



SUI
The Irish Caving Organisation

A Series of Information Guides about Caving, Clubs and Caves in Ireland.
Published by SUI (Speleological Union of Ireland)

SPELEOLOGICAL UNION of IRELAND

Official coordinating body for caving in Ireland

Summary

The Speleological Union of Ireland is the official body representing the interests of speleologists and sporting cavers in Northern Ireland and the Republic of Ireland at local, national and international levels. SUI was originally founded in the 1960's, and was reconstituted in 1983. Today, the majority of Irish cavers are members of the organisation. For more information on the SUI visit our website at <http://www.cavingireland.org/>.

Warning

Caves are potentially hazardous places. In some cases there may be loose rocks, vertical drops or a risk of flooding. SUI strongly recommends inexperienced visitors to attend a recognised training course or find qualified leaders. SUI can provide details of both.

Anyone visiting a cave should leave a written note with details of where they are going and expected time of return. This is known as a "Call Out" and should be left with a reliable person. The Irish Cave Rescue Organisation (ICRO) can be contacted through the Gardaí or PSNI if you are overdue or an accident occurs.

Some books mentioned here could be difficult to get. The SUI Librarian can be contacted at the following web address librarian@caving.ie and will be happy to provide up to date information. Write to the librarian describing your particular interests and you will be quoted for copies of surveys and guides relevant to the area you are interested in.



The SUI

SUI is the body which brings together the caving clubs and individual cavers and scientists of Ireland. It provides training, supports conservation and exploration and sponsors overseas expeditions. SUI helps to develop government policy on sport, access and the environment and attempts to represent the interests of cavers.

The officers of the committee of SUI are available to advise and assist members in their pursuit of caving. SUI can assist foreign cavers intending to visit Ireland with information regarding accommodation, localities, guide books and information, conservation and access situations and rescue.

Services of SUI

- Acts for Cavers in access disputes
- Campaigns to conserve cave sites and prevent cave pollution
- Organises personal insurance for cavers
- Runs training courses for cavers
- Organises an Annual Symposium (in conjunction with ICRO)
- Organises international sports exchanges
- Publishes a regular newsletter distributed free to members
- Publishes a quality journal - Irish Speleology, covering active exploration and research into Irish caves and Karst.

Publications

The SUI produces 2 publications on a regular basis.

The SUICRO Newsletter is an informal A5 newsletter, published 3 or 4 times a year, giving up to date information on new discoveries, caving events, activities, rescue and safety, equipment and techniques. It is published in conjunction with the Irish Cave Rescue Organisation.

Irish Speleology, the official journal of the SUI, is a high quality glossy A4 magazine published at 12 to 18 month intervals. It contains articles on new exploration of caves in Ireland, improvements in equipment and techniques, geological and hydrological research in caving areas and reports of overseas expeditions by Irish cavers. The current issue and most back copies can be obtained from the SUI Librarian. A bibliography of past issues is also available.



Membership and Administration

Membership is open to anyone with an interest in caves and/or caving in Ireland. The current subscription is €10 per year payable direct to the treasurer who is also the membership secretary. SUI is administered by an elected committee. It comprises a Chairman, a Secretary, a Treasurer and 5 committee members. Other people are co-opted onto the committee to serve in specific roles such as training and conservation. All members of the committee are unpaid and carry out their work for SUI in their own time. The AGM is held each October at the organisation's Annual Symposium held in one of Ireland's caving districts.

Library

The SUI library contains an extensive collection of books and periodicals covering the sport of caving in general and caving in Ireland in particular. Almost all publications, which mention caves in Ireland, are held by the library. A list of stock is available from the librarian and copies of specific references can be provided.

The Annual Symposium

The Symposium is organised jointly with SUI's sister group - the Irish Cave Rescue Organisation (ICRO). Together, the two organisations are referred to as "SUICRO". The first symposium was held in Lisdoonvarna, County Clare in 1985 and has occurred every year since, attracting up to 400 cavers and friends during recent years. Foreign visitors are particularly welcome and might like to join in guided caving trips, workshops and pre-rigged pots. The weekend generally starts on Friday evening and people arrive into the welcoming atmosphere to meet old friends and enjoy some hospitality. Many cavers take the opportunity to renew their membership fees, buy a souvenir T-shirt and a fistful of raffle tickets. Last year over 2000 euros worth of prizes were given away at the raffle! On the Saturday and Sunday mornings are the AGMs (Annual General Meetings) of the two organisations. In the afternoons are workshops and caving trips and in the evenings are talks, slide shows and games! The Symposium is an excellent chance for the novice and experienced caver alike to meet old friends and make new ones.

This series of information guides includes topics such as Training, Irish Caves, Call Outs, Comfort Sacs, Weil's Disease, How Caves are Formed, Cave Rescue, Bats in Caves and so on. Why not ask for more?



Other Services

SUI is heavily involved in *conservation work* to protect Irish caves from damage by dumping, quarrying, show cave development and other causes. Cave access problems also arise and it is the policy of the organisation to work for free and unrestricted access to Irish caves except where there are good conservation reasons to restrict access - e.g. caves which are used as bat roosts. An access agreement has been reached with the managers of one of Ireland's show caves - Marble Arch Show Cave in Co. Fermanagh.

SUI Basic Members are covered by a personal, *third party insurance* policy supplied through the BCA. This policy protects the caver in circumstances where they have brought others to a cave and where a member of such a group, as a result of an accident on the trip, sues them. SUI full members are covered by a more comprehensive accident policy supplied through the FFS. The insurance policy translation is available on request.

The organisation runs training courses, principally leadership courses aimed at teachers, outdoor education employees and youth leaders. Some courses on improving caving expertise are also available from time to time.

Contact is maintained with overseas caving organisations and an international sports exchange is operated with our French counterpart. A second exchange with German cavers is also being organised.

The high point of the caving calendar is the SUICRO Annual Caving Symposium. This is normally held on the weekend of the Republic's October Bank Holiday and at a venue that moves around the different caving areas. The weekend includes lectures, slide shows, competitions and caving trips not to mention a small amount of social watering. It also includes the Annual General Meetings of the two organisations - SUI and ICRO.

