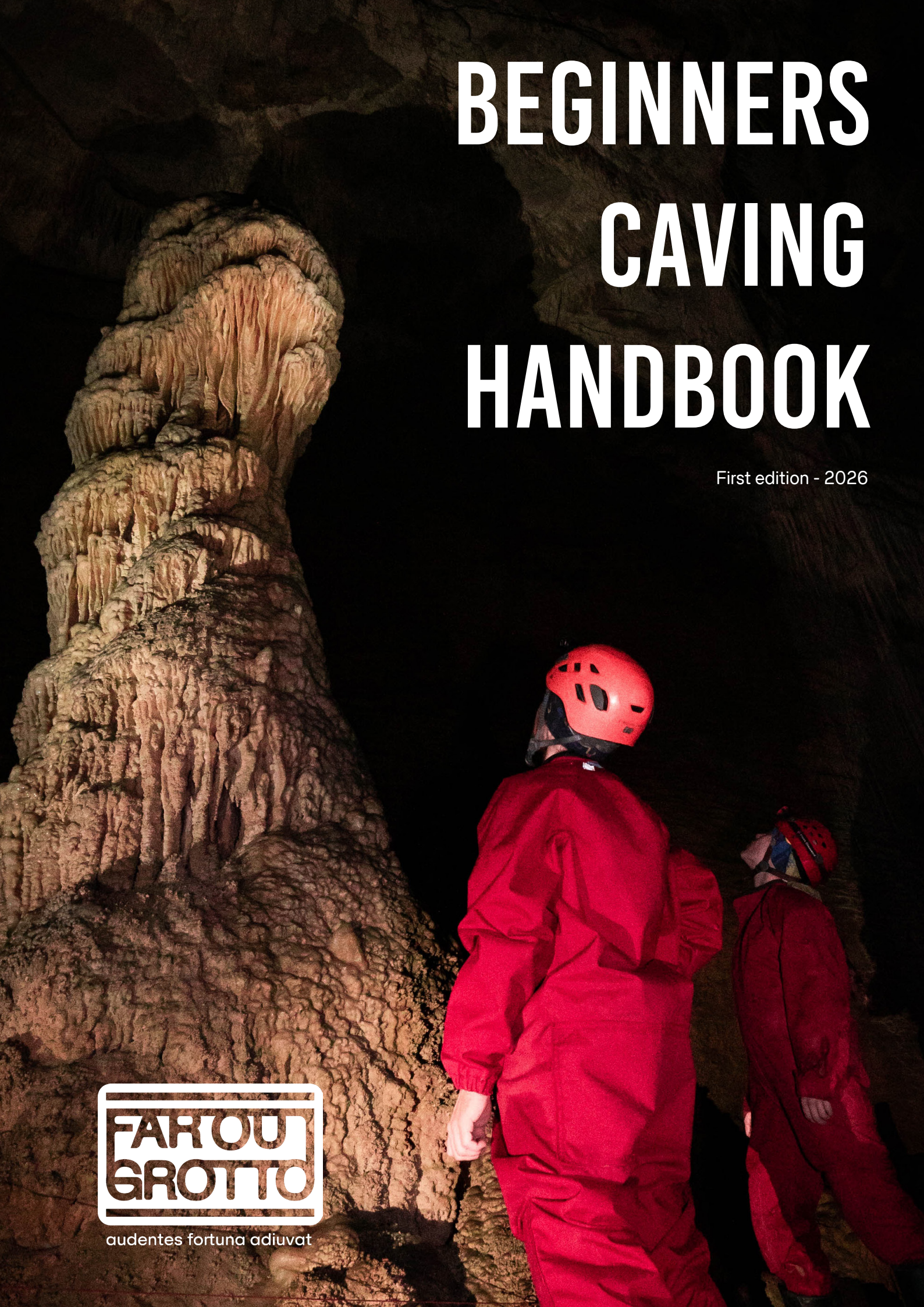
BEGINNERS CAVING HANDBOOK

First edition - 2026



FAROU GROTTO

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Thank you to everyone who had an input into this guide be it big or small:

Paul Rowe for proof reading and helping with the editing.

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My usual caving crew who are subject to my photography requests:

Ash Corkill

Daniel Martin

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Any everyone else who I have had the absolute pleasure of caving with.

Disclaimer

This guide is intended to comlpliment suitable instruction. Caving can be a dangerous activity and proper training should be sougt before leading trips or taking part in trips without experienced practitioners.

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FOREWORD

"The very cave you are afraid to enter holds the treasure you seek"
- Joseph Campbell -

I have been wanting to make a guide like this for a little while, putting down what limited experience I have of the underground down onto paper and bolstering it with the expertise of cavers I have the privilege of knowing.

My experience stems from a short but sweet 6 years of caving in the UK with the Combined Services Caving Association where Si Lowis took me under his wing, having the privilege to learn from Daryl Godfrey from Acclimatise Ltd before coming to New Zealand, and gaining a wealth of knowledge from members of the Hamilton Tomo Group who this book is for. I hope this will be a helpful guide to those wanting to explore underground.

Caves have been utilised and explored throughout history. They are places of mystery, intrigue, and wonder which throughout the world, since palaeolithic times, have been used for shelter and places of ritual. Although we have moved away from using caves for ritualistic and homely purposes, they continue to capture our interest and spur exploration. There is so much more to be discovered and there have been significant scientific discoveries made through cave exploration.

The aim of this guide is to inspire future cave leaders and improve our conservation efforts as responsible cavers. It combines information from both the Hamilton Tomo Group and New Zealand Speleological Society into one document to aid in your own journey underground. The guide encourages safe practice and fosters the spirit of adventure.

The underground environment has the potential to be a hostile environment to the unprepared and inexperienced and so deserves maximum respect. I make no apologies for how much that is emphasised throughout this document but with the right knowledge and training, what can be a risky environment can be effectively managed to make it safe.

This is merely a reference and the best way to really learn the art of caving is to be among those with experience in which club trips are the perfect opportunities for the passage of knowledge.

As a disclaimer this is purely to be used as reference material and suitable instruction should always be sought prior to undertaking this activity.





CAVING IN NEW ZEALAND

WHAT IS IT?

The sport of caving, also known as potholing in the UK and spelunking in the US is the activity of exploring our subterranean environment.

A cave is defined as a large hole in the side of a hill, cliff or mountain that runs underground. They are enclosed spaces, some only a few meters, some stretch for kilometers, some are made up passageways barely big enough for a person to squeeze through, some with caverns the size of stadiums and many remain undiscovered. We know less about the ground beneath our feet than we do about space which makes them prime scientific environments as well as presenting archeological opportunities and if that isn't an exciting reason to don the wellies (or gum boots as they are referred to here) then maybe the excitement of navigating challenging terrain, abseiling into the darkness gets the appetite for adventure going. Whatever the reason for going underground is, the fact remains that caves are incredible spaces.

Caves can have streamways running through them, relic caves where rivers once ran through, or the result of glacial action and land movement or the remnants of volcanic activity. The passageways tell the stories of the land and how the cave came to be so moving through them can be anything from walking to crawling to using ropes to descend large pitches and every movement in between. Think of a mix of hiking, rock climbing and canyoning all rolled into one activity.

Depending on the region, the rock caves are formed of changes. New Zealand has limestone, marble, sandstone, and lava caves and this makes each cave a unique experience with their own unique formations, passageways, and sights. Even within the same region, no cave system is the same, each taking their own unique shape over hundreds of thousands of years and still continue growing and changing.

For me caves are places of wonder, excitement, and adventure but at the same time they are places of fragility and delicacy and to have the ability to explore these places never ceases to humble me and to top it off the community found through caving is irreplaceable.

At the heart of exploration, safety must be paramount along with conservation. As exciting as it is to explore these spaces, they aren't without risk to safety and conservation. The very nature of entering a cave damages it in some way be it by knocking a straw which has taken millennia to form, contaminating the rock with mud or causing wear on the rock through rope rubbing on it, they are fragile environments where entry should be made with conservation at the forefront.

INTRO TO CAVING







CAVER RESPONSIBILITES

LAND OWNER RELATIONS

Keeping good relations is a key part of caving. Without the generosity of the landowners allowing access to their land, many caves would cease to be accessible, so it is vital that we support and work with landowners to ensure that access is kept open.

This partnership is achieved in many ways. The main way is through having a system where permission is sought from the landowner prior to any activity taking place. Some landowners may have requests to restrict numbers going into the cave, have parking instructions or instructions on the best approaches to the cave entrance.

It is vital that landowner's requests are carried out so that the good working relationship with the caving club is maintained, trust is hard to build but easy to lose so we all have a responsibility to conduct ourselves in a manner which promotes good relations.

As with hiking, always follow the country code, this keeps landowners happy and maintains relations which without access would be lost.
As a start here's some good rules to follow:

- Always obtain landowners permission before a trip
- Adhere to driving and parking instructions from the landowner
- Leave gates as you find them
- Be mindful of livestock when traveling to the entrance and leave dogs at home
- Offer to show NZSS membership when arranging trips
- Leave the area in a better condition than you found it, if there is rubbish, take it with you.
- Where possible car pooling and reducing the number of vehicles goes a long way not only reducing our impact on the farmers land but also from an enviromental point of view.





IWI RELATIONS

In New Zealand there is not only consideration for landowners, there is also consideration for the indigenous culture. Iwi are the tangata whenua, the custodians of the land and often caves are located on land owned by an iwi. This title deserves the utmost respect and as such should a cave be closed off due to customary reasons such as a rahui in place or it is a site of cultural significance then this must be observed and respected.

Also, something to be aware of if prospecting for new caves is urupa or burial sites, consult with the local iwi for advice on what to look for, what is ok to explore and what isn't.

