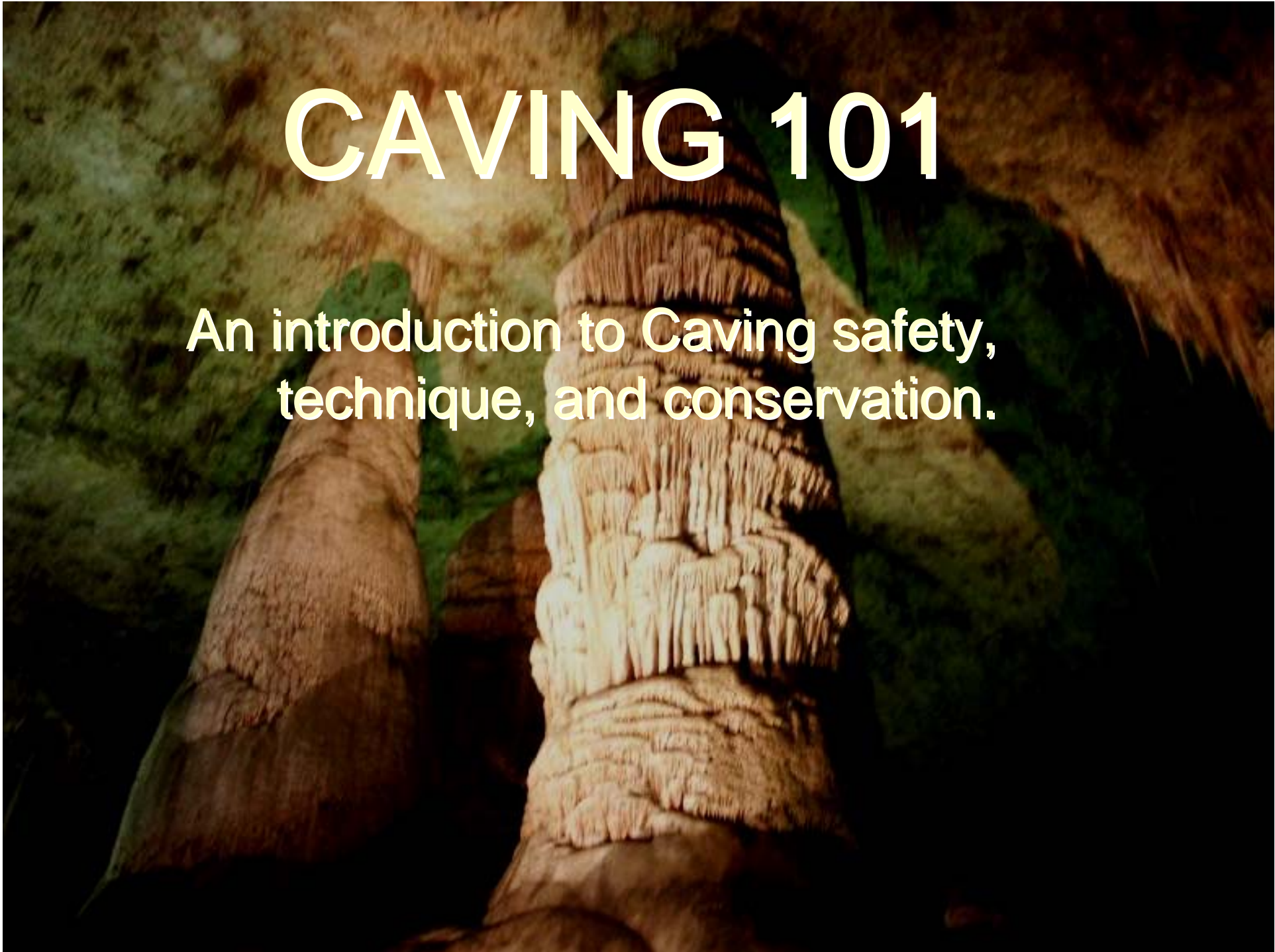


CAVING 101

An introduction to Caving safety,
technique, and conservation.



Some basic terms

- Speleology – The scientific study or exploration of caves.
- Wild Cave - Any naturally occurring cave that has not been commercially developed, and requires specialized equipment to explore.
- Caver - the term for someone who explores caves. An old out dated term for a caver was spelunker.