ICRO is a voluntary organisation run by an elected committee and has equipment stores at four locations in Ireland. The two main stores are at Doolin in Co. Clare and Cladagh Water Works, Cladagh Glen in Co. Fermanagh. Most members of SUI are also available to ICRO in an emergency and many attend regular rescue training sessions.

For further information on any matters to do with either organisation contact:
The Honorary Secretary of the SUI at the following email address
suisecretary@caving.ie



What is Weil's Disease?

A Series of Information Guides about Caving, Clubs and Caves in Ireland.
Published by SUI (Speleological Union of Ireland)

SPELEOLOGICAL UNION of IRELAND

Official coordinating body for caving in Ireland

Summary

Weil's disease (Leptospirosis) is a term applied to diseases caused by microorganisms of the genus *Leptospira*. They arise in the urine of rats and farm animals and are quite frequently found in the cave environment in water and mud. The organisms can easily enter the body of the caver and can lead to flu like illness, which may well be fatal in as many as 2% of cases. Treatment is possible at the early stage of the infection but the average GP will neither be aware of the illness nor be able to differentiate the symptoms from those of many flu bugs. A blood sample is necessary and the laboratory must be instructed to look for traces of leptospirosis. A credit sized card showing all the details of how and what to do in the case of a suspected infection is available from Dragon Caving Supplies.

Warning

Caves are potentially hazardous places. In some cases there may be loose rocks, vertical drops or a risk of flooding. SUI strongly recommends inexperienced visitors to attend a recognised training course or find qualified leaders. SUI can provide details of both.

Anyone visiting a cave should leave a written note with details of where they are going and expected time of return. This is known as a "Call Out" and should be left with a reliable person. The Irish Cave Rescue Organisation (ICRO) can be contacted through the Garda or PSNI if you are overdue or an accident occurs.

Some books mentioned here could be difficult to get. The SUI Librarian can be contacted at the following web address librarian@caving.ie and will be happy to provide up to date information. Write to the librarian describing your particular interests and you will be quoted for copies of surveys and guides relevant to the area you are interested in.

What is Leptospirosis?

Leptospirosis is a term applied to diseases caused by microorganisms of the genus *Leptospira*. It may range from being a mild flu-like illness to full-blown Weils Disease, which is a very serious and often fatal condition. The *Leptospira* serogroup, which causes the most serious illness, is usually *icterohaemorrhagiae* but other serotype, especially *canicola*, may cause serious or fatal disease.

Infection

The incubation time varies between extremes of 7 - 26 days but is usually 7 to 13 days, the average being 10 days. In many cases, infection with the organism does not produce any symptoms at all and they may be totally unaware that they have been infected. The illness in its mildest form is very like influenza. The onset is usually very sudden and often the patient is able to give the exact time that they started to feel unwell. They may have a headache, feel chilled, shiver have vague muscular pains and a sore throat and temperature. They may feel nauseous and not want to eat. After a few days to a week the symptoms disappear and the patient fully recovers believing they had a touch of the flu.

In more severe cases the patient may experience a blinding headache (often of sudden onset) with rigors and a temperature of up to 40C (104F). Muscle pains especially in the calves of the legs may be so intense that the patient cannot bear to be touched. The patient may have a sore throat, chest pain with respiratory distress and cough up blood. They may have respiratory difficulty because of a headache and neck stiffness and a mild rash. Vomiting is common and tends to get worse as the disease progresses, constipation is usual (although diarrhoea may occur) and abdominal pain is present in most cases in the first few days.

This is the first phase of the disease and usually lasts about a week after which the symptoms abate and the patient feels better. Slow recovery may take place at this stage but usually after 2 - 3 days relief the second stage begins. The symptoms are varied but often similar to the first phase accompanied with fever and symptoms of meningitis. After this there is a slow recovery usually between the second and fourth week during which fever and aching may recur or the disease may progress to full-blown Weil's disease.

Sources of Infection

The usual source of infection is wet clay, mud or water, which has been contaminated with the urine of an infected rat. Other animals such as dogs and farm animals, especially cattle, may also be a source of infection and in some instances may constitute the major source. The route by which the infection enters the body is through cuts and abrasions, through the membranes of the mouth, nose and eyes. It is debatable that the organism may enter through soft wet skin. The organism is particularly sensitive to acid conditions and will die quickly in very acidic water or soil, but will survive for months or longer in mild alkaline conditions. Therefore a cave offers an ideal site - particularly one with stagnant pools.

Weil's disease

This is probably best thought of as being a very severe type of leptospirosis. The mortality rate is about 5 -10%. The symptoms at onset are as before or considerably worse. The headache may be so bad as to require morphine and muscular pain is also severe. The eyes become bloodshot and may ooze. In many of these already severe patients the disease may progress to a second stage of liver and kidney failure. The skin begins to turn yellow and the bloodshot eyes acquire an orange colour. The patient's condition worsens rapidly and as the jaundice deepens the skin becomes intensely yellow. There is anorexia and continuous vomiting. Bleeding may occur internally into the gut, brain and lung cavity and externally from the nose and other orifices. Heart and brain may also be affected.

As the kidneys begin to fail the patient may cease to pass urine; the amount of urine may greatly reduce or cease altogether. The patient may be extremely anxious but more commonly is apathetic and semi-stuporose and if the condition does not improve the urine flow increases by the second week they slip into a coma and die. If the illness begins to lessen, the patient begins the slow road to recovery though even in this phase symptoms may occur and there may be a temporary impairment of vision.

Treatment

This is usually with some antibiotic (penicillin, streptomycin, tetracycline and erythromycin) and in severe cases, kidney dialysis may be necessary.



WEIL'S DISEASE CAN BE A SERIOUS ILLNESS

If it is suspected, antibiotics must be administered immediately. It is therefore imperative that you tell your local doctor that you may have been in contact with Weil's Disease

Testing for the disease

A blood sample is normally required on which an ELISA test is performed.

Prevention

Care should be taken when entering caves - particularly dry caves with stagnant water. Caves with farmyard run-off can also harbour the bacteria. ALWAYS wear rubber gloves, and good boots and wash and clean any cuts with and grazes with antiseptic immediately on leaving the cave.

