



Verbond van Vlaamse Speleologen Flemish Caving Federation

Cave Protection and Respect for the Underground Environment:

Some Thoughts, Tips & Actions

Author: Paul De Bie – SC Avalon, Belgium



Sparkling white formations...don't we love them?



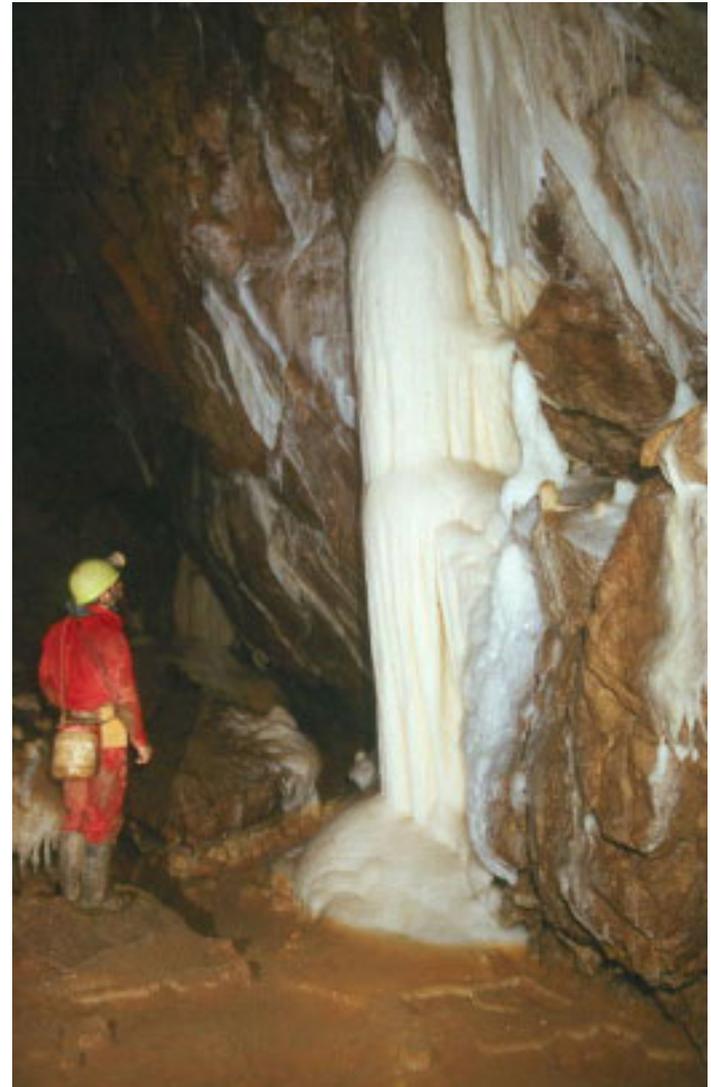


The purer, the whiter, the more we like them...

Breathtaking....

But ...

How many times have you seen
such pure formations?





Shocking...

A big, once snow-white formation, muddied by the hands of many cavers

Why?





This is more common, isn't it?...



Muddied, dirtied, trampled and broken. Impossible to imagine how beautiful this once was...



But it's not surprising, if you look at us, is it?



- Crawling in between formations, with our muddy oversuits
- Walking on calcite floors, with our muddy boots
- Using calcite formations as handholds or footsteps
- And so on!

Have YOU never done this?



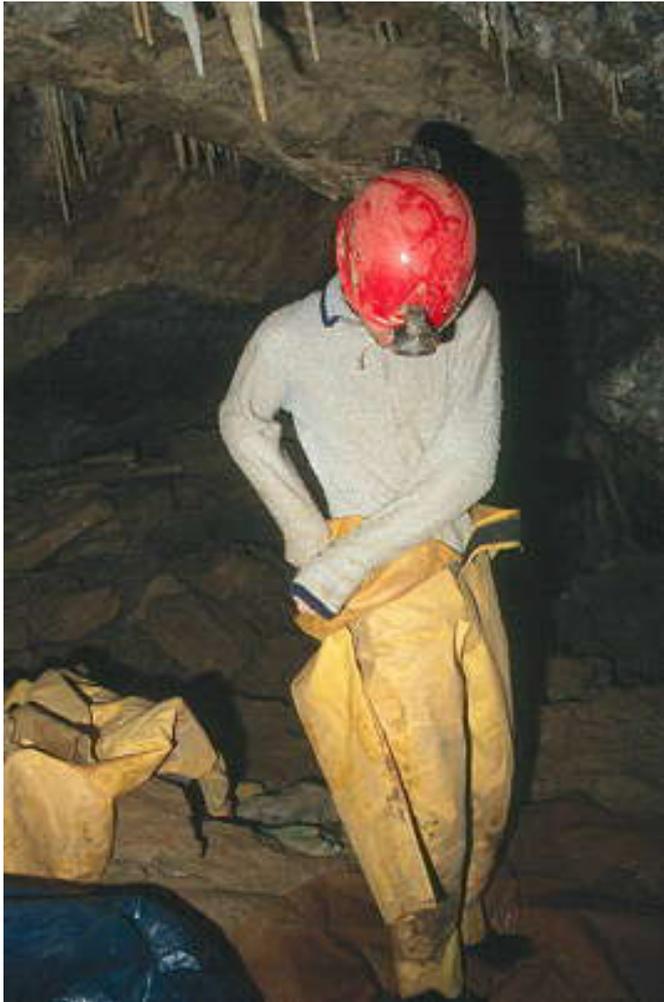
But, it can be done differently!



