt he was planning for a routine bit of karst bashing. The weather however enforced more verdant exploration in the woods and fields of Takaka. This was novel and quite challenging but he found that with a good team you can find caves anywhere.

Tanguy Racine

Tanguy is a second year undergraduate in the ESE department at Imperial. In addition to active surface bashing and surveying work around camp and up to 7km away along a mountain bike trail, he pushed the high leads of Ed's cellar, first attempting the corkscrewing pitch head at which previous exploration had stopped, and also digging the leads at the bottom of the newly discovered 'Day at the Beach'. A last day epic 29 km walk with Jack took them along the Dun Mountain trail northeast of Nelson where he exercised his geological (hammering) skills.

Jack Hare

Jack is a PhD student in the Physics Department at Imperial. He spent a lot of time bashing through the dense New Zealand bush, scrambling up and down mud filled depressions and throwing rocks down holes to check for caves. His most enjoyable trip was surveying the new passage discovered in Ed's Cellar, and this taste of expedition caving has already set him thinking about where to go next year.

Chris McDonnell

Chris is a final year undergraduate mathematician. One highlight of his trip to New Zealand was discovering he could tap dance in walking boots, a skill that was of almost no use on the many pushing trips to Ed's Cellar. He especially enjoyed the mashed peatatoes. Gosh, what a trip!

Oliver Myerscough

Oli is a final year computer scientist. Thanks to his creative and inspired accounting, the expedition has been completed on time and to budget. He was present when Red Dog was found, and was heavily involved with pushing Ed's Cellar.

Cecilia Kan

Cecilia is a second year undergraduate in the Bioengineering department at Imperial. She learnt to navigate under the forest canopy in New Zealand during her first surface bashing trips. She used every opportunity to applied this knowledge, following cave passages above ground. An enriching experience for her, she put her newly acquired surveying skills into practice in Ed's Cellar and through Dead Rogue to Red Dog.

James O'Hanlon

James is a second year undergraduate in the Department of Chemistry. Already a seasoned expedition caver from his time in Slovenia the previous summer, he outdid himself by finding every significant surface lead in New Zealand. His genius does not extend to naming caves, hence 'Red Dog'.

Alex Seaton

Alex Seaton is a physicist in the fourth year of his undergraduate. He will always have strong and enduring memories of his time in New Zealand, though it's best not to ask him about cave weta, decomposing rabbits or long drop toilets. Alex easily won the prize for 'taking lots of photos', a competition that few others realised was taking place.

Itinerary

<u>Date</u>	<u>Actions</u>
2nd April	Fly out from London in the evening
5th April	Arrive in Nelson, Hire cars
6th April	Purchase food and supplies Set up base at NSG hut after wind too strong for Mt Owen Helicopter
9th April	Set up base at Harwood's Hole
13th April	Drive to Wakefield to take helicopter to Mt Owen on 14th
14th April	Decide against Mt Owen due to heavy snow and poor forecasts Set up base at Canaan Downs
21st April	Leave Canaan Downs
23rd April	Depart Nelson for London



Logistics

Training

Six members of the expedition attended a two day cave first aid weekend in the Mendip Hills with Stuart Marshall of Marlin Training. The course was a mixture of lectures and powerpoint slides with some drills above ground, combined with a hefty dose of in-cave training which was incredibly useful. The remaining two members took a course with similar content at Imperial College. Jack, Rhys and Tanguy took the two day Expedition First Aid course which included advanced first aid techniques, including suturing which was very useful for fixing a tent during the expedition.

Surveying training was done at Imperial College, with additional training during the expedition. Bolting practice was undertaken in the UK before the expedition.

Transport

We flew via Guangzhou to Auckland with South China Air. We took ten hold bags (23 kg each) as well as heavy carry-on luggage. We stayed one night in Auckland before flying to Nelson the next day as biosecurity processing meant we couldn't catch the last flight of the day.

In Nelson we rented two 'station wagons', Nissan Wingroads with large boots but low slung bodies when full of cavers, equipment and food. These proved difficult to drive on the unsealed and rutted roads in Takaka Hill, resulting in one being upgraded to a Toyota Rav4 SUV mid-expedition, that was then stuffed with almost all of our gear. Fuel consumption was far higher than we had budgeted both due to using the cars frequently and having an SUV.

Power

Power for headtorches, helmet lights, radios and GPS units was provided by non-rechargeable batteries brought from the UK. Power for the drills was provided by six 5000mAh 14.4V LiPo batteries brought from the UK. We were able to charge some of the batteries from the 12V car output during the expedition. Solar panels were considered, but there was insufficient solar flux to make the weight worthwhile, and diesel generators were deemed too expensive and difficult to maintain.

Drills

We adopted the NZ standard of 10 mm diameter bolts. We used galvanized Ramset Trubolts and Petzl hangers. Holes were drilled with Makita DHR164RFJ rotary impact drill with 5000mAh 14.4 V LiPo batteries attached by 1.5m fly leads so they could be stored in a tackle sack away from the drill. We used 10 mm SDS plus Hilti quad flute impact drill bits, which we highly recommend. For feathers and wedges we used custom 16 mm feather and wedge sets and single flute 16 mm SDS plus drill bit.

Communications



We had a satellite phone lent by the Exploration board. We did not use it to make any calls, but the text message functionality proved useful for contacting local cavers when we were out of cell phone reception. The provision of 900 MHz (long wavelength) 3G cell phone reception even in remote parts of New Zealand allowed us to gather long range weather forecasts, email out updates and contact our local contacts. We had four walkie talkies for use around camp which had an effective range of around 3 km. These were vital for coordinating throughout the day and we highly recommend them to other expeditions.



Base Camp

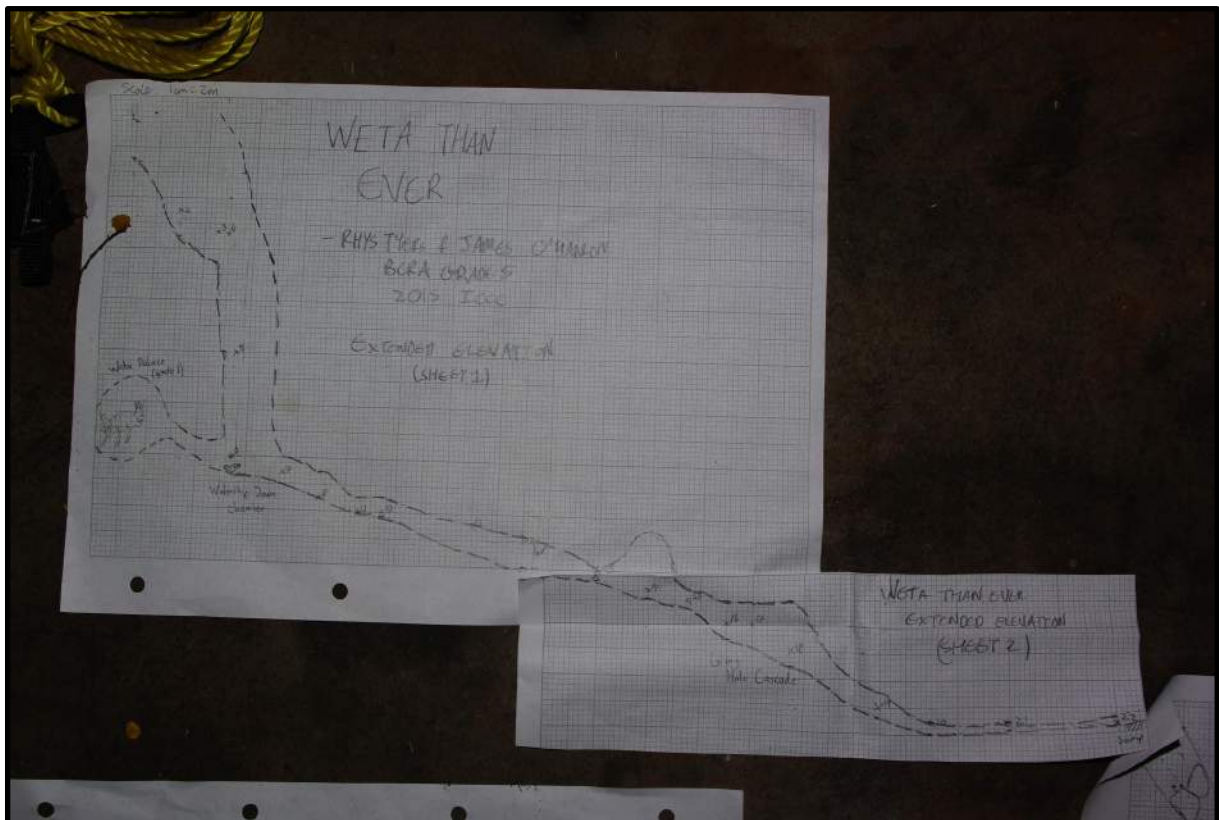
Our base camp was usually made from multiple tarpaulins hung over ropes tied between tree. We had two 20L Jerry cans for water, which we purified using Micropur powder at 1g/100L. We had a two burner gas stove with a 20kg bottle provided by Kieran Mckay for cooking, augmented by an Optimus Polaris multi-fuel stove burning kerosene.

Organisation



On most days, the group split into several small teams, usually two or three. Two people would remain at camp to provide support in case of a rescue, and to have a rest day. The others teams would inform the camp team where they were going and when they would return. Any changes to this plan was communicated via radio. GPS coordinates were taken for every potential cave entrance and these coordinates were radioed back before entering the cave. A large scale map (10cm=1km) was drawn

up with cave locations and team positions marked on so that teams could be given directions of the radio. Surveys were drawn by hand using the data in the survey books, with a calculator for the trigonometry, and a ruler and protractor for the centre line.



Glossary

Caving uses a great deal of specialist terminology - this list might go some way to making the log book entries below a little more sensical.

Rig: To place ropes in a cave so that it can be descended and ascended safely.

De-rig: To remove the ropes after they have been used.

Anchor: A place where the rope is attached which can take the load of a caver ascending and descending.

Bolting: To place steel bolts in the walls as anchors. Preferred technique in the UK and the rest of Europe.

Naturals: Stalagmites and other rock formations that can be used as anchors without the need for a bolt. Preferred technique in NZ and the USA.

Y-hang: The rope is attached to two anchor points which take the load equally, giving a distinctive Y shape to the rope. Preferred method for keeping the rope away from the rock and providing backup should one anchor fail.

SRT: Single Rope Technique, a method for ascending a rope using mechanical ratchets.

Lead: A part of the cave which has not been explored yet.

Pushing: Going to a lead (eg. pushing a lead) with the intention of finding more cave.

Surface bashing: Looking for new cave entrances on the surface

Surveying: Mapping the cave using a compass, inclinometer and tape measure to break the cave down into short segments that can be reconstructed into a scale map by hand or using a computer.

Karst: Rock that caves can form in, such as limestone or marble.

