October 2011, Part 2

NSS News

American Caving Accidents

2009-2010

National Speleological Society

Accident/Incident Report Form

Date of Accident or Incident: _____ Day of Week: _____ Time: _____

Cave: _____ State: _____ Country: _____

Reported by:

Name _____ Telephone _____

Address _____ Email _____

City _____ State _____ Country _____ Postal Code _____

Name(s) of Person(s) Involved	Age	Sex	Experience	Affiliation	Injuries or Comments

Describe the accident as completely as possible on the back of this form or on a separate sheet. If possible, obtain information from those involved. Use additional sheets if necessary. A report in the style of *American Caving Accidents* is ideal. The following checklist is suggested as a guide for information to be included. You can also report accidents on the Internet at **www.caves.org/pub/aca.**

The Accident/Incident

( ) Names and ages of persons involved.
( ) Events leading to accident/incident.
( ) Location (include state and county) and conditions in cave.
( ) Description of how the accident/incident occurred.
( ) Nature of injuries sustained.
( ) Analysis of main cause.
( ) Contributory causes (physical condition of caver, weather, equipment, clothing, etc.).
( ) What might have been done to prevent the accident?

Rescue or Response
( ) Actions taken following the accident/incident.
( ) Persons or organizations contacted for help.
( ) Details of rescue procedures.

Further details were reported in (please list name and date of publication or source, and attach copies if possible):
Newspapers _____
Grotto Newsletter _____
Other (web site, television or radio station, etc.) _____

Please return the completed report to the NSS as soon as possible after the accident.

National Speleological Society
2813 Cave Avenue
Huntsville AL 35810-4431

American Caving Accidents
2009-2010
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Deadline: The NSS News is distributed the last week of the month preceding the date of publication. Advertisements, articles, and announcements should be sent to the NSS News, P.O. Box 879, Angels Camp, CA 95222 by the 15th of the month, six weeks before the month of issue (for example, material for March should be submitted by January 15).

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NSS News
American Caving Accidents

October 2011 Volume 69, Number 10, Part 2

Features

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Front Cover

Thunder Canyon Cave – looking up from below. Brent Colvin has been stuck for for almost 12 hours. Brent's feet are visible below the San Bernardino Cave Rescue Team member as they try to raise him.

Back Cover

Thunder Canyon Cave – Brent Colvin (left) after being freed. He had been stuck for over 12 hours.

Caver Input and American Caving Accident / Incidents

Ray Keeler

Welcome to another issue of *American Caving Accidents*. The intent of the publication is to inform, educate, and promote safe caving. A primary, contributing portion of this publication has caver input. After all, those people reading the *ACA* are part of the most organized caver communications network in North America.

First, several of the incidents reported in this issue were summarized based on public news-media accounts when no caver input was available. Later, when the cavers involved either sent in reports or were contacted for additional information, the summaries were substantially corrected to more accurately reflect the events that took place. Please, submit incident information. The online form can be found at http://www.caves.org/pub/aca/acaform.html. It is not enough to assume someone else will take care of reporting the accident or incident. Your perspective is important.

Sending an email to aca@caves.org goes to the *ACA* Editor. Please send information you have heard. I usually write back asking with whom contact should be made for additional data. The Cave Rescue Forum on *CaveChat* on the NSS web page is also an excellent medium for better understanding the events.

CaveChat is at http://www.forums.caves.org/

Second, please do not be embarrassed about writing up and sending in your own incident report. We all make mistakes and we all learn about this activity called caving. Some cavers have told me about incidents that would be very useful to relay to the general community, but were unenthused about actually sitting down and writing about the event.

I have found that by taking the time to put these events onto paper (or into the computer), I learn so much more about the sequences of events, the causes, and things that could have been done to better the outcome.

During the 2009–2010 period there were three heart-wrenching incidents where cavers became stuck. In two of the three incidents, the cavers escaped with their lives. In the third incident, rescuers were unable to get the man free. Please, if you are going into tight passage, know your limits, talk with your team, and make good decisions.

NSS Membership and Number of Incidents

Year	Members	Incidents
1986	6741	45
1987	7203	48
1988	7873	49
1989	8514	51
1990	9028	55
1991	9777	54
1992	10492	60
1993	11164	64
1994	11460	57
1995	11836	44
1996	11140	43
1997	11470	43
1998	11685	32
1999	12098	44
2000	11773	40
2001	11967	34
2002	12261	31
2003	12264	35
2004	12020	23
2005	11658	26
2006	11664	36
2007	11552	26
2008	11651	22
2009	11588	20
2010	11044	25

Only incidents resulting in aid, injury, or fatality are included. Membership figures include all classes of

An Overview of the 2009 and 2010 Incidents

American Caving Accidents (ACA) is the journal of record for caving accidents and safety incidents in North America. This issue contains reports for incidents that occurred in 2009 and 2010. Following the custom of previous issues, the reports have been separated into two general categories: regular caving and cave diving. These two categories were further classified by result or outcome and by causes and contributing factors. The cave-diving incidents are grouped separately, and an overview is presented at the end of this section.

Since 1994, we have used the category "difficulty on rope" to encompass such problems as becoming stuck at the lip of a pit, clothing or hair caught in the rappel device, jammed rappel safety, or simply becoming unable to ascend or descend. Our intent is to better describe these situations, which might otherwise be lumped under "stuck," "trapped and/or stranded," or perhaps "equipment problem."

In reporting the number of incidents versus NSS membership totals, only caving incidents involving fatalities, injury, or aid were included. The reader should also be aware that the members of the National Speleological Society constitute only a portion of the population of active cavers. Further, not all incidents are reported to *ACA*. Therefore, these numbers should

not be considered reliable indicators of accident rates for caving or used to draw conclusions about the relative degree of risk or danger involved in caving.

Caving Incidents are grouped separately from **Caving-Related Incidents** based on four primary criteria. First, if the incident location was reported as a cave when in actuality it is not a cave, then the incident is reported as caving related. Examples are abandoned mines and rock shelters. Second, if the person was not aware of the cave, did not intentionally enter the cave, or go to see the cave, then it is a caving-related incident. For example, if the person was running from the police at night and fell into the entrance, then it is Caving Related. There are two of these in this issue. However, if the person intentionally went to look at the cave entrance and the person fell in, then this is a Caving Incident. The third category is when animals are stuck or have fallen into caves and a rescue effort is started. The fourth is a catch-all category. Examples include someone living in an unimproved cave and an incident occurred or something strange was discovered in a cave. Finding 1,400 pounds of marijuana is an example.

Incident Results

For some random reason, similar incidents of the same type seem to occur in unexpected groups. In 2007-2008 it was cell phones being able to connect from completely unexpected locations to save lives. In 2009-2010 there were multiple sets of clusters of incidents. The first set involved three incidents in which cavers became seriously stuck. The second set involved three people, all transients, in three different states that had been living in unimproved caves when they died. The third included three instances where bodies were found in caves. Finally, the use of vegetable oil for lubricating tight spots shows up in three different reports

Fatalities

On average, there are three or four fatal, non-cave-diving caving accidents in North America each year. When incidents involving untrained and inadequately equipped spelunkers are excluded, the average drops to one or two fatal accidents per year.

In the U.S., "cavers" generally consider "spelunkers" to be people who have no real knowledge or understanding of caves and caving safety, but who decide to enter a cave anyway, usually without proper equipment.

In 2009 there were six caving fatalities and two diving fatalities. Two of the six caving fatalities occurred while the group was well into the cave when the incident happened. These were in Nutty Putty, Utah and Sloan's Valley, Kentucky. The Blue Spring free-diving fatality was placed under caving versus cave-diving since the caver was going in with no breathing equipment. A fourth incident involved a person free climbing up the rock face to King Phillips Cave, Connecticut, and falling. The remaining two 2009 fatalities were a murder/suicide in Colorado.

The two 2009 cave-diving fatalities were both in Florida.

In 2010 there were four caving fatalities and one cave-diving fatality. Additionally, there were twelve caving-related fatalities with six of these in one incident. Of the four caving fatalities, none occurred in conditions or acts that might be expected to happen on a typical caving trip. There was a person with a medical issue in New Mexico that ended up dead in a cave. A person was free-diving a cave in Florida and drowned. A law enforcement officer was checking information on a case, went to Hilham Pit in Tennessee and fell into the pit. The two fatalities in Coronado Cave in Arizona were a murder/suicide. Finally, the man who fell into Sótano de Ahuihuitzcapa in Mexico was a tourist just looking into the huge pit.

There was one cave-diving fatality in Florida.

The twelve caving-related fatalities in 2009 and 2010 included three people living in caves when they died. They were all transients. In addition to these fatalities, there were six bodies found in a cave near Cancún Mexico. these were a result of murders and the bodies were dumped in the cave. The incident was probably drug related. A man was solo exploring an abandoned mine in Oklahoma and drowned in a pool of water inside the mine. A young girl was crushed by falling ice just outside an ice cave in Washington and a missing open-water scuba diver was found in a crevice in the entrance of a sea cave on Santa Cruz Island in California.

Including the caving-related incidents, these total up to 22 deaths over the two-year period, which is not a good way for caves to be mentioned in the news media.

Injury and Aid

Injury and Aid are incidents where someone has been hurt or stuck, and aid outside of the team members is contacted for assistance to get the caver out. The primary causes for Injury and Aid rescues are caver falls, rock-falls, or becoming stuck or trapped. These accidents are discussed under Incident Types below.