- You CAN explore caves without leaving traces
- The secret? It's simple: your clothes, your hands and feet, must be as clean as the formations are!
- The old motto « take nothing but pictures, leave nothing but footprints » is obsolete now!



The right reflex: get out of your boots and/or oversuit.



If you approach a decorated area:

THINK!

Can I go on without damaging or dirtying the cave?

IF NOT:

STOP exploring right there...
or take the necessary measures (e.g.: take boots off).



Ridiculous? NO! As a caver, you have a big responsibility!



Caves in Belgium



Cave Conservation



In the same cave, the same day, the same caver...



Everything is possible, if you really want it to be



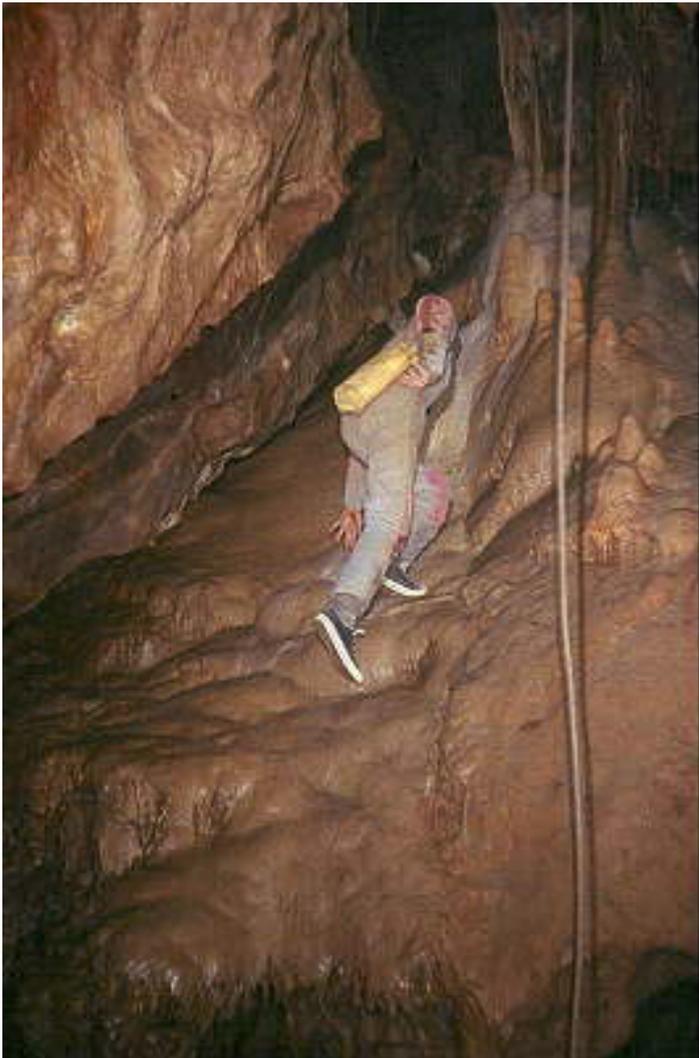
Is this too extreme?



Exploring in clean oversuits (to be used only once)



The modern cave explorer



- After 10 visits, this formation still doesn't show one speck of mud.
- But the explorers have spare, clean oversuits and clean, non-marking shoes with them, just for this one passage!
- Our compensation: after us, many others will be able to enjoy this beautiful calcite formation
- The new motto: « take nothing but pictures, leave no trace of your visit »



But you can't keep this up forever, can you?



Yes you can!

Here we crawl for the 200th time through a fragile zone, in our clean undersuit. All dirty clothes and gear are transported in the blue, clean bags.



But, luckily, taping off routes is usually sufficient!



This formation was discovered only minutes ago. It is immediately protected with red/white tape.



But red/white tape can be very disfiguring...