Some basic terms

- Cave Party – A group of cavers who enter a cave together. Caving parties always include a trip leader, a trip trail, and the rest of the party. Cave parties should always have a **minimum of 3 people**.
- Trip leader – the leader of a caving party. Generally the person who planned the trip. The trip leader is responsible for the safety of the entire party.
- Trip Trail – The trip trail is the person who travels last in the party. This person is responsible for making sure the party stays together, and that no one is left behind.

CAVING 101

This class will be broken into two parts.

- Part I: Pre-trip Planning
- Part II: Cave Exploration



Pre-Trip Planning

- Researching your Cave.
- Setting your goals for your expedition.
- Assembling the appropriate equipment.
- Leaving Emergency contact information.
- Planing non-cave related parts of your trip.



Research your cave

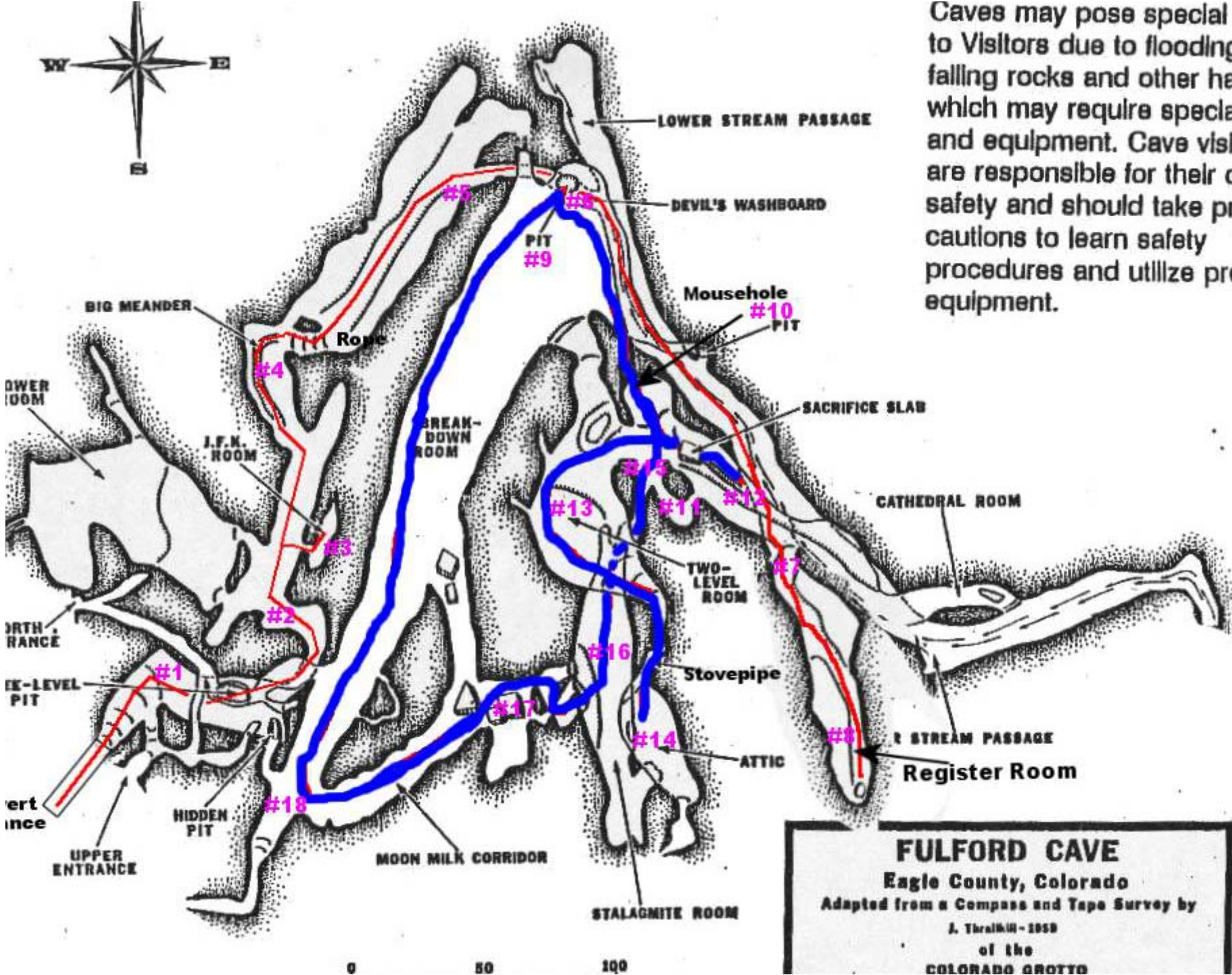
- Decide on a cave that is appropriate for you and your entire party. Some caves are more technical than others, and you may only explore caves that are in the capacity of every member of your caving party. A party is only as strong as its weakest member.