Caver fall incidents were the primary cause of injury and aid rescues in 2009 and 2010. There were 10 in 2009 and 15 in 2010. Four deaths resulted from the falls. At least three falls resulted in the caver becoming stuck or trapped and requiring extrication.

With the thousands of trips each year and the wet and sometimes slippery conditions, it is inevitable that slips and falls will happen. The low incidence of falls in caves suggests that the vast majority of people going into caves are caving safely and maintaining a safe perspective with respect to traversing the cave environment.

However, some of the falls in 2009 and 2010 were due to very poor decisions. A primary "caver fall" contributor is spelunkers wearing tennis shoes or shoes with very little tread. The Lava River incident is a representative example.

Further poor decisions, including not wearing helmets, increased the injury and aid statistics.

Injury, No Aid

These incidents resulted in injuries ranging from scrapes and bruises to sprained ankles and broken legs. In each case, the

victim was able to exit the cave with minimal assistance from members of the caving party.

Seven incidents are in this group. When the rigging failed during the Nutty Putty rescue, the rescuer was able to reach the surface under his own power after being injured. Caver fall contributed to injuries in Bluff River, Scott Hollow, Benedicts, and a fourth cave in West Virginia, as well as a college speleology course trip in Bat Cave ,Arkansas. Rock-fall was the cause of the Lechuguilla Previously Unreported incident.

No Injury, Aid

Most incidents in this category are rescues of individuals that cavers often refer to as "spelunkers", those who were typically poorly equipped and inexperienced, and are often stranded when they break or lose their flashlights, run out of batteries, descend pits hand over hand, or get lost. Sometimes, however, even experienced and properly equipped cavers fall ill and need assistance, or are trapped by rock-fall or flooded passage.

There were 10 with trips with no injury but aid was required in 2009 and 2010. These included Ten Mile Pit (Rabbit Cave) where the spelunkers could not get back up the rope. Two incidents were from being trapped in sea caves by the surf. Four incidents occurred when cavers became stuck including Smith's Crack, Idaho, Rattlesnake or Gutter Cave in Massachusetts and two incidents in talus caves on Old Man Mountain in Colorado. Exhaustion was the reason for the Stoner's Den rescue.

No Consequence

These incidents are typically of the "near miss" category. They are included so that the reader will be aware of the many things that can go wrong on a caving trip. Examples include carabineers or maillon links becoming unscrewed while on rope, rock-fall incidents, passage collapses not resulting in injury or requiring aid, and individuals or groups who become lost or stranded, but who are eventually able to find their way out or resolve their difficulties without assistance.

There were three reports in 2009 and 2010. These included a caver fall in Van Horn Arizona, rock-fall in an unnamed karst feature in Georgia, and trapped by high water in Buckeye Creek West Virginia.

Incident Types

Acetylene-related

Acetylene-related was a category primarily related to carbide lamps and the carbide fuel used. As of 2010 there has not been an acetylene-related incident in over 14 years. With the wide availability of affordable, high-quality electric and LED headlamps, carbide lights have largely been displaced in U.S. caving.

Bad Air

None of the caving accidents and incidents reported in this issue involved bad air.

To learn more about the dangers and signs of bad air in caves, see Bill Mixon's article in the April 2000 *ACA*, and Bill Elliott's article in the December, 1997, *ACA*.

Caver Fall

Falls remain the leading type of incident or accident in caving, accounting for a large proportion of reported injuries and rescues. Ten of the reported incidents for 2009 and 15 incidents in 2010 involved falls. The falls included both cavers and spelunkers. Additionally, there was a fall in an abandoned mine. Many of the incidents could have been prevented by the use of a belay or having better foot gear. Cavers should consider using a belay whenever the exposure of a climb or traverse is greater than a body length.

A belay should always be used when climbing or descending a cable ladder.

Cavers also fall on occasion while moving through "horizontal" passages, and account for a number of accidents reported in this issue. Cavers can reduce the risk of falls by wearing sturdy boots with lug soles and maintaining "three points of contact" while moving over uneven terrain.

Difficulty on Rope or Ladder

This category includes cavers who become stranded on rope and require assistance, or who experience significant difficulties and require assistance to complete their ascent or descent.

Aden Fumarole in New Mexico, Ten Mile Pit in Tennessee, and Canteen Sinks Cave in Utah and the rescue in an unnamed pit in British Columbia, Canada are listed here.

Cavers involved in these incidents are often relatively inexperienced and sometimes unfamiliar with their gear. All four of these incidents involved novices. The incident in British Columbia involved someone who had to be rescued earlier in the week from a cliff face in the area.

Others may be experienced cavers who are simply out of practice or out of shape. Some incidents occur when cavers are unable to deal with situations such as crossing the lip of a pit with weight on the rope below, crossing an undercut or overhanging lip, changing from rappel to ascent and vice versa, or climbing a cable ladder.

Cavers must master their systems and know how their equipment works. With practice, skilled cavers can perform a change-over in less than 60 seconds. Spend time practicing; it could save your life.

Drowning

Drowning incidents are infrequent in "dry caving," but have occurred when cavers became trapped by flooding or when they attempted to free-dive through sumped passages.

Two cavers drowned trying to free-dive into caves in Florida. A third person drowned when he went swimming in an underground pool in an abandoned mine.

Equipment Problem

This catch-all category includes rigging failures, slipping ascenders, light failure, rope failure, and misuse or lack of equipment. There was one equipment-problem incident. The rigging failed during the Nutty Putty Utah rescue attempt.

Exhaustion

Exhaustion is a contributing factor in a wide variety of incidents. It was a contributing factor in the Scott Hollow, West Virginia caver fall. Exhaustion also became a critical issue for the patients during two rescues where cavers became stuck in Nutty Putty, Utah and Thunder Canyon in California. Taking measures to prevent exhaustion may be much easier than having to deal with exhaustion, and a resulting incident.

Flooding

The lesson taught by flood entrapments is simple: pay attention to the local weather conditions. Check the forecast for the caving area, and be alert for the possibility of flooding. If the cave is known to flood and you do not have a clear forecast, go somewhere else. Also, know what the weather has been for the last several days. Some caves may experience flooding several days after a storm event. Snowmelt on a warm dry cave can also cause a cave to flood. It is just not worth the risk of entrapment, rescue, media attention, closed caves, injury, or death. For more on the dangers of water caves, see George Dasher's editorial in the June 2003 *ACA*.

Buckeye Creek Cave in West Virginia is in this category. In this case the project cavers had done everything right, including pre-staging a rescue cache, checking the weather before the trip, and then making the critical decision to wait until the water went down. The result was no injury and no aid.

Hypothermia

Hypothermia is usually a secondary result in the reported incidents, occurring subsequent to cavers becoming injured, stranded, or trapped in a cave.

There was one incident in 2009 and 2010 involving hypothermia. One of the side effects of the Thunder Canyon incident was that the caver stuck in very tight, cold, windy passage was becoming extremely cold. Hypothermia was a very real threat.

Hypothermia also impairs your thinking and judgment, making potentially deadly mistakes more likely.

Illness

There were no reported incidents of histoplasmosis infections, or other infections due to caving in 2009 or 2010.

Lost

Most of these incidents involve untrained and ill-equipped cavers, spelunkers, or novices with little experience. Many escalate to the "stranded" category when batteries run out or flashlights are broken. When found, lost cavers often require treatment for hypothermia, sometimes including hospitalization.

There were no instances of cavers becoming lost during 2009 and 2010.

Medical Issue

Medical issues are events that happen during the caving trip. These include heart attacks, nausea, over heating, or crawling and injuring your knee.

The New Mexico incident in the unnamed cave was probably more related to the person not taking her medication before wandering off. She was found months later, dead in a cave.

Rock-fall

Rock-fall incidents accounted for several serious accidents and incidents during the reporting period, resulting in injuries and rescues, as well as two cases of entrapment. The most notable rock-fall incidents were those in which cavers were pinned or trapped in caves.

Three rock-fall incidents involved cavers including the previously unreported 2007 Lechuguilla incident.

The rock-fall while on rope in Fang Cave, British Columbia injured a caver below. The rock-fall in Upper Millerton Cave, California caused the caver to become trapped in a desperate situation. The Lechuguilla rock-fall was just off of a trail that had been in use almost twenty years. The area was considered stable before the incident.

Stuck

Stuck is a serious situation. Stuck is an emergency and needs to be addressed immediately and continuously until the situation is resolved. Being stuck can kill the caver through hypothermia, restricted breathing, restricted blood flow, and other complications.

Getting stuck is usually not much of a problem for experienced cavers. Most of us have been stuck in a tight passage at some point, and have learned that a calm head and careful movement can usually remedy the situation. Sometimes, however, extracting a stuck caver from a tight passage or crevice can be extremely difficult.

During the 2009 and 2010 period, there were three serious incidents where cavers became extremely stuck. In many ways the three accidents where the cavers became stuck differed substantially. These differences included:

- The equipment used by the cavers.
- The reasons for the cavers to become stuck.
- The experience level of the cavers.
- The temperature differences and conditions between the caves.
- Whether a rescue was called out.
- The understanding of the situation by surface rescue personnel.
- The length of time of the rescue effort.
- The rescue success.

Two teams were properly equipped with standard horizontal caving equipment including wetsuits. One team had hand-held flashlights.

The cause in two incidents for the cavers to become stuck was due to the cavers going into tight passage. The third incident was due to rock-fall.

Two groups had experienced cavers. Of these two groups, one group had experienced cavers who had been through the passage before, positioned their team accordingly, and still a member became stuck. The second group had only two people and the rock-fall was not anticipated. A slip caused the caver to grab an untested chock-stone. The third group was enjoying exploring and pushed an unknown passage too hard.