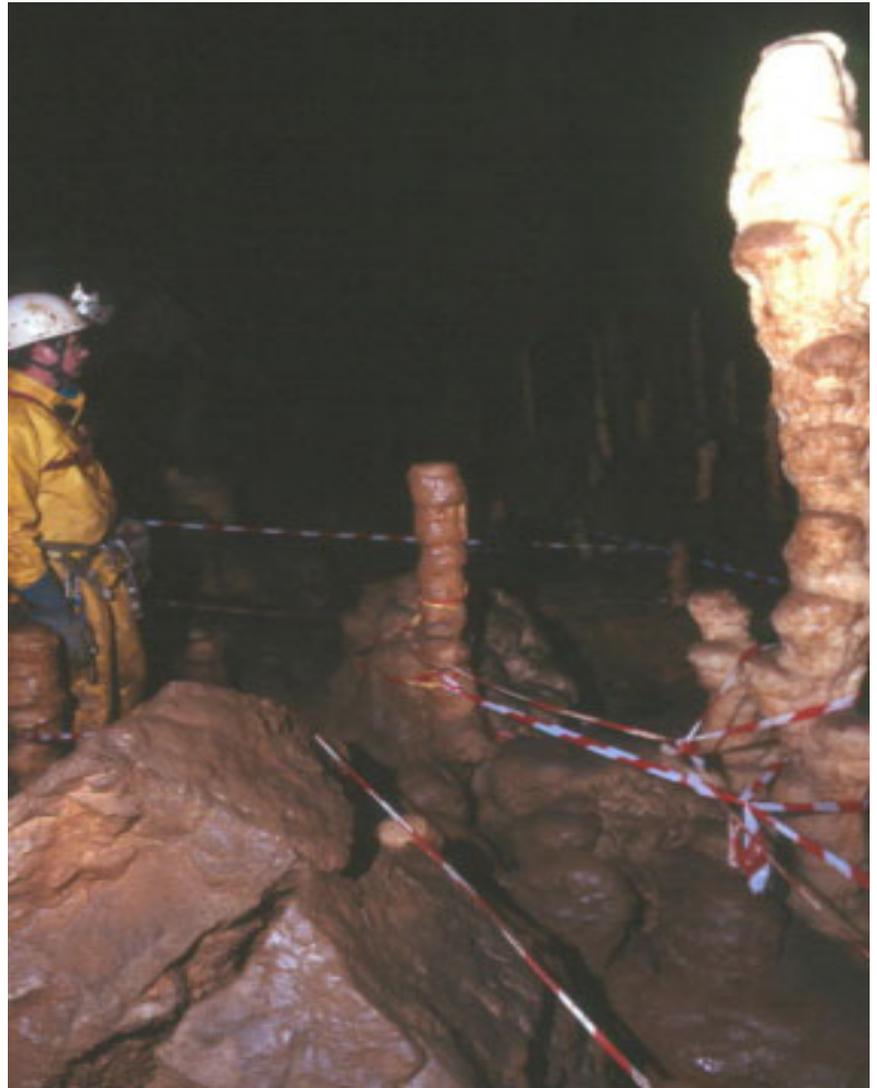
So we replace the red/white tape as soon as possible by some more discreet means of « taping off »



But don't make a circus out of it!

This « spaghetti » of red/white tape has certainly protected this cave, but it is ugly and not very efficient.

Plastic tape is neither aesthetic nor strong enough. Thin nylon ropes, however, do a much better job.





This way of « taping off » will last for many years

- Discreet and strong
- At knee-height
- Aesthetic (photographers will be grateful for this)
- Don't fix it onto formations, they could break
- As a caver, you **MUST** always respect them: never take them away or bypass them, not even to take a picture.





Where are the tapes?



Cave in Belgium

Cave Conservation



The floor also deserves our respect



Mud floors or sediments are often of greater (scientific) interest than the cave itself! And even a virgin mud floor can be beautiful, and must be protected or even taped-off. If there is no path marked: define ONE and ensure that all cavers follow it.



Vandalism or ignorance?



...this could have been YOU, couldn't it? You probably wouldn't even have given it a second thought....

The purpose of this presentation:

...awareness

Left: a century-old guano-deposit is being trampled. Right: after many hours of patient restoration work, the damage has been – more or less – repaired!



Alternative methods - 1



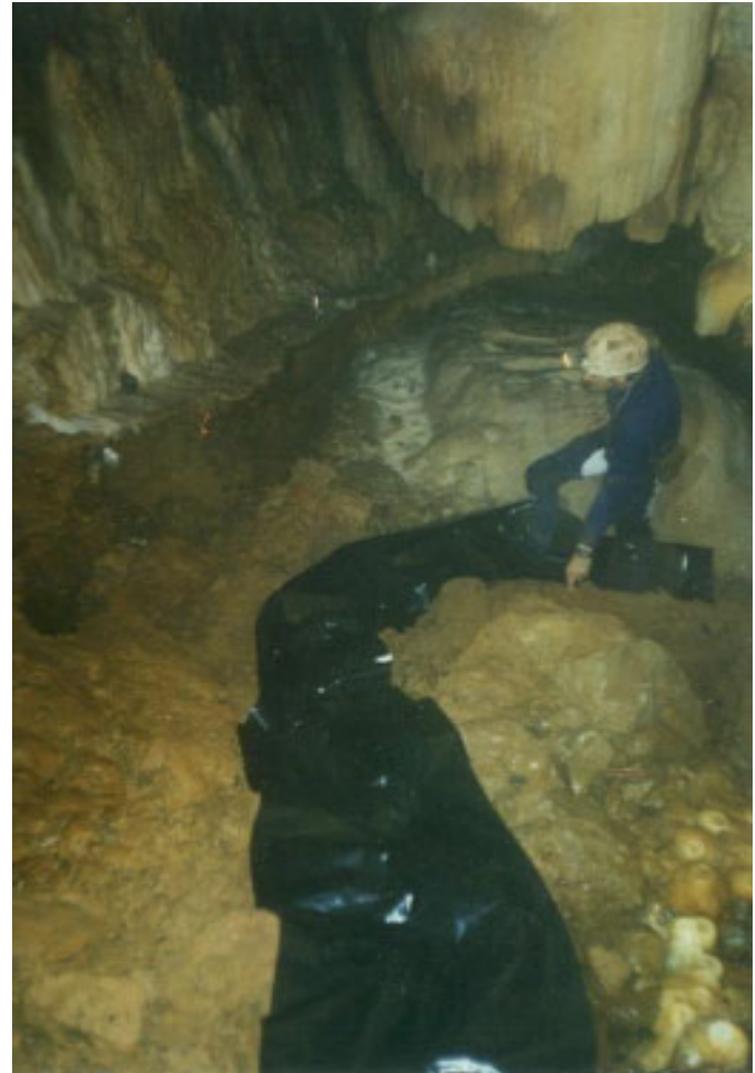
In some cases (only if the floor is level) one can protect a flowstone floor by laying a plastic pathway like this.