CONSERVATION

This will be covered in greater detail further in this document but it cannot be emphasized enough the importance of maintaining practices which maximize the conservation of the cave environment.

Caves are inherently delicate places and the formations within take millennia to form and so once a formation is broken then it is gone forever. Likewise in areas not in the stream way or in a section which floods, footsteps, muddy handprints and rubbish will remain for the rest of time unless removed by humans as there is nothing to clear it so being careful to not to stray from travelled routes, being careful with body placement and ensuring that what goes in the cave comes out are the minimum ways we can ensure that the cave remains in as pristine condition as possible for generations to come.



THE ENVIROMENT

Caves are generally speaking cold, damp, muddy and dark. There can be variations to this but here in Aotearoa, New Zealand they are cold, damp and dark. They keep a constant air temperature of between 8-12C, however the water temperatures can vary as it is impacted by conditions on the surface more. So, what does this mean for us? Well knowing the environment we are entering helps with preparation. You wouldn't go into the desert in full arctic gear, why? because it is not appropriate and this holds exactly the same for caving.

FRAGILITY

I will stress this many times throughout this book but caves are exceptionally fragile places, formations which have taken thousands of years to form can be easily lost and destroyed forever so having an appreciation of this is imperative.

CAVE LIFE

Although caves are generally inhospitable to mammals, there is still plenty of life in caves be it a good thing or bad thing depending on phobias. All joking aside we are entering their habitat and like with formations, the creatures which reside in caves are fragile and often of scientific interest especially if it is a new species. So lets go through some of what you can expect to routinely see underground.

SPIDERS

A personal phobia of mine, spiders. There are a variety of species of spiders all with different characteristics residing within cave systems and these change from region to region. Generally speaking they reside in the section called the "twilight zone" however they can migrate further into a system. This refers to the initial 5-10m from the entrance where its dark but there is still some diffuse light and is where you are likely to encounter most cave life. There are no poisonous cave spiders and they are less than interested in you so leave them alone while moving through their territory.

WETA

Cave Weta differ to the Weta you see on land, they generally have smaller bodies but longer spindlier legs than their surface counterparts and they have longer antenna. Just based on my personal experience they do jump when disturbed by light but don't worry they pose absolutely no threat.

GLOWWORMS

In the Waitomo region, many caves contain glowworms. They tend to be found near active streamways and you'll often see their long sticky stands hanging from overhanging rock. They emit a bioluminescent glow so you will see small blue dots if they are emitting light and that is a truly amazing sight. Again they are harmless but take care not to ruin their stands, remember it's their house not our stomping ground.

EELS

When walking through a streamway you may encounter eels. They can be identified by their long black snake like bodies. With eels its not so much the cave that is their habitat, more the waterway. They can be washed into caves by the waterways but make themselves quite at home. Eels can grow to some quite significant sizes and have been known to bite and easily take chunks out of people so if you see an eel just leave it alone and carry on with your journey. If you are in suitable caving attire and a eel does bite, your clothing should be adequate to prevent any skin penetration, especially if they go for your wellies.

OTHER CREATURES

Above are just common things that I have seen. I am in no way qualified to go into detail about these creatures but it's good to know you might not be the only one there, especially further in where we begin to see life that has evolved to live without light. You may find tiny translucent creatures on rocks, white cray fish or if its unlucky maybe even a frog as they can sometimes get washed into the systems. Whatever you see, try to not disturb them.

PREPARATION AND RISKS



WEATHER

Let me start by posing a scenario, Your going on a caving trip, its been a stunning sunny hot week and today is no different with bright blue skies, someone has mentioned that there may be some thunder showers expected but you don't have much more in formation than that. Should be fine to cave right?

This is the overly simplified version of what killed four cavers in the UK exploring Mossdale scar cave but ultimately a change in weather brought more rain than anticipated and as a result the cave rapidly flooded killing four experienced and well equipped cavers.

Now bear in mind that this example happened in 1967 and weather prediction has come a long way since then but this incident emphasizes that what happens above ground can have a devastating effect below ground and we need to have an understanding of these effects so that we can manage the risks.

So what can we do to ensure that we are safe underground? how much rain is too much rain? Well the answer to that is how long is a piece of string. Every cave has different hydrology, catchment area and different reaction to water but there are things we can look at which allow us to make educated decisions around risk.

One of the easiest ways to check if a cave is safe or not is to look at the weather forecast. This gives a good indication as to what is to be expected before and whilst your underground. There are a massive range of ways to check the forecast. Below are examples picture of what to expect.

The information here barely scratches the surface of understanding weather. Further reading will be included at the back of this document.

MET SERVICE APP

This is the national weather authority for New Zealand. They utilize the latest technology to provide as accurate a prediction as possible and will issue weather warnings for both land and marine environments. Weather information is available in 7 day, 48 hour and 24 hour forecasts which will be updated as information changes. As well as the forecast there is also the option to view the rain radar and surface pressure which can be useful in interpreting what the weather may do.

COASTGUARD

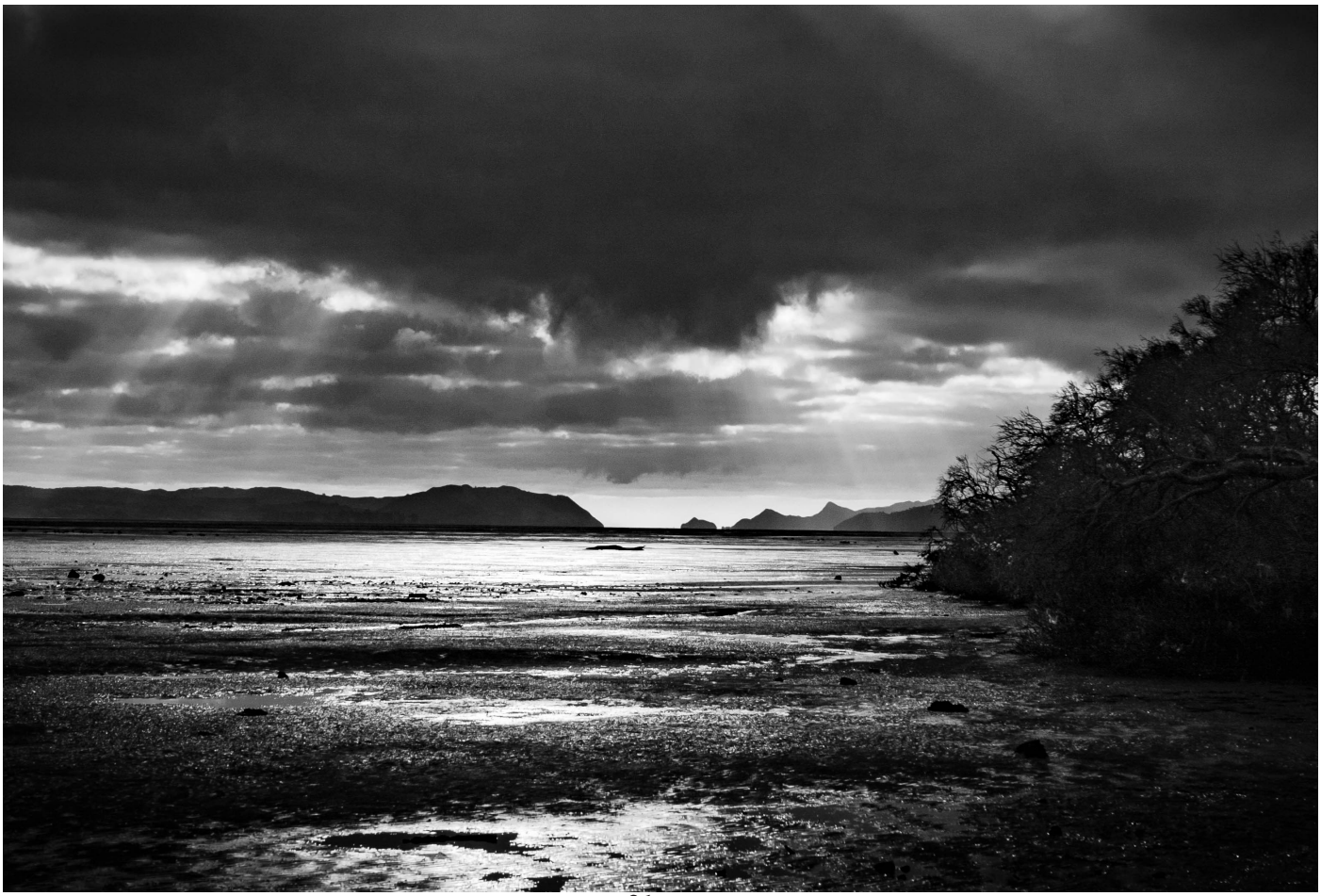
Similar to the Met service app. The Coastguard also have an app available which offers up to date information on what the weather is doing. Although more aimed at the marine environment, it can be useful to have an idea about any weather fronts moving in from the coast. This information can be cross referenced with weather maps to build a picture of the movement of a front.

NIWA

Marine weather isn't so much an issue inland so NIWA (National Institute of Water and Atmospheric research) has a good section which forecasts the height of rivers across New Zealand. This is vital information as our activities are directly affected by river activity.

COUNCIL OWNED RIVER MONITORING

Some councils throughout New Zealand have river monitoring stations. These give regular updates on the speed, flow and height of the river its allocated to. If entering a cave fed by a major waterway, having knowledge of what the water is doing can be invaluable when risk assesing conditions underground.