This leaflet is a reprint of an article by Eddie Wright entitled 'All you ever wanted to know about leptospirosis', first published in Irish Speleology' 14, (Speleological Union of Ireland)

If you want to find out more about caving, contact:

The Honorary Secretary of the SUI at the following email address:
suisecretary@caving.ie



Comfort Sac

A Series of Information Guides about Caving, Clubs and Caves in Ireland.
Published by SUI (Speleological Union of Ireland)

SPELEOLOGICAL UNION of IRELAND

Official coordinating body for caving in Ireland

Summary

The Speleological Union of Ireland is the official body representing the interests of speleologists and sporting Cavers in Northern Ireland and the Republic of Ireland at local, national and international levels. SUI was originally founded in the 1960's, and was reconstituted in 1983. Today, the majority of Irish Cavers are members of the organisation. For more information on the SUI visit our website at <http://www.cavingireland.org/>.

Warning

Caves are potentially hazardous places. In some cases there may be loose rocks, vertical drops or a risk of flooding. SUI strongly recommends inexperienced visitors to attend a recognised training course or find qualified leaders. SUI can provide details of both.

Anyone visiting a cave should leave a written note with details of where they are going and expected time of return. This is known as a "Call Out" and should be left with a reliable person. The Irish Cave Rescue Organisation (ICRO) can be contacted through the Gardaí or PSNI if you are overdue or an accident occurs.

Some books mentioned here could be difficult to get. The SUI Librarian can be contacted at the following web address librarian@caving.ie and will be happy to provide up to date information. Write to the librarian describing your particular interests and you will be quoted for copies of surveys and guides relevant to the area you are interested in.

What is the purpose of a comfort sac?

A Comfort Sac is a vital piece of caving gear, which should only rarely need to go underground. It contains all the things that might be useful as the first response in the case of an accident and is for use by the colleagues of the injured caver. The purpose of a comfort sac is to keep casualty warm, dry and fed. In the event of an accident happening underground, it can take a number of hours for a rescue party to get assembled. It will also take a number of hours to extract a casualty. The caving group will be able to treat and stabilise the injuries. With the stove and candles this will help keep everybody warm. With the callout list the party know how to start a callout. The more comprehensive the comfort sac, the more comfortable the casualty and the group will be.

What kind of bag is most suitable?

The comfort sac should be a bag that is suitable to take under ground. The ideal type of bag is a large tackle bag. If the bag is too large it will be very difficult to take under ground in the event of an emergency. It may be necessary to put the contents into two bags. The sleeping bag and clothing should be vacuum packed to keep them dry. If there are any smaller bags, within the main bag, the contents list should be attached to each, so that every bag or container will not be opened unnecessarily. The contents list should contain the "best before" date of the food.

Where is the best location?

The best location for a comfort sac is at the site of an accident. But no body knows where an accident is going to happen. The most suitable place for the comfort sac to be left is just inside the entrance of the cave or at the bottom of a pitch. This may also be a good indication for the ICRO warden if he is at the correct cave, as there may be a number of caves in the area. If the comfort sac is left in the group's transport, everybody in the group must know where the keys are left so that it can be got as fast as possible.

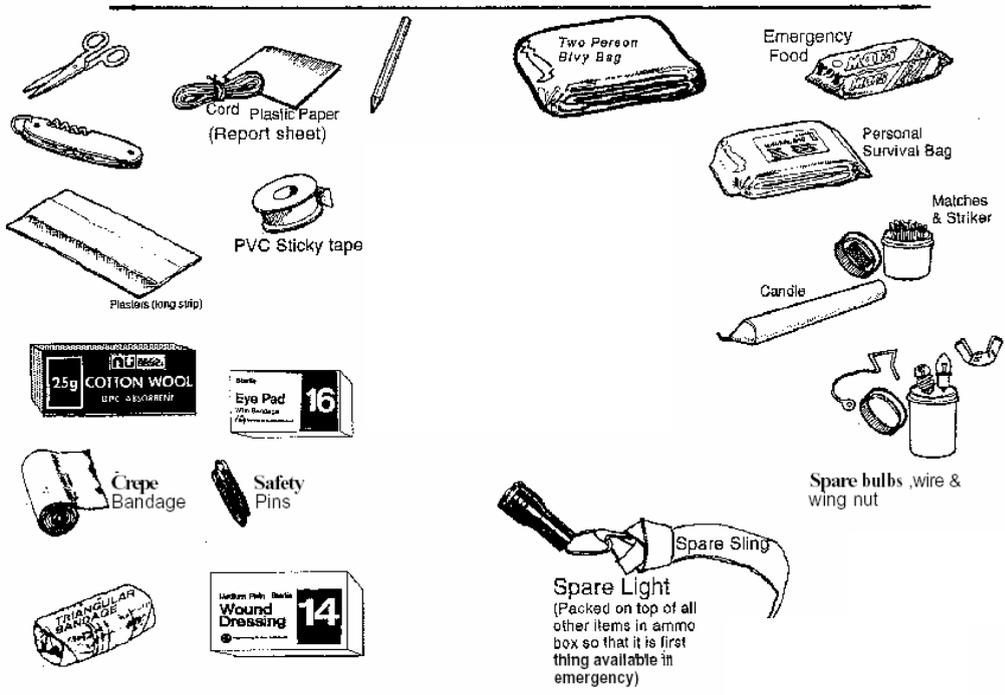
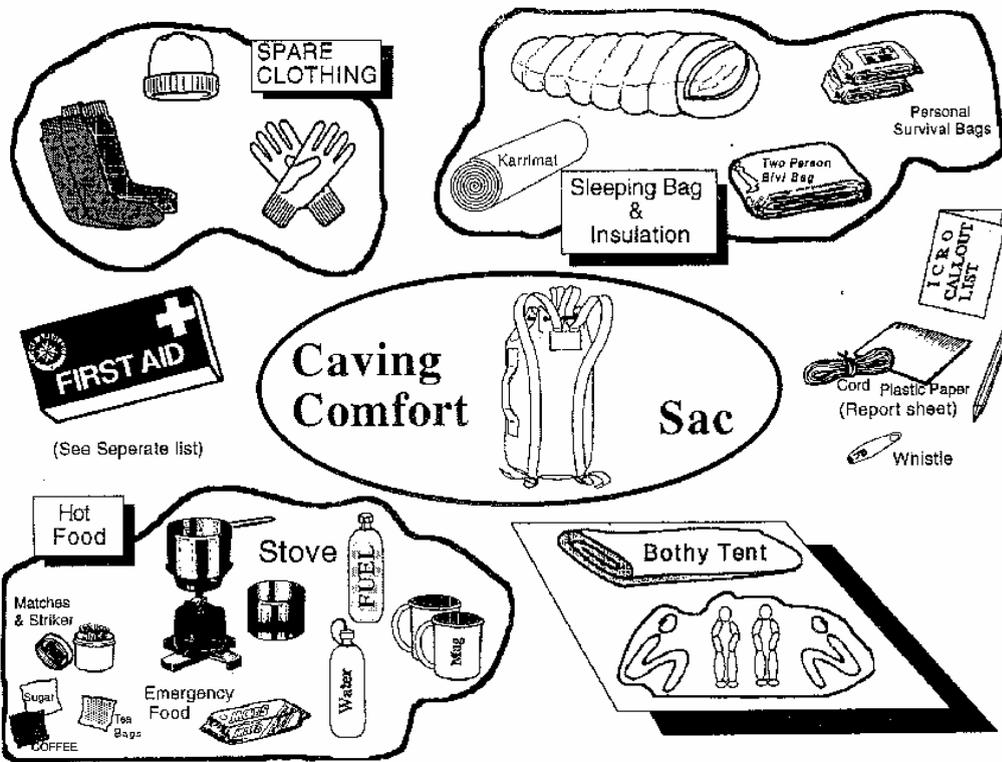
Who needs one?