Alternative methods – 2

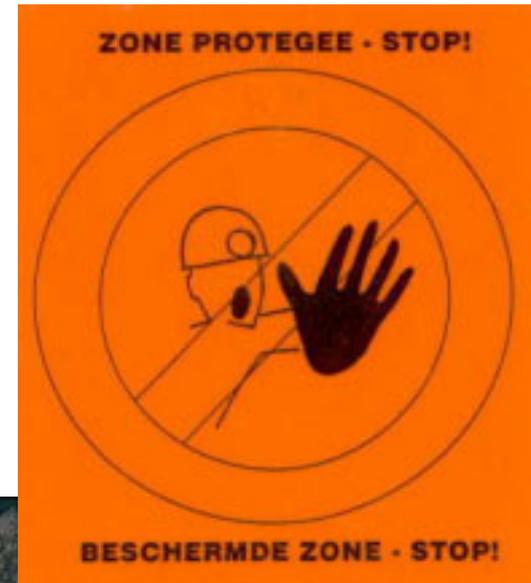
Here, the purpose of the plastic is just the other way around:

- Exploring in clean undersuit and socks;
- Muddy parts between decorated zones are covered with plastic;
- This way, your socks stay clean and you can safely enter the next decorated zone. Easy, isn't it?





Warning pictogram signs



Small signs like this will make visitors aware of fragile or protected areas.





Trying to restore the damage means a lot of work



But even some simple tools can be efficient!



Hi-tech cleaning...

- With a high-pressure cleaner, the results can be amazing
- This formation was originally covered with mud, as high as people could reach!
- But, this way of cleaning demands a lot of preparation and logistics (water, electricity)
- Not possible in most caves





SO, PREVENTION IS BETTER THAN CURE

- Don't make formations muddy, admire them at a safe distance
- Nobody is asking you to do every mudhole in your underclothes....
- But hopefully, you will now and then visit a nice cave. Please, apply the techniques that you have seen here.
- Your presence means nothing on the geological time-scale. But one stupid mistake can be visible for ages.
- Others also have the right to enjoy the splendours of the cave after your visit.
- Every new initiative is difficult. But correct your errors: and why not clean up things you've dirtied and tape-off formations; these can be done by every caver.



Talking about stupidities...



Aven de Goussoune (France)

Cave Conservation



Large-scale vandalism

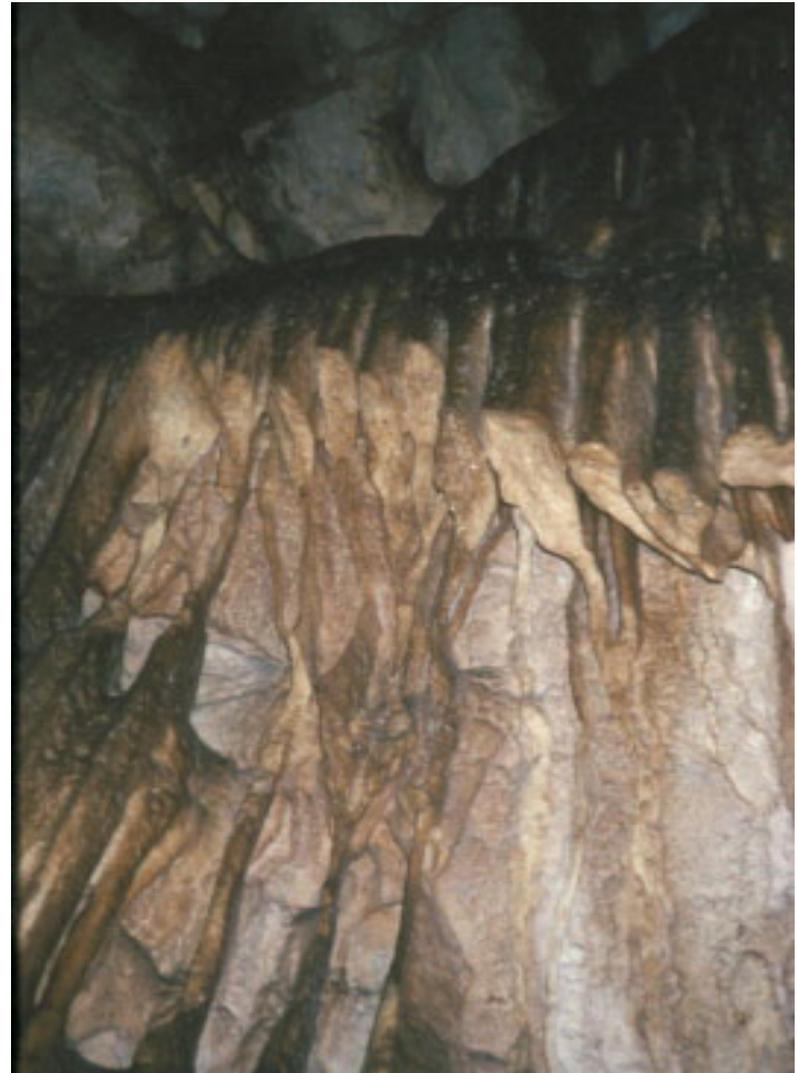


Even today, calcite formations are being stolen from caves. They make ashtrays or other « pieces of art » out of them. Here you see a big pile of calcite, ready to be taken out of the cave..