LOCAL KNOWLEDGE

The final source I will mention is local knowledge. This is by far the most important source of information for judging conditions underground, especially in unfamiliar systems. Every cave reacts differently to water, some rapidly flood without warning, some are safe even in the most extreme of wet weather, some are slow to rise, the list goes on. Where we can look to the weather to gauge what to expect underground, the real make or break is how that cave reacts and one of the only ways to find that out is to engage with the caving community and get information from those who have seen the cave in various states.



HAZARDS

SLIPS, TRIPS AND FALLS



As in everyday life, a major cause of injury underground are caused by a misplaced step. Underground there is very little even surface and there is plenty of opportunity to take a fall be it tripping on a rock concealed in the streamway or taking a slip while traversing an upper passage. Now while above ground taking a fall may result in a minor sprain or strain, the same injury underground can cause significant problems especially if the casualty cannot self-rescue.
This becomes even more critical when operating at height such as at the top of a pitch head or when using a ladder so every effort must be made to ensure that personal safety, group safety and management are on point as this can be an easy fatality. Make every step deliberate. pitch head or when using a ladder so every effort must be made to ensure that personal safety, group safety and management are on point as this can be an easy fatality. Make every step deliberate.

ROCKFALL



Staying on the theme of gravity, while a caver falling will cause harm to themselves, rocks and debris dislodged by other cavers cause significant harm. Some sections of cave such as chambers, pitch heads and entrances are ample places for there to be debris to fall. When travelling through a cave, pay attention to the roof, are there cracks? Do any sections look loose? is there recent rock fall? If the answer is yes then don't hang about. If managing a pitch the same applies, keep the group away from the bottom of the pitch and keep the head clear except those that are using it. This minimizes the risk of something becoming dislodged and landing on someone below. If there is any rock or debris or even if equipment is being lowered, shout "below, below, below" to warn others that there is something coming down.

LOST OR OVERDUE PARTIES

Getting lost or being overdue is not uncommon, especially if the group has not been in the system before or has a large group. With a proper plan in place this doesn't normally cause a problem however getting lost without a plan has serious consequences.

Cave systems can contain kilometers worth of twisting winding passageways with very little if anything in the way of way markers and even the small systems have potential to be multi level labyrinths. Knowledge is key.

Knowing the cave being explored is vital and in lieu of this knowledge a good description and a survey are the next best chance of successfully navigating it. A good practice is at major junctions such as a change in height or navigating a squeeze is to look back that section and memorize the shape of the passage then as progress is made make notes of prominent features.

Now should a party become lost and struggle to navigate out, a simple way to get assistance is to have set a call out which will be covered in more detail in the planning section but by having a call out this ensures that if the group does not check in, a call out of cave search and rescue (Cave SAR) will be initiated and help will be on the way.

As a very general rule of thumb, following a draught or following a streamway down stream generally lead to the surface if a group is hopelessly lost but the decision between staying put or searching for an exit is a decision that would have to be weighed up by the group in the moment. There is no guarantee that a draught or the stream way wont lead to a constriction and make matters worse so it is something to bear in mind when risk assessing. Experience and knowledge make a world of difference to decision making in these scenarios.



HYPOTHERMIA

Hypothermia poses a very real danger to cavers. More will be covered later around the management of hypothermia but as a hazard this is one that can very easily catch groups off guard. There is plenty of stop and start especially where trips include vertical sections and unlike in the outdoor enviroment where layer management is far simpler it is very easy for cavers to become very cold very quickly. Clothing is often wet and warm dry kit is often reserved for emergencies.

- Some key tactics for preventing hypothermia as an individual are knowing your body.
- Are you susceptible to the cold?
- Do you have the right clothing for the type of cave you are doing?
- What are your personal signs of becoming cold?
- Have you got enough clothing to warm yourself up should you start becoming cold?

These are considerations that every caver should have. As experience builds, personal systems can become more efficient for temperature management but being prepared for long waits in a cold environment must be planned for.

ENTRAPMENT

There are many ways a caver can become trapped. It can be going into a squeeze that they are too large for, dropping down a slot or becoming entangled in their equipment.

Prevention is always better than cure so having a personal awareness of your capabilities is important. Most entrapments aren't actually entrapments. Body mechanics plays a huge part in this. Where a person may believe they are stuck and are in a state of panic, most of the time by relaxing and with some gentle coaching an encouragement a person will be able to free themselves. Relaxed muscle is far more malleable than tensed muscle, so anxiety management is a great tool. As a rough guide, if the head and shoulders can get through, so can the rest of the body but obviously some common sense does need to be applied.

Entrapment also applies to getting caught in gear. Simple measures such as ensuring hair is tied back and out of the way and ensuring that clothing or anything else that could become jammed is clear of your equipment.

If you should find yourself stuck be it on a rope or in a squeeze then take a breath, analise the facts of the situation then work to formulate a plan. If it is beyond what you can manage yourself then initiate a Cave SAR call out. They have tools to manage this. Stay calm, keep warm and wait for help.

PETZL

BAD AIR

Bad air refers to the presence of gasses that cause harm when breathed in. Bad air occurs in sections of caves or mines where there's little to no ventilation resulting in little to no airflow which more often than not are exploratory digs.

Common gasses which are classed as bad air are:

- Carbon monoxide
- Carbon dioxide
- Hydrogen Sulphide. (more common in mines)

The most common occurrence is carbon dioxide in a confined unventilated space which is created as cavers breathe using the oxygen in the space. A traditional test for this is to try and light a match and looking out for symptoms of hypoxia such as headache, confusion or difficulty breathing then its time to find fresh air.

FALSE FLOOR

False floors are more prevalent in mines than caves however they still pose a risk. The most recent cave rescue in Ogof Ffnonn Ddu in North Wales was the result of an experienced caver stepping on a natural false floor and falling down a rift.
A false floor is where there is a layer which looks like solid rock but in actual fact it is a thin layer which when weight is applied breaks. This adds to the importance of checking and making deliberate movements while moving through a system as the consequences can be serious or even fatal if the false floor is above a large hidden drop.



FLOODING

It has been mentioned several times already but it is vitally important to understand flooding. It is one of the main reasons that cavers become trapped and require rescue or are killed. Caves can flood slowly or can flash flood and knowing how to interpret what's happening above ground informs what the safety parameters are for underground and what is suitable for different experience levels.
Like hydrology, this subject could fill an entire book but hopefully this section will give a few little cliff notes to aid in risk assessing flood potential.

ABOVE GROUND

Before we even think about stepping foot into a cave, conditions above ground can indicate what we can expect below. Already its been mentioned about the weather and its effects and hydrology so the water movement, catchment areas and how this effects a system.

We can also look at the ground around the system. This can be a fantastic indicator as to if rain is going to cause a problem.

Saturation:
Starting at the wetter end, ground saturation is where the soil has soaked up so much moisture that it cant hold any more. This can be identified by pools of water appearing where there normally is none. It is especially noticeable in fields but even tracks which are unusually boggy can indicate that the ground is saturated. What this means for us going underground is that further rainfall will not be absorbed. Less water absorbed by the soil means more water entering the system adding what likely already to be a high volume entering through the streamway alone.



Baked ground:
Everyone loves weeks of endless sunshine however this can cause problems too. When the weather has been hot and dry for a prolonged period of time, this dries out the soil making it hard. The reason this is an issue is that the soil is now not able to quickly absorb moisture so even a little bit of rainfall can run off and this can have a similar effect to flash flooding as the water isn't being slowed by absorption.
The way to identify this is firstly identifying that prolonged period of hot weather. Next, look at the grass and greenery nearby, lush, green, yellow and dying. This shows that there's no moisture in the soil for the grass to thrive then finally if the mud itself is a light brown, solid underfoot with cracks appearing, this indicates that it may not cope with any rainfall.



Snow:
For north caving this generally speaking doesn't cause too much of an issue however snow can cause problems especially where the weather is warming, and it begins to melt. The snow level doesn't have to be at the level of the cave for it to cause issues either. Even a cave sitting below the snow line can be dramatically affected as where it melts, the water runs down and finds its way into the water ways adding to the volume of water so it has the same effect as if there was rain and can attribute to water levels raising substantially.



River activity:

Once we have established the ground state, we can then start looking at what the river is doing. The river feeding the system will give a very clear indication as to what the water is doing underground and what it likely to do.

Lower than normal water levels:
This is a good sign, generally this implies that the cave will be safe to enter, water will be slow moving and should there be unexpected rain fall, pending on the ground condition and the hydrology of the cave, it is generally safer as there is more time to react before passages become impassible.



Normal water levels:
Again this is promising, normal water levels, clear running water, slow moving, these are all indicators that the cave will be safe to enter again pending on what the ground condition and weather are doing but much like low flow, very generally speaking there is time to react when the river is at this state.

Normal water level - murky water:
This is where we need to start being cautious. Brown murky water can be an indicator that the river is moving faster than normal which is disturbing the silt. This can be as a result of something happening upstream that isn't immediately obvious. A thorough risk assessment and considerations of your activities will dictate if it is deemed safe or not.



Higher water level - moderate pace - Brown murky water:
A higher than normal water level doesn't always mean that caving is a no go. This is where knowledge of a cave and a thorough assessment of the weather will give a good indicator. As part of your assessment, it is a good idea to consider escape routes for the event of unexpected flooding as there is less time to react but it can still be safely negotiated.

High water - Fast moving - Froth present - debris in water
This for me is a no go. Fast moving water is a serious hazard in any scenario let alone underground. Bear in mind that 1m3 of water equates to around 1ton of weight so that is more than enough to sweep people off their feet and not be able to recover. Not only is the water speed an issue, the likely hood of the cave going into full flood is exponentially higher and there is no room to enact escape plans and passageways may quickly become impassible causing entrapment.