Flowstone: Calcite that has precipitated out of solution whilst flowing over a rock. This hard rock can fill passages, as in Ed's Cellar (see below).

Choss: Unstable rock surface (that will not take the weight of a person if bolted) due to fractures or mud.

Sink: A surface location where the water disappears underground. Depending on the flow there can be multiple sinks that only receive water during flood conditions.

Depression: A lower area on the surface, which can funnel water in, driving cave formation.

Sump: Where the ceiling cave passage descends below the water, making the cave impassable to all but the foolhardy/cave divers.

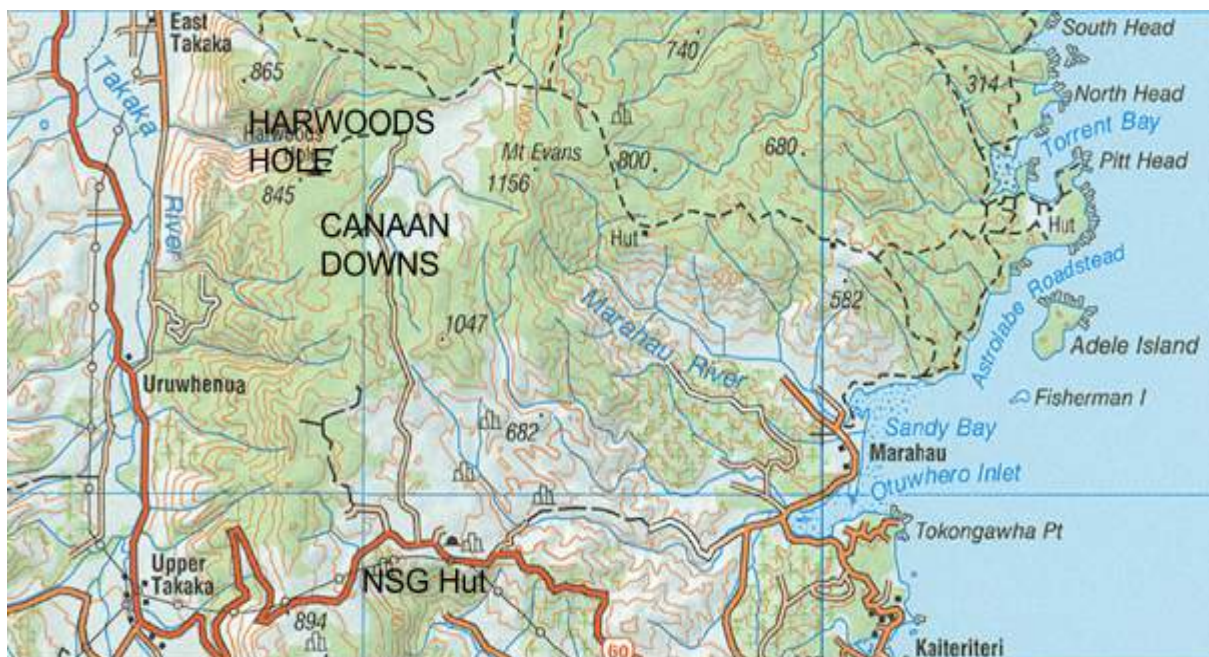
Kill/dead: A cave dies when a human can no longer progress. It may be possible to dig a way on, or the cave might get too tight or sump. Proving that a cave dies 'kills' the lead.

Master System: A hypothetical cave that other caves connect into, where all of the water in the cave system eventually ends up. This would have been nice to find.

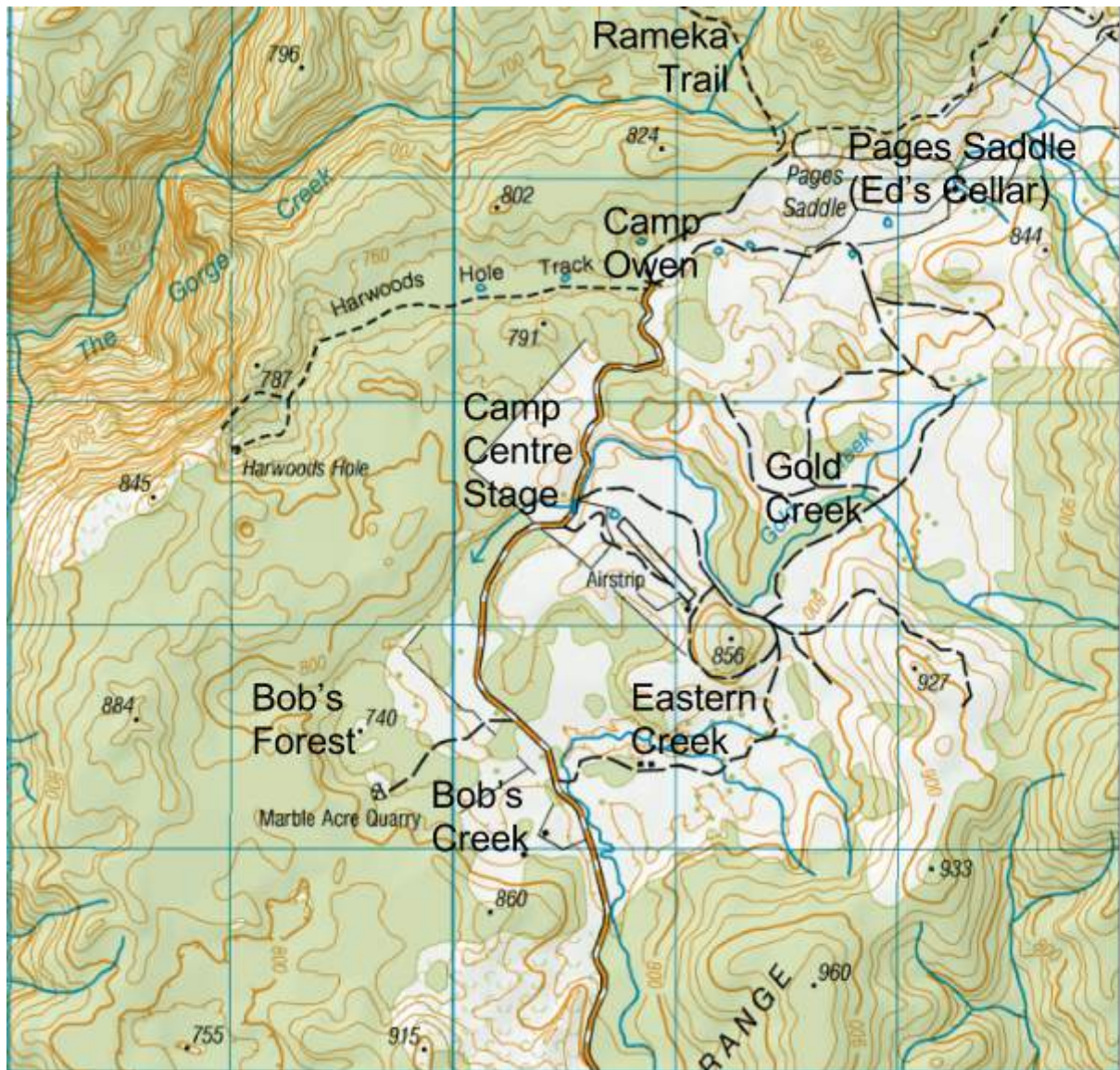
Maps



Map of the north of the South Island, showing relevant towns and mountains



Map showing Takaka Hill, with the various bases for our expedition



Map showing our two camps and the various regions explored.

Journal

This is a narrative description of our expedition. Text in italics is taken from the log book.

Arrival



We reached Heathrow by tube, flew for twelve hours to Guangzhou with South China Air, waited seven hours for our next flight and then flew another twelve to Auckland, where we spent the night, four to a room in a budget hotel before our flight the next day to Nelson. Our body clocks were completely shot, but they were eager to lock onto any cycle and we rose at dawn for the journey to Nelson. We were in a small twin propeller plane for this final flight, giving a glorious view of the North and South Islands unfolding beneath us.

We arrived on Easter Sunday, when most shops in NZ are closed by law. We had realised this after booking our flights, and so used our first day to recover from jet lag and meet up with our contacts. We drove to the Ruby Bay to see Richard Bramley of the Nelson Speleological Group (NSG) and Kieran McKay, our main contact. We spent several hours discussing cave locations and possible projects in the sunshine. JH had spent some time converting the old NZMG coordinates to the new NZTM coordinates, but when these were plotted on a map Kieran noted several discrepancies which suggested the information was not completely accurate.

We drove back to Nelson to camp at the Maitai valley motor park, a cheap campground just outside the city. On the way, one of the cars got a flat tyre, which TR quickly fixed.

6/4/15 Maitai Motor Camp, 0530, Jack Hare:

Unable to sleep any longer, I have awoken to recheck the weather forecast and worry. Our meeting with Richard and Kieran yesterday was excellent - lots of good info on leads, practicalities and ideas...the forecast for the next few days looks dire - we will stay in Gravity Pass hut until the rain passes.

On Monday morning, we awoke early and packed up camp. We were due to drive to Courthouse Flats, the closest trailhead to Mt Owen, to await the helicopter, but first we had to buy all the food for the expedition. RT and JH had prepared a shopping list using the website of a popular grocery store, and so we split into pairs whilst OM and AS went to get the tyre fixed. It was great having a shopping list already prepared, as some of the items caused us to do a double take - 18 kg of peanuts in particular seemed unlikely! We were reassured that the list had been worked out whilst not jetlagged and so was hopefully correct, and after an hour or so we had all the food for eight people over twenty days - this came in at less than £3 per person, per day.

As a backup in case of bad weather, RT and JH went to the Department of Conservation to buy tickets for using Gravity Pass Hut, a mountain hut near to our proposed base camp. Whilst there, they were called by Kieran McKay, who wanted to meet to discuss the worsening weather conditions. When we met him, he explained that strong winds had sprung up, bringing bad weather, and that the helicopter pilot was unwilling to fly us up to Mt Owen. We had already considered the Takaka Hills as a backup location for our expedition, so we quickly decided to wait out the bad weather looking for hills there, with the intention of going up the mountain early in the next week.





The Nelson Speleological Group Hut

Kieran lead us to the Nelson Speleological Group hut (hereafter NSG hut) on the Takaka Highway, a long and winding road that passes over the Takaka Hills linking Motueka to Takaka. The NSG hut is up a winding and rutted road - as foreshadowing of difficulties to come, one car had to be pushed up to the top. We arrived to find five Australian cavers already in residence, hoping to do some caves on Mt Arthur to the north or Mt Owen, but similarly stumped by the bad weather.

We pitched our tents on the small flat areas surrounding the hut, made a cup of tea and sat down to discuss possible projects in the area. In particular, we were interested in Ed's Cellar, a cave that was last surveyed in 1962, but which Kieran knew had a going lead down an unsurveyed side passage.