And small-scale vandalism...

- A formation in a popular Belgian cave: smashed to pieces and blackened by carbide fumes
- Thank God, smashing formations is rather exceptional these days. Most of the time it is the work of ignorant non-cavers





Before and after ...



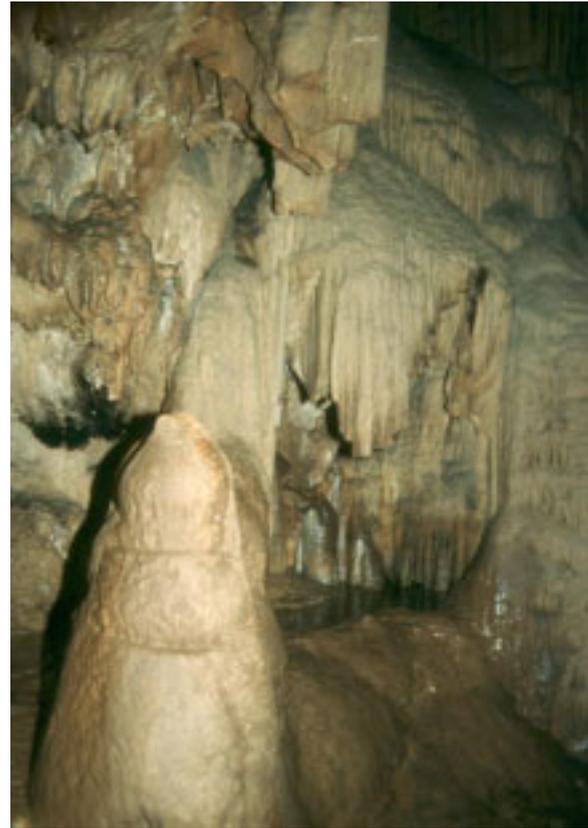
A unique grotto with
straws and helictites

Some years later!
(the big stalagmite,
front left is easily
found on both pics.)





But does this happen in our country? Oh yes it does!



Find the seven differences: Trou de l'Eglise (1950 & 1985)
(also compare the flowstone formation in the background)



Trou de l'Eglise, before and after.



Dozens of caves, often real little jewels, have been devastated in just a couple of decades. They did not survive the pressure of mass-speleology.

Trou de l'Eglise, Sainte-Anne, Galerie des Sources, Grotte aux Chandelles, Waerimont (classic part), Trou d'Haquin, Grotte du Fayt, Grotte de Ham, Grotte Nys, Trou-qui-Fume, Trou Manto, Grotte St-Etienne, Steinlein, Grotte de Brialmont, Veronika, ...



VANDALISM - 1



Once a caver's dream: Galerie des Sources... Then destroyed and muddied by us «cavers» in less than 10 years. Finally some vandals gave the cave its «finishing touch» with paint!



VANDALISM – 2

- A rusty, broken sawblade; the silent witness of the theft of nearly every stalagmite from this cave.
- If you ever witness cave vandalism: gather as much information as possible (names, number plates). Notify the authorities or your caving federation.





Discovering caves: let's dig!



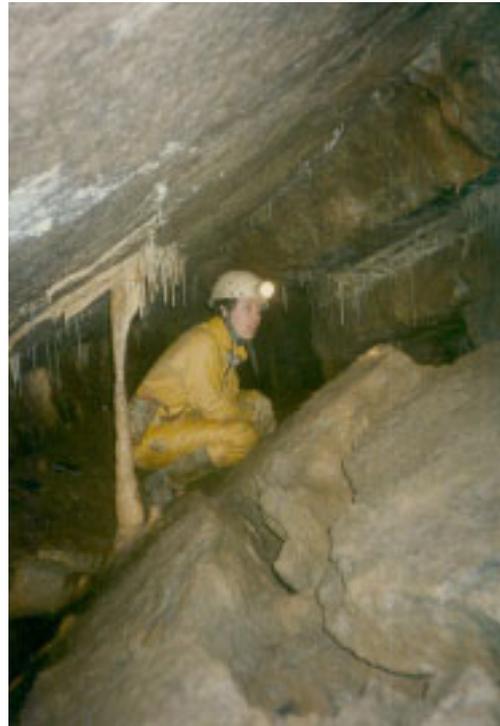
A small blowhole is being dug open



Four weeks later: bingo!



Discovering caves: some facts



A narrow passage is made wider, with a hammer drill...

And only minutes later, over 180m of nice passage is discovered!

- These days, the vast majority of new caves are discovered after digging or blasting.
- Most of the time, luckily, the *direct* damage is minimal.
- Discoverers of caves are often the best cave protectors.



Discover caves: but take care!