Below ground:

Now we have our information for what is happening above ground, we can now start to look at features below ground which can indicate how a cave reacts to water. This is good to know as the unexpected can still happen so understanding and identifying signs that a passage way is prone to full flood or that something of concern is happening on the surface can mean the difference between acting preemptively and getting to safety or risk the potential of being caught in a flood. Remember that getting to safety doesn't always mean getting out of the cave, it can simply be getting to a section of cave which doesn't flood and waiting for the system to drain.

Debris:

One of the easiest ways to establish is a passageway floods and the level it floods to is to look for debris. Twigs, leaves, grass even logs get washed into the cave during a flood and often these items will get lodged in cracks in the rock. Looking at where the debris has settled can give an indication as to the height of which the passage can flood to so for example a passage way where debris is only observed at around 2 meters is a good indication that this will be the usual flood height where are if there is debris stuck in the roof 10 meters up then that indicates that the passage will completely fill with water.

Absence of formations:

When assessing potential flood risk, looking at what formations are present can be good to look at. Moving water prevents the formation of speleothems so if walking through a passageway and there is debris deposited 2 meters up with formations forming at just above, this would suggest that the general flood level would be around that 2m level but as with everything else, this is only a gauge and knowledge of the cave is paramount.



Foam:
Foam forms when water speeds up and begins to airate. It can be deposited after flooding as well as just before.

Sound:
While in the cave, sounds can be an indication of what is going on above ground. Hearing loud booms or water sounds louder than normal this can be an indication that the cave may be flooding. Loud booms have been reported during flash floods of caves. Likewise bangs can indicate rockfall.

Water behaviour:
As with when assessing the water entering the cave, whilst moving through if there is a marked rise in water levels or it begins to move faster, this could signify the cave is begining to flood.



Scalloping:
A final indicator of water behaviour in a cave is scalloping. This is a pattern that is erroded into the rock as pictured in the image on the right. The small shallow dimples in the rock are the scalloping patterns and in this image it shows that water moves through this pasageway quickly so a long sloping indent would indicate that water moves slowly. This can be dictated by the width and shape of the passage way as to how fast water moves through it. This knowledge is useful if the cave is begining to flood, areas where water moves slower are likely to flood slower and so gives more time to reach a safe location.


EQUIPMENT



EQUIPTMENT

HELMETS

One of the most important pieces of equipment a caver uses is a helmet.

There is nothing more important than protecting the head, especially in a dark environment as even when walking through even large passage ways have low speleothems which can get missed and are super easy to walk right into which alone can cause serious injury but they are also prime protection for rock falls which can easily kill a person.

When selecting a helmet to take underground, any helmet with a solid outer shell and rigid foam inner with a chin strap works well. Rock climbing helmets are a good option as they are designed to have the protection focused around the top of the head for falling rock which lines up well with the type of incident that will likely be encountered in a cave environment.



LAMPS



Lighting is the next vital component. There is no natural light in the cave environment so selecting the right lighting is vital. A caving lamp is normally helmet mounted which allow the caver to operate safely underground with their hands free and they usually have a good output of light with different settings including a flood light and spotlight setting and is battery operated. This allows power to be quickly restored should it run flat and ideally it should have a waterproof rating IPX68 is the usual rating for waterproofing up to 2m.

Note that using a handheld torch or even worse phone torch is not sufficient for exploring caves. They can be easily dropped and lost.

CLOTHING

Clothing makes all the difference when underground as it can protect the wearer from hypothermia. Most cavers opt for a layered system. An example of this could be:

Under layers:
Marino wool thermal trousers and long sleeve top or other suitable thermal layer such as polypropylene which works well when wet.

Mid layer :
For for particularly wet caves a wetsuit can be worn as a mid layer.
In the UK fleece overalls are used as a mid layer for added warmth as water temperature can be quite low but not low enough to warrant a wet suit.

Over layer:
Most cavers will opt for a Codora overall for its hard wearing properties however any overall which the wearer is happy to get muddy and potentially rip is fine. There are PVC overalls also available which work well in wet environments.

Socks:
Thick woolen socks are good for caving as they help retain heat but neoprene socks work really well in this environment and help keep the feet warmer for longer. Again layering is also beneficial.
The aim is to make sure sufficient layers are worn to stay warm while stationary and wet.



FOOTWEAR

Footwear for caving is pretty simplistic and very easy to source. Any welly (gum boot) is suitable for caving. Ideally a deep tread and calf length are the go to for most cavers but any welly will do. Bear in mind they will fill with water so should fit well to prevent loss but not so tight that it can't be worn with thick socks. The deep rubber treads will aid in gaining traction to the mud and on rock and best of all they are easy to clean after trips.

The best options for New Zealand cavers are freeze worker gum boots with a nitrile/ PVC sole for excellent traction on wet rock.



GLOVES

Caves are harsh environments for skin. Mud is gritty, rock is cold and sharp and when using ropes they can easily cause burns when belaying, abseiling or packing as it runs through the hands.
A simple cheap pair of gardening gloves are perfect. Preferably with a rubber palm for grip, these can be purchased from any gardening store or handwear store. Some cavers use fully rubberized gloves but these can be more expensive and aren't necessary for basic cave exploration.



SINGLE ROPE TECHNIQUE EQUIPTMENT

Single rope technique or SRT is used for navigating vertical environments. This does require specific training to become competent however this is just a quick run down of the equipment needed:

Harness

Chest harness

Descending device - rack, simple, stop

hand jammer

chest Croll

cows tails - one long, one short

Harnesses in caving sit lower than caving harnesses and work in conjunction with the chest harness to keep the caver upright to aid with ascending and descending the rope. There are a few different options for harness which range in price and comfort, likewise with chest harnesses, some put more weight through the shoulders and others distribute the weight, its all personal preference.

Descending devices again are a matter of personal preference and what the caver is familiar with. Each have their own pro's and con's and different uses. One example is the rack offers a more comfortable decent for long pitches where a stop can be good for mid pitch incidents as it has a breaking feature.

Hand jammers and Croll's are fairly universal as are cow tail set ups. As a person becomes more proficient they will find their own set ups.


ULTRA
Adventurer
DRY


LEADERSHIP UNDERGROUND



GROUP MANAGEMENT

When deciding to take a group underground, its vital to be critical of your own skill set and the skill set of those that are in the group. Taking a novice in a sporting cave can be done but its dependent on the fitness and competency of the caver so its down to the group leader to make these decisions to ensure the cavers are not put into any high risk situations that cant deal with. This can be from ensuring that the cave is not too sporting to ensuring that drops are protected with some simple rigging.

Group size:

Considering the size of the group going undergroumd is essential for both safety and conservation. Smaller groups move quick and are easy to manage with little waiting around, especially where there are hazards to navigate such as climbs. A group size of 6 with 2 experienced and 4 novice is a manageable and safe number. For larger groups, consider running crossover trips so numbers are divided but retain good supervision ratios.

Capabilities of group:

Once the decision has been made that it is safe to go caving, we can start putting together a plan of what we want the trip to look like and a good foundation is to look at the capabilities of the group. For example in a school setting there may be students with mobility issues therefore it would not be safe to take them into a sporting cave however you may have a group from the military who have a high level of fitness who would cope with a sporting cave as a first trip. It is down to you as a leader to gauge this and plan accordingly.

Pre trip briefing:

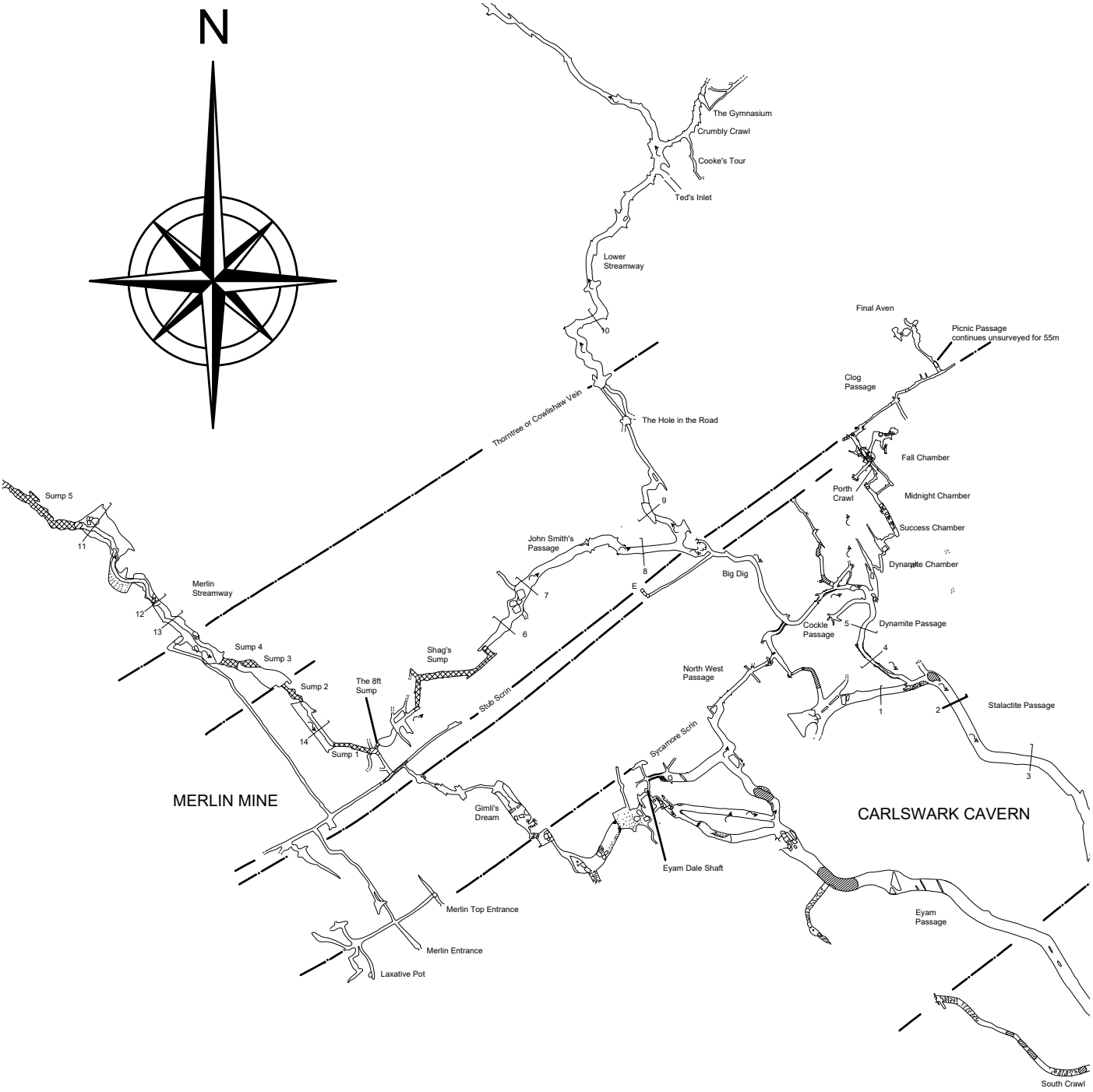
No matter what the standard of caving is like within the group, it is always a good idea to have a quick breif before going underground. This can be at the hut the night before or at the entrance to the cave. Laying out your expectations as a leader and how you expect the group to behave underground in regards to moving through obstacles, conservation or contingency plans may prevent issues further down the line as everyone is on the same page and can anticipate what to expect should something go wrong.