The temperatures in two caves were cold (high 40s to low 50s) and the third cave was in the "60-degree F" range.

Two accidents required rescues. The third was a self-rescue.

The experience of the surface command with cave rescue differed substantially on the two incidents that required rescues.

The lengths of time for the rescue varied from one hour to 12 hours, to more than 27 hours.

Two rescues were successful, one was not.

Trapped or Stranded

This category is used to describe incidents in which the caver or cavers were prevented from exiting the cave by rock-fall, light failure, lack of equipment, equipment failure, or other causes. In many of the reported incidents, "spelunkers" became stranded due to inexperience, inadequate equipment, and/or poor judgment.

In Rattlesnake Cave in Massachusetts, the caver went down a narrow, vertical slot to a small room but was unable to get back out without help. In British Columbia, the spelunkers went down the pit without enough equipment or training to get back up. One person was trapped in a California sea cave by heavy surf. One group was stranded in Lariat Cave, Idaho by snow drifts not allowing them to leave.

Other

This catch-all category includes sinkhole collapse, cuts by sharp rocks, dislocated shoulders, twisted ankles and other joint injuries, animal attacks, and other incidents not covered above, including drug labs, explosives, or bodies found in caves.

The two murder/suicide incidents and the discovery of marijuana in a sea cave in California are catagorized here.

NCRC Alabama - May 2010
Photos by Jansen Cardy

Caving Accident and Incident Statistics
1986–2010

Result of Incident

Result	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10
Fatality	4	3	4	1	4	6	5	5	1	2	1	4	4	4	2	5	2	6	3	0	4	1	4	5	4
Injury and Aid	10	15	11	16	18	16	17	22	19	17	16	22	14	14	20	11	15	9	7	8	15	9	9	8	8
Aid, no Injury	21	15	20	20	23	20	28	33	26	17	16	13	12	18	15	13	8	14	12	8	12	9	7	4	5
Injury, no Aid	10	15	14	14	10	12	10	4	11	8	10	4	2	8	3	5	6	6	0	10	4	8	2	1	6
No Consequence	19	16	12	21	9	12	16	3	20	12	11	4	8	3	1	2	4	5	1	0	1	0	3	3	0
Total	64	64	61	72	64	66	76	67	77	56	54	47	40	47	41	36	35	40	23	26	35	26	25	21	25
Incidents Involving Fatality, Injury, or Aid	45	48	49	51	55	54	60	64	57	44	43	43	32	44	40	34	31	35	22	26	34	26	22	17	25

Incident Type

Type	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10
Caver Fall	25	14	20	19	22	22	22	19	20	15	21	27	15	20	17	13	20	14	5	10	12	11	11	10	13
Trapped/Stranded	-	-	-	-	-	-	-	1	13	18	18	13	9	17	14	9	10	15	6	5	7	4	3	3	3
Difficulty on Rope	-	-	-	-	-	-	-	-	11	4	6	5	1	4	3	1	5	5	1	2	2	1	2	0	2
Rock-fall	12	17	7	11	11	12	16	11	12	10	5	5	2	4	2	3	3	5	3	7	4	5	3	1	1
Lost	8	5	3	9	4	3	4	5	12	7	4	5	3	3	3	1	1	5	4	2	3	4	2	0	0
Flooding	1	3	3	4	2	2	1	3	1	4	5	2	1	4	1	1	0	6	1	0	1	0	0	1	0
Hypothermia	1	2	0	5	0	2	4	0	3	6	6	2	2	2	3	1	1	3	0	1	2	1	2	0	1
Illness	0	0	2	3	2	1	0	3	3	0	1	1	8	0	2	2	2	1	2	2	0	0	1	0	1
Exhaustion	0	1	1	3	0	2	4	2	4	1	4	1	1	2	3	1	2	1	0	0	2	0	1	0	1
Drowning	1	2	0	2	2	2	2	0	0	0	1	0	0	1	0	1	0	3	1	0	1	1	1	1	0
Stuck	3	1	0	1	1	3	5	5	2	1	2	0	1	5	3	5	0	1	6	3	2	0	2	2	3
Bad Air	3	2	1	1	1	2	1	1	2	2	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0
Acetylene-related	3	0	1	1	0	0	0	1	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equipment	14	17	20	20	23	21	20	11	11	4	4	2	1	0	0	3	2	0	0	0	4	4	2	1	1
Other	3	4	8	6	8	4	5	4	6	6	3	2	3	2	3	3	2	1	1	1	1	0	2	1	1
Caving-related Incidents	-	-	-	-	-	2	1	0	2	0	1	1	5	2	11	2	9	4	19	9	8	4	6	2	15

Cave Diving Incidents

Result	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10
Fatality	7	5	9	4	8	2	5	6	8	6	2	2	0	5	7	9	3	5	6	2	1	5	6	2	1
Injury and Aid	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0
Aid, no Injury	1	0	0	0	0	1	1	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
Injury, no Aid	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
No Consequence	1	2	1	1	0	5	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0
Total Diving	9	7	10	5	8	8	7	6	9	7	3	3	1	7	8	9	4	5	7	4	2	5	7	3	1

2009 Reported Caving Accidents and Incidents

21 caving incidents reported

Date	Cave	Location	Result	Incident Type
January 3	unnamed cave	Tennessee	injury and aid	caver fall
January 24	Pettijohns Cave	Georgia	injury and aid	caver fall
February 10	unnamed cave	Georgia	no injury, no aid	rock-fall
February 15	Stevens Gap Cave	Alabama	injury and aid	caver fall
February 28	Bryant Mountain Cave (ABA 355)	Alabama	injury and aid	caver fall
April 11	Lower Van Horn Cave	Arizona	no injury, no aid	caver fall
May 15	Carter County Saltpetre Cave	Tennessee	injury and aid	caver fall
May 22	Ten Mile Pit (Rabbit Cave)	Tennessee	no injury, aid	stranded
May 30	Blue Springs	Florida	fatality	drowning
June 28	Harding Point Cave	Arizona	injury and aid	caver fall
June 28	Buckeye Creek Cave	West Virginia	no injury, no aid	trapped, high water
August 6	King Phillips Cave	Connecticut	injury and aid	caver fall
September 8	unnamed sea cave	California	no injury, aid	stranded
September 9	Smith's Crack	Idaho	no injury, aid	stuck
September 21	Hole in the Wall Sea Cave	California	no injury, aid	trapped
October 6	Coronado Cave	Arizona	2 fatalities, murder/suicide	other
October 17	Fang Cave	British Columbia, Canada	injury and aid	rock-fall
November 24	Nutty Putty	Utah	fatality	stuck
November 25	Nutty Putty	Utah	injury, no aid	equipment problem
November 28	unnamed cave	Oregon	injury and aid	caver fall
December 16	Sloans Valley Cave System	Kentucky	fatality	caver fall

2010 Reported Caving Accidents and Incidents

26 caving incidents reported

Date	Cave	Location	Result	Incident Type
January 10	Upper Millerton Cave	California	injury, no aid	rock-fall, stuck
January 23	Bluff River Cave	Alabama	injury, no aid	caver fall
January 31	Scott Hollow	West Virginia	injury, no aid	caver fall
February 15	unnamed cave	New Mexico	fatality	medical issue
February 15	Benedicts Cave	West Virginia	injury, no aid	caver fall

March 6	unnamed cave	Florida	fatality	drowning
March 9	Espey Cave	Tennessee	injury and aid	caver fall
March 21	unnamed cave	Illinois	no injury, no aid	overdue
March 26	Stoner's Den Cave	California	no injury, aid	exhaustion
April 6	Hilham Pit	Tennessee	fatality	caver fall
May 3	Thunder Canyon Cave	California	injury and aid	stuck, hypothermia
May 11	Raccoon Mountain Cavern	Tennessee	injury and aid	caver fall
June 19	unnamed cave	West Virginia	injury, no aid	caver fall
July 5	unnamed cave, Old Man Mountain	Colorado	injury and aid	stuck
July 19	Rattlesnake or Gutter Cave	Massachusetts	no injury, aid	caver fall, trapped
August 2	Aden Fumsrole	New Mexico	injury and aid	difficulty on rope
August 20	unnamed cave, Old Man Mountain	Colorado	no injury, aid	caver fall, stuck
September 3	Bat Cave	Arkansas	injury, no aid	caver fall
September 17	Lava River Cave	Arizona	injury and aid	caver fall
October 6	unnamed cave	Colorado	2 fatalities, murder/suicide	other
October 19	unnamed cave	British Columbia, Canada	no injury, aid	stranded, inadequate equipment
November 7	Canteen Sinks Cave	Utah	injury and aid	difficulty on rope
November 11	Fang Cave	British Columbia, Canada	2 injuries and aid	caver fall
November 17	Spring Hill Saltpeter Cave	Tennessee	injury and aid	caver fall
December 21	Sótano de Ahuihuitzcapa	Veracruz, Mexico	fatality	caver fall
December 29	Lariat Cave	Idaho	no injury, aid	stranded

2009 Reported Cave Diving Accidents and Incidents

3 incidents reported

Date	Cave	Location	Result	Incident Type
May	Ginnie Springs	Florida	no injury, no aid	equipment issues
September 4	Ginnie Springs	Florida	fatality	drowning
November 3	Eagle's Nest Sink	Florida	fatality	drowning

2010 Reported Cave Diving Accidents and Incidents

1 incident reported

Date	Cave	Location	Result	Incident Type
July 8	Peacock Springs	Florida	fatality	drowning