- Avoid changing airflows or disturbing the CO₂-balance by making new entrances or passages
- Pay attention to archeological sites, bats etc.
- No large scale digging at fragile places.
- Discovering a cave is **ALWAYS** the start of the degradation process.
- The discoverer has a big responsibility and must **IMMEDIATELY** take all necessary protective measures (taping off routes, putting in gates, access regulations)
- Discovering a decorated cave means « managing the cave » **FOREVER** .



Gates are not there to annoy you



They are often necessary. The only well-preserved caves that we still have, are ALL closed. But, in almost all cases, these caves can be visited if certain rules are followed.

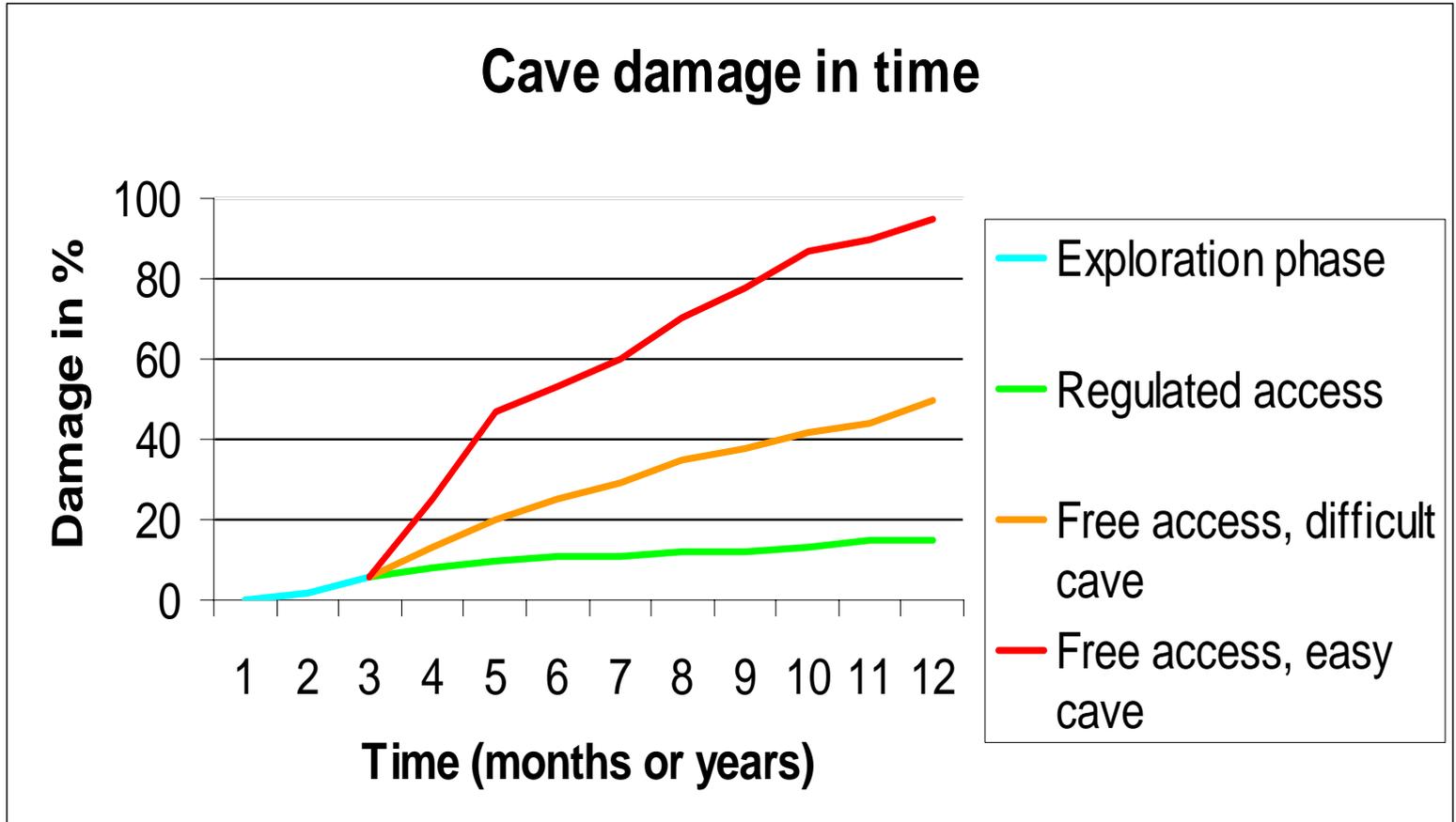


Respect every gate

- Most of the time you don't know the reasons for the closure: the landowner's decision, bat protection, nice formations, archeological interest, and so on!
- But of one thing you can be sure: the gate PROTECTS the cave.
- Never break open a cave-gate. You might, out of pure ignorance, damage the cave forever. After your visit, the gate could possibly remain open for a long time. So, your act could lead to the total devastation of the cave.
- In most cases, the people who closed the cave (often the discoverers) will be happy to guide you around, or maybe they will let you visit the cave without them, after having given some guidelines. Just realize that being patient, is a good attribute for a caver...
- Your primary concern should be the conservation of the cave. NOT your own ego or caving achievements.