Group management:

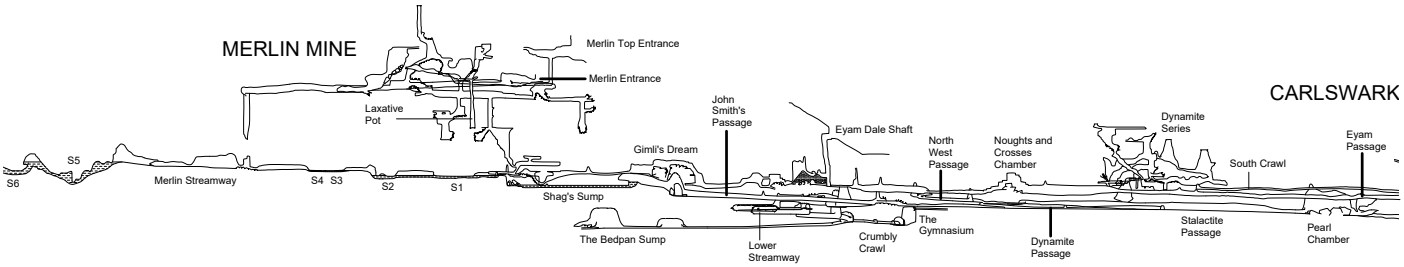
Caves are unnatural places for humans so for people new to caving it can be disorientating and there may not be an appreciation as to how fragile an environment it is. When moving through passages, making sure they stick to the worn path, not interfering with formations, moving in single file and navigating obstacles one by one will aid in the conservation side of things and moving at a pace of the slowest caver ensures that no one takes any wrong turns and becomes lost. This can also be negated by having an assistant who is also a competent caver to be at the rear of the group to prevent separation.

Obstacle hazards:

In the cave there will be many hazards. These can be easily negated with good group management. A very simple example is getting people to cross a short traverse. By stopping and doing a short brief of how to cross the obstacle you can maintain control and limit the risk to the group by having one person navigate it at a time. This is for the novice cave group, with experienced cavers a simple call back of what the obstacle is will be sufficient to warn them what is coming up but with a novice group, it is better to take that moment to stop and brief the group on the method of crossing. This can be used for any obstacle, fast water sections, changes in height, constrictions, the list goes on.


N
The Gymnasium
Crumbly Crawl
Cooke's Tour
Ted's Inlet
Lower Streamway
Final Aven
Picnic Passage continues unsurveyed for 55m
Clog Passage
Thorntree or Cowlishaw Vein
The Hole in the Road
Fall Chamber
Porth Crawl
Midnight Chamber
Success Chamber
Dynamite Chamber
Sump 5
Merlin Streamway
John Smith's Passage
Big Dig
Cockle Passage
Dynamite Passage
Sump 4
Sump 3
Shag's Sump
Sump 2
The 8ft Sump
Stub Scrin
North West Passage
Stalactite Passage
Sump 1
Sycamore Scrin
MERLIN MINE
Gimli's Dream
CARLSWARK CAVERN
Eyam Dale Shaft
Merlin Top Entrance
Merlin Entrance
Laxative Pot
Eyam Passage
South Crawl

:ING NORTH


MERLIN MINE
Merlin Top Entrance
Merlin Entrance
Laxative Pot
CARLSWARK
John Smith's Passage
Eyam Dale Shaft
Dynamite Series
Eyam Passage
Gimli's Dream
North West Passage
Noughts and Crosses Chamber
South Crawl
S5
S6
Merlin Streamway
S4 S3
S2
S1
Shag's Sump
The Bedpan Sump
Lower Streamway
Crumbly Crawl
The Gymnasium
Dynamite Passage
Stalactite Passage
Pearl Chamber


Fenix

Protecting drops:
Knowing the capability of the group dictates how you manage it. When moving through a cave there are many hazards one of which is sudden drops. Would navigating a traverse around a sudden drop be in the groups capabilities? Or could an option be to stand in a safe location and assist or rig a quick handline to allow people to navigate a change in height or traverse safely? Here control of the group would also help, instructing to navigate one at a time and encourage good communication between them to make sure they are looking out for each other which in turn will make your job as leader easier.

Communication:

Communication is vital no matter what the make up of the group. Encourage open and honest communication especially when it comes to fatigue. It is all to easy to conceal fatigue and this can become exceptionally difficult to manage the longer it progresses. This is just one example but if a person can openly approach you and tell you they are tired, hungry, have sore feet or is uncomfortable doing tight squeezes, you can manage these early and prevent any incidents which may lead to a rescue as this does neither you nor the caver any good. Tackling issues early is very important and is an easy way to negate many risks.

Contingency plan:

As a group leader, it is your responsibility to ensure that there are plans in place for when things go wrong. When underground there is no contact with the surface so having plans in place can mean the difference between life and death as dramatic as that seems. To put this into context here's a scenario:

Scenario 1:

Group of 4 enter a cave at 0900, they are traveling the country and have never caved before. No one knows they are underground, they are dressed in walking trousers, t-shirts and hiking boots using a phone torch as light. One trips and falls badly twisting their ankle, one stays with the casualty and two go and try to find the entrance. The two who are trying to find the entrance become lost after one wrong turn.

Scenario 2:

Group of 4 enter a cave at 0900. They are traveling the country and have contacted the local caving club for advice on local caves. A call out time is set with the local caving club with details of the party members, location and vehicle they are in. The group enter in caving attire with helmet mounted lamps, spare batteries,snacks, first aid kit and a survey of the map. One of the group falls and badly twists their ankle. One stays with the casualty while two go to raise the alarm

Out of the two, with the minimal information, which sounds more survivable?
Group 1 has no one who is going to notice they are missing and no one knows where they are, they are ill equipped for the cooler temperatures of the cave so hypothermia is a very present threat and not only do they have one casualty, with them having no knowledge of the cave or any reference for navigation the two who would be the ones to raise the alarm are lost and so there is no rescue coming.

Group 2 on the other hand have told local cavers their intents and so if they have not made contact by a certain time a rescue will be initiated, they know exactly where the cavers will be along with numbers in the party. They are equipped for minor medical emergencies and are clothed in a way which will give them more time before having to worry about the onset of hypothermia and by having a survey, an exiting party can navigate back to the entrance to raise the alarm and even if they became lost, a rescue will still be initiated because they set a call out. This is the importance of planning, things do go wrong and its important to be as prepared as possible for any eventuality.

CALL OUT

As discussed in the previous section, call outs are the only way to get help should things go wrong. Its easy to do and can be life saving. Below is an example of some of the information needed for a call out:

Cave system your entering:

The region you are in:

Time entering the cave:

Expected time out:

Call out time:

Number in the group:

Route/intentions:

Vehicle details:

A call out doesn't have to be initiated by a member of the caving society, any one can act as a call out providing your are confident that they will firstly call for help at the allotted time if they have not been able to contact the group and secondly know how to request cave rescue.