Research your Cave

- Contact caving organizations or research the internet for any helpful information on your cave. Often you will find maps of your cave or detailed reports of other cavers' trips into the cave. Two good points of contact are the National Speleological Society (www.caves.org), or the Southern Colorado Mountain Grotto, which is the local chapter of the NSS.



Caves may pose special DANGERS to Visitors due to flooding, falling rocks and other hazards which may require special skills and equipment. Cave visitors are responsible for their own safety and should take precautions to learn safety procedures and utilize proper equipment.



FULFORD CAVE
 Eagle County, Colorado
 Adapted from a Compass and Tape Survey by
 J. Thrall III - 1958
 of the
COLORADO CROTTO

Research your Cave

- **Get Permission!** Some caves in Colorado are on private property, and if this is the case, you have to get permission from the landowners to explore the cave. Most landowners that allow public exploration require a signed liability waiver for **EACH** member of your caving party.

Set goals for your expedition

- After completing your research, you must set goals for your trip based upon the things your party wants to see in the cave, the amount of time you have to spend underground, and the abilities of you and your team members. Remember not to set any goals that are beyond the scope of you or your team's abilities! As the group leader, you are responsible for the safety of every member of your party!

BORN TO CAVE

Assemble the appropriate equipment

- Like any activity, proper preparation also includes making sure you have the appropriate gear. In the following slides, you will see the things that are required and the things that are recommended. The things that are required will be in red, and the things that are optional will be in white.

Assemble the appropriate equipment

- **Fanny Pack with water bottles**

Knee Pads



Assemble the appropriate equipment

- **Pack**- You are required to have some kind of pack, either a fanny pack or a backpack for your cave trip, this allows you to carry your gear while keeping your hands free for negotiating the wild caves. Remember, there are no paved trails in these wild caves!
- **At least 16oz of drinking water** – The pack shown here is equipped with two drinking water bottles. As caving is a very physical activity, you must bring water along to prevent dehydration.
- **Knee Pads** – These are optional, although highly recommended! With all the crawling involved in caving, they become a highly valuable asset!

Assemble the appropriate equipment

Caving helmet with 1st light source

3rd light source, chemical light sticks

2nd light source: belt clip mini flashlight



Assemble the appropriate equipment

- **Caving Helmet** - A helmet is required for all wild cave tours! Your helmet must include a chin strap. Most rock climbing or bicycle helmets will work. **Also your helmet must have a light mounted on it!** This will be your primary light source.
- **3 independent light sources** – When in a wild cave you are required to carry 3 independent light sources. The three pictured here are, **1st A helmet mounted headlamp**, a belt clip flashlight, and two chemical light sticks. If your light sources are battery powered you **MUST** make sure they have fresh batteries, **that any one of them will provide enough light time to last the entire trip**, and you have an extra set of batteries for **EACH** battery powered light source!

Assemble the appropriate equipment



Gloves

Personal First Aid Kit

Rope

Assemble the appropriate equipment

- **Gloves** – You are required to wear gloves during your cave trip. This is to improve your ability to hold on to slippery surfaces, as well as to protect the ecology of the cave environment.
- **Personal First Aid Kit** – Each member of your caving party is required to carry a personal first aid kit on their person during the entire trip.
- **Rope** – It is not required that every person in your caving party carry a section of rope, but it is required that at least one person, usually the party leader, carry a section of rope to permit for emergency rescues.

Assemble the appropriate equipment

- **Ziplock Bag** – it is required to bring a ziplock bag to remove any human waste from the cave. There are no restrooms in the cave, and everything you bring in, you pack out!
- Snacks – it's always a good idea for a long trip to bring something to eat! Good choices for caving packs are, Trail Mix, Beef Jerky, or granola or power bars. These are all non perishable and will not be harmed getting tossed around in your pack. Things like sandwiches tend to get smashed.
- Cameras – it's always good to bring along a camera to get some great group shots in the cave, or simply of some great cave formations! Just remember you probably shouldn't bring the most expensive of cameras, because it's a lot easier to justify breaking a disposable camera, than a \$500 new digital. Also, make sure your camera has a flash!