Every caving group should bring a comfort sack of some description. The contents will depend on the nature of the cave, the size and type of the group and the remoteness of the cave. All novice groups should have a quite comprehensive comfort sac and it is common for student groups to have more than one in their caving gear store. All should be regularly updated and checked.

Comfort sac Contents

- Sleeping bag
- Karri mat
- Double Bivi bag
- Bivi bag
- Blizzard bag
- Bothy Tent (“KISU”)
- Clothing
- First aid kit (comprehensive)
- Food
- Stove / fuel / matches
- Cups & 2 Plates & 2 Spoons
- Water
- Pencils and waterproof paper
- Lights (candles)
- Puzzle book
- Content list
- Callout list (an up to date copy)

For more information and Club contacts contact the Honorary Secretary of the SUI at the following email address: suisecretary@caving.ie





Radon in Caves

A Series of Information Guides about Caving, Clubs and Caves in Ireland.
Published by SUI (Speleological Union of Ireland)

SPELEOLOGICAL UNION of IRELAND

Official coordinating body for caving in Ireland

Summary

Radon occurs in many caves in Ireland and may represent a significant health risk to cavers who spend long periods of time underground. Radon may well lead to an increased risk of lung and throat cancers even in quite small doses. For most people living in normal housing, radon seeping into the home through cracks in the floor can contribute up to half the total annual dose. It is such a significant threat that in some areas of the country, where ground radon is high, it is obligatory to fit special radon traps under the floor of new houses so that it can be ducted to outside. Some caves have been studied in detail and the results published in Irish Speleology.

Warning

Caves are potentially hazardous places. In some cases there may be loose rocks, vertical drops or a risk of flooding. SUI strongly recommends inexperienced visitors to attend a recognised training course or find qualified leaders. SUI can provide details of both.

Anyone visiting a cave should leave a written note with details of where they are going and expected time of return. This is known as a "Call Out" and should be left with a reliable person. The Irish Cave Rescue Organisation (ICRO) can be contacted through the Gardaí or PSNI if you are overdue or an accident occurs.

Some books mentioned here could be difficult to get. The SUI Librarian can be contacted at the following web address librarian@caving.ie and will be happy to provide up to date information. Write to the librarian describing your particular interests and you will be quoted for copies of surveys and guides relevant to the area you are interested in.

What is Radon?

Radon is a naturally occurring radioactive gas. It is produced by the breakdown of uranium in soil, rock and water. All rocks contain some uranium, although most contain just a small amount. Certain types of rock, including granites, dark shales, light-coloured volcanic rocks, sedimentary rocks containing phosphate, and metamorphic rocks derived from these rocks, have higher than average uranium contents.

Why is it found in Caves?

Radon is continually seeping from the rock. In the outdoors, air currents, reducing its concentration quickly dissipate radon. Caves, on the other hand, will not generally have the same level of airflow and so radon levels can become concentrated. The main source for Radon in the Burren for example is the granite underlying the limestone. Radon is released from this and travels up through the cracks and natural fissures in the limestone to enter the cave cavity.

Radon and Radiation

In Ireland, radon is estimated to represent 50%, (i.e. 1500 microSieverts per year) of the total annual radiation dose received by each of us. It is colourless, odourless and tasteless. Radon 222 decays through a series of short lived decay products which are radioactive isotopes of solid elements i.e. Polonium, Bismuth and Lead. Two of the short lived radon decay products are alpha particle emitters (polonium -218 and polonium-214). Following inhalation and deposition in the lungs, it is these radon decay products, rather than the gas itself, that deliver the radiation dose to bronchial tissue that is implicated in radiogenic lung cancer (ref: Madden).

Radon studies

As with all pollutants, there is some uncertainty in estimating health risks associated with radon. Radon risk estimates are based primarily on scientific studies of humans following the Hiroshima and Nagasaki atomic bombings and also miners exposed to different levels of radon in their underground work. Scientists are considerably more certain of radon risk than they are of estimates that are based solely on animal studies. Historically, the existence of a high mortality among miners in central Europe was first recognised in the early 16th century. It was not until the 19th century that the cause was identified as lung cancer and in 1924 it was attributed to radon gas exposure. Radon's role significance was not identified until the 1950's.

What risk is the caver taking?