Call out procedure:

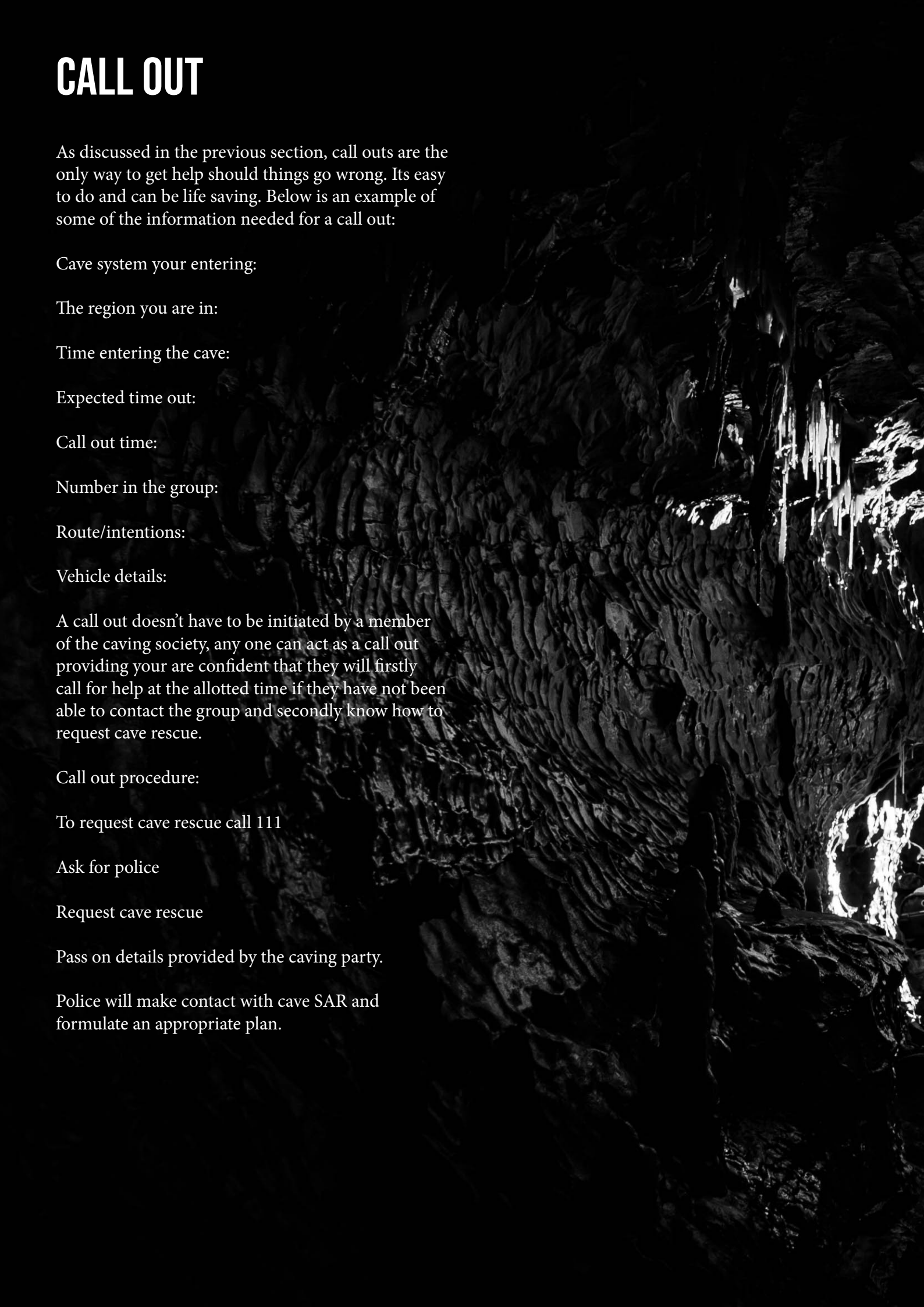
To request cave rescue call 111

Ask for police

Request cave rescue

Pass on details provided by the caving party.

Police will make contact with cave SAR and formulate an appropriate plan.





GROUP KIT

First aid kit
Handline (10-20m of rope or tape)
Spare lights
Survival blankets / survival bags / cave ponchos
Cave map
Phone
Personal locator beacon for remote areas

RISK MANAGEMENT

Risks	Consequence
Uneven Terrain	- Slips trips and falls - Injuries from trips and falls - Hypothermia secondry to injury from fall High - progress at speed suitable for all participants.
Sudden Drops	- Serious or fatal injury from fall - Hypothermia as secondry injury
Water	Hyopthermia if not properly equipped - Flood risk - Potential for drowning - Slips, trips and falls resulting in injury - Exhaustion - Entrapment from flooded passages High
Cold Temprature	Hypothermia - Exhaustion - Impaired decision making
Exhastion	- Hypothermia - Poor decision making leading to secondry injury High - Progress at pace of slowest caver - Spot fatugue early.
Lighting	- Loss of ability to navigate - Loose position in cave - Hyopthermia as secondry injury
Constrictions	- Become stuck - Raised anxiety for those with claustrophobia - panic attacks - Production of bad air in confined space
Bad Weather	- Flood risk - Entrapment - Hypothermia
Vertical pitch	- Suspension trauma - Fall from height - user error - Fall from height - Equiptment failure - Serious or fatal injury

Below is an example of a risk assessment with some generic hazards and how they can be managed underground. This hopefully gives an impression of what considerations there needs to be when leading a group.

Likelyhood	Management
High	- Good team communication - Take care with foot placement
Medium	- Know capabilities of group - Good communication - Safe water practices discussed prior to entry - Move at pace of slowest caver to prevent rushing - Protect edges with traverse lines or hand lines
Medium	- Know capabilities of group - Good communication - Safe water practices discussed prior to entry - Move at pace of slowest caver to prevent rushing
High	- All parties to be wearing appropriate attire - Carry emergency shelter and heat source
Low	- Have contingency plan - Know limits of group - Carry rations
Low	- Kit check prior to entry - Multiple sources of light - Carry spare batteries
Low	- Know limits of group - Contingency plan for entrapment
Medium	- Thorough check on weather conditions and cave conditions - Contigancy plan for flood
Medium	- All cavers to be proficiant in SRT. - Suitable belay systems used for short pitches. - Kit check prior to entry - Thorough check of anchor points and rigging prior to use.

RISK ASSESSMENT

Risks	Consequences

Likelyhood	Management


VERTICLE CAVING SKILLS



VERTICLE CAVING SKILLS

As we have now established, caves are incredibly diverse and with this some caves require more specialist skills to access and navigate. In this section I will very briefly cover the skills that will be required to navigate vertical passageways but only to give an appreciation of what you will be learning from your caving club and what you will need to know in order to do this competently solo.

DECENDING

Generally speaking the first skill you will be required to know is how to descend a pitch. A pitch is any vertical drop which requires a rope to navigate it. These can be anywhere from 5m to over 100m so it is vitally important that you fully understand the skills required as a mistake can result in a life changing or fatal fall.

In order to descend, cavers use some form of friction device. Most common in NZ is the rack. A rack comprises of a series of metal bars which the rope runs through to create friction. The benefit of the rack is that it is simple to use, hard wearing and the level of friction on the rope can be adjusted to the caver. The con is that there is no safety mechanism should the caver encounter difficulty and let go of the line. These are fantastic for long pitches and can be used to abseil on double lines for pull through trips.

Common in British caving is the Petzl stop and Petzl simple. Like the rack, they use friction to control the cavers decent. The stop has a self arresting mechanism which means that should the caver become incapacitated mid line, the device will lock off stopping the caver from falling. The simple is the same set up but does not have this feature. Pro to the stop is the self arresting feature, very easy to slow decent if moving too fast, it is very simple to attach to the rope and is very easily locked off to allow for rigging. Cons however, on long descent's the stop becomes uncomfortable as the handle needs to be depressed in order to descend and the level of friction cannot be altered meaning lighter cavers can have trouble descending.

The devices above are all designed for use underground and they all have their place underground. The choice of device is personal preference however use what you are trained on and become proficient in that before moving onto another device.

ASCENDING

So now we have reached the bottom of the pitch, we need to be able to get back up it. For this the caving set up is the use of a chest Croll, often a Petzl chest Croll but there are other options on the market and a hand ascender of which again the Petzl hand ascender is a popular choice.

Things to be aware of with ascending equipment is that they have teeth which grip the rope to allow the climber to ascend. When used incorrectly the teeth on the devices can tear the rope so keep the rope as taught as possible when ascending. This reduces the risk of taking a fall and shock loading the line. Secondly making sure you always have 2 points of contact when ascending is important. Although it is hard, it is not unheard of for the chest Croll to pop off the rope if the caver is in a poor position so having the hand ascender on and being connected ensures that the caver is safe should this happen and a final point to be aware of is that if the rope is exceptionally muddy and the teeth on the jammers are caked in mud, the devices can slip so keep an eye on your gear and the condition of the rope wile ascending.





TRAVERSE

By now you will be aware of what you need to move up and down but what do we need to move horizontally? This motion is called traversing. A traverse line can be rigged on the lead up to a pitch or following a ledge horizontally with a drop to offer the caver protection.

For this we simply use what's called a cows tail. The make up of these differ from caver to caver so I will talk about the system I am familiar with however again follow club training and once proficient you can then work out what works best for you. The general cows tail set up is a piece of rope tied so there is a short line and a long line with a carabiner at each end. There are different schools of thought around sizes of carabiners and whether to use locking or snap gate, me personally I use 2 HMS screw gate carabiners. This gives me more to work with when trying to clip into a fiddly anchor and if I feel like I need to I can secure myself by tying the screw gate.