After Kieran left, we went to try a short cave very close to the hut, about two minutes walk past the outside loo. We distinguished ourselves in front of the Aussie cavers by taking twenty minutes to untangle our seriously knotted rope, and then after some humming and harring, JH set off armed with some tape and rope into our first NZ cave.



6/4/15 NSG Hut 19:40 James O'Hanlon:

Still jet lagged -> well tired. Went down a small NZ cave for the first time. The fact that large pieces of rock randomly dislodged was reassuring...:] (Pleased that I remembered how to cave considering the last time was in November), Found many bones in the cave - > my theory is an unfortunate cave man forgot the first rule of caving ("Don't fall down the big hole"). I have high hopes for tomorrow.



It was a simple cave, with two medium size pitches down to a broken boulder choke with multiple ways on. After an hour or so of pushing every lead, we exited the cave to a dinner of peanut butter curry.

Peanut Butter Curry (serves 8 cavers):

Boil 1 kg lentils until soft. Add vegetable stock, garlic salt, pepper, curry powder, six cans of beans and 500 g of peanut butter to taste. Serve over rice. Left overs can be mixed with smash to form burgers which are delicious when fried up for breakfast.

The next day we got up and split into several teams - AS and OM went to Motueka to get the tyre fixed finally - all the tyre shops had been closed on Easter Monday, whilst TR, RT and CK went to find Ed's Cellar. JH, JO and CM went to look for surface leads (new caves) in the area near Harwood's hole. The weather was

atrocious, lashing wind and rain in torrents.

7/4/15 NSG Hut 15:30 Cecilia Kan

Tent shaking from the wind before dawn gave first warning of pouring rain ahead. We split into tyre fixing, surface-bashing and cave-pushing teams. Tried hard to avoid getting wet initially, but ten minutes into the woods with my caving kit on my back, tackle sack in front, everything became unpleasant enough for me to focus only on following Rhys' footsteps which I could just about see under my hood,. Meant to find cave after 20 minutes walk, but didn't. Surface bashing group caught up with us. We reached Harwood cave and decided to turn back...my waterproof was not guarding against such a prolonged bath, I was soaked to the point it ceased to bother me and I could finally take in the beauty of the forest...one final note: Jack is wearing red instead of green. I don't feel I know this man any more.

Soaked, we retreated to the NSG hut to dry off. The weather eased in the early afternoon, and we took advantage of the break to look at the area surrounding the NSG hut for new caves. It was a great opportunity to practice using GPS and walkie talkies, and have a bit of a walk about. The terrain around the NSG hut was quite varied - some deep, thick forest that gave way to scrubby bush, with areas of marble outcroppings, and sharp ridges pushing above the foliage. In areas there was open, tussocky meadow punctuated by thickets of brutal thorns, and in the thick forest there were trees coated in black mould that seemed to be consuming them.



7/4/15 NSG Hut 18:47 Tanguy Racine:

...We rambled on the hill side in three different teams, to look for caves. I had spotted a little path tagged with red tape on the driveway, so we (Jack, Rhys and I) followed it, along the black razor sharp karst upland towards the east: our endeavor was rewarded with a small cave entrance requiring enlarging...Interestingly, some trees are burnt out, some are prickly, some

have black mould/moss, some are dead and most are obviously marking long single drop shafts connecting into the master system.

On Wednesday, our second day at the NSG, RT, OM and CM went again to try and find Ed's Cellar, this time armed with more specific instructions and a crude hand drawn map. This trip was far more successful:



8/4/15 NSG Hut 19:26 Rhys Tyers:

...vaguely remembered instructions led us to a large field where we searched four or five tree filled depressions. A warning to future cavers: every plant has thorns. I had to use my knife and Oli to free myself from a particularly aggressive vine. Oli correctly identified the cave...[and] we immediately came to the first pitch...Descending, the beauty of the rigging became apparent - the deviation threaded the rope perfectly between two wedges of rock with 10 cm clearance on either side.

Deeper into the cave they encountered further obstacles, including several free climbs that proved that NZ cavers are considerably more fearless than we were. The team turned round to make it out before dark, leaving the cave rigged for the next day.

The rest of the group spent the day looking at the leads generated on the previous day around the NSG hut. In short order, TR and JH split apart a rock covering the entrance of what turned out to be a three metre deep shaft filled with wood and moss. JO, CK and AS had found two interesting leads, and TR and JH went to join them, but both unfortunately died - one became a very tight crawl and the other was just a vegetation filled rift.

After a quick lunch, all five headed to Red Tape 1, a cave marked with red tape just off the driveway. JH and JO rigged off a tree, and JH descended just far enough to confirm the cave went. TR then descended, pushing the shaft to a rebelay. Below the rebelay he encountered a point where the rope rubbed badly, and being unable to find a place to put a deviation he let JH have a go. JH made it to the bottom, around 40 metres below the surface, where the cave seemed to die in a muddy boulder choke.



Harwoods Hole

9/4/15 Camp Owen, Takaka Hills 18:34 Rhys Tyers:

The rain falls much as it has done. We are all dry however, sitting the the newly erected Camp Owen. This morning, due to the threat of a vicious front of school children sweeping in, we decamped the NSG Hut. A long roadside discussion lead to Alex and Jack swapping out beaten up [white] estate car (The French Flag) for a big black 4x4 SUV...we loaded it with as much gear and people as possible. The BBC (Big Black Car) and the enlightened One Shade of Gray [our other, silver, estate car] bounced and slid along the track to the Harwoods Hole campground.

With uncharacteristic competence, we set up Camp Owen. Four tents, a tarpaulin based communal area and the ancient looming forest make for cushy living. One step down on our hierarchy of needs, we decided to walk to Ed's Cellar, to distribute its location amongst our hive mind. The rain began to pick up as we got there. Alex, Cecilia and I (third wheeling as usual) poked around the cliff base by the wool sheds. There are prospects, but nothing too obvious.



The Bivi was christened Camp Owen, in honour of the mountain we still hoped to climb. All eight of us could snugly fit under it, with room for cooking and storing all our food. The large surface area made it possible to fill the 20 litre Jerry cans in only a few hours, which also indicates just how hard it was raining.

10/4/15 Camp Owen 06:38 Jack Hare:

I awoke at 0400 to the sound of rain. After lying in the gloom, my bladder battling my hydrophobia for a while, I got up at 0500 and went to read in the bivi. Cecilia soon joined me and we washed up. I replaced the drip rocks on the tarp and refilled the Jerry cans. Rhys arrived, and we made tea and contemplated the rain. Grim.



After re-pitching the tents to higher ground (overnight our nice campground had become a lovely bog with an inch or so of standing water) we prepared for our first real day of expedition. As always, something got in the way of a speedy start:



10/4/15 Camp Owen 18:17 Chris McDonnell:

It started with rain speeding into the tent, fortunately Oli managed to make a temporary fix meaning only slight dampness until morning where it became apparent we had pitched our tents in a bog. We moved our tent to more solid dry ground, and when tightening a guy line on the Casino [our largest tent, with three people in it] a massive rip occurred. Fortunately, Tanguy set to work and has added bits of oversuit and an intense amount of stitches [Ed: using nylon surgical sutures!] we will see if it holds off the rain.

As Ed's Cellar had last been surveyed in 1962, we needed to resurvey from the surface in order to be able to add any new passage in. TR, CK and JH formed the second group following on behind JO, CM and OM who were going to push deeper into the cave in an attempt to find untrodden ground.

10/4/15 Camp Owen 18:17 Chris McDonnell:

...we managed to reach the front we had got to before fairly early and Oli finished the rig down the first unsurveyed pitch we had colloquially named "Shitty pitch" due to the difficulty encountered at the pitch head. After Oli and James had descended, I noticed that the single hanger we were descending off spun very easily. After a minor scare, we managed to ferry up a spanner to sort it out and I was on my way down. The bottom of the pitch led along a wet rift which hinted at other passages, but we continued with the water and round another pitch that we rigged au naturale, or NZ style. This lead to a nice chamber with a few ways on, some quite small. I went up through a small window leading upstream, but it got too tight fairly quickly. The main way on was quite tight, a nice corridor with flowstone making it a squeeze. Oli almost managed it, but being low on courage and time we headed back out with the aim to return tomorrow and push harder/ survey this "new" area.

The next day (Saturday 11th) dawned with another grey morning, but at least we had a clear goal and a going lead in mind. Rhys, Tanguy and Chris set off to Ed's Cellar very early in the morning, with James, Cecilia and Alex (Team Third Wheel) following on behind to continue the surveying. Jack and Oli stayed behind in camp and tried to amuse themselves:



11/4/15 Camp Owen 13:33 Jack Hare:

I'm sitting by the bivi, three layers on top and thermal leggings, reading. The weather is colder, with light drizzle. I realise no one has written about 'Dinner' yet. Dinner is a plump, almost spherical bird, cricket ball sized with dark grey feathers, a short tail and an off-white belly. There is a hilarious Fu-Manchu style moustache around her beak. She hops around the bivi, picking at the floor with her beak, eating fallen oats and such like. If you are by yourself and sit still, she will peck at your feet rather persistently. Occasionally her friends, 'Lunch' and 'Snack' pop by. Dinner is a most excellent bird.



Onto the actual caving from the day:

11/4/15 Camp Owen 18:27 Tanguy Racine:

...we found the flowstone that stopped the previous pushing team. As described earlier, it embraced the rift, and kiss the far wall at mid height, leaving just enough space for the daring caver to get through. I attempted the squeeze and as soon as that I popped out on the other side. A tight crawl ensued, made harder by the ubiquitous calcite fractures endlessly grasping for any loose bights of tat, tape or rope we intrepid cavers carry...the cave opened up to a small alcove at right angles to the left of the main passage, with a flowstone white and glistening but for smudges of mud. This dampened our spirits as it meant other cavers had come this way before. So much for making it to the pushing front! All we had to do was follow the footsteps and the mud. We went down at the corner, which led to a small rift, then up again and across a flowstone at the top of a pitch head...[which turned out to be a] perfectly climbable slope.

11/4/15 Camp Owen 19:20 Chris McDonnell:

Tanguy powered through and headed head first into the shaft, doing some potentially dangerous acrobatics and successfully landing at the top of the pitch head. Rhys and I were still unconvinced and waited until Tanguy proved he could actually return before we went ahead. Rhys went over and bolted a Y-hang and a sketchy as hell deviation and descended the shaft. Tanguy got on the rope and guided me through the required acrobatic manoeuvres - it was definitely more petrifying being able to see the scale of the potential fall.