In 1994, the International Commission on Radiological Protection recommended the adoption of a risk factor equivalent to a lifetime risk of death of 1 x chronic exposure to a radon gas concentration of 1 Bq m⁻³. On this basis, the estimated risk of contracting fatal lung cancer as a consequence of exposure to 200 Bq m⁻³ is about 2 in 100. for

The risks associated with recreational and professional cavers visiting a cave with radon gas concentrations of the order of 7000 Bq m⁻³ are as follows:

Recreational Caver

Based on 50 hours per year caving

Estimated annual radiation dose = 1600 microSievert per year

Lifetime risk of premature death from lung cancer = 1 in 12500.

Professional Caver

Based on 600 hours per year caving

Estimated annual radiation dose = 20,000 microSievert per year.

Lifetime risk of premature death from lung cancer = 1 in 1000.

Putting this in perspective

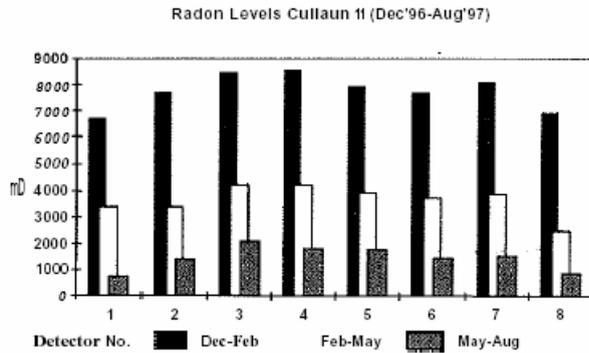
The UK National Caving Association Radon Working Group have estimated, on the basis of fatalities in the British Isles, the risk of death for a recreational caver. Death from an accident during a single caving trip is of the order of 1 in 40,000. They claim that there are about 10,000 recreational cavers, each taking about 10 caving trips per year, and that in the period 1982-1993 there were 25 fatalities whilst caving. This fatality figure excludes cave diver fatalities.

It is also possible to estimate a "ball park" figure for the lifetime risk of death associated with a single 4 hour trip to a cave with a known radon gas concentration.

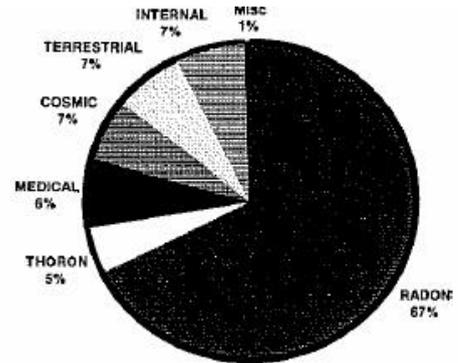
For a cave where the radon gas concentration is approximately 7000 Bq m⁻³ then the lifetime risk of premature death from lung cancer, as a consequence of a single exposure, for 4 hours, is approximately 1 in 150,000. What this figure tells us is that the estimated risk of premature death over your lifetime, following a single cave trip in a cave with this radon gas concentration, is about 113 to 114 the estimated risk of death following an accident during the cave trip.

The estimated dose received by the professional caver in the example above is the same as the maximum permissible radiation dose received by a nuclear radiation worker.

Few nuclear industry workers receive radiation doses of this magnitude. In effect radiation workers would not be allowed to work in such an environment for more than 5 years, if they were receiving annual doses of this magnitude.



Radiation levels during Winter Spring and Summer at 8 sample points in Cullaun2, a popular cave in County Clare



Typical distribution of radiation in the normal environment of Western Europe



Caves in Ireland

A Series of Information Guides about Caving, Clubs and Caves in Ireland.
Published by SUI (Speleological Union of Ireland)

SPELEOLOGICAL UNION of IRELAND

Official coordinating body for caving in Ireland

Summary

Carboniferous Limestone outcrops over about half of the surface of Ireland and in all but one of the 32 counties. It is not surprising to find that Ireland has a large number of karst areas and a considerable number of caves. There are wide variations in limestone types across the country and this has had a profound effect on the types of cave found in the various regions. Each of the main caving regions is briefly described, giving details of the types of cave, suitable guidebooks and other information. Accommodation and locations where cavers can be found are also mentioned.

|

Warning

Caves are potentially hazardous places. In some cases there may be loose rocks, vertical drops or a risk of flooding. SUI strongly recommends inexperienced visitors to attend a recognised training course or find qualified leaders. SUI can provide details of both.

Anyone visiting a cave should leave a written note with details of where they are going and expected time of return. This is known as a "Call Out" and should be left with a reliable person. The Irish Cave Rescue Organisation (ICRO) can be contacted through the Gardaí or PSNI if you are overdue or an accident occurs.

Some books mentioned here could be difficult to get. The SUI Librarian can be contacted at the following web address librarian@caving.ie and will be happy to provide up to date information. Write to the librarian describing your particular interests and you will be quoted for copies of surveys and guides relevant to the area you are interested in.

Clare

The Burren is one of the most famous and unique geological sites in Western Europe. It is a compact upland area of Carboniferous limestones, with remnant caps of Namurian shales forming isolated peaks (Slieve Elva and Poulacapple) in the western part of the area. Around the shale peaks the caves are typically canyon passages with sinks developed at the shale/limestone boundary. The longest cave in Ireland, **Poulnagollum/Poll Elva**, is situated on the eastern edge of Slieve Elva. In the area known as the High Burren, further east, the shale cover has been completely removed. Here the karst scenery is at its most spectacular. Large closed depressions exist and caves are known at Kilcorney, Carran and Caherconnell.

The most recent work on the caves in the area is "The Caves of County Clare and South Galway" produced by the University of Bristol Speleological Society (UBSS, 2003). This is an update of an earlier book "The Caves of North West Clare" by E. K. Tratman and also published by UBSS. Other information on the area can be found in various copies of Irish Speleology and "The Proceedings of the University of Bristol Speleological Society".

Accommodation is plentiful in the area as it is a popular tourist region. Details from Bord Failte, Head Office, Baggot Street Bridge, Dublin 2. If necessary contact the SUI for further details. Pubs are plentiful and widespread but Hylands Hotel in Ballyvaughan, P. J. O'Donoghues in Fanore, the Roadside Tavern in Lisdoonvama and McGann's and O' Connor's in Doolin are the most regularly frequented by cavers.