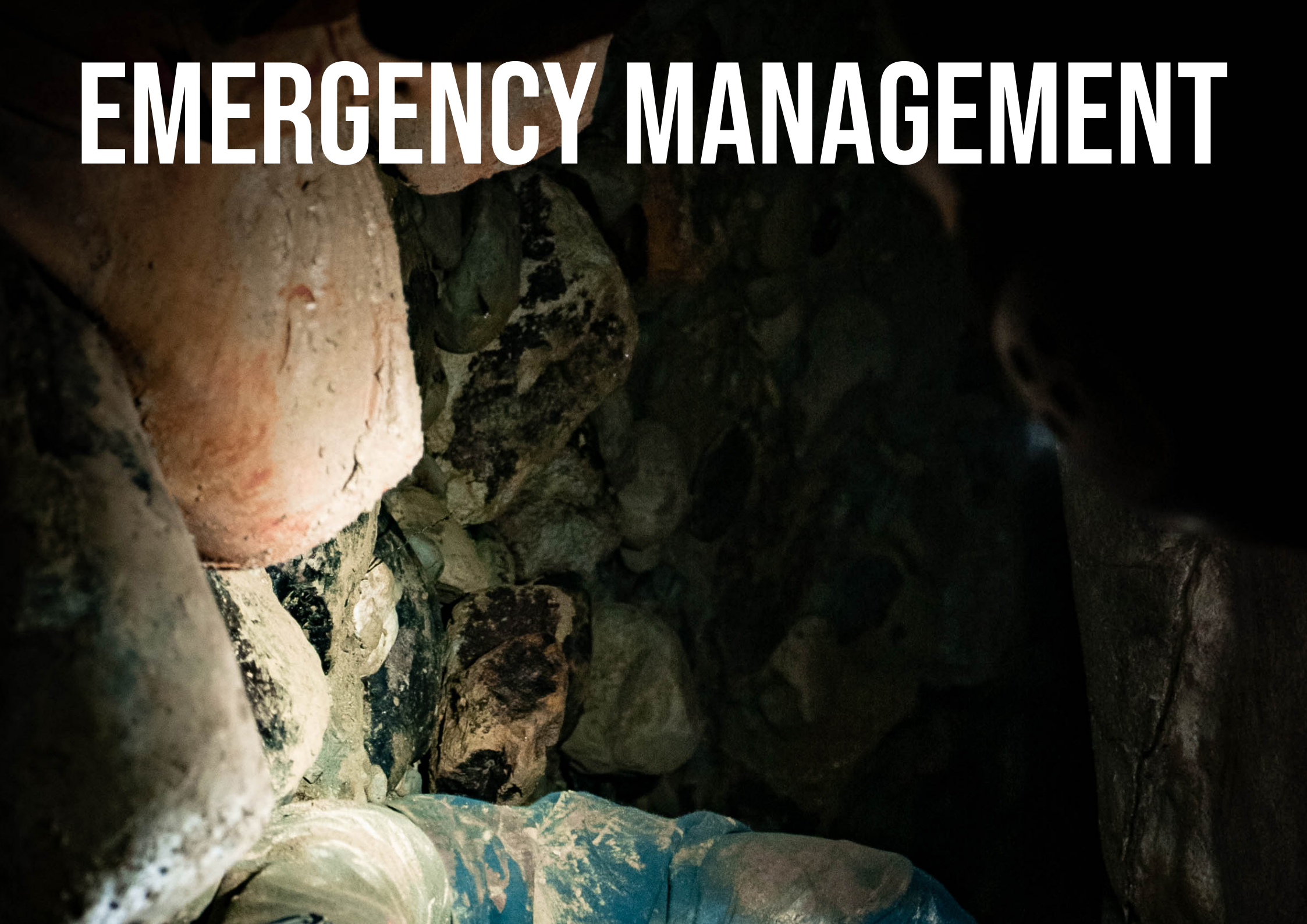
To use cows tails again I employ a 2 points of contact rule. I attach both my cows tails to the line, when I meet a knot I move one at a time past the knot so I remain connected at all times. Another point to note is to always keep the gates facing you. This prevents catching a rock and accidentally unclipping.

OTHER SKILLS

Your club will be able to show you the correct use and techniques for SRT and once proficient in that you can then begin to learn about rigging and rescue. Before jumping into all this solo and leading groups though it is a good idea to have an appreciation of how to self rescue and how to conduct a line rescue. When working at height we now need to take a condition called suspension trauma into account. This is when a person is immobile in a seated harness for extended periods of time so blood flow to the legs is constricted. This can be fatal so knowing how to lower someone off a pitch or haul them is beneficial as this will negate suspension trauma setting in. Training can be provided from your caving club of how to conduct line rescues.

If you are leading an SRT trip and are not comfortable with line rescue, it is still ok but be sure that those on the trip are competent in SRT skills and are able to at a minimum descend, ascend, traverse and change direction on the line without instruction and are proficient.

EMERGENCY MANAGEMENT





EMERGENCY MANAGEMENT

Now that risks have been covered, its important to know what to do should an accident occur. Even the most skilled of cavers can still experience accidents so knowing what to do in the event of an emergency and putting plans in place can speed up rescue and prevent simple incidents from becoming life threatening ones. This is just based off my own knowledge, always refer to your own first aid training when treating casualties.

GROUP LEADER RESPONSIBILITIES:

Once underground the group is self sufficient so being prepared is vital as there is no way to make contact with the surface quickly. As a group leader it is your responsibility to be prepared to any eventuality and a good place to start is by carrying a first aid kit and knowing how to use its contents. Secondly there should be a plan in place for if a group member becomes injured or immobile, a call out may be included as part of your plan. Lastly making sure that there is a suitable ratio of experienced cavers to novices makes management of an incident far easier as it may be part of a contingency plan to send an experienced caver to raise the alarm if needed.

These are all considerations that need to be taken into account and weighed up. This section will cover a few common first aid scenarios so hopefully will provide a resource for emergency planning. This list is not exhaustive and is solely based off my own process when planning a trip so the more experience, the easier it is to produce your own emergency plans.

FIRST AID:

FATIGUE

Fatigue is a common condition especially amongst novice cavers pushing above their capabilities. Fatigue can manifest in a few ways both physically and mentally and can be mild to severe. Catching fatigue early means it can be effectively managed but it can also be an indicator of other conditions which is something to be aware of.

By itself, fatigue isn't life threatening but the consequences of it can be. The initial signs of fatigue can manifest as a person slowing down and not being able to keep up with the group, making comments about feeling tired or simply going from being chatty to being quiet. If you begin to notice this it is a good time to begin speaking to the person to establish if it is something that needs to be addressed.

Treatment can be as simple as taking a rest stop and getting food and drink into the casualty and If the caver is too exhausted to make their way out of the cave then assistance may be required from Cave SAR to assist moving the casualty in extreme cases.




FENIX

HYPOTHERMIA

Leading on from fatigue, hypothermia is a very common injury encountered by cavers. Hypothermia occurs when a persons core temperature drops below 35C. This can be the result of remaining stationary for long periods of time in a colder environment and is exacerbated by being in water or wet clothing and as caves are between 8-10C this is a prime environment for hypothermia.

It manifests in stages. Mild symptoms include shivering, feeling cold, raised heart rate and feeling fatigued. At this stage a casualty can still be completely mobile and alert and it may be a simple case that it is time to get moving again to warm up. If the casualty is immobile through injury then it is important to take measures to address hypothermia early as possible as it can quickly progress especially if the casualty is in wet clothing.

As hypothermia progresses to the severe stage, you will start seeing symptoms such as extreme fatigue, cyanosis in the lips, casualty may become confused or agitated, loss of consciousness, shivering will cease and the heart rate will become slower and weaker.

Treatment of hypothermia centers around raising a person's core temperature. The best treatment is to remove the person from the environment however this is not always possible so remove the person from the streamway or any water they may be in. Wrap the person into a foil bivy or foil blanket and try to seat them on something protected from the rock such as a foam pad. If available, get the casualty into dry warm kit and sleeping bag but as a minimum there should be a warm hat and buff to hand. This assists in preventing further heat loss.

If available, taking great care, a tea light or candle can be lit then placed in the foil bivy or blanket as pictured on the left. The heat from the candle warms the air trapped in the blanket with the casualty which will slow the rate of heat loss from the casualty. Again depending on the nature of the trip, if the option is there for a warm drink, this can be provided to the casualty.

It is imperative that not only is the casualty treated but also ensure that other group members are able to be kept warm.

BREAKS, SPRAINS AND TWISTS

Another likely injury encountered by cavers are breaks, twists and sprains. With undulating terrain, hidden drops and unstable surfaces twisting an ankle or falling and dislocating a shoulder are always possibilities. In many cases a casualty can self-rescue however to aid in the self-rescue being able to provide adequate support to the limb can be a benefit as well as managing obstacles for the casualty. Keep in mind with a fall there is potential for neck and spinal injury so treat accordingly in line with your assessment.

The group leader should refer to any first aid training they have to assess the casualty and assess if the casualty is safe to move or not. If it is deemed the casualty can self rescue then this can be attempted. It may be necessary to put provisions in place to aid the casualty navigating certain obstacles but it will result in a faster rescue.

If the casualty is unable to self rescue then CAVESAR should be contacted to assist. There is generally someone medically trained within Cave SAR who can give a full assessment of the casualty and administer pain relief if appropriate.

Now the consideration has to be given to the prospect of the casualty developing hypothermia and managing the casualties injuries to make them as stable as possible until help arrives. If a casualty begins to deteriorate, then the focus must be given to maintaining the airway.

CALLING CAVE SEARCH AND RESCUE

As with every sport, caving has its risks and that's ok as long as they are prepared for and managed early on. Saying this though, even with the best will in the world and years of experience to draw from accidents can and do happen.

Unlike out doors there is no way to contact the outside world. Once you are in the cave you have no communications with the surface so as part of any emergency planning, arranging a call out time and knowing when to contact Cave SAR are important.

Most Cave SAR call outs are for overdue or lost parties however they are well equipped to deal with most eventualities which can be anything from being lost all the way to complex extrications and medical emergencies underground.

So we have covered that having a call out gives a safety net for getting lost or being overdue but what can we do if someone gets injured and assistance is required?

STABLISE THE CASUALTY

If you can prevent the casualties condition from getting worse then take action to do so. This changes from incident to incident so use your judgement but it is usually safe to say that preventing hypothermia is always a good idea.