2009 Reported Caving Related Incidents

2 incidents reported

Date	Cave	Location	Result	Incident Type
July 9	abandoned lead mine	New Hampshire	injury and aid	fall, stuck
September 19	unnamed sea cave	Washington	injury and aid	other

2010 Reported Caving-Related Incidents

15 incidents reported

Date	Cave	Location	Result	Incident Type
April 21	unnamed cave	Idaho	fatality	living in cave
May 18	unnamed cave	Arizona	fatality	living in cave
May 30	unnamed abandoned mine	Oklahoma	fatality	drowning
June 6	unnamed cave	Cancún, Mexico	6 fatalities	murder
June 6	unnamed sea cave	California	no consequence	other, drug stash
June 8	Bums Cave	Virginia	fatality	living in cave
June 11	Cool Caves (abandoned mine)	Pennsylvania	no injury, aid	stuck
July	unnamed cave	Arizona	no consequence	other, drug spotter
July 30	Cool Caves (abandoned mine)	Pennsylvania	injury and aid	fall
July 31	Big Four Ice Caves	Washington	fatality	ice fall
August 11	unnamed cave	Illinois	dog rescued	dog stranded in cave
October 30	unnamed cave	North Carolina	dog rescued	dog stranded in cave
November 5	unnamed cave	Tennessee	2 injuries and aid	fell in entrance
November 27	unnamed abandoned mine	Pennsylvania	injury and aid	stuck
December 5	unnamed	California	fatality	other, body found in cave

Acknowledgments

As always, we are all indebted to the people who have contributed reports for this issue. Their willingness to share their experiences makes *American Caving Accidents* a valuable resource for all cavers. Several notable correspondents have contributed a substantial portion of the material for these reports. They include: Andy and Bonny Armstrong, Rene Ohms, Aaron Bird, and Bill Putnam. Many valuable comments, proof reading, corrections, and suggestions were provided by reviewers Bonny Armstrong, George Dasher, Yvonne Droms, Mark Minton, Rene Ohms and Forrest Wilson.

Dive-related comments were provided by Forrest Wilson.

Acronyms and Explanations

BORSTAR	BORder Search Trauma And Rescue
Ferno Washington	Plastic rescue stretcher used to transport over rough terrain
KED	Kendrick Extrication Device (similar to the Oregon Spine Splint, or OSS)
MA	Mechanical Advantage. Used in technical rope-hauling systems

MRA	Mountain Rescue Association
Puka	Ceiling collapse in a lava tube forming an entrance
SAR	Search and Rescue
Short-haul	Rope hanging below a helicopter used to transport patients and rescuers out of (and into) rough terrain.
SITLA	Utah School and Institutional Trust Lands Administration
Stokes Litter	Aluminum or hard-plastic rescue stretcher used to transport patients over rough terrain
Z-rig	A rescue haul technique that allows rescuers to raise a patient

Previously Unreported Caving Accident and Incident Reports

6 June 2007
Lechuguilla Cave, New Mexico
rock-fall, injury, no aid

Daryl Greaser, Mike Bennett, Mark "Elvis" Andrich, Doug Warner, and Dan Lamping were part of a six-person, multi-day underground camp in the Near East branch of the cave. The expedition goals included fixing previous survey blunders, lead checking and re-sketching. On the 4th day of the camp, Daryl, Elvis, Mike and Dan were checking survey blunders just off one of the main Near East trails. Mike and Daryl were above re-shooting a 20-foot long survey shot down a 45-degree, cemented breakdown slope to Mike and Daryl below.

As Mike was leaning over the boulder taking the shot and Daryl was standing next to Mike, two boulders next to GV23 broke loose and rolled down the slope towards Dan and Mark. Daryl was able to ride the smaller rock down about one third of the way before being thrown off. Dan and Mark were able to jump to safe passage. The smaller of the two boulders, 30 by 18 by 24 inches and about 300 lbs, rolled over Daryl's right foot and injured his toes. The larger boulder, 6 by 2 by 3 feet and well over 1000 pounds, slid down and crashed into the rock holding the lower station, moving it 18 inches.

The "small rock" that fell hitting Daryl Greaser. Photo by Mike Bennett.

The grouped immediately checked to see that everyone was safe. Mike had hung on to the GV23 boulder, which fortunately did not fall, though the move caused a minor injury to his upper rib cage. Mark and Dan were fine, and they removed Daryl's boot to tend to his wounds, which turned out to be two painfully smashed toes and a one-inch long laceration on the back of his right arm.

With nothing broken and no external bleeding, Daryl took some pain medication and the team returned slowly to the Rusticles Camp. The boot was removed and the foot raised. By the next morning Daryl's first two toes' area was very darkly bruised. He was still able to help with surveying, and the following day was able to exit the cave with little difficulty.

Daryl Greaser, *Incident Report*, 2 September 2011.
Mark Andrich, Lechuguilla Cave Newsletter, Issue 3 Winter 2007-2008, "Near East Expedition," Winter 2007-2008.

Comments: Daryl and the rest of the team were extremely lucky the injuries were not more extensive. They realized that there was no way to prevent the accident, especially considering this was in a high-traffic area and presumably stable. The trail had been used for almost 20 years. As Daryl puts it, "We know complacency kills, and therefore I use a higher level of scrutiny when traveling through breakdown."

The "large rock" in front of the caver's left knee that missed the two cavers below. Photo by Mike Bennett.

2009 Caving Accident and Incident Reports

3 January
unnamed cave, Tennessee
caver fall, injury, aid

Late Friday night after midnight, Jeremy Boon (20) and five others were on a mountain in rural Putnam County searching for caves. Boon was looking for a route in and started to climb down, when he started an uncontrollable slide above the lip and fell into the 75-foot pit. He suffered head and leg injuries as well as abdominal pains. The others called 911 and the rescue was started about 4 AM. Boon was packaged by rescuers of the Putnam Emergency Management Agency, hauled up the pit, and transported first to Cookeville Regional Hospital, and then to Vanderbilt Hospital in Nashville.

Herald-Citizen Staff, *Herald Citizen*, "Mt. Juliet man rescued in cave," 5 January 2009.

Comments: Comments: It appears that Boon was very lucky he survived. There is no mention of any equipment, lights, or safety measures. Even if the group had adequate vertical training and and equipment, they certainly were not exercising safe vertical protocols at the top of a pit.

24 January
Pettijohns Cave, Georgia
caver fall, injury, aid

Joyful Lee Rutherford, Joe Pierron, Derrick, Anton, Becky, and John, all novice or first-time cavers, entered the cave about 4:30 PM. They were traversing the feature known as the bridge in the "Bridge Room" when Rutherford fell about 30 to 35 feet, breaking her lower leg. She was over 800 feet from the entrance. Joe Pierron exited the cave with another member of the group to seek help while the other three members stayed with Rutherford.

Four EMS agencies with 35 rescuers responded, including Walker Fire/EMS, Walker Cave, Georgia Department of Natural Resources, and Chattanooga-Hamilton County Cave and Cliff. Command was set up just before 8 PM, and communications and rescue equipment was sent in. Communications from the patient to the surface was achieved by 10:15 PM.

A doctor was guided to Rutherford, reaching her by 11:00 PM. He administered medication, removed the temporary splint, set the lower leg and ankle, and splinted it in a long extremity vacuum splint. Heat packs, a Ferno Washington basket, and a "Wiggy" exposure bag were brought in. Command was told about 11:30 PM that the broken leg and ankle were confirmed but there was no way to assess other injuries until Ms Rutherford reached hospital care.

Three rigging teams had the prepared known obstacles and the evacuation was underway before midnight. Rutherford reached the entrance at 2:30 AM, and was transported by helicopter to Erlanger Hospital just after 3 PM.

unattributed, long narrative, unpublished, undated.
Bill Putnam, *Incident Report*, untitled, 19 February 2009

Comments: It was determined later at Erlanger Hospital, after the rescue and transport, that Rutherford also experienced two broken ribs, a 20% pneumothorax (partially collapsed lung), a broken clavicle, and other injuries.

10 February
unnamed cave, Georgia
rock-fall, no injury, no aid

Ben Bain, David Bain (Ben's father), Jonny Prouty, Jerry Wallace, Marty Abercrombie, and Ben Castleberry had just dug into a hole that had opened up as a result of a recent rainfall. Jonny had gone to the bottom and found that the hole did not meet Georgia Speleological Survey standards, so Jonny came out and Ben went in to have a look. They had removed the obviously loose rock (one had fallen already) and it seemed sufficiently safe. Everyone had helmets and the necessary protective gear.

Ben was climbing out of the tight entrance when the bedrock protrusion he was using as a handhold broke off. The 2-foot-long, 1-foot wide and 6-inch-thick rock pinned him just below the left shoulder, knocking the wind out of him. The rock weighed about 50 pounds. Ben was able to push the rock up enough that he was able to wriggle out from beneath it. Those on the surface were able to lower webbing, and hauled the rock out of the entrance. Ben's chest was sore and ended up lightly bruised.

Jonny Prouty, *Incident Report*, untitled, 18 February 2009.

Comments: From the caver's own analysis, they had under-estimated the integrity of a newly opened cave and should have been more careful about determining what was stable and what was unstable. There was enough room below for Ben to get out of the rock-fall zone while the rock was being hauled up, allowing him to exit.

15 February
Stephens Gap Cave, Alabama
caver fall, injury, aid

Jordan Garren (16) and a couple of his friends thought it would be fun to go into the cave. They used the horizontal entrance and Jordan climbed down on the Pedestal, where he decided to "relieve himself." He lost his balance and fell approximately 25 feet, sustaining a broken pelvis, broken neck and back, broken leg, and a huge open gash on his forehead.