Cork

Caves in north Cork are generally restricted to the limestone valley of the Blackwater, where a small number of interesting caves are located. North of Mallow, the limestone extends into a large trough, reaching as far as the Ballyhoura and Galtee Mountains. The Mitchelstown series of caves can be found here with the **'New Mitchelstown Cave'** presently being Ireland's oldest showcave. To the south east of the county, caves can be found where the limestone has been denuded by erosion of glacial deposit. Many caves in the area have been discovered through quarrying operations. The most famous of these was discovered in 1933 in **Carrigtwohill** while a more recent discovery was made in the 1980's and deemed the **'New' Carrigtwohill** caves.

"The Caves of Co. Cork" by Tony Oldham is still available though hard to find it is very comprehensive and well worth the effort.

For those interested in cave diving, it should be noted that a sump index was produced as a special edition of Irish Speleology (Volume 4, No. 2, 1988).

Fermanagh / Cavan

This region is situated along the north-eastern edge of the Namurian outlier of the Lough Allen Basin. The region can be divided into two distinct areas. The first is the Belmore / Tullybrack area, north of Lough MacNea, with the limestone outcropping roughly north-south from Belcoo to Lough Navar, and the second is the Cuilcagh Mountain area, where the limestone outcrops in a roughly east-west line from Swanlinbar to beyond Blacklion. The caves in the Tullybrack / Knockmore upland area are mostly vertical pot systems which enter extensive horizontal systems. Classic caves in the area include **Pollaraftara**, **Noons-Arch** and **Reyfad Pot**, (at -179m the deepest cave system in Ireland). Some rising caves can be entered at resurgence level. In the Cuilcagh Mountain area, deep, choked shafts in loose, chert-rich, limestones typify the eastern part of the limestone outcrop. Moving west, extensive active river systems such as **Tullyhona**, **Prods-Cascades** and **Marble Arch** are formed in pure carbonate mudbank-type limestones. In the western part of the limestone outcrop there are many systems where active exploration continues such as **Pollnagossan**, **Ture Rising** and **Shannon Cave**.

Information on the caves is contained in a number of publications, the most useful being "The Caves of Fermanagh and Cavan" by Jones , Burns, Fogg & Kelly (1997) and various issues of Irish Speleology*.

There is only limited club accommodation in the Fermanagh/Cavan area. Details on self-catering accommodation in the area can be obtained from the Northern Ireland Tourist Board, Tourist Information Centre, High Street, Belfast or Bord Failte, Head Office, Baggot Street Bridge, DUBLIN 2. If necessary contact the SUI committee for further details. Local cavers tend to meet in Blacklion, Co. Cavan, in either The Bush Bar or Frank Eddie Maguires or while staying in Boho, McKenzies bar.

Sligo / Leitrim

Many of the caves of this area are located on the high limestone plateaux. The limestone is rich in chert, which has greatly influenced cave development; there are numerous deep potholes but few caves of any length. The most significant systems are those above the village of Geevagh in County Sligo. The high plateau between Glencar and Glenade and that North East of Glenade are dotted with many potholes. This area adjoins the Fermanagh /Cavan area and cavers tend to visit it from there using the accommodation and pubs already mentioned above.

A small booklet of surveys of the major systems of Sligo/Leitrim is available . Contact the librarian for further details.

* Irish Speleology is the journal of SUI. Copies are available from the SUI Librarian. Contact librarian@caving.ie

Kerry

Kerry is famous for its mountains. These consist mainly of sandstone but, as in County Cork, there are extensive outcrops of limestone in the valleys. Whilst a few caves have long been known, recent efforts have yielded some exciting discoveries. The longest and best known is **Crag Cave** at Castleisland, now a showcave. Other discoveries have been made in the Castleisland area.

There are no books available on the caves of County Kerry but some information is available in "The Caves of Ireland" by J. C. Coleman - a useful summary of all Irish caves but now very much out of date (published in 1965). A complete review is available in Irish Speleology IS15.

This is still an area not all that regularly visited by cavers so there are no established centres, pubs or accommodation frequented by cavers. However, accommodation is widely available in this tourist area. Information from Bord Failte, Head Office, Baggot Street Bridge, Dublin 2.

Other Areas

As already mentioned, limestone underlies about half of the island of Ireland. Outside of the main caving areas most of that limestone is deeply buried under glacial deposits so these areas do not exhibit karst features. There is evidence of ancient karst features buried deep under the glacial deposits. Furthermore, there are areas scattered all around the country where the limestone is at or near the surface and cave development has occurred. The Cong area (Counties Galway and Mayo) is a low-lying area with some spectacular karst development and where all of the drainage of the Lough Mask catchment discharges via underground routes. A few caves are known but it is an area deserving of more attention. Elsewhere in County Galway, the Gort lowlands, which adjoin the Burren, has numerous large sinks and risings and many turloughs. There are few known accessible caves but some major cave dives have been undertaken. County Mayo also has the **Aille River Cave** - one of Ireland's largest underground rivers.

The **Mitchelstown Caves** are actually in Co. Tipperary - not in nearby Co. Cork where the town of the same name is located. There are three principle caves – the historic **Desmond Cave**, the **New Cave** (now a showcave) and **Pollskeheenarinky**. County Antrim has recently yielded Ireland's first major chalk cave. There are minor caves dotted around the midlands and around counties such as Waterford. Co. Kilkenny includes the impressive **Dunmore** showcave; a National Monument.

For all these areas, the only book available is J. C. Coleman's "The Caves of Ireland" Other publications, principally Irish Speleology, will provide more information.



Caves and Karst **How are they formed?**

A Series of Information Guides about Caving, Clubs and Caves in Ireland.
Published by SUI (Speleological Union of Ireland)

SPELEOLOGICAL UNION of IRELAND

Official coordinating body for caving in Ireland

Summary

This leaflet sets out to explain some of the terms and concepts used to describe caves and the ground they are formed in. It describes typical cave shapes and sections and points out the variety of things found in the caves. It is very important to realise that caves are generally very old, very fragile and sometimes very dangerous. Cavers learn to take suitable precautions to protect both themselves and their caves so that future generations can enjoy the beauty hiding beneath the surface. Those interested in caving should join a caving club and seek to learn from the more experienced members.