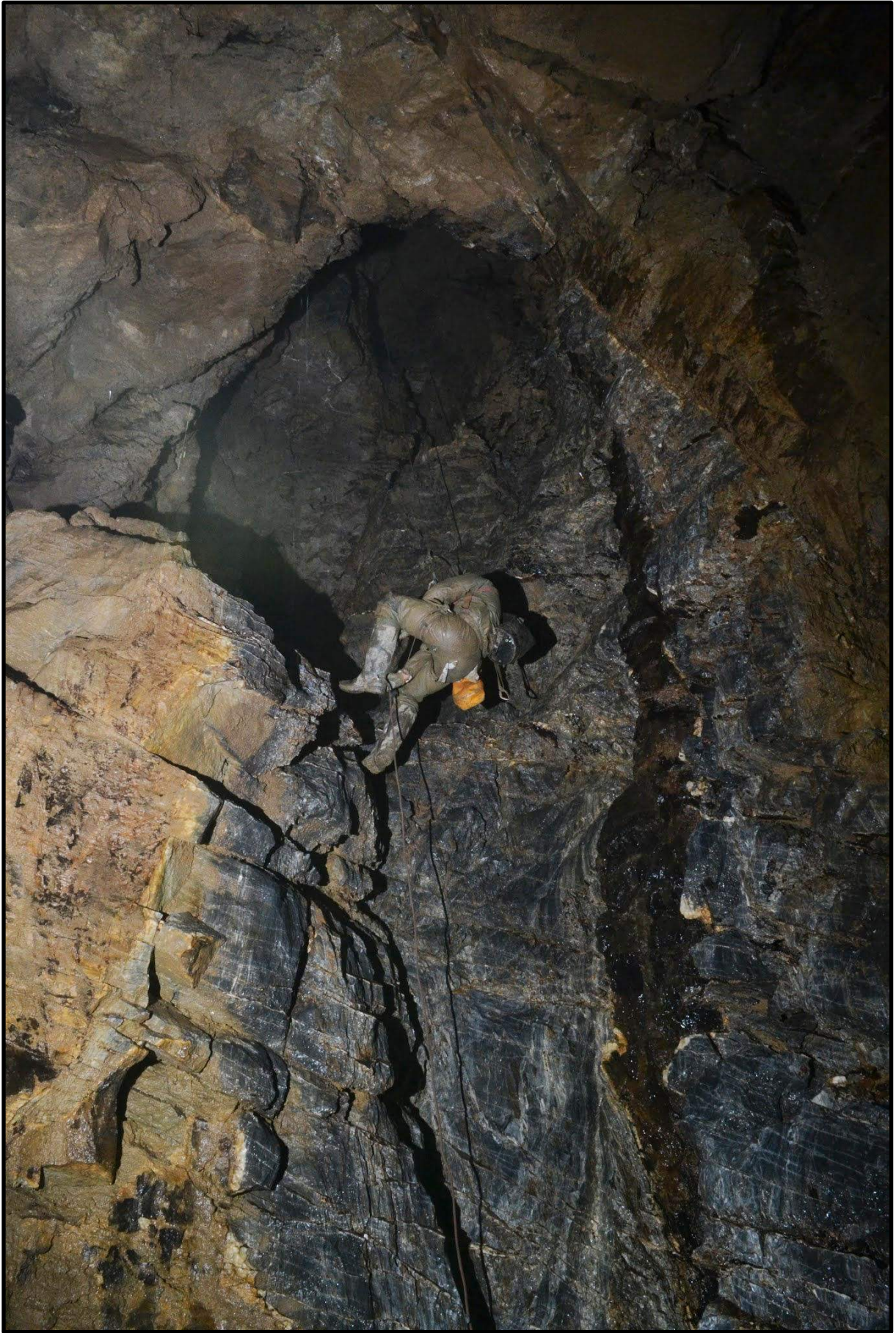


We got down the pitch and saw pristine sand lying at the bottom. I was the first to christen the sand with my boots when scoping out the potential dig heading down. Rhys and Tanguy both managed to get stuck in the dig and had to be pulled out. I was clever enough not to shove myself in a grim pile of mud and stayed out of it. Tanguy had a look at the draughting boulder squeeze, but decided it wasn't worth it. After deciding not to continue our leads we prepared and took some blurry photos of our muddy discovery. Then Rhys threw a medium sized rock at my feet in a vain attempt to keep the discover for himself. Fortunately it was poor aim and dealt no real damage...We have now feasted on cheese and crackers and some mash of Jack's creation, and all seems well. Gosh, what a day!

Recipe: Mashed Peatatoes (serves eight cavers):

Boil 1 kg of dried peas in plenty of water until they have dissolved. Add vegetable stock, garlic salt, pepper. Mix in 600 g dehydrated mashed potato until the consistency is gloopy. Add vegetable oil for fat. Serve hot with tomato ketchup.

With a break in the weather looming, we thought long and hard about whether we could make it up Mt Owen. At this point we'd only be able to manage six days up there before the bad weather would force us down again. Our finances weren't in as good a state as we'd hoped as we'd had to upgrade one of the cars and pay for more fuel than we'd planned. Still, everyone agreed that they would put in the extra £100 or so per person if it meant fulfilling our goal. With that in mind, Jack, Rhys and James de-rigged Ed's Cellar.





The next day, most of the team went to look at some leads Tanguy had found before we packed up and headed off down the mountain:

13/4/15 Camp Owen 11:55 Rhys Tyers

‘Ah, so he’s finally done it’ I thought, ‘Tanguy has done me in.’ The almost ceramic scraping of large rocks, sure to prick the ears of any caver, sounded my doom. The ambient light lessened and my fears grew.

Tanguy and I had been deep in “Breton” cave digging and worming our way into the ultimately dead cave, The two narrowly linked chambers were nothing more than choss and mud. We were headed out. Tanguy went first, and now his motives for primacy were clear.

After the collapse and skittering rocks had settled, a cautious voice called down. “Are you okay?” called the traitorous weasel words of Monsieur Tanguy. Realising that James, Chris, Oli and Cecilia were witnesses to his act he was forced to claim it was an “Accident”.

[log entry continues for ~94 more pages...]

...once more the rock moved, this time revealing a much larger space. I quickly scrambled through into the light. Our party carried on.

Reunited, we drove off the mountain to Wakefield, where the helicopter company we were using were based.

Wakefield



14/4/15 Website Update, Jack Hare

There's snow on the high peaks. As we drive in the afternoon sun to Wakefield to await our heli lift, we can see far to the south the glowing white shards of dark marble thrusting far into the clouds. My heart sinks - we are not prepared for this. We always knew there was a chance that winter would come early this year, covering the mountain and our potential caves in snow. Our contact, Kieran, confirms that there is at least 20 cm on the ground, the freezing level 300 m below our proposed base camp [at 1260 m] and a huge storm sweeping in on Friday, promising more snow.

The mood was still high as we camped by the side of Highway 60, and ate a chickpea and peanut butter curry for dinner. I spoke up after a few bites, to point out how grim it would be on the mountain, and how difficult it would be to achieve anything up there. The silence was deafening as we sat and thought and tried to find a way round the inevitability of the obvious conclusion - that we would not be going up Mt Owen as we'd planned and strove for over the last six months.

In the largest tent we clustered with maps and whisky. We read and reread emails sent by all our sources in NZ, looked at forecasts, going leads, campgrounds and roads, creeks and river beds that shouldn't be dry but were, and a plan formed. We looked to Takaka Hill, dark and brooding, covered with deep, old forest and razor blade crags of rock, made from the same marble as Mt Owen, ancient and shattered. We knew there were acres of forest untramped, with caves and sinkholes wreathed in trees and undergrowth. If we returned the next day, made camp and pushed hard, we'd have eleven solid days of caving, putting in long hours scouring the hillside and pushing deep into new caves as yet untrodden.

Canaan Downs



It was with a sense of relief and purpose that we drove back along the rutted track along Takaka Hill - relief that we finally had a plan, and a purpose to work towards. We set up camp on Canaan Downs, a broad, grassy series of meadows that plays host to the Luminare Festival every two years. This is a 'hippy' festival in the least pejorative sense of the word, with drum circles, fire pits and vegan or gluten free everything. Scattered across the Downs are stone circles, bamboo frame structures, carved wooden heads and composting toilets. Water is supplied by a 3 km long pipe from a stream emerging from the side of the mountain.

The custodian, James, with a white pony tail, tall walking stick and friendly dog quickly found us when we arrived, and suggested we put the tents up near the main stage, a large bamboo structure with white tarpaulin stretched over it that had not yet been dismantled. We used this as our new bivi, for cooking, eating and planning.



Unlike Mount Owen where the area is all National Park, the land usage around Canaan Downs is more complicated. The area we were camped in was owned by the Luminare Festival, a charitable organisation. To the south west the land was owned by Bob, a

retired Texan who ranched alpacas on the grass lands near the road but owned a huge stretch of the dense forest beyond. To the north was the Abel Tasman National Park, and to the east was pasture leased by the National park to sheep farmers.

We needed permission from Bob to look for caves on his land, and so Rhys and Jack set up a long and winding rubble road to find his house, having been shown the location by Kieran on a map.

14/4/15 Camp Centre Stage, 18:44 Jack Hare



...overlooked by llamas [Ed: or alpacas? uncertainty prevails] we tentatively knocked on his [Bob's] door. Eventually he answered, and was very excited to see us. He gave us some hints as to where to push, and Rhys & I went for a quick look, identifying some promising leads. Emboldened by the sunshine and the beautiful countryside, we packed oversuits and helmets. There is a huge, beautifully sculpted rock in a stream sink, with multiple possible leads, all muddy but excellent possibilities. I dug with my bare hands as Rhys pulled up rocks. We retreated, bathed in the sunshine and returned underground.



We tried to pull a rock up with a rope, and then called back to camp for feathers and wedges. We drilled four holes, and to our great surprise they worked, breaking off a chunk of rock and leaving an opening almost big enough to abseil into. Returning to camp for SRT gear and bolts, we were joined by Cecilia and James. Sadly the hole was too small for Rhys still, but we left it rigged, ready for another day of hole enlargement and muddy pushing.

OM and CM searched around Gold Creek to the north east, chalking up several possible leads whilst CK and AS looked in Bob's forest to the west, also tagging some cave entrances for further work.

Some of the strengths of our organisation began to show - by leaving two people at camp, pushing teams could radio back for supplies to be ready, and then be met halfway by others carrying the equipment needed. This meant it wasn't necessary to pack a full, heavy kit in the morning, but instead it was possible to speedily accumulate the necessary equipment as



and when it was needed. In this regard, radios and GPS were vital, as the location of various pushing teams could be marked on the large scale map we had drawn, allowing the base camp to coordinate disparate teams to the same location without them needing to return to the camp.

The next day (Wednesday 15th), TR and JH returned to Bob's cellar (as it had been christened), and placed more feathers and wedges, cracking open the boulders to reveal a short 3 m shaft made of compacted mud and rocks. The bottom of the shaft was dug a little, but overall it was deemed too unstable and not very promising. This took most of the day, and we had little to show for it apart from some experience gained with feathers and wedges - it's important to align the wedges pointing to one another so that the rock splits off along a well defined crack.