His friends went for help and the Scottsboro-Jackson County Rescue Squad responded. After packaging, Garren was transported over a mile of rugged terrain to a waiting ambulance, and then to an Air Evac helicopter.

Kwmessman, *CaveChat*, "rescue (sic) at Stephens Gap," 23 February 2009.

Dewayne Patterson, *The Daily Sentinel*, "Teenager recovering after caving accident," 17 February 2009.

Comments: There has been no mention as to what equipment the group was using. The media listed an incorrect age, 18, and "… a possible broken leg and a cut to his forehead" and "his injuries were not believed to be life threatening." Garren's pelvis has been plated together, his head was placed in a halo for the broken neck, and plates put in his back.

28 February
Bryant Mountain Cave (ABA 355), Alabama
caver fall, injury, aid

About 300 feet into the cave on a Saturday afternoon trip, a youth minister (45) slipped and fell about 20 feet down a crevice, injuring his head. The kids who were caving with him called 911 for help and three different fire stations responded to help. The man was hospitalized.

CaverScott, *CaveChat*, "Rescue in Ala.?" 3 March 2009
Bill Putnam, email, "cave rescue near Bryant, AL Saturday, 28 February 2009," unpublished.
Drew Dover, *FOX6 WBRC www.myfoxal.com*, "Evening News Update," 28 February 2009.

Comments: Again, there has been no mention of equipment being used. The poster on *CaveChat* relayed a message from one of the rescuers. Visitation by inexperienced people with inadequate equipment and skills has gone up substantially in the last few months. This was the third rescue from the cave in the last six months.

11 April
Lower Van Horn Cave, Arizona
caver fall, no injury, no aid

Teresa Gerrity (24), Richard Bohman (30), Patrick Clapp, Ed Coleman, Mike Landrum, and Colin ? were on a recreational trip to the gated cave in southern Arizona. There are several sections with steep mud slopes, and portions of the cave are known to flood during the wet season, making the cave very slick. The trail skirts high around a pool with a steep slope near the back of the cave. During the traverse, Gerrity used what appeared to be a rock outcrop in the middle of the traverse. When the hold broke, Gerrity lost traction and slid backwards on her stomach down 15 feet on the 55-degree slope. Then the slope went vertical, and she fell another 15 feet. She came to a stop near the bottom of the fissure, wedged horizontally, with her arms above her head, and her helmet wedged between the two walls.

After coming to a stop, Gerrity was able to re-orient herself in the crack, and to keep herself from falling further into the water some 3 to 5 feet below, but quickly realized that she was unable to climb out without aid. Ed Coleman was sent to retrieve some vertical gear left at the last climb. Mike Landrum went out to the vehicles to get a rope while the others emptied their packs looking for usable equipment. An etrier was attached to a 30-foot long piece of webbing, which was tied to an anchor with accessory cord. The etrier was lowered to Gerrity who was unable to see it while being stuck in the tight crack, but was able to wave one arm to locate the etrier and orient herself to a vertical position. Gerrity was unable to climb above the top rung of the etrier.

A harness and two-handled ascenders with cow's-tails arrived and Gerrity was able to attach the ascender to the now-muddy webbing. This allowed her to start working her way up the crack until the ascender jammed on the webbing. The gain of 3 to 4 feet allowed enough room to put on the seat harness. Feeling more secure, she was able to do body jams to continue to work her way up. When she was close enough, the others were able to reach down and haul her up the last few feet.

Teresa Gerrity, *Incident Report*, untitled, 7 August 2009.
Richard Bohman, *Incident Report*, untitled, undated.

Comments: From their analyses, "a safety line rigged across the top of the traverse would not have prevented the slip, but may have prevented the resultant slide to the bottom of the slope" and into the crack. During her exit, Gerrity noticed she had "left deep marks in the mud – claw marks that extended the length of the slope" while attempting to find a handhold. She escaped with scrapes and bruises.

15 May
Carter County Saltpetre Cave, Tennessee
caver fall, injury, aid

A Carter County woman took her two children and two other women to the cave as a birthday present for one of the kids. Some 800 feet into the cave she fell about 30 feet into water, breaking a bone. It took rescue workers about 4 to 5 hours to get her out and to a hospital.

Reeffish 1073, *CaveChat*, "Cave Rescue in East Tenessee (sic)," 17 May 2009.

Comments: No other information was available.

22 May
Ten Mile Pit (Rabbit Cave), Tennessee
stranded, no injury, aid

Emily Beres, Adri Kopp, and Katherine Charles (all in college or just graduated) decided to visit the cave, which is owned by Gettysvue Country Club. They descended without difficulty but could not make it to the bottom about 150 feet in due high water from recent rains. When they returned to the entrance area Beres was unable to "hoist" herself up the ropes at the steep entrance climb. Charles and Kopp claimed to be "experienced cavers and rock climbers," so Charles climbed up and drove home to get a rock climbing harness while Kopp stayed with Beres. While in the country club parking lot, she told an employee where she was going, and the country club called for emergency help due to liability issues.

The Knoxville Fire Department was able to assist Beres up the entrance incline and she was out in some 35 minutes.

Kristi L. Nelson, *knoxnews.com*, "Afternoon fun turns into Gettysvue cave rescue for college student," 22 May 2009

Kristi L. Nelson, *knoxnews.com*, "Cave proves too much for woman," 22 May 2009.

Comments: The women were trespassing and entered the cave without permission. The gate on the entrance had been vandalized and was open. As to the "experienced climbers and cavers" reference, no equipment was used during the hand-over-hand descent on the entrance rope. Charges were not filed.

30 May
Blue Springs cave, Florida
fatality, drowning

Robert A. Jones (38) was solo free diving at Blue Springs with a wetsuit, but no tanks. He was weighted, had a light strapped to his hood, and was free diving the cave. A dive master (diving with others) was at 25 feet when Jones floated up past them in the area of the boil. He was found at 10:22 AM -in a sitting position completely out of the cave area. Jones had no pulse and was not breathing. He could not be revived by divers on the scene. EVAC arrived and Jones was moved out of the water and transported.

Anne Geggis and Julie Murphy, www.news-Journalonline.com/ NewsJournalOnline/News/Local, "Blue Springs diver dies." May 31, 2009
Judd, comments in BackTalk for "Blue Springs diver dies." May 31, 2009.
fldiver, comments in BackTalk for "Blue Springs diver dies." May 31, 2009.

Comments: The cave starts at 60 feet. Free divers breathe deeply to oxygenate their blood, then go down. Judd was among the group doing CPR. Jones was bleeding from the nose and mouth during CPR. One theory offered was "Shallow Water Blackout."

28 June
Harding Point Cave, Arizona
caver fall, injury, aid

A 29-year-old hiker fell 10 to 15 feet into the Coconino National Forest cave near Sedona at about 1:45 AM. Friends of the man hiked out to get help. Emergency crews from Sedona and the Highlands fire districts were able to stabilize the man before he was hauled out of the cave and air lifted to the Flagstaff Medical Center. The extent of his injuries were not known.

Robert Blake, *Incident Report*, untitled, 29 June 2009
Daily Sun Staff, *Arizona Daily Sun*, "Man injured falling into cave," 28 June 2009.

Comments: Robert Blake talked with members of the injured person's group, but could provide little additional information beyond the published article.

28 June
Buckeye Creek Cave, West Virginia
trapped high water, no injury, no aid

Greg Springer had been conducting research in the 4.1-mile cave for several years. On June 28th Springer and Holly Fitzgibbon, a graduate student studying cave sediments, entered to continue the study. The weather forecast called for scattered showers and thunderstorms, which had been the case for many of the previous trips to Buckeye. The surface Buckeye Creek usually sinks before reaching the entrance, but on this trip it was flowing into the entrance. This too was nothing unusual. The team entered the cave at 2:30 PM, and encountered a waist-deep pool only 300 feet into the cave. Soon after the pool the 30-foot-wide passage constricts to only 5 feet wide (the Canyon) for a few hundred feet. The passage then becomes a large tubular stream passage that is usually at least 40 feet wide for the next 1000 feet. There the ceiling lowers to within 16 inches above the waist-deep water (the Watergate). The stream passage becomes 60 feet high beyond.

Springer and Fitzgibbon were laser surveying for about 90 minutes in a paleo trunk when they heard the stream, even though they were hundreds of feet away. They climbed back down to the water level and marked the edge of the stream while noting a distinct muddying of the water. They then went back to surveying. The water was rising as they watched. They finished their survey shot, and were resetting their water marker when they heard their pack flotation device, a cooler chest, being swept downstream. They climbed to higher ground.

Springer had placed a flood cache in an upper-level trunk "some time ago," which was located and opened. Inside were thick plastic bags for each of them and candles to stay warm. It was 6 PM when the waiting began. They checked the water levels periodically. In the 50-foot-wide passage, the water had only gone up another foot and began to subside around midnight and was down about 4 inches by 4 AM. Fitzgibbon was getting very cold. The Watergate was now open. They carried much of the flood cache with them in case they needed another high alcove as refuge and went through the 50-foot-long, ear-dip section in the Watergate. They rushed in the canyon for fear of a flash flood pulse, only encountered one chest deep pool, found the entrance rapids were negotiable, and exited at 5 AM after only 14.5 hours underground.

They went back to the WVACS field station, cleaned up, and went to sleep. Heavy rain woke Fitzgibbon at 8 AM. They had definitely "lucked out" this time.