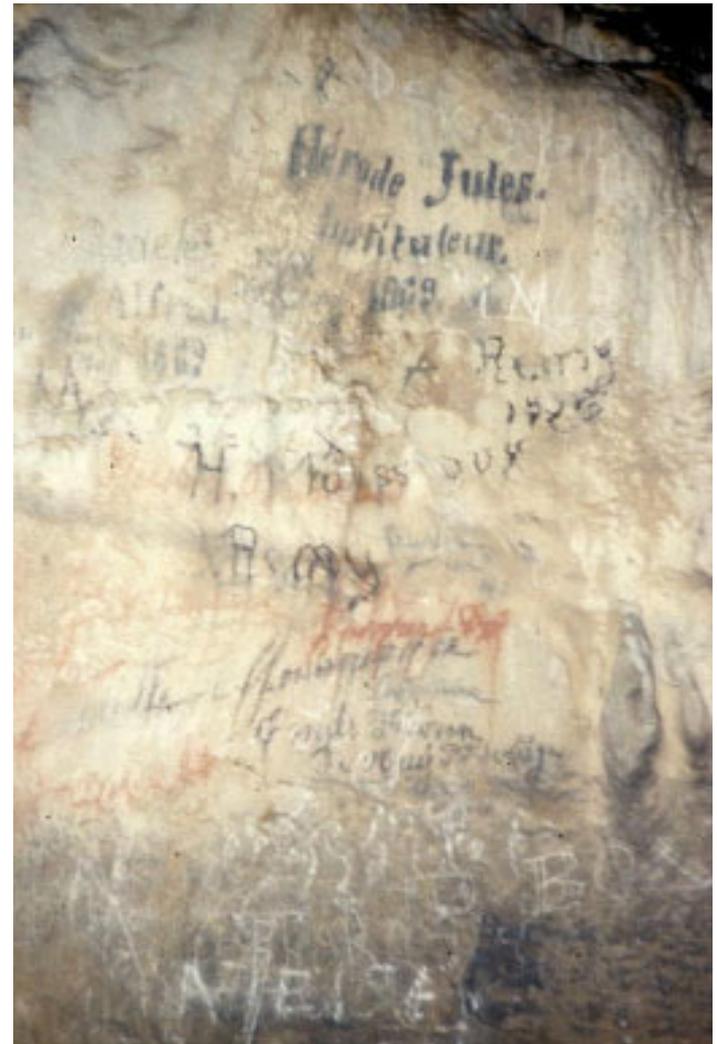
How a cave progressively gets damaged





Graffiti, inscriptions: it has existed for ages

- « Hérode Jules, Instituteur, 1862 » (Hérode Jules, teacher, 1862): a long time ago, it was « normal » to put your name on the wall when you had reached the bottom of the cave.
- And we must admit: people did it most of the time in a discreet and neat way.





Could it be worse?

But recent inscriptions are really horrible

- Never write or paint on cave walls (except, maybe, to mark a *discreet* survey station)
- Never mark your way with arrows. Use only removable marks and DO remove them afterwards!





Carbide-lighting? No thanks!



Taping-off routes, walking around in your socks in a cave, access regulations and doors: for the modern caver all this is pretty normal and obvious. But criticizing carbide lighting is still a big taboo. However...



Carbide dumps outside the cave...



Hey, this is great: so we can quickly locate the entrance!



Carbide dumps in the cave...



Hey, great! So we can dump our carbide here as well! (also notice that this is a typical « underground camp site »)



Quiz: count the number of carbide-dumps!

Hey, great! So we don't get lost in the cave; just follow the carbide!



O.K.: stop kidding now! Even if used carbide is chemically not very polluting; it is an aesthetical disaster for a cave. It is nearly impossible to remove old carbide properly afterwards.



Blackened ceilings



- Cavers with carbide lights are often called “ceiling burners”. It’s easy to see why.
- Carbide flames make black soot stains on the ceilings. They are very ugly and nearly unremovable. A disgrace to the cave.



But the worst problem is hidden and slow ...



- Carbide dumps can be avoided easily. But, the greatest damage is done by the *inevitable* deposit of *soot* from the flame.
- This cave was discovered in 1983. The ochre-red flowstone was pure and sparkling.
- After less than two decades of intensive visits with carbide lighting, everything is now covered with a thin, black layer of soot. And this is a huge gallery, 10 by 15 m in cross-section!



Irreparable damage in only two decades.... What effect after one or two centuries?



Every carbide flame produces soot (carbon).

This soot is so light that it floats on the air and is deposited onto every semi-horizontal surface, even hundreds of metres away.

- even a new « burner » also produces soot (but less than a worn one).



Carbide: ethical code

- A caver who is concerned about cave conservation, does not use carbide lighting in decorated caves (not even if they are « huge »).
- Carbide has got two major advantages: it gives you a long autonomy and it is a heat-source. Use it only when you really need it: expeditions in remote regions, very long underground trips, very cold (alpine) caves.
- Always take a plastic bag with you that you can lay on the floor when you need to refill the carbide-container. Never do this onto the cave floor.
- Always take old carbide out of the cave. Put it in a waterproof receptacle (an inner tube of a tyre is perfect).
- Replace your burner as soon as the flame has no longer got a « V » shape.



Responsible cavers use electric

- A good electric Halogen lighting system gives you 8 to 10 hours of light. Enough for most trips! LED-systems will give at least 20 hours!
- FX2, FX3, white LEDs, Neontubes, NiMh or Li-Ion cells: electrical lighting is undergoing a dramatic evolution. Don't miss the boat!
- It is just a good feeling, to know that you are NOT participating in the slow degradation of a cave.