AS and JO followed up on the leads in Bob's forest from the previous day:

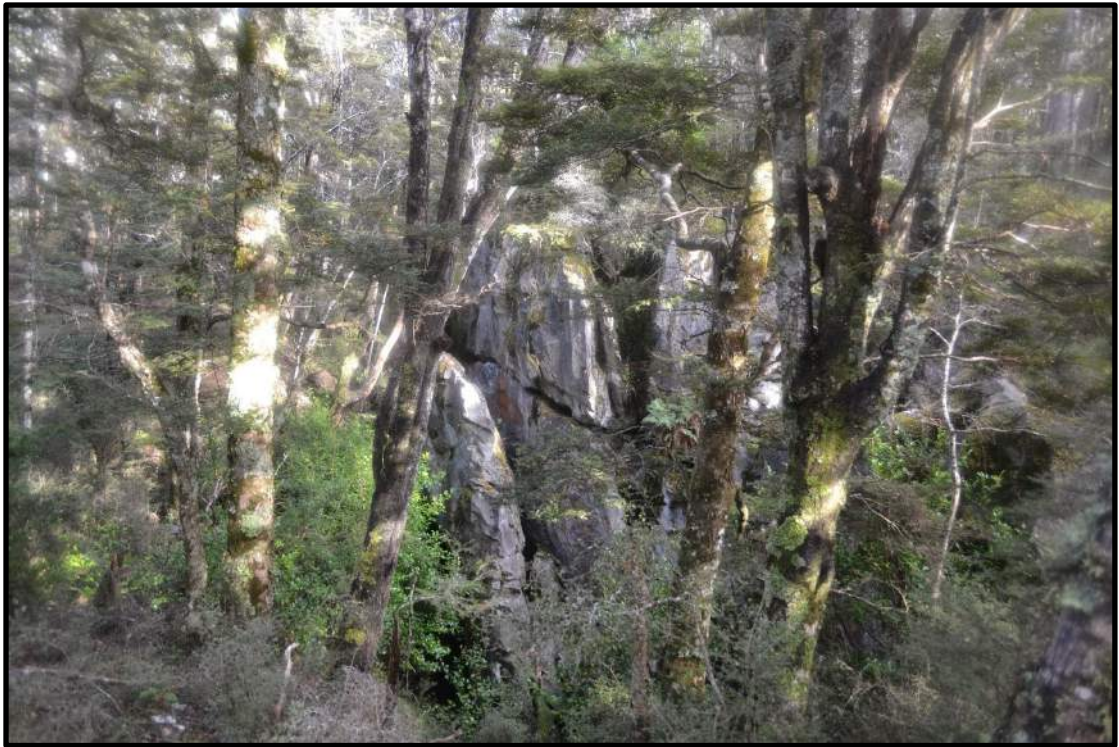
15/4/14: The Casino, 19:52 Alex Seaton

[Ed: This is the longest entry of the log book. The following aggressively truncated excerpt does not do justice to entire story, which alas, for reasons of space, must remain wholly in the log book]

The previous day, Cecilia and I had made a quick reconnaissance trip to the area, revealing two pink-tape marked leads in addition to a further lead unmarked by tape but marked with a large bleached white tree stump.

With these leads along our way, we diverted from our path to decide their fate. The first lead was a vertical pitch with an entrance roughly rabbit sized. With the entrance enlarged and half-rigged, we received a call from Rhys at camp warning us that Kieran was inbound. After intercepting him, we showed him our impressive 5 m pitch and promptly killed it. James

subsequently managed to trap himself on the outward bound and Kieran made himself useful by hauling James out of the pitch.



Our quest...subsequently led us to a large wooded area [Ed: A wood?] and through a series of progressively large dolines, all of which disappointed us...We stumbled on and immediately fell upon a large canyon ending dramatically in a large depression blocked from the canyon by some monstrous boulders. Navigating these, and the steep slopes of the depression, we discovered an inviting rift leading down into the depths of the earth.



...descending the first drop nimbly, we discovered that the second [drop] required some rigging...we were able to descend the second, only to find around the bend a deeper drop requiring more rope than we possessed, and some bolting.

...with two neat bolts in place...I made a start on the next descent. What James had thought was the floor of the next horizontal section turned out to be the continuation of what I discovered to be a pitch...I descended further, the shaft enticing me onwards.

...around me, in their thousands swarmed huge bloodthirsty [sic] cave-wetas. On the floor, lying dead and decomposing was the body of their previous victim

[Ed: a rabbit that fell to its death. The rest of the log entry descends into hyperbole but no further into the cave. JO and AS retreat, ready for another day of pushing a cave they named 'Weta Than Ever']

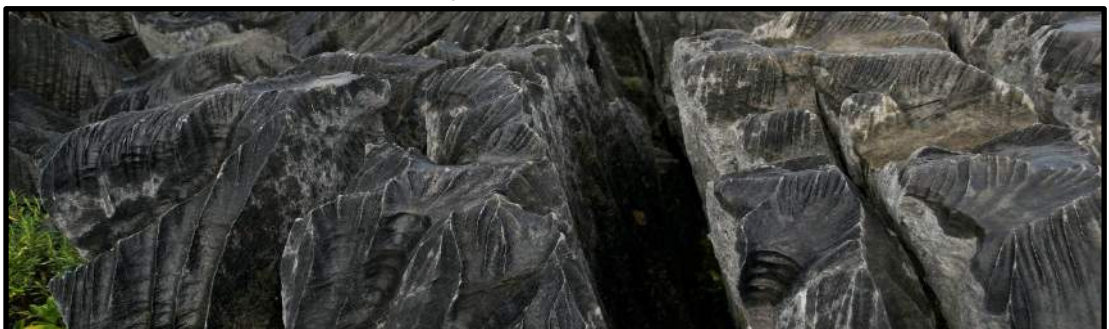


We had found a cave that really seemed to go far, but when RT and JO returned the next day to survey it they found the bitter end at a muddy sump.

CM and TR killed all the leads generated up round Gold Creek, and surveyed a twisting cave they named Black Helix:

17/4/15 Camp Centre Stage 19:30 Tanguy Racine:

Chris and I went to the mouth of Gold Creek, around the Corkscrew area [a known cave] to check out leads that he and Oli had spotted the day before (15/4) We turned first towards “Slippy”, which turned out not to die after 3 m much to my surprise, given the unsuccessful attempts to find leads with Jack the previous day. It went for about 40m, at a depth of 25m, with a multitude of small sized passages forking and joining again. This led Chris to rename the cave “Black Helix” - see the survey.



...[after lunch] we followed a karst upland ridge which almost certainly shows the limit of the Harwood’s Hole drainage area. Going there requires both time, strength and will to climb a steeply sloping bush/karst region.

JH and CK pushed through the dense forest to the west, finding it almost impenetrable as they based their way at 250 metres per hour through rain forest and razor sharp karst.

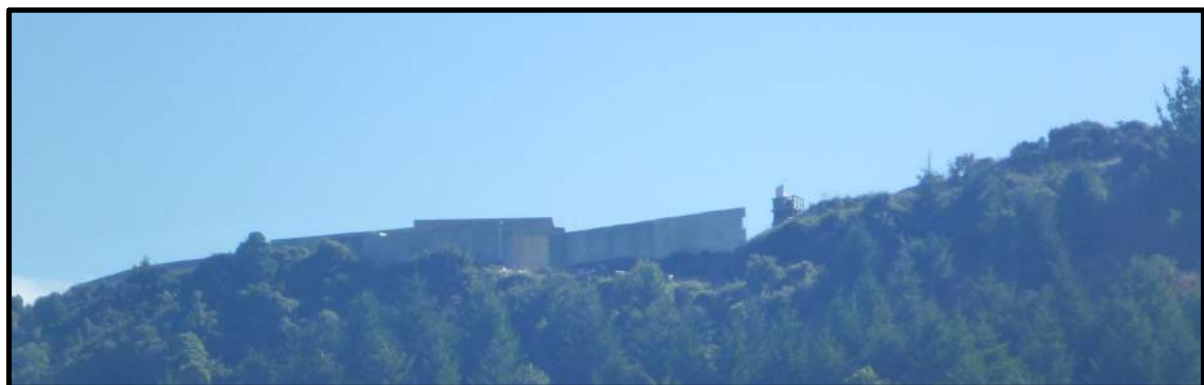
On Friday 17th, we continued to acquire and push leads - everything we had found so far was quickly killed, and so it was necessary to have several teams looking for new leads every day to generate enough to keep us busy. It was frustrating not to have one large cave that everyone could push at the same time, but it the weather was far better than it had been, with glorious sunshine - being above ground and hiking through the meadows, grasslands and forest was very pleasant.

17/4/15 Camp Centre Stage 19:30 Tanguy Racine:
Rhys and I, a mean lean team got a lift from Jack to Harwood's Hole carpark. From there we walked up to Page's saddle, and turned west to follow the Rameka Trail until we found a fabled 'karst wonderland'. This trail follows a contour, so the going was fast and swiftly we crossed the western boundary of the Abel Tasman National park. We reached a saddle (about 4 km in the trail) and then followed a steep mountain bike trail to the karst.

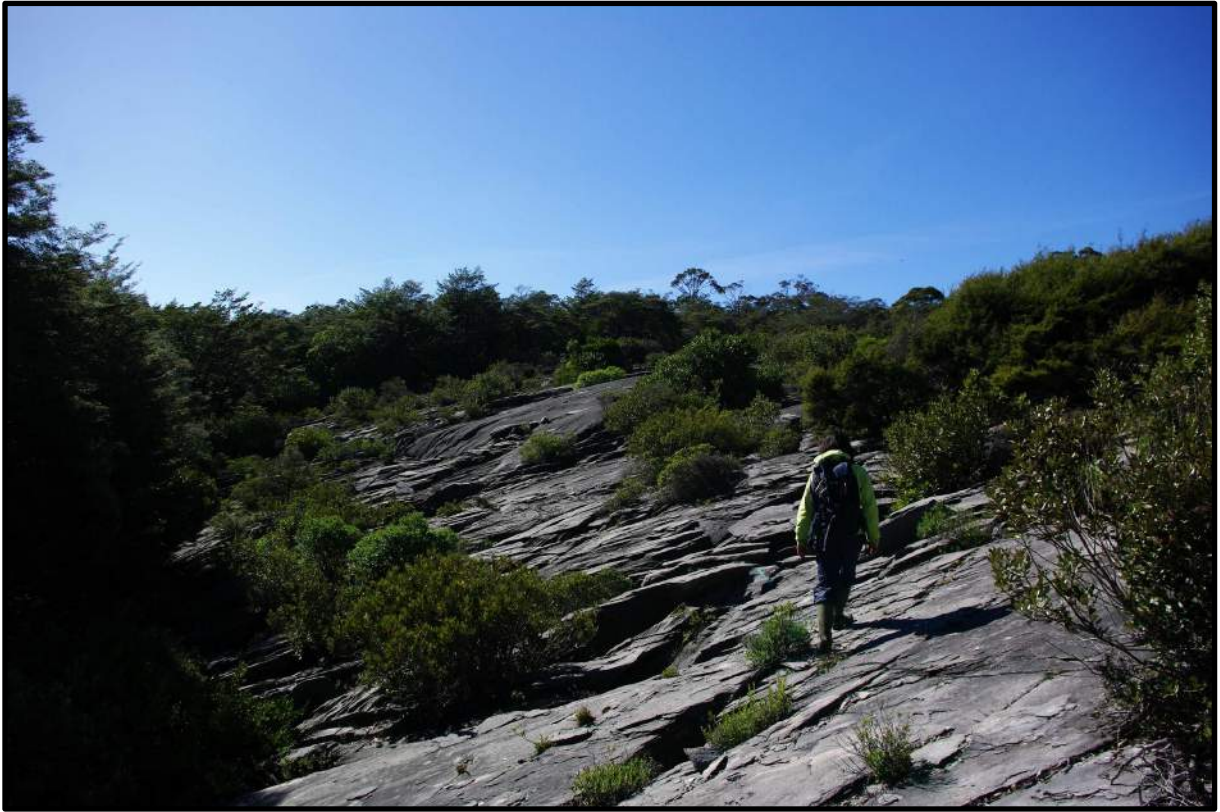


Much to our dread, the jungle gave way to a dense forest, which then gave way to a thick bushy landscape. The bushes were thorny, prickly and awfully dense, such that we followed the track all the way down to the end of the Takaka valley road.