Assemble the appropriate equipment checklist

Required

- Helmet with light
- 3 separate light sources
- Pack
- First aid kit
- At least 16 oz of water
- Gloves
- Rope (one person)
- Spare batteries for each battery powered light
- Ziplock Bag

Optional

- Knee Pads / elbow pads
- Snacks
- Camera

Leave Emergency contact information

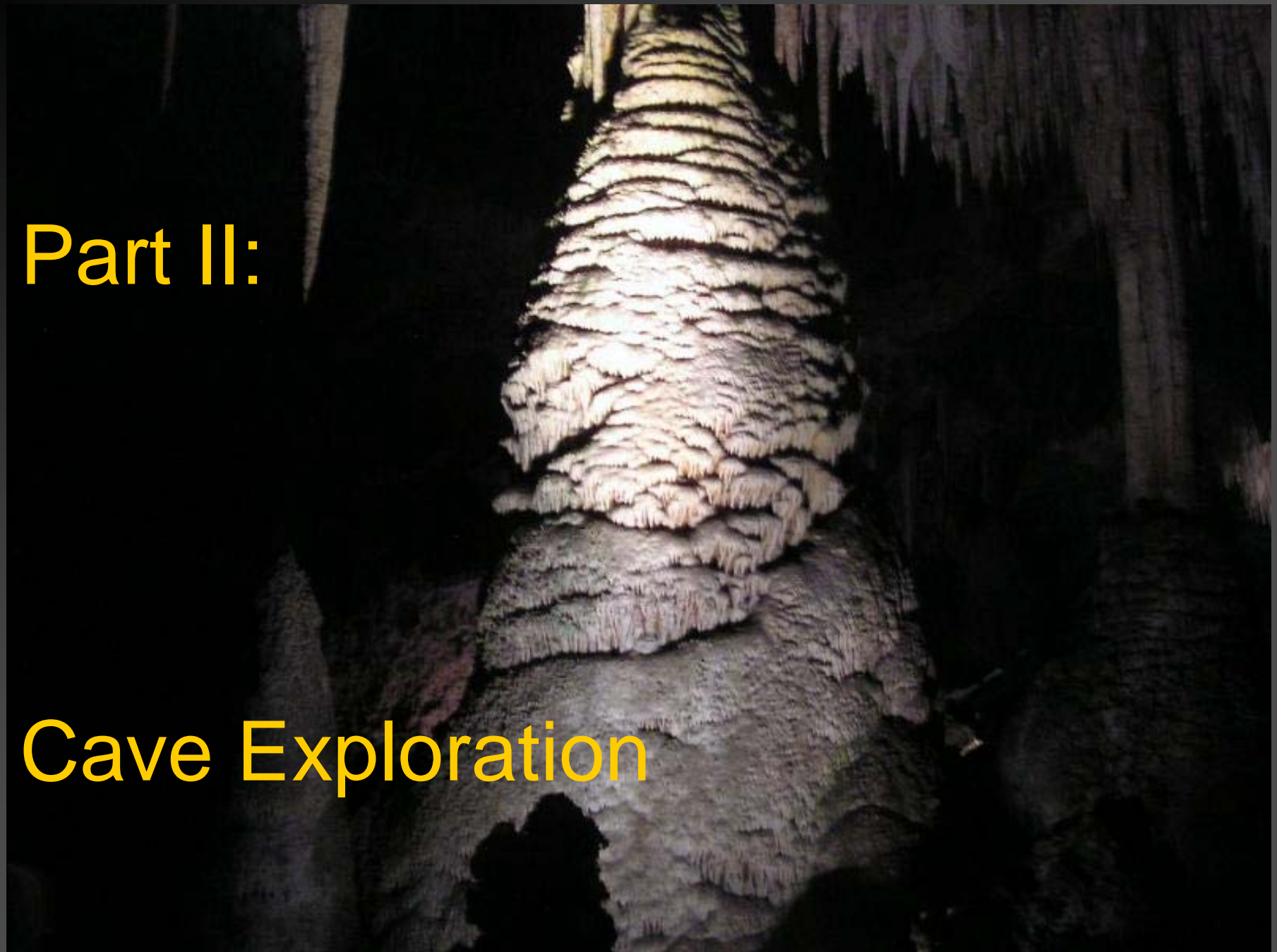
- You **MUST** leave emergency contact information with someone you trust before you leave for your trip. Tell the person **WHERE** you are going, **HOW LONG** you will be gone, **WHEN** to expect you back, and provide a list of **WHO** is going with you. If it is a large cave you plan to explore, it's also very helpful to tell the person what part of the cave you intend to explore. This will help any needed rescue efforts. **This is one of the most important parts of your pre-trip planning, and it cannot be emphasized enough!**

Plan the non-cave parts of your trip.