RAISE THE ALARM

Again situationally dependent, if there are two competent cavers available, send them to raise the alarm and call Cave SAR while those that remain stabilize the casualty. Concurrent activity is always good but do not stretch resources too thin. If you do not have the luxury of loads of cavers then prioritise your tasks then seek to raise the alarm.

CALLING CAVESAR

Once in an area of reception, Cave SAR needs to be contacted

- Call 111 and request police
- State you require Cave SAR
- Give your location - Cave name, location of the incident and route taken
- Nature of the incident
- you may be asked for your contact details and your current location - You may be required to lead teams to where the casualty is.

The most important piece of information you can get across is your location so always try to get that across first and follow the operators prompts for information.
This will activate a callout for Cave SAR and teams will be assembled. This can take time and can be a slow process depending on various factors but help will be on the way.



CONSERVATION




Department of
Conservation
Te Papa Atawbai
Gut – Zweihollen
nsitive formations and areas of the cave floor. Please stay
damage.
are recorded in partnership with the Waitomo
t party numbers to the Waitomo Caves Discovery

CONSERVATION

Conservation should be at the forefront of every cavers mind however what this looks like differs. Every time we enter a cave, all reasonable efforts should be made to reduce the impact of our travels in that system. There are a few basic ways we can achieve this. Remember, it isn't just the cave we are protecting but the delicate eco system within the cave too.

FOLLOW THE ROUTE

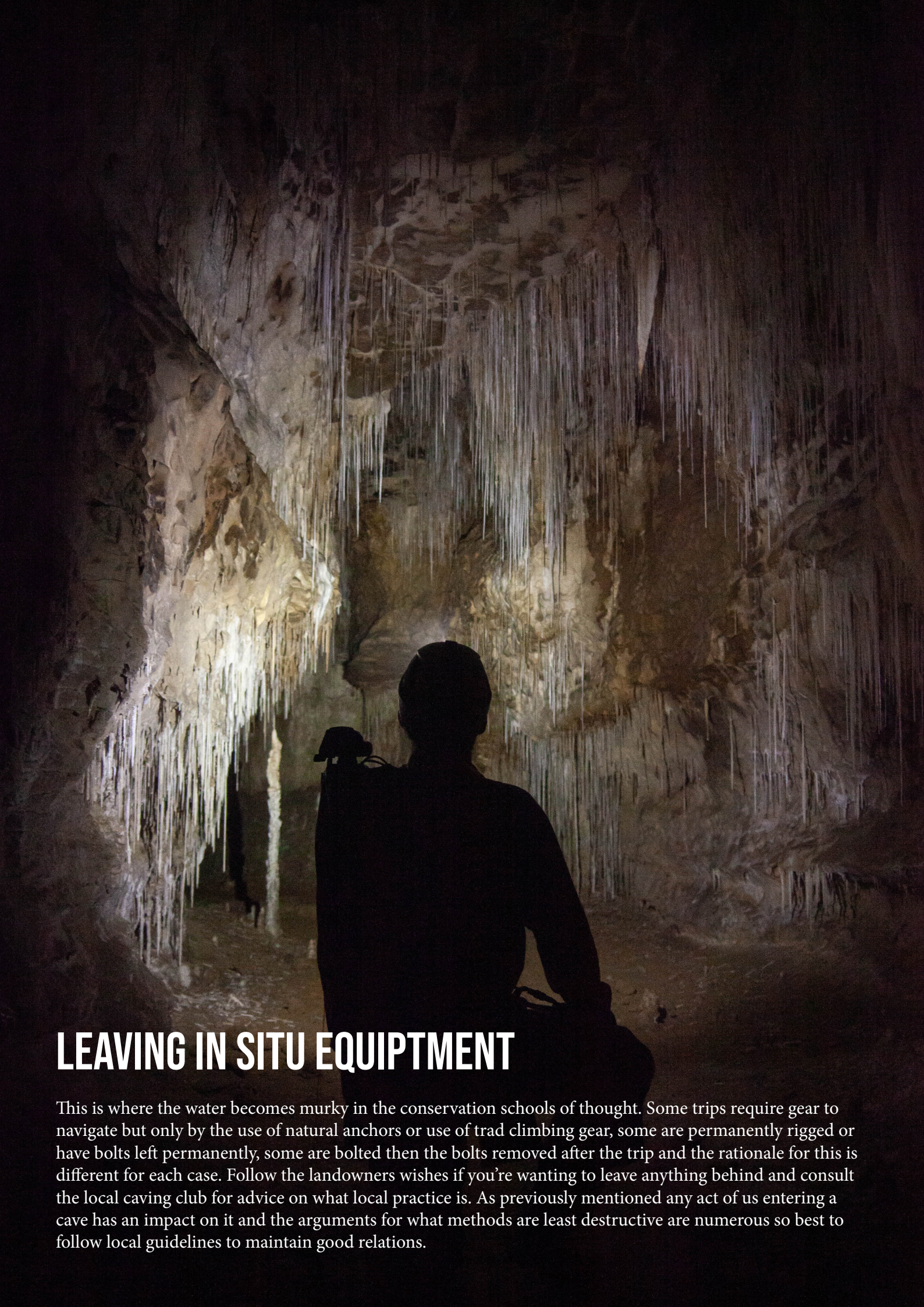
Most caves have well established routes and as with hiking there is usually some form of path that can be followed be it following a stream way, following muddy foot prints left by others and so on. By keeping to worn areas and not venturing off this can reduce the damage caused by keeping it contained to a specific locality. Also within this certain areas may be marked with string or tape, do not cross these lines as they protect delicate areas as well as highlighting the most stable and safe route.

DO NOT TOUCH THE FORMATIONS

Formations are stunning especially when they are pristine white calcite formations untouched by mud. The last thing we want to do is introduce mud to the formation and by touching formations we set the growth of the formation back hundreds of years as we leave oil deposits on the rock or disturb water droplets that are slowly evaporating. Worst of all we don't want to break any formations. Now accidents happen, some passage ways pass though straw passageways but moving slowly and carefully can reduce the risk and better yet if it is a passageway that is not part of an established route then avoid it all together to protect the formations. Once these are broken they will not be replaced.

LEAVE NOTHING BUT FOOTPRINTS, TAKE NOTHING BUT MEMORIES

Most outdoors enthusiasts will know this saying and it goes a long way with preserving the outdoors, even more so in the cave environment. What every you enter the cave with, leave with it. That includes rubbish, equipment and for long duration trips human waste. This also includes not taking anything from the cave such as fallen rocks, broken formations and such. In the UK during the 1800's there was a thriving trade for cave formations and as a result of this many caves were destroyed and formations lost. As part of conservation creating the mentality in the community that taking anything is not permitted we then reduce the risk of people purposely breaking formations for personal gain and broken formation can be used as a good instructional tool while in the cave.



LEAVING IN SITU EQUIPTMENT

This is where the water becomes murky in the conservation schools of thought. Some trips require gear to navigate but only by the use of natural anchors or use of trad climbing gear, some are permanently rigged or have bolts left permanently, some are bolted then the bolts removed after the trip and the rationale for this is different for each case. Follow the landowners wishes if you're wanting to leave anything behind and consult the local caving club for advice on what local practice is. As previously mentioned any act of us entering a cave has an impact on it and the arguments for what methods are least destructive are numerous so best to follow local guidelines to maintain good relations.





FURTHER INFORMATION





NEW ZEALAND SPELIO SOCIETY

As with every sport, caving has a national body which oversees caving in New Zealand. that organization is the New Zealand Speleological Society or NZSS for short. They oversee Search and Rescue training, arrange expeditions, provide funding for projects, routinely put out publications documenting the hard work cavers are putting in all over as they push the limits of the known subterranean world and most importantly they advocate for access to caves by working with landowners and creating fantastic working relationships. They are a wealth of knowledge and as a governing body by joining a caving club you automatically become a member through club membership however they can be joined as an individual.

For more information go to:

www.caves.org.nz

MISSION STATEMENT

- To be the national speleological body
- To conserve caves and karst
- To represent the interests of its members By:
- The collection and appropriate dissemination of information on caves, karst, and caving
- Advocating conservation and awareness to members, cave owners and managers
- Negotiating access to caves for members
- The promotion of safe cave use
- Operating a national cave Search and Rescue system •
  Encouraging cave users to join NZSS
- Monitoring the effects of cave use Through:
- Education and training
- Development and assessment of techniques and equipment
- Liaison with other groups and agencies
- Exploration and study of caves

AFFILIATED GROUPS

Groups affiliated to the NZSS at the time of writing are described below. Current addresses are available from the group's website, or from the NZSS Secretary.

Currently affiliated groups are:

- Auckland Speleo Group
- Canterbury Caving Group
- Hamilton Tomo Group
- Manawatu Speleo Group
- Nelson Speleo Group
- Wellington Caving Group

These clubs are made up of passionate cavers from all walks of life and of all ages. They are the perfect places to safely try caving as well as expanding your knowledge from learning techniques from others. Most have a annual fee which covers access to their huts, membership to the NZSS, allows access to equiptment as well as becoming part of a great and tight knit community.



CAVING RESOURCES

BOOKS

The complete cavers manual - Andy Sparrow

Alpine caving techniques - Georges Marbach

Flood Hazard - A cavers worst nightmare - Dave Baines

British Caving Association - Cave and mine leaders award manuals

EQUIPMENT RETAILERS

Access Gear
Aspiring.co.nz
CanyonZone

WEBSITE INFORMATION

New Zealand Speliological Society - http://caves.org.nz/
Derbyshire caving association - https://thedca.org.uk/
Cave rescue organisation - https://cro.org.uk/
Council of Northern caves - https://cncc.org.uk/
British Caving Association - https://british-caving.org.uk/
International union of Speleology - https://uis-speleo.org/