There we looked up, and to our right appearing from the rising mists, the fabled land of bounteous karst appeared. We flew up towards it. It was all fenced in barbed wire. There were at least seven signs meaning 'no trespass' and more than fifteen padlocks chained together.



We found out later from Kieran that this was apparently the compound of a wealthy and paranoid former-Eastern-Bloc oligarch. Land usage rights are a complicated issue in caving, but it's fair to say the owner of this land was quite clear about what he considered acceptable use, and we backed off.



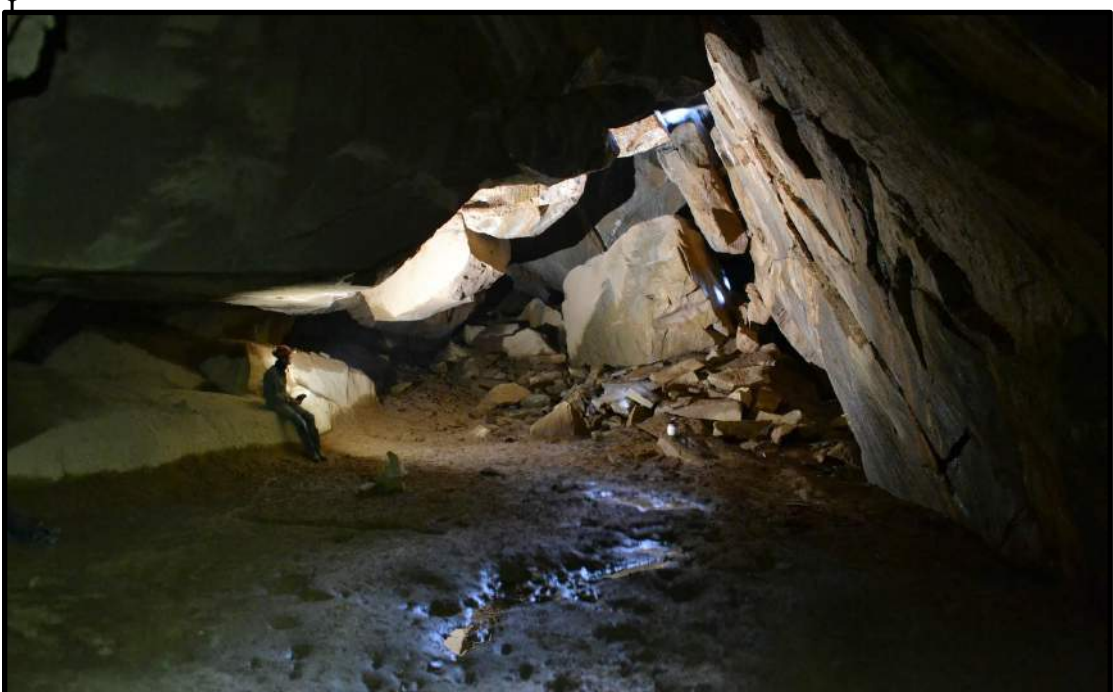
To the east, new leads had opened up:

18/4/15 Camp Centre Stage 19:51 Oliver Myerscough:



The rain has come, as forecast, dampening the ground but not our spirits. Yesterday (17/4), James and I searched the area south of Gold Creek for caves. We set off early, going via the airstrip road and walking along Gold Creek before turning south when the river turns north. We searched the area to the south east in a systematic fashion, through field and forest, but found little of interest.

...on our way back we decided to investigate the cliff of the valley we were walking down. It was very rocky and held many cracks which could become caves. We poked in our heads and head torches, peering through the murk.



I heard a shout from James, and closing in on these found him in a chamber 4-5m wide and 4 m high. We walked 25 m into this cave, seeing numerous ways on through rocks and crawls. We returned to camp for our oversuits after James slipped in the mud and covered his arse in a light brown clay stain.



...Upon our return to the cave, now dubbed “Red Dog” [Ed: Cliff cave -> Clifford Cave -> Clifford the Big Red Dog Cave -> Red Dog Cave], we killed the leads we had previously found one at a time. When we felt we had seen everything the cave had to offer, we heard an ‘Ey-oh’ from above. Moving towards the sound we found Tanguy climbing down from a sunlit window. We met up with Rhys and the two groups showed each other their work. The most interesting find was dead “Dead Rogue”, an entrance which linked back into Red Dog from ~20m away.

The draught in Red Dog and Dead Rogue is strong - there is definitely more cave there, we just need to find it!

RT and TR had gone to join OM and JO after their hike to the barbed wire, and found another entrance that connected to Red Dog. They also found an interesting sink:

20/4/15 Camp Centre Stage
17:00 Rhys Tyers:

...following a dry riverbed, Tanguy and I quickly came across a stream sinking into a cave [which was named "Sinking Ship Sink"]. We descended through a vertical maze of wedged boulders with water pouring from every corner and crack. At the bottom, Tanguy inserted himself into a waterfall before declaring the cave dead (for now).







The excitement over Red Dog/Dead Rogue was short lived:

20/4/15 Camp Centre Stage 17:00 Rhys Tyers:

The morning of the 18th, Jack and I set off to find the huge cave system driving the draughts in Red Dog. All morning we crawled and squeezed, noses primed to follow the cold air currents. With each loop, each dead end, each return to one of the entrances we lost hope. By midday we had given up, concluding that the air currents were a vexing oddity of the local geography and geology.



Red Dog and Dead Rogue were both on the cliff by the river as the river meanders sharply round a bend, and so were never in sunlight at the same time. We found that the draughts actually reversed direction throughout the day, suggesting that the draughts were driven by the heating of the air outside the different entrances at different times of day. In caves, we

normally expect the draught to go in only one direction, driven by the difference in air pressure at the top and bottom of a hill, or by a waterfall dragging air downwards.

Red Dog seemed to merely be a huge, shattered lump of rock, in which earthquakes and geological processes had rent short, tight passages in the fractures between the rocks. There was no real evidence of water carving passages, no streamway or sumps and so it wasn't clear that the cave should progress downwards.



CM and CK surveyed Red Dog/Dead Rogue as it was by far the most impressive chamber we had found, whilst RT and JH moved on to other projects:

20/4/15 Camp Centre Stage 17:00 Rhys Tyers:

We then set out to divert the stream from Sinking Ship in the hopes of getting past the grim waterfall at the end. 'Gosh Dam' was erected and moderately successful. However, it rained overnight and the stream was relatively swollen and so we decided to wait - Sinking Ship was still very wet.





The failure of Red Dog/Dead Rogue to lead into a huge cave system dampened our spirits. Our flight back was in four days, and so on Saturday (18th) evening we sat around eating our food in silence. TR spoke up and pointed out that we had left the nearby Ed's Cellar with a going lead still unexplored:



21/4/15 Camp Centre Stage 08:25 Tanguy Racine:

The last two days have been packed with adventure. The rigging, survey, push and photography of Ed's Cellar. With only a few days of expedition remaining, I assembled a crack team composed of Jack, pro-surveyor, Oli, sitcom protagonist and Chris, Ed's Nemesis. The day before yesterday (Sunday 19th) on a cold and frosty morning we departed the comforts of camp, Chris and I to push the remaining leads in Ed's Cellar, Jack and Oli to survey from the flowstone, through a series of waterlogged, sandy and muddy crawls until the amazing 'A Day at the Beach' pitch and our pushing front.



While we rushed forwards and downwards, we left them to re-rig what I hastily placed. This included a terrifying backup and a deviation in the last pitch which popped off three times at least. Once at the pushing front, Chris and I started hammering off a head-sized rock wedged in a choke. It eventually broke free and Chris squeezed up into a 3m high narrow chamber with the far wall sheeted in white calcite, glimmering with coarse golden sand. Three little mouse holes [Ed: not literally] led upwards. Frustratingly, we had to turn back to the terminal

alcove and dig the other way on. Again this lead to a calcite flowstone covering the far wall of what we believe is the downward continuation of the previous rift. It choked at the bottom.

Cursing our luck, we scrambled back to the bottom of 'A Day at the Beach', where previously we dug a sandy crawl [Ed: 11/4, eight days previously]. Further digging improved the space in the passage, and shining our lights through we could see the sand/mud mixture reaching the ceiling 3 metres further on.



At this point we began to hear voices. They were Jack's and Oli's, cursing just as loudly as us. We waited for them to descend the pitch, showed them what we had achieved and after an impromptu interview by Jack, we made our way back out of the cellar, leaving the cave rigged for a photography trip on the morrow.





Monday 20th was our last full day - we planned to pack up and leave on Tuesday lunch time, to give us a full day near Nelson to wash our clothes, shower and generally become presentable enough to be let onto an aircraft.



20/4/15 Camp Centre Stage 17:00 Rhys Tyers:

Today I returned to photo Red Dog with Jack. My Firefly [remote flash trigger] was broken however, so I was not very pleased with the results. Jack did some drone flybys in the cave and out. On the way back we checked Sinking Ship. The dam and generally lower water levels made it possible to see a boulder filled continuation of the passage beyond the waterfall. We began to dig, but quickly decided it would take more time than we had.

Whilst Jack packed I had a look at the flood sinks nearby. One had a tube leading downwards that we resolved to check after lunch. As expected, it quickly died in an awful silt filled crawl.

TR and CM photographed, filmed and de-rigged Ed's Cellar whilst AS, JO and CK photographed Weta Than Ever, completing our photo tour of all the major caves that we had discovered.



Departure

On Tuesday, we packed up camp and drove to the Maitai Valley Motor park for two nights. We spent some time showering, washing clothes and eating food that hadn't been rehydrated. TR and JH completed a slightly epic 29 km hike up to Dun Hill behind the campground, which ended in a wet foot crossing of an inconveniently placed river. On the final day, we met Kieran in Nelson to discuss what we'd achieved with him.