- Caves in Colorado are often located in remote areas. Make sure in your research you find out what is required to get to the entrance of your cave, and plan for any camping or hotels you may need to stay at while on your trip. Also, most caves require a hike to get to the entrance, so plan accordingly and allow enough time in your schedule for this.

Part II:

Cave Exploration



Part II: Cave exploration

- Things to consider about caves
- Cave Safety
- Cave Etiquette
- Cave Conservation
- After you leave the cave

Things to consider about caves.

- Caves are environments created by nature. They are not created for the ease of human access.
- Caves are VERY Dark. Without any light in a cave you would not be able to even see your hand in front of your face.
- Caves are cold, and often very wet. The average temperature of most caves in Colorado is between 40 and 54 degrees, with a humidity as high as 110%

Things to consider about caves.

- Caves can be a very stressful environment for humans. They can have tremendous psychological effects on people. Consider these factors when planning your trip, and do not enter a cave that is beyond your scope of ability or experience.

Things to consider about caves.

- The last thing to consider is how you dress to explore caves. You should plan to wear clothes that can get dirty (because they WILL.) You should also dress warmly enough to be comfortable in 50 degrees. A pair of work coveralls are recommended. You should also wear a pair of waterproof shoes or boots with non-slip tread. The next slide shows a person who is properly equipped and dressed to go caving.



Cave Safety.

- Always stay together as a party. Do not move from one area to the next until everyone is together.
- Watch for slippery surfaces. Often in caves the floor is slippery or muddy.
- Navigate slowly and safely. With no paths, negotiating caves can be tricky. Watch your step and go slowly, and take all the time you need.

Cave Safety.

- Watch your head! When in a cave there are very often low ceilings. Even with a helmet you can get hurt by bumping your head!
- As well as watching your head, you must also watch your feet. Caves have pits and chasms, that often come up very unexpectedly. In the low lighting conditions, they are often hard to see, and very easy to fall into.

Caving technique

- Communicate – When in a cave, often you will be traveling single file, and it's sometimes hard for the trip leader to communicate with everyone, so often messages are passed from one person to the next. For example, if the leader found a very slippery spot in the cave, they would tell the person behind them, and the message would be passed from person to person.

Caving technique

- Ropes / Ladders – Often in caves you will encounter ropes or ladders. When you encounter these, only **one person at a time** is allowed on the ladder or rope. Before you pick up the rope or get on the ladder you have to announce toward the other end of the rope or ladder “**ON ROPE**” or “**ON LADDER**” respectively. If you get no response, you may then use the rope or ladder. When you are finished and have **completely let go** of the rope or ladder, you must announce “**OFF ROPE**” or “**OFF LADDER.**” This is so the next person in line will know that it is clear to use it.

Caving technique

- Always be wary of everything that you see inside the cave. Take note of all landmarks that you come across. In caves it is very easy to get turned around or disoriented. Many caves are very much maze-like. For example, Groaning Cave contains over 10 miles of surveyed passages. Many of these passages join with other passages and criss-cross with one another. If you watch the landmarks you see, you will be able to find your way back out much easier. Often in caves, you will find survey tape in the shape of an arrow. **Survey Arrows in caves ALWAYS point to the exit.** However, beware, because not all caves will have these.

Caving technique

- It's always a good idea when exploring a new cave, to have someone with you who has experience in the cave. This is especially important in caves that are large and confusing in layout.

Cave Conservation

- Cave environments are an ecosystem.
- Human presence disturbs these fragile systems.
- It is our responsibility to preserve these natural treasures for future generations, and for future scientific research.