Greg Springer, *The West Virginia Caver*, "Flood Entrapment and Loss of the S.S. Buckeye," October 2009, Volume 27, number 5, pp. 8-9.

Comments: So what went wrong? The weather forecast was none too worrying because of a known long history with the cave. However, the area had seen rain in the preceding days, pre-soaking the ground. In Greg's words, "Clearly, I underestimated how much the pre-soaking would affect the watershed's response to more rain. The storm did not leave a mess on the surface, so … we were caught by … "prompt

runoff." The presetting of the rescue cache showed both understanding of the possible water issue, and willingness to implement necessary precautions.

6 August
King Phillips Cave, Connecticut
caver fall, injury and aid

About 3 PM a 19-year-old male hiker fell after climbing up some 40 feet to the entrance of the cave on Talcott Mountain near Simsbury. A Life Star helicopter was used to transport the man to the hospital.

unattributed, *wtnh.com NEWS 8* "Man plummets off King Phillip's Cave," 6 August 2009.

Comments: King Phillips is a west-facing rock shelter with a 40-foot, exposed climb to the entrance. The visitor cannot get inside where there is total darkness. The man's name and injuries were not released.

8 September
unnamed sea cave, California
trapped, no injury, aid

A 19-year-old man was exploring the rocky coast near Panther Beach when he slipped and fell inside the sea cave. "He quickly grew tired and needed help." While one of his friends used his cell phone and called for help, the teenager grew increasingly concerned as the cave began to fill with water. Emergency personnel used jet skis to reach the stranded hiker and were able to pull him to Panther Beach for evaluation.

unattributed, *kionrightnow.com KION 46* "Rescue Workers Save Teen Trapped In Sea Cave," 6 August 2009.

Comments: There were concerns that the surf would increase and the tide could come in quickly.

9 September
Smith's Crack, Idaho
stuck, no injury, aid

Trever Cook (31) and a group of about eight amateur explorers went into the cave in the early afternoon. Several hundred feet inside are some tighter sections and the man became "lodged." The Elmore County Search and Rescue team was called and the man was freed about 11 PM.

unattributed, *Mountain Home News*, "Kuna man rescued from Tipanuk cave," 10 September 2009.

Comments: According to Jim Nolan, outgoing head of the SAR team, "nearly every rescue inside that cave involves people who get stuck at the same point." To negotiate an obstacle (in this case a squeeze), put the person who is expected to have the most difficulty negotiating the obstacle in the middle of the group. This way there are cavers on both sides if help is needed.

21 September
Hole in the Wall Sea Cave, California
trapped, no injury, aid

The rising tide trapped an unnamed man at a cave at Hole in the Wall Beach near Davenport. He was able to get to a small piece of land outside the cave but could not return to shore due to the crashing waves. State Park lifeguards and other EMS personnel were called about 5 PM, and they were able to get to the man using a personal watercraft. He was returned to the beach uninjured.

Jennifer Squires, *Mercury News*¸ "Man has to be rescued from cave at Davenport beach as tide rises," 21 September 2009.

Comments: Tide changes would not be a concern for most caving trips. However, when visiting sea caves, pre-checking and monitoring the tides and surf is a requirement on every trip.

17 October
Fang Cave, British Columbia
rock-fall, injury, aid

On the morning of October 17, John Heyber (45), Mike Nash, and two other local members of the Alpine Club entered Fang Cave by the middle entrance. They rigged the entrance pitch into the Coliseum with an existing bolt hanger and a camming device, using a doubled 9-mil dynamic rope to descend on. Using a large column at the head of the Corkscrew (a twisting, dry streamway which becomes increasingly vertical as it drops) they rigged an 11-mil dynamic rope for descent. The lower section of the Corkscrew is more vertical and. a camming device was placed in a crack in the wall about 10 feet above a ledge near the top of this section. A rebelay was put in using the cam so that two people could descend or ascend at the same time.

When ascending the Corkscrew, Heyber noticed that the cam had walked further into the crack so he repositioned it. He called down for the next member of the party to begin climbing. As soon as the second climber put weight on the rope, the crack holding the cam opened up, causing a large flake to come off the wall. This was at approximately 1:40 PM.

The flake fell onto Heyber, pushing him to the ledge and pinning him there in a three-inch-deep pool of water. Two members of the party reached Heyber and removed the very heavy rock from off his torso. He was unconscious and not breathing. They revived Heyber and he regained consciousness. He was having difficulty breathing and they feared that he had a spinal injury. In actuality, Heyber had seven broken ribs on his right side and three on his left. His collar bone was broken in two spots, he had a broken clavicle and a collapsed lung, and his right shoulder and hand were damaged as well.

Just prior to the event, Tammera Kostya, who was leading a party, of three new cavers, arrived at the middle entrance. She rigged a different anchor using a static line and they descended into the Coliseum. They reached the top of the Corkscrew and rigged another static line to descend. Kostya went down the first icy section and met a member of the first party coming out. She

told Kostya that three more were coming up and it would be a while. Apparently this first person up did not know there had been an incident below. Kostya saw that she didn't have enough rope for the full descent and decided to call off the trip to that part of the cave. Kostya's party proceeded back to the entrance pitch and while they were exiting, a member of the first party hurried to where they were and said someone had been crushed by a rock. She also told Kostya there was a satellite phone at the entrance. Kostya went back into the cave to the accident site and saw that it was a serious injury. Kostya had one of her party find the satellite phone, call 911, and request the police to call Prince George SAR (PGSAR) and British Columbia Cave Rescue (BCCR).

The call connected the caver to a Globalstar center in Texas which then relayed the call to Royal Canadian Mounted Police (RCMP) in Prince George. This led to nine rescue groups including cavers to become involved. Kostya had all available extra clothing brought to the accident site and made Heyber as warm and comfortable as possible, moving him out of the water into a semi-sitting position. Kostya and one member of the first party then waited with Heyber for help to arrive.

The callout indicated the need of cave rescue of a person from the middle entrance, with multiple injuries and unable to move.

Two helicopters began delivering rescue personnel and equipment before 7 PM. The patient had lost consciousness during the wait, and was having a harder time breathing and pain when the KED spine immobilization was applied and he was packaged in a Ferno Washington stretcher. Other rigging teams arrived on other helicopters, the rigging was completed, and the rescuers began moving the patient at 8:15 PM. The litter made it up to the Coliseum by 9:30 PM. There, the rescuers noted that the patient's breathing was easier while his head was higher, so they propped the stretcher against a large boulder, added heat pads, and adjusted the packaging. The litter was brought up to the middle entrance at 11:30 PM, and from there it was a three-hour haul down the mountain to a location where the stretcher could be loaded.

Bob Rutherford, *Incident Report*, "PM of BCCR," 22 October 2009.
Frank Peebles, *Prince George Citizen*, "Escape from Fang Mountain," 18 October 2009.
Citizen staff, *Prince George Citizen*, "Cave victim in stable condition," 20 October 2009.

Comments: The Alpine Club members were in the cave using dynamic ropes, but had a satellite phone at the entrance. This seems to be an odd combination. The group had substantial experience, and obviously had the financing available to use a proper static rope. When the ascending Alpine member repositioned the rebelay cam that was walking into the crack and the stability of the slab was not noticed to be compromised. This may have been due to just the size of the rock and that it could be trusted. Repeatedly check the rigging, and have your rigging checked.

Heyber was out of intensive care and in stable condition after two days.

24 November
Nutty Putty Cave, Utah
stuck, fatality

and

25 November
Nutty Putty Cave, Utah
equipment failure, injury, no aid

Compiled by *Andy Armstrong*

On the evening of November 24th, John Jones (26) and ten of his family members including children entered Nutty Putty Cave and toured the entrance area. After a short time, most of the group left while John and others including his brother Josh continued to explore. They proceeded to a tight, nasty, passage known as Bob's Push. This passage is mostly belly-crawl size and undulates up and down before taking a decisive turn to the left and downward. The remainder of the passage to its dead-end is very tight and slopes downward at about a 60-degree angle. John entered the passage head-first and continued head-first at least 30 feet down the steep, tight section. At some point, he realized he could not back out against the force of gravity. John sent the others out of the passage and continued downward, hoping to find a place to turn around. The others soon heard him yelling that he was stuck and needed help.

After determining that they could not free John, his family called for help at about 10:00 PM. The Utah County SAR, including several members that are experienced cavers, responded. Having rescued others from this cave, including from the same spot where John was stuck, the rescuers were confident they would get him out. The fact that John was upside-down made this rescue more difficult than the previous ones. Around midnight, Rob Stillmar, a wiry, strong caver who had worked on previous Nutty Putty rescues, went head-first into the passage to try and work with John's legs. While going in head-first was risky and exactly how John got into trouble, it was really the only method that anyone could get to John. Rob had webbing tied around him so that others could help haul him out. Rob worked with John for a long time, but the valiant effort only succeeded in moving him a short distance. Rob became stuck on his way back up, and it took some time for him to free himself, with help from above. Around this time, webbing straps were placed around John's legs in preparation for a haul system that was being constructed above him.

By 8:00 AM, there were approximately 100 people on scene, including Utah County Sheriff personnel, SAR team members including Utah Cave SAR, many different area fire rescue crews, paramedics, NPS personnel, and volunteer cavers. At least six rescuers with NCRC training were on hand, including a former national instructor, and others with higher than Level 1 training. John had now been stuck upside-down for nearly 12 hours, but was responsive and was helping the rescuers as much as he could. At any given time, there were about 15 rescuers in the cave, as John was really only about 10 minutes from the entrance. Some rescuers were underground for 12 hours at a

time, with a few cavers that had arrived early in the rescue doing two twelve-hour shifts.