Conclusion

The aims of our expedition were:

- To discover, descend and survey new caves in New Zealand
- To give new members the opportunity to experience exploratory caving
- To allow more experienced cavers to lead a caving expedition
- To make contacts in the New Zealand caving community
- To give our members the opportunity to present their exploration to a wider audience

We believe that we have succeeded in achieving the first four aims, and this report is the first step in achieving our final aim. The expedition has been excellent for building our experience and confidence with organising and taking part in a caving expedition. We strongly believe that this will allow us and Imperial College Caving Club to organise more successful expeditions in future, with positive effects for the British as well as International caving communities. For many of us, the question is not if we would return to New Zealand, but when.

It is disappointing that we were unable to go up Mt Owen as we had originally proposed. We had always known that the weather may not be as we wished. We were limited in what time of year we could go to New Zealand by the term dates of Imperial College. Any expedition has a measure of risk, and we are convinced that we tried as hard as was reasonable to go to Mt Owen. In the end, the combination of inexperience and inadequate equipment for deep snow, along with the advice of our helicopter pilot and our local contacts meant that it would have been foolish to attempt to push ahead with our expedition as originally intended. The safety of our team remained paramount at all times, and our only regrets are that the weather was not more suited to our plans. Mount Owen will always be waiting for us.

Regions

NSG Hut

The area around the NSG hut contains a range of terrain. There is thick forest to the NE, which gives way to a marble outcropping and a sharp ridge which curves around the forest filled depression below. This forest in turn gives way to open meadows and broken surface karst to the S and SW. Most caves that we found were cracks in an outcrop of karst.

Interestingly the caves marked with red tape occurred along an almost straight NW/SE line of deep depressions under thick forest cover. As a general rule they went the deepest and were much more roomy than the cracks found in the craggy uplands. They had obviously been marked, and probably visited before.

Red Tape 1: Descended ~40m with one rebelay and two deviations. Cave died in a muddy boulder choke. Strange smell at bottom could indicate bad air.

Sneaky Shaft: Smaller rocks removed. Large boulder removed using tape. Shaft died 4 m down in a silt filled passage.

Burnt Tree: Boulder split using chisel. Shaft died after 3 m in a silt filled passage.

Pages Saddle

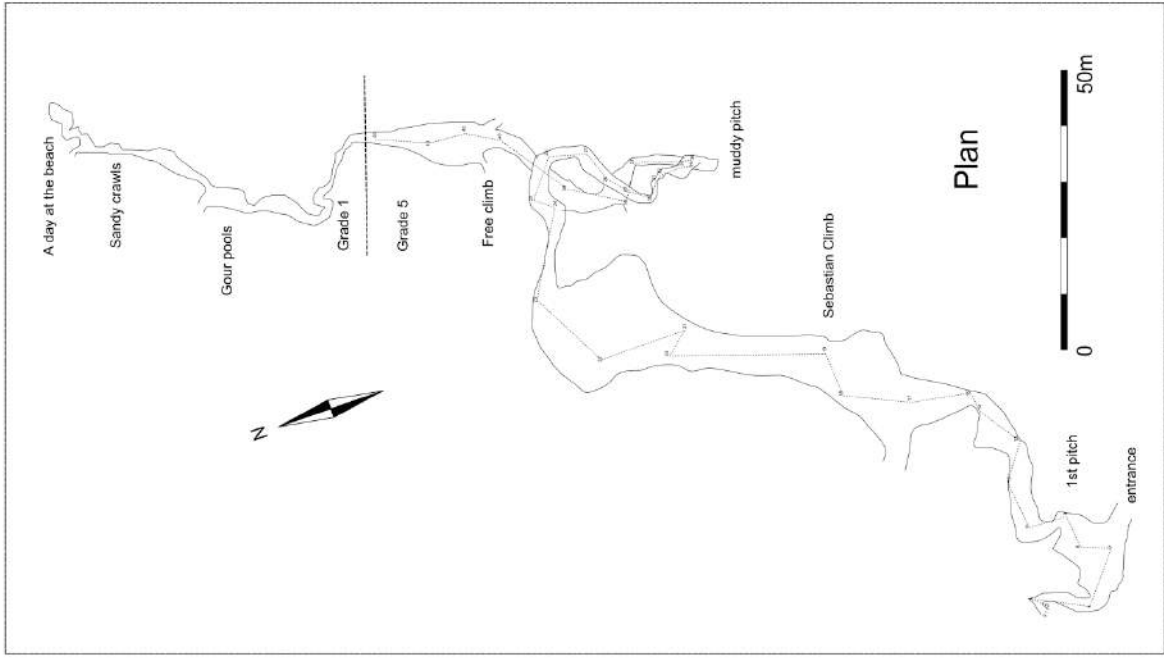
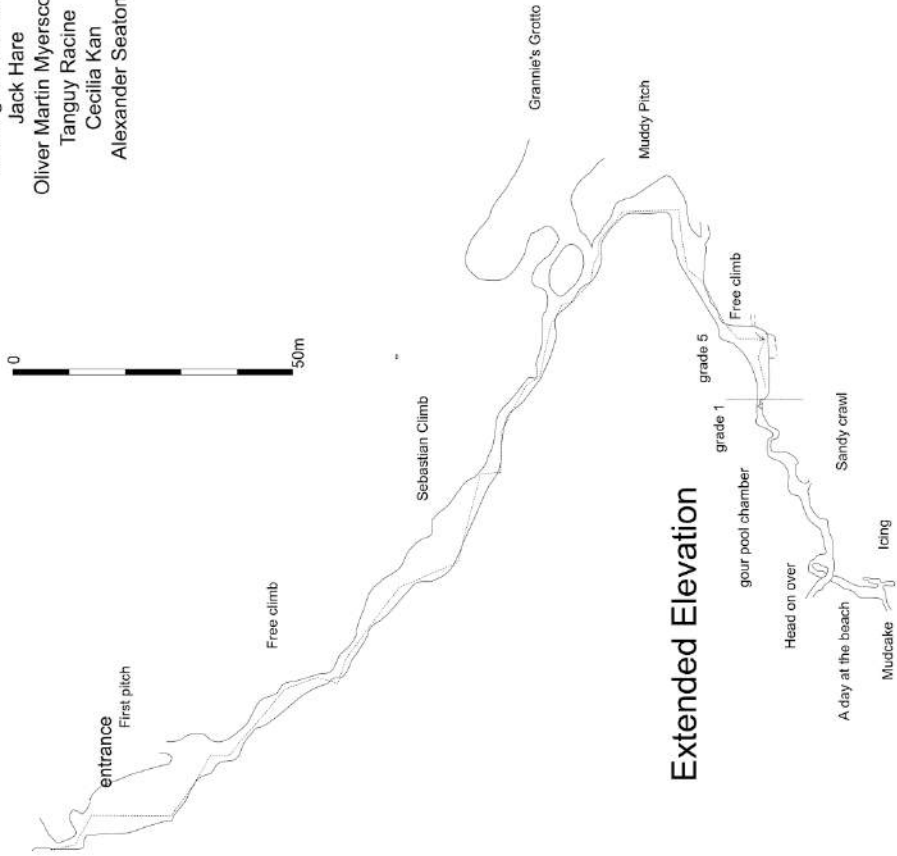
This area lies to the north of the first campsite, after a 20 min walk along a farm track. It is open grassland and pasture, with fences and some farm buildings. The valley rises on either side, broken by large rocks and with shrubs and trees. Past the farmhouses, an abandoned creek meets with an active river at the foot of Ed's Cellar hill. The entrance to the cave proper lies in a rock fall on the hillock.

The active creek is lost at the base of a cliff in which draughting cracks were investigated though none went. The dry creek also meets the base of the cliff and an underground passage can be followed for a few metres before turning into a challenging and tightening rift which was explored by CK.

Ed's Cellar: This well known cave was last surveyed in 1962, we pushed a lead down through the Razorblades near Grannies Grotto. Many people had been this way, as evidenced by mud on the flowstone, but we believe we are the first to descend 'Head on Over' to the sandy crawl where the leads terminates. A full survey from the entrance down to our pushing front is reproduced below - the last section is grade 1, but a full grade 5 survey is being drawn up.

Ed's Cellar

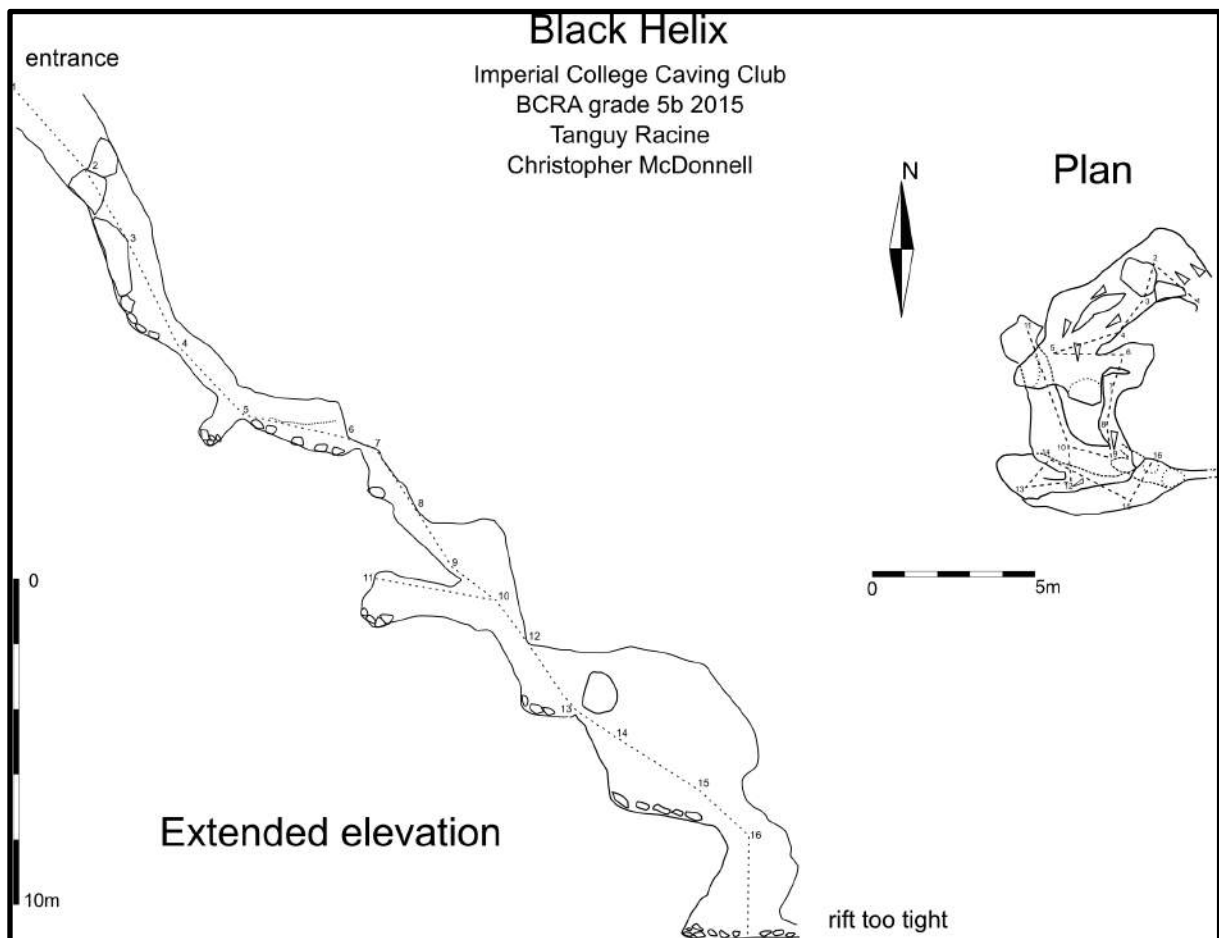
Imperial College Caving Club
 BCRA grade 5b 2015
 Jack Hare
 Oliver Martin Myerscough
 Tanguy Racine
 Cecilia Kan
 Alexander Seaton



Gold Creek

This area is to the north west of Canaan Downs campsite and can be reached by following the road onwards to Harwood's Hole before following the trail west. Gold creek meanders through tussocky grass land and is itself surrounded by trees. Two known caves, Corkscrew and Marble pot are located in this region. The area was systematically searched for cave, yielding Black Helix.