Cave Conservation

- **Cavers must always wear gloves when caving.** The gloves not only improve your grip, but also keep the oils from your skin from destroying cave formations. If a cave formation is actively growing, the oils from your skin will waterproof the stone and the formation will never grow again. Something that is hundreds of thousands of years old can be destroyed in one careless move! In other words, **DO NOT TOUCH cave formations!**

Cave Conservation

- When moving through a cave take special care not to bump or damage any of the stalagmites that are growing from the floor.
- There are no restrooms in a cave. If you feel the call of nature you must use the ziplock bag that you brought in with you, and when finished you have to take it out with you!

After you leave the cave

- As soon as possible get in touch with your emergency contact, and let them know that you made it out of the cave safely.
- Get input from your party, and find out what everyone thought of the expedition, and ask everyone if they felt that your group goals for the trip were met.

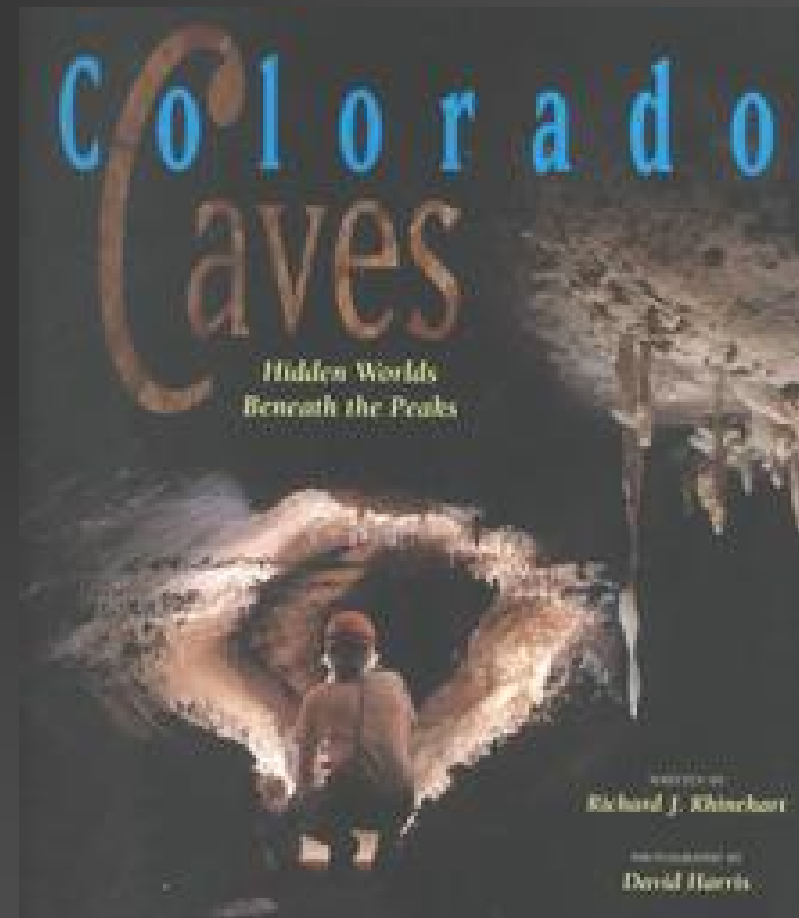
A photograph of a cave interior. The walls are covered in textured, orange-brown rock formations. A waterfall flows down the center of the cave, creating a misty spray at the bottom. The lighting is warm and focused on the rock surfaces.

Some Final thoughts

Caving can be a great hobby. If you understand and practice the things covered here today, you will have many years of wonderful caving experience. You just have to remember that a cave can be a dangerous environment if you are un-prepared for what you will encounter in the cave.

Resources

- Colorado Caves: Hidden Worlds Beneath the peaks, By Richard J. Rhinehart ISBN 1-56579-381-1
- This book is a great resource for anyone interested in pursuing caving as a hobby. It has a great deal of information regarding caving, including, information on several Colorado caves, and information on safe caving.



Resources

- National Speleological Society: Website
<http://www.caves.org>
- The Colorado Cave Survey:
<http://www.cavesurvey.coloradocaves.org/>
- The Southern Colorado Mountain Grotto:
Local Chapter of the NSS:
<http://www.socomogro.org/>

Resources

- Caving 101 class website
<http://www.caving101.com> This is a webpage for this class. It contains downloadable resources including :
 - PDF copy of this slideshow
 - Schedule of upcoming classes and trips
 - Contact information for us.