Impossible to do a big cave without carbide? Nonsense!



- June 2002: a Flemish /Dutch team did the Sima GESM (-1098m) to prove that even -1000m caves can be done without carbide. Eight of them reached the bottom, with only LED-lighting.
- Aug 2002: a member of SC Avalon did a 40 hr trip to the bottom of AN8 (-800m): only LED-lighting was used.
- Sept 2003: a Flemish/Dutch team will do Gorgothakas (1208m deep). Carbide is not allowed.



Actions speak louder than words



Often you will be irritated when you see rubbish or carbide dumps in a cave



But never feel too proud to clean up other peoples' mess!



About underground camping



ONLY when absolutely necessary!
NEVER just for fun.

- Underground camps are places where lots of people stay for long periods of time. So they accumulate gear, rubbish, carbide, excrement, urine. **Avoid camps if you can.**



CAMP = DUMP ?!

- A lot of camps become real dumps.
- Cavers will always feel the need to leave gear or food for the next team ... (but that might never show up).
- The last team may not be able to get everything out of the cave.
- Very strict agreements must be made



Anialarra System, -600 m (Spain): abandoned camp



If you gotta go, you gotta go...



But your urine can smell for weeks in a cave! Easy to avoid:

- The best solution: you will always have room for an empty plastic bottle in your kitbag. So, use it and take your urine out!
- Dig a hole in a mud floor and cover it again after urinating.
- If there is flowing water in the cave and you are sure that it is not used for drinking water, then you can do it there.



Too many visits. A BIG problem



- Conservative estimates show that popular caves (e.g. Trou d'Haquin, Belgium) have been visited by as many as 200,000 persons over the last 50 years!
- Can you imagine the impact of this on the cave?
- The guiding around of masses of people by some of us « cavers », in combination with the commercial outdoor centres who really CONSUME caves (caves are big business!), has totally devastated dozens of our caves.



The cave has become a funfair

- For some people, a cave is just for entertainment. Like Disneyland underground.
- Yes, big fun for those who are guided around, big money for those who guide them around.
- The more people, and the more often, the better!
- Nice formations? Bats? Landowners? Ignore them! We are here for the fun and kicks!



But real cavers say NO!

We have our code of honour. The cave comes first.



Our code of honour

- For many years now Belgian cavers have respected a code of honour. This makes it possible for non-cavers (novices or interested people) to be initiated in speleology in an educational way that has a minimal destructive impact on the underground environment. Some key rules:
 - limitation of the size of a party (maximum 10 persons)
 - limitation of the number of persons that can be guided per year (quota per club)
 - only a few, specific caves may be used for this
 - rights and property of local inhabitants must be respected
 - no financial profit may be made with this
 - provide good information to the party, provide at least two motivated and skilled guides, provide safe and good gear.
 - make all participants aware of the fragility of the underground environment and the importance of cave conservation.

IN SHORT: QUALITY, NOT QUANTITY!



Feeling guilty now? Depressed?

- Maybe, after seeing this presentation, you feel bad. Shouldn't you have chosen another hobby, something less destructive?
- NO! Speleology is a magnificent experience; a true way of life; the ultimate integration of nature, adventure, sport and science.
- Caves need cavers: the best cave protectors are the cavers themselves (but unfortunately not all cavers are the best cave protectors).
- You are the future for our caves. And, yes, you CAN make a difference!
- But: Cave « softly »!



CAVE SOFTLY, PLEASE!

« Caving Softly » or « minimal impact caving»....

- Take it easy, don't rush through the cave, keep the party small.
- Don't touch formations, don't dirty anything.
- Always look where you put your hands or feet. Watch each other!
- All follow the same route.
- Don't make any permanent inscriptions or markings.
- Don't disturb the wildlife (e.g. bats).
- Take all garbage out of the cave, even if somebody else put it there.
- Respect taped-off routes.



EPILOGUE

- **Caves are fragile and must be treated with respect - that should be clear by now.**
- **The purpose of this presentation was to make you realize that each and every one of use can « cave softly », without the need for special training or gear. It is just a matter of learning the right reflexes, having the right attitude and taking the right precautions.**
- **Educate other cavers, especially when they are just starting. A novice caver is often more open to this than someone who has been caving for 40 years. And they are the future!**
- **Above all: the cave comes first . Treat it as a living person; with respect and kindness: your reward will be a lot bigger!**



Credits and Copyright

Realisation: Paul De Bie, Avalon Caving Club, Belgium.

All pictures by Paul De Bie, unless indicated otherwise.

This presentation can be distributed and used freely, since its purpose is to reach as many cavers as possible. It may NOT be modified or de-compiled, not even partly, without the author's permission. The pictures may not be used separately, without the author's permission.

E-mail: paul.de.bie@CLEARTHISskynet.be

Thanks goes to **Dave Steer & Tony Knibbs** for reviewing the English translation

Further thanks go to:

Verbond van Vlaamse Speleologen (Flemish Caving Federation):

website: <http://www.speleo.be/vvs>

Werkgroep Speleologische Vorming (the VVS's training centre)

website: <http://www.speleo.be/wsv>

Everyone one at Avalon Caving Club, for their deep respect for caves:

website: <http://users.skynet.be/avalon>

Everyone else who contributed (especially for some vital pictures)

Cave Conservation