A 3:1 haul system was set up about 50 feet up the passage from John, where there was actually room for a haul team. Unfortunately, the haul line had to pass through four pulleyed deviations in the twisting crawlway in order to reach John. Some of these were originally rigged on natural anchors and climbing cams. When the extreme forces on the redirect anchors became apparent, they were all changed to bolt anchors except the one closest to John, which was rigged on a seemingly bomber natural anchor in the ceiling.

The haul shifts were accomplished with one very small caver in proximity with John, moving and pulling on his legs. After a few haul sequences, the friction in the system proved to be too great. To alleviate this, another 3:1 haul line was added, with one attached to each of John's legs. Many attempts were made to establish a connection point around his waist, but no one could reach far enough in to do it. John was on his left shoulder with his left arm pinned under him. His body completely filled the passage, preventing all attempts to access any part of his body above the waist. Once both haul lines were operational, the team began to make the only real progress of the entire rescue. This was accomplished by encouraging John to do most of the work, with the dual haul systems capturing any upward progress that he made. Many stops for slack on the line were called, in order to take some of the squeezing pressure off of John's legs. Using an oxygen hose, rescuers were able to get water and Gatorade to John's mouth, but it is unclear how much fluid he was actually able to take in.

At one point in the process, Ryan Shurtz was in the forward rescuer position, manipulating John's legs and encouraging him to help. Ryan was unfortunately in the zone of entrapment underneath the final deviation in the haul line, because he had nowhere else to work. According to Dave Shurtz, the natural bridge that the final deviation was rigged to had a sharp back edge that had been slowly cutting through the 11mm rope anchoring the pulleys there. During a haul, the anchor rope snapped, sending the steel carabiners and rescue pulleys into Ryan's face with incredible force. This impact knocked him out, partially severed his tongue, cut his face badly, and caused a small concussion. When Ryan came to, he was helped out of the crawl to the haul-team area. He was cleaned up by the medics on scene, and then exited the cave under his own power to seek hospital care. Ryan made a full recovery, with some scars to show for it.

The rigging failure also dropped John down about a foot. The drop did not injure him, but effectively ended any hope of rescue as his condition had been severely declining. Extracting Ryan, re-rigging the deviation with a bolt anchor, and getting the team back in position took over an hour. During this time, John became unresponsive. As a result, when the haul resumed, he was no longer able to help the rescuers with his upward progress. The haul was pulling him upward into a tight spot, much like trying to push a cork into an upturned bottle.

Unfortunately, one of the rescuers had exited the cave and told the press that John was nearly free and the team would have him out in a couple of hours. It was broadcast over television news that John was free and on his way out. Only about an hour later, the rigging failed. Thus it was reported in many media outlets across the U.S. that John had been freed, and then the rigging failure caused him to fall all the way back to where he started. Nothing could have been further from the truth.

John expired at some time between 10 PM and midnight. No autopsy was performed but his death is believed to be the consequence of being upside-down for over 24 hours. In this position, the lower organs compress the diaphragm and lungs, making each breath a physical chore. Also in this position, the lungs can fill with fluid, and John's breath was heard to be very gurgly in the last couple of hours. After midnight, all rescuers were told to go home and spend time with their families, as it was Thanksgiving Day, and were to await instructions for a possible body recovery over the weekend. Believing it too dangerous to recover the body, the Sherriff's office convinced the family to leave John's body where it lay. SITLA agreed to this and had the cave sealed with a concrete plug at the entrance.

Andy Armstrong, *Incident Report*, untitled, March 9, 2010.
Andy Armstrong, *Incident Report*, untitled, December 17, 2010.
Dave Schurtz, *Incident Report*, untitled, undated.
Spencer Christian, *Incident Report*, untitled, undated.
Michael Leavitt, *Incident Report*, untitled, undated.Comments: John made several mistakes. At 6 feet tall, and 190 lbs. he was very large for the passage he was in. None of the rescuers of John's size were able to get anywhere near him. He elected to crawl head-first down a tight, nearly vertical passage. The passage dead-ends and offers nowhere to turn around. If John had been right-side-up, the rescuers would have had much more time to work, and he would likely be alive today. It is believed by many of the rescuers that on his crawl downhill, John must have slipped and popped through the tightest part of the passage with the aid of gravity. Otherwise it is difficult to see how he could have made it through such a tight spot. John had retrograde amnesia when first contacted by rescuers, supporting the idea that he may have fallen through and hit his head.

Two lessons may be learned from this tragedy, one that is disturbing and one that is somewhat comforting. The first lesson is cavers can get into places and situations where rescue is not possible. On some level all cavers know this, but John's predicament reminds us of this fact in a sobering way. He died less than 15 minutes from the entrance in a cave that was popular with inexperienced cavers. What is comforting is that John's particular situation is not very likely to happen again in the near future. Very few people would have made the choice to crawl down that passage head-first, regardless of their level of caving experience. While being stuck underground is always a serious situation, cavers need to be extremely careful to avoid getting stuck in an inverted position. Because John was upside-down, the clock was ticking, and there was not enough time to get him out.

Whenever possible, cavers should try to convince landowners and family members that it is generally not a good idea to leave a body in a cave. This often seems like the right thing to do at the time, but causes a lack of closure for both the family and the rescuers. In addition, history (including that of James Mitchell

and Floyd Collins) shows us that this decision does not usually hold up in the long term and eventually the body will have to be recovered. In this case, cavers with this viewpoint were heard, but their advice was not followed.

In this tragedy, we not only lost a fellow human being, but also access to one of the most popular caves in Utah. It is interesting how cave fatalities are treated differently than other outdoor deaths. Every year, people are killed on Utah's ski slopes, in its National Parks, and on its waterways. These all remain open for business. When deaths occur underground, people's inherent fear of caves often causes them to make irrational decisions. After John's death, the landowner wanted to set charges throughout the mile-long cave and dynamite the entire thing. Cavers were able to negotiate a compromise to where just the cave entrance would be sealed.

Finally, during any rescue all interactions with the press should be handled through the Press Information Officer (PIO). Inaccurate comments can cause a lot of confusion and hurt for family members, rescuers, and other cavers. When the rigging failed, John was still many, many hours from being "free."

28 November
unnamed cave, Oregon
caver fall, injury and aid

Two beach caves are a popular destination for visitors to Hug Point State Park on the coast of Oregon. Due to their easy access, they are also a popular location to "have a few beers." Tyler (15) and Anthony (19) were doing just that when Tyler fell while jumping among rocks in one of the caves and broke his ankle. With the tide rising, the Coast Guard and members of the Cannon Beach High-Angle Rescue Team were able to evacuate the two from the cave 20 feet above the beach and transport them by a Coast Guard MH-60 helicopter to the local emergency service crews. The injured youth was taken to Columbia Memorial Hospital for treatment.

unattributed, *Salem-News.com*, "Cannon Beach High Angle Rescuers and Coast Guard Rescue Two." 28 November 2009

Steve Moon, telephone interview notes, 8 August 2011.

Comments: The two friends had no caving gear but were within the cave's twilight zone when the accident occurred. Authorities say alcohol was clearly involved.

16 December
Sloans Valley Cave System, Kentucky
caver fall, fatality

An outing to the Sloans Valley Cave System turned fatal for one young man shortly before Christmas in 2009. Steven Troxell (21) and his friends Brandon (26) and Brooke (21) were not experienced cavers, but had made it about three-quarters of a mile into the cave via the Greenhouse Entrance. Wearing tennis shoes, and carrying a lantern in one hand, Steven slipped and fell while trying to free climb a 30-foot deep pit at about 2 PM. He landed on his head, in a small puddle of water, and died from blunt force trauma. Brandon and Brooke returned to the surface around 3 PM and called 911. It took crews several hours to locate Steven as his friends at first refused to go back into the cave. The Troxell family was waiting at the entrance when his body was carried out at approximately 10:30 PM and expressed their thanks and appreciation to the rescuers.

http://somerset-kentucky.com/local/x546363391/Man-dies-after-fall-in-Sloans-Valley-cave

Roger Alford, Associated Press, "Authorities: Man falls into pit in KY. cave, dies." 16 December 2009.

http://www.wkyt.com/home/headlines/79452272.html.

Trisha Neal and Heather Pyles, *Commonwealth Journal*, "Man dies after fall in Sloans Valley Cave." 16 December 2009.

Comments: Steven's mother said she was surprised her son would even enter a cave as "He was always a scaredy-cat" and ". . . afraid of his own shadow." Although Steven and Brandon had been in the cave once before, the trio was ill-prepared for exploring and did not have helmets, hands-free light sources, gloves, or boots. This was the second fatality in this cave in three years.

2010 Caving Accident and Incident Reports

10 Janary

Upper Millerton Cave, California

rock-fall, stuck, no injury, no aid

Paul Martzen (55) and Eric Burke (36) were wearing shorty and farmer-john wetsuits with Lycra and fleece. Other cavers were at the cave or caving in the area but were not part of this group. The two spent about an hour chimneying over the water, and sometimes getting wet.

Apparently Paul and Eric got off route … and went farther than most to a point where the passage was pinching off. Paul was deep into some breakdown, following the water path where it looked like it dammed just below a small hole. It was a slithering 6-foot drop down into the water. He figured he would drop into the hole, take a look, and head back upstream to the entrance. As he went down he did not feel any footholds, so he grabbed a chockstone with his right hand for support. The rock rotated and fell into the place where Paul had just been, pinning his right arm from the elbow to the wrist. Paul's right arm was up, pinched between the chockstone and a larger boulder on the side of the hole, with the upper part of his torso to below the sternum still in the hole, and his legs dangling in space. Paul's left arm was below but there was nothing to grab. There was no question he was stuck and completely helpless.