Warning

Caves are potentially hazardous places. In some cases there may be loose rocks, vertical drops or a risk of flooding. SUI strongly recommends inexperienced visitors to attend a recognised training course or find qualified leaders. SUI can provide details of both.

Anyone visiting a cave should leave a written note with details of where they are going and expected time of return. This is known as a "Call Out" and should be left with a reliable person. The Irish Cave Rescue Organisation (ICRO) can be contacted through the Gardaí or PSNI if you are overdue or an accident occurs.

Some books mentioned here could be difficult to get. The SUI Librarian can be contacted at the following web address librarian@caving.ie and will be happy to provide up to date information. Write to the librarian describing your particular interests and you will be quoted for copies of surveys and guides relevant to the area you are interested in.

What is a cave?

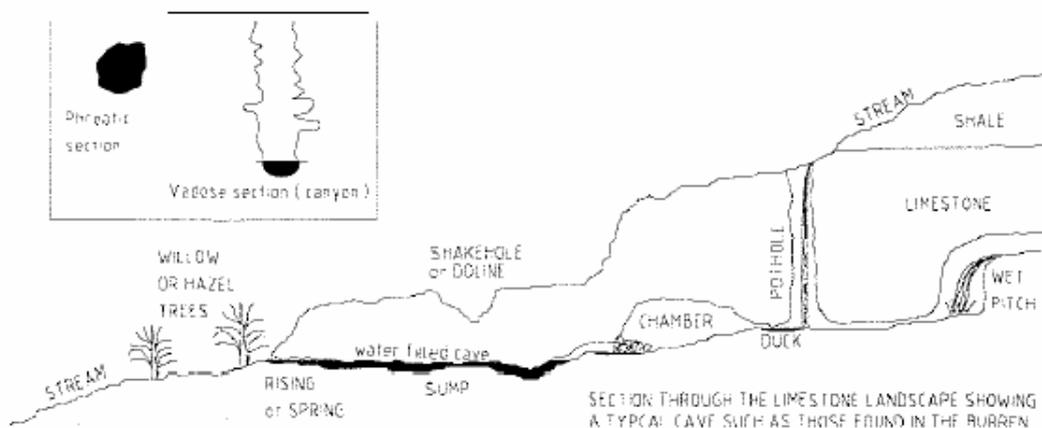
A cave is usually considered to be any naturally formed underground cavity big enough to enter. The term cave is usually used for horizontal passages and where vertical passages are found, the term pothole is more common. A cavern is another term for a cave, but is usually reserved for large chambers. The study of caves is speleology.

Where do caves form?

Nearly all caves form by dissolving cavities in limestone (CaCO_3) rocks which underlie about half of Ireland's surface. Occasionally, some caves form in marble, quartzite and rarely, other rocks. Sea caves are not formed by chemical action away but are physically eroded by the sea, and are not usually extensive or deep.

How do caves form?

Limestone caves are formed by chemical erosion by moving water. Limestone is a permeable rock, which means that water can pass through it. Limestone is also a soluble rock, which means that it will dissolve in rain-water which is a natural dilute solution of carbonic acid. The continual flow of water through the limestone, and the gradual solution of the stone by the water, causes the enlargement of cracks. They eventually become caves over thousands of years. In most limestone areas there are almost no rivers on the surface. Instead, these rivers are found underground flowing through the caves. The river may enter a cave at a swallow hole, often where the river first comes in contact with the limestone, after flowing over a non soluble rock type.



What shape are caves?

Caves are found in all shapes and sizes. The shape is controlled by a number of geological factors and many details of the cave's history can be understood by studying the shape of the passage.

- **Low flat passage** formed on horizontal cracks or “bedding planes” between the layers of limestone.
- **Tall narrow passage** formed on vertical cracks or “joints” in the limestone or as a canyon passage cut by a single stream.
- **Circular passage** formed when the water completely fills the passage like a pipe so the water is able to dissolve the rock equally on all sides. These are called phreatic passages.
- **Keyhole passage** formed when a tall, narrow passage develops below phreatic or bedding plane passage. Also known as T- shaped passage.

The location of swallow holes will also influence the type of cave. If the swallow hole is high up on a hillside the water is able to cut quickly down into the limestone and may form a single passage, several kilometres long, which may contain vertical drops or “pitches” where ropes and ladders are necessary. These are often called “pots” or “potholes”.

A swallow hole at a low altitude means the water will flow slowly and will often produce a maze of passage within a small area.

How old are caves?

Caves vary in age from region to region and it is often difficult to put an exact age on any cave. Caves are a part of the landscape and as such are slowly developing and evolving. Rivers continually cut downwards through the rock, so often the higher parts of the cave are older. Dry or “Fossil” passages are sometimes found, originally formed by the river, but now inactive. They often contain preserved mud and sediments. These may contain important information about the environment outside the cave, when the sediment was deposited, many years ago. Sediments can sometimes be dated to find a minimum age for the cave. Fossil passages often contain beautiful displays of “stalactites and stalagmites.” These “formations” can be dated by measuring the decay of tiny amounts of radioactive Uranium in them. Some Irish examples were found to be 70,000 years old.

As a general rule, the larger a cave is, the older it is. Over long periods of time the rock will fall from the cave walls making it larger and forming caverns or chambers that may reach 20m high and 50m in diameter.

What is a stalactite?

A stalactite is a downward pointing deposit of calcite hanging from the roof or wall. Stalactites are formed by drops of water that percolate down through cracks in the limestone. The water dissolves the limestone and becomes a calcium solution. When the first water dribbles into the cave the water drop runs down to the end of a projection and hangs there for a short time. It eventually falls but some of the calcium is left behind as a mineral called calcite and this may build up to form a stalactite. They may be many metres in length. Where the drips land, more calcite is deposited and this may build up to form a stalagmite. For many years the Guinness book of records listed a stalactite in County Clare as the longest free hanging stalactite in the world (11.6m). Its true length is nearer 8 metres and it is sadly no longer listed.

What is karst?