Black Helix: Black Helix cave is 40m long and 25m deep. It opens up as a steeply sloping plane covered with rubble and unstable boulders. Ten metres on it splits laterally, only to rejoin after a short drop. Various squeezes and more drops lead to the final rift, narrowing onwards to an impassable crack. Rodent bones are found in this terminal chamber.



Bob's Creek

Directly to the north of Bob's house (and due south of the Canaan Downs camp) is a dry gully in a large grass meadow, where alpacas are grazed. Bob told us that during heaving rain water disappeared under the large rocks the sat in the gully. The rocks sit on a bed of thick red mud. Several leads were pursued under the largest boulder, which we named Bob's Tomo:

Here Hare Here: On the north face of the boulder, a tight passage lead horizontally whilst another passage lead down. Removing boulders from the lower passage lead to an upwards

slope that connected both passages. Light was visible from the other side of the boulder, but the passage didn't seem to lead anywhere.

Bob's Cellar: On the south side of the boulder are two passages, tucked away on the left. The obvious right hand passage leads to a small chamber which leads off into a silt filled passage too tight for a human. The left hand passage is an awkward crawl into a muddy chamber with a boulder choke in the floor. These boulders were split and moved, revealing a 3m shaft that died in a boulder choke.

Bob's Forest

The forest covers most of Bob's land from Harwood's Hole north of Canaan downs, east to the top of Ironstone Creek and south below Bob's house. It is mixed forest, principally alpine on the south faces of gullies, but temperate rainforest with palms on the sun facing north faces. The forest is often extremely thick and tough going, though the area directly west of Bob's house is open and lightly forested. The forest is punctuated with large, sloping marble pavements, split by deep chasms. There are frequent depressions, some only metres from each other, all with a large, house sized boulders. We investigated dozens of these - with the exception of Weta than Ever, the route the water must take chokes in mud, silt and debris within a few metres.

Weta than Ever: A large collection of boulders in a depression at the end of a dry river bed hides a deep rift which was descended to reveal a linear cave that pushed due west along what was presumably a fracture in the marble. The cave eventually closes down and ends in a silty sump. There is a large population of cave wetas in the cave.

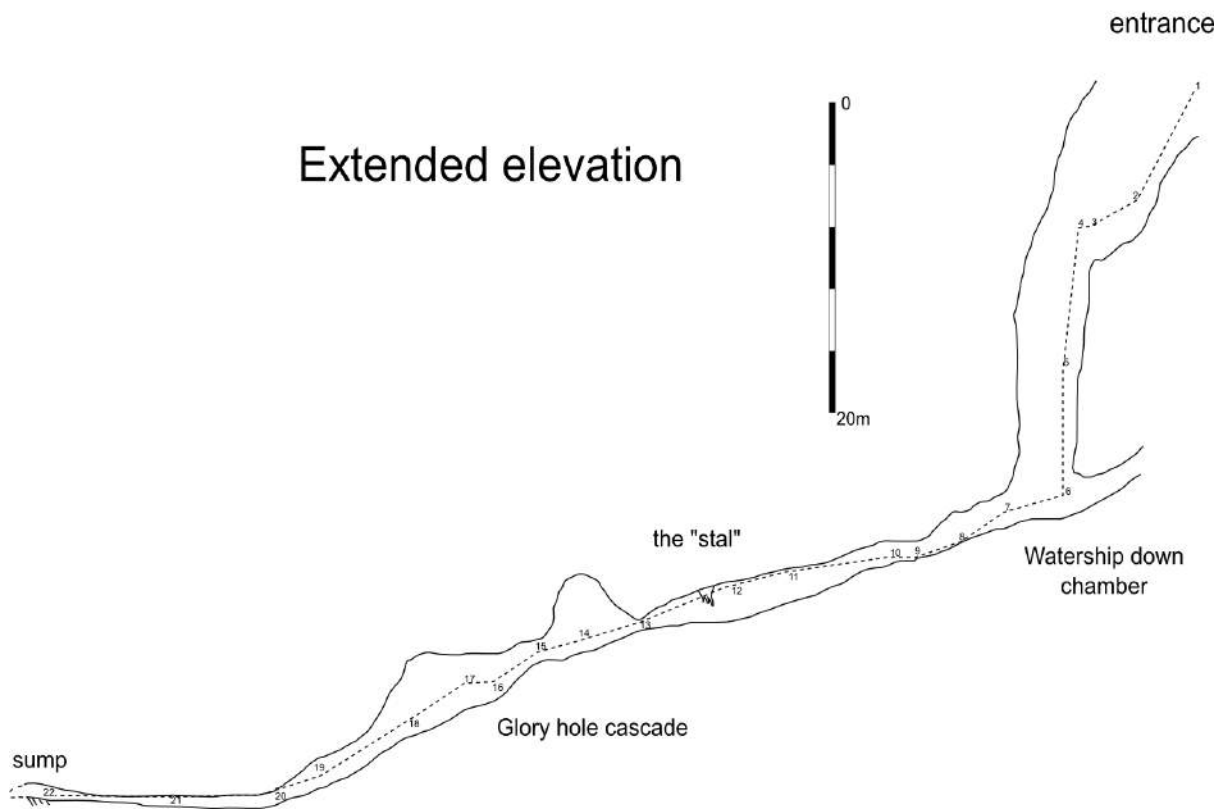
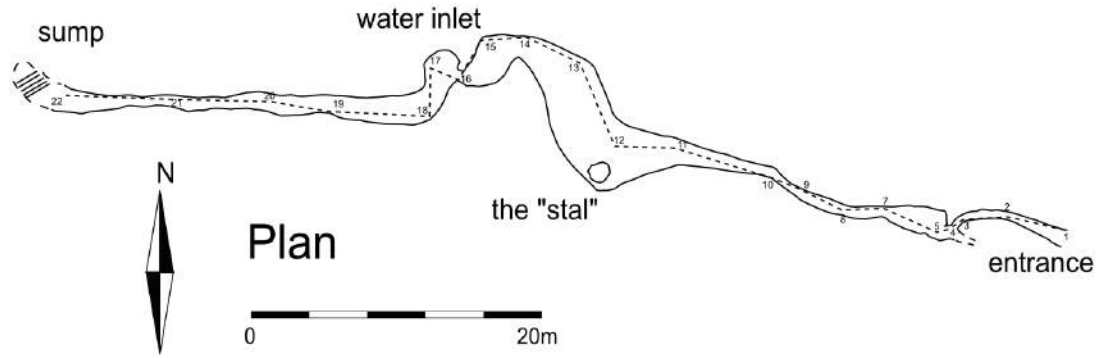
Weta than Ever

Imperial College Caving Club

BCRA grade 5b 2015

Rhys Tyers

James O'Hanlon



Eastern Creek

This creek is unnamed on our map, but a short walk south of Canaan Downs leads to the forest opening up to the east, revealing a dry creek bed. The creek bed is not made up of karstic rocks, but instead appears to contain granite from the intrusion to the south. There are plentiful flood sinks on either side of the river, and the land rises to form cliff faces along the active streamway further east.

The active and dry streamways meet (both sloping downhill), with the active streamway sinking close by to the north. Further up the active streamway the stream meanders around a large rock which contains Red Dog in a lush grassy valley with woodland on either side.

A shepherd told us that during floods, the water level rises to four or five metres in height, and stranded debris high up the cliff faces confirm this. The shepherd also told us that this huge volume of water usually drained within a couple of days. This implies there must be an impressive drainage system under the valley (recall that the active streamway doesn't leave the valley, but sinks, and the valley is uphill both ways from the sink - the water cannot escape the valley except underground), but we were unable to find a route into this system.

Sinking Ship Sink: The active streamway sinks into two sinks. The left hand sink is a boulder choke with a large passage through. Inside the cave is one large boulder choke which can be navigated to a small waterfall that sinks into the floor of a small chamber. The passage clearly leads on to the left under a tight boulder choke, but we were unable to remove enough boulders to allow us to progress. Most, but not probably not all, of the water that sinks on the surface seems to end up in this waterfall.

Red Dog/Dead Rogue: Red Dog is a large chamber accessible through several entrances on the side of a cliff overlooking the active stream. The chamber has a thick layer of mud on the floor and a great deal of debris, indicating that water fills the chamber during flood conditions. There are multiple passages on through shattered boulders. We followed and enlarged many of these passages, occasionally emerging in the sunlight again by another entrance (such as Dead Rogue), but we were unable to find a route that consistently went up or down. The rock does not appear to be shaped by water, but was instead formed by the collapse of a huge rock which had many calcite infilled fractures. Our search for onward routes was thorough but not exhaustive. A grade 5 survey is being drawn up.

Finances

Outgoings			
Type	GBP	NZD	Total (GBP)
Flights	£9,592.28	\$0.00	£9,592.28
Accommodation	£96.64	\$226.00	£211.90
Equipment	£572.05	\$68.00	£606.73
Food	£713.74	\$1,928.40	£1,697.22
Car Hire	£1,219.13	\$0.00	£1,219.13
First Aid (incl. training)	£1,570.00	\$0.00	£1,570.00
Fuel	£0.00	\$354.06	£180.57
		Total Expenditure	£15,077.83
Income			
Source	Amount		
Exploration Board	£9,900.00		
MEF	£1,350.00		
Ghar Parau Foundation	£350.00		
Expedition Members	£3,477.83		
		Total Income	£15,077.83