Karst is the term for a landscape developed on soluble rock with underground drainage, typically on limestone. The Burren area of Co. Clare is a good example of a karst area, but the name derives from the classical area of Slovenia. Typical features of a karst landscape include caves, dry valleys and dolines. The latter being crater like hollows or closed depressions formed by solution or collapse. Limestone pavement, which is well developed in the Burren, is typical of glaciokarst, formed when glaciers stripped off all soil and weathered rock. The pavement is now characterised by blocks of limestone (clints) remaining between the expanded joints (grikes). The surface is fretted and dissolved into a range of small-scale solution features known collectively as karren.

Recommended Reading

Caves and Cave Life - Phillip Chapman, Published by Harper Collins
Caving Practice and Equipment - David Judson, Published by BCRA
Speleology: The Study of Caves by Moore & Sullivan

For more information and Club contacts write to the Honorary Secretary of the SUI at the following email address: suisecretary@caving.ie



What is Caving?

A Series of Information Guides about Caving, Clubs and Caves in Ireland.
Published by SUI (Speleological Union of Ireland)

SPELEOLOGICAL UNION of IRELAND

Official coordinating body for caving in Ireland

Summary

Caving is the exploration of natural underground passages and chambers, usually formed where water has dissolved away limestone rock. It is an adventure sport and as such has inherent risks. With good guidance, training and correct equipment, these risks can be reduced to reasonable level. The best way to begin caving is with a qualified leader from a caving club or an outdoor center. Caves tell us a great deal about geology and the underground movement of water in the areas where they occur. Caving, as well as being an energetic sport, can also be a fascinating science known as 'Speleology'.

Warning

Caves are potentially hazardous places. In some cases there may be loose rocks, vertical drops or a risk of flooding. SUI strongly recommends inexperienced visitors to attend a recognised training course or find qualified leaders. SUI can provide details of both.

Anyone visiting a cave should leave a written note with details of where they are going and expected time of return. This is known as a "Call Out" and should be left with a reliable person. The Irish Cave Rescue Organisation (ICRO) can be contacted through the Gardaí or PSNI if you are overdue or an accident occurs.

Some books mentioned here could be difficult to get. The SUI Librarian can be contacted at the following web address librarian@caving.ie and will be happy to provide up to date information. Write to the librarian describing your particular interests and you will be quoted for copies of surveys and guides relevant to the area you are interested in.

Types of Cave

Caves are found in most counties of Ireland and come in many shapes and sizes. Pollnagollum is over 14km long and Reyfad Pot is the deepest cave at 193m. The largest free hanging stalactite is 7 metres and the deepest entrance shaft is 80m. In each county, caves often have a typical form. Many caves are wet and exploration is by following a stream e.g. Clare. Other caves are dry and muddy e.g. Cork and Tipperary. Some have vertical sections known as 'pitches', where ropes and/or ladders are used for exploration. These are called 'potholes', e.g. Fermanagh. The type of cave you are exploring will dictate the type of clothing, experience and equipment you will need.

Clothing

The air temperature inside Irish caves is generally about 8-10°C. However, this air is very damp and can cause severe heat loss leading to hypothermia if warm clothing is not worn. For your first few trips, old clothing may be adequate. This should include woolen socks, track suit leggings, a T-shirt and woolen jumpers (several thin ones are better than one thick one). A waterproof jacket and leggings will help keep you warm and dry, while rubber (Wellington) boots are essential to protect your legs and ankles. Rubber gloves will help protect your hands both from the cold and wet and from infections which might enter scratches. Regular cavers choose between a wet suit for very wet caves or a one piece fleece (fibre pile) undersuit combined with a one piece PVC/Nylon over suit. It is very important to bring a complete change of clothes and towel to use after your caving trip.

Personal equipment

Everyone going caving must wear a helmet with an attached light. This protects your head and leaves your hands free to help you move through the cave. It is a good idea to bring a bar of chocolate or boiled sweets into the cave as you will find caving very strenuous to begin with and an energy booster is a great help. You will also want a hot drink and something to eat when you come out of the cave. A small lightweight personal survival bag (Lyon Sac) is easy to carry and could save your life if you are delayed inside the cave.

Group

As a group, you will need to bring several spare lights (carry different types - battery torch & candle / matches). A first aid kit is essential to carry with you. A 'Comfort Sack' should be left at the entrance; this contains extra clothing and stove etc., in case of emergency. See separate information sheet for full details.

Call out

It is vital to tell someone responsible where you are going - cave name, details of route and what time you expect to return. If you do not return, that person can alert the cave rescue by telephoning Gardai / Police - 999 / 112. See separate information sheet for more details on Cave Rescue.

Conservation

Entering caves is like exploring a different world. Every care must be taken to ensure no damage is done to this fragile subterranean world.

- Leave no rubbish in the cave.
- Don't touch stalactites, stalagmites or other formations
- Take nothing from the cave
- Mud and sediments can contain important geological information and so should
- In short - Leave the cave the way you find it.

See separate information sheet for more details on cave conservation and not be disturbed access.



Advanced Caving

Sooner or later exploring caves will lead you to a vertical drop or pitch so the first progression is to '*potholing*' which needs special training in climbing and descending flexible wire ladders or ropes. Contact SUI for details of training in "ropework" skills.

Many cavers also spend time '*digging*' or searching for new undiscovered caves. If you do discover a new cave, it should be mapped and the survey published with a full description in a caving journal such as '*Irish Speleology*'.

Foreign caves always look better than those at home, and as caves can be found in most countries, caving can be included as part of a holiday or as a specific expedition.

To show your friends what caves are like and 'why you do it' many cavers try to take photographs in the caves. This presents many challenges and some cavers can spend hours on the 'perfect shot'. The cave environment can be very harsh - total darkness, cold and liability to flooding - it is hard to imagine living there successfully. Some creatures manage it and become very highly adapted, also providing an interesting subject for specialised study.

Remember:

- Do tell someone where you are going.
- Do wear a helmet and warm clothes.
- Do bring a first aid kit and spare lights.
- Do bring a First-Aid kit.
- Don't touch the stalactites or other formations.
- Don't leave litter in or around the cave.

THIS WILL HELP KEEP YOU SAFE AND THE CAVES BEAUTIFUL

SUI is the national coordinating body of caving in Ireland. It can provide local leaders, training courses and a reference library on caving in Ireland.

For further information and details of other information sheets contact The Honorary Secretary of the SUI at the following email address: suisecretary@caving.ie.