Eric was 15 feet above and a couple of holes back when the rock fell. He crawled down to Paul. When Eric tried to move the rock, the rock shifted, and increased the pain on Paul's right arm dramatically. Paul said, "Stop! Don't hurry! We have time. We have to think about this and be careful." Eric took a small rock off of the bigger chalkstone but it was not enough. Eric was able to pull on Paul's wetsuit enough to gain a fraction of an inch. Paul was able to hold the gain. Eric pulled again and Paul gained and held the precious bits. Over 10 to 15 minutes of pulling, the fractions turned into an inch, and then into several inches. Paul felt his flailing heel touch a crack, was able to gain a foothold and raise himself as far as possible below his still stuck right arm.

With the weight off the arm Eric was able to position himself to concentrate on the chockstone. He was able to move the rock slightly, which allowed Paul's arm to slide free. After the much needed rest that followed, Paul started wiggling up the hole with Eric's help. The effort took several attempts with short gains, followed by rest periods. By the time Paul had made it past the chockstone, both were "jittery and shaky." The trip out of the cave went better and they conferred regularly on the correct route to take. The two were able to exit the cave about dusk and start the mile-plus hike down the hill.

Paul Martzen, Incident Report, "Close Call in Upper Millerton Cave." January 11, 2010.

Paul Martzen, email to Ray Keeler, "Close Call in Upper Millerton Cave." January 12, 2010.

Comments: Paul readily states that he should have tested the chockstone's integrity before he needed to use it, or was underneath the rock. Loose rocks in this cave seemed unusual because of the water flow.

This incident could have turned out much worse. Besides the actual incident, the pair had not notified anyone exactly where they were or when they would be back. Although there were other cavers in the area, those cavers were not part of a backup plan and Paul's wife did not have anyone on the trip to call. Thus, if a rescue call out had been made, the call out would not have occured until the next morning.

23 January

Bluff River Cave, West Virginia

caver fall, injury, no aid

Six children and six adults went to Bluff River Cave for a beginner trip. They made good time to the back of the cave, where some of the group, including Kathy Schoonover, rested at a formations area while the rest continued up to a small room at the top of a breakdown pile. On the way out of the cave, Kathy slipped and fell while climbing through breakdown. She fell approximately 1.5 feet, landing on her left arm, and felt it crack. Her husband created a makeshift sling, and she was able to exit the cave with assistance. After the trip, they purchased a sling from a local drugstore and then went to the hospital for care.

Kelly Rowland, Incident Report, February 3, 2010.

Comments: The patient was inexperienced, and may have been fatigued.

31 January

Scott Hollow Cave, West Virginia

caver fall, injury, no aid

Andrew Medley (29) Corey (20ish) and Adam were part of an eight-member group. They split into a faster group of five and a slower group of three. Then the faster group split again with three and two. Andrew, Corey, and Adam were in this fastest group of three. Corey was very familiar with the cave and after five hours of caving he was still moving quickly. Andrew was "definitely tired" and struggling to keep up. Scott Hollow is a physically challenging cave with lots of breakdown, short climbs, and physically demanding stretches.

On the way out of the cave the three were heading up the large passage with slippery breakdown about 200 yards from the entrance. Andrew was last, 10 yards behind the other two, and tired. He misstepped and fell on his side "like dead" and unable to break his fall. He was only able to slightly turn to the side before hitting the cave floor. Andrew suffered a 1.5 inch gash on the back of the right side of his head below the helmet, and a huge bruise on his right hip.

Corey came back, examined Andrew, and then they completed a self-rescue out of the cave. Roxanne (another member of the original group of eight) dressed the wound on the surface. The head wound did not need stitches and took almost two weeks to heal. The hip injury took almost four weeks to heal.

Andrew Medley, *Incident Report*, untitled, April 26,2010.

Comments: Fatigue can be a precursor to incidents. Fatigue is an aspect of caving that catches up with everyone. The hard part is to understand that fatigue catches up with each of us at different rates, and there are several factors that contribute to the condition: age, physical fitness, lack of sleep the night before, long drives, heavy exertion (as in this case), and getting cold.

If you need to take a break, say something … and take a break. If someone in the group says they are tired or cold, note it. If it is brought up again, stop and get some food into the caver and rest for a while. If someone is falling behind, slow the pace down.

15 February

unnamed cave, New Mexico

medical issue, fatality

Robin Colts (46) was reported missing from her Las Cruces home. She had walked away from her family home in her pajamas, without shoes and without her medication. Almost seven months later her body was found in a shallow cave near Organ, New Mexico. Officers used ropes to get down to the body. She still had her pajamas on, but animals and insects had destroyed much of the flesh. There was no obvious evidence of being shot, stabbed or injured before death. Colts had a medical history of schizophrenia and bipolar disorders as well as illegal drug use.

The cave is down a steep embankment near a highway. It is unclear whether Colts fell on her own down the steep terrain or was forced there and left to die. The autopsy was inconclusive.

unattributed, *www.krqe.com/dpp/news/crime/,* "Death in mountain cave remains mystery." December 13, 2010.

Comments: The detective suspects this was a murder.

15 February

Benedicts Cave, West Virginia

caver fall, injury, no aid

Carl Heitmeyer (50), Dave Borger (late 30s), Mark Chai (50), and Amos Mincin (mid-40s) went in the Persinger Entrance of Benedicts Cave. Carl was doing a chimney climb up a canyon and was about 6 feet off the floor when his right hand-hold, a piece of the ledge almost the size of a football, gave way. He was pressing up with both hands, and the accident happened as he was moving his feet from their position. As he fell, his right side struck a ledge about a foot off the floor that slid up into his rib cage.

The group paused for several minutes, then continued caving. There was a dull ache in Carl's side for most of the trip, and certain movements produced a sharp pain. The pain subsided later that day, but over the next few days it became increasingly painful to breathe, laugh, or cough. On February 18, he went to the emergency room. An X-ray revealed two broken ribs. Carl was sent home with pain killers.

Carl Heitmeyer, *Incident Report*, untitled, February 21, 2010.

Comments: Carl indicated that he may not have been on the preferred route at the time of the accident, and that the rock condition was poor. Under such circumstances, it is a good idea to maintain a minimum of three points of contact and be prepared for rock to potentially break or dislodge.

6 March

unnamed cave, Florida

fatality, drowning

Joseph Michael Kelly (21) of Vero Beach was free diving with two friends Saturday night near the Chassahowitzka River Campground, authorities said. Kelly never surfaced, and divers later found his body. He was swimming after dark with two other men in an underwater cavern near the Chassahowitzka River Campground, according to the Citrus County Sheriff's Office.

Orlando Sentinel Staff, *Palm Beach Post*, "UCF student from Vero dies while diving in underwater cave." March 8, 2010.

Comments: This swimmer was holding his breath in an underwater cave, at night. Disorientation was the probable cause of this man's death.

9 March

Espey Cave, Tennessee

caver fall, injury and aid

Jason Porter (33) and his family were caving in Espey Cave when Jason fell and hit his head about a mile from the entrance. About 2 PM the call was made to rescue personnel. Deputy Reed Bryson was the first to respond and did a solo "carry out" for approximately the first half-mile. The group was met an EMS worker during the evacuation, and the EMS worker helped also with the patient the rest of the way out. Closer to the entrance Jason was put in a litter, and carried up the steep hill for transport to the hospital.

Editor, Cannon Wire, news@cannonwire.com, "Cannon County caving accident." March 9, 2010.
Comments to "Cannon County caving accident." March 9, 2010
Tim White, CaveChat, "Stuck, Rescued in TN Cave." March 10, 2010.

Comments: By March 10th Jason was breathing on his own and in stable condition. Though there were many comments by many concerned with the incident, there was never a mention of what kind of equipment Jason and his family (7 children) were using on the trip (helmets? boots? lights?). If Jason had a helmet

on and was wearing deep treaded boots, this may not have been a fall or an injury.

21 March

unnamed cave, Pike County, Illinois

cavers over-due, no injury, no aid

Two people entered a cave near Pearl to look for a reported underground lake. A third person, who had remained on the surface, became concerned when the explorers did not return at a predetermined time. The two spelunkers had gone in with a "rope" attached to them. The "rope" had some tension until they took a wrong turn. They retraced their steps, took another route, and the tension was removed. After waiting an additional 30 minutes, the person on the surface called for help. The local sheriff and several fire department crews arrived on scene just as the two were exiting the cave. They were cold but unhurt. This incident prompted the cave's owner to plan a cave rescue training to be held at the site later that summer.

John Lovaas, *Incident Report*, April 8, 2010.

unattributed, *pikepress.com/clients/*, "Emergency call leads to training session." March 24, 2010.

Comments: When planning a caving trip, always tell someone where you are going and when you expect to return. Designating a surface watch, like having three sources of light and never caving alone, is a cardinal rule of caving. In case of a real emergency, it is very helpful if your surface watch knows *who* they should call as well.

The sheriff reported the pair was attached to a "rope" which was probably string.

26 March

Stoner's Den Cave, California

exhaustion, no injury, aid

Four men in their 20s entered a cave at 2 AM in the Santa Susana Knolls area. One of the men eventually became too exhausted to climb back out of the cave. His friends called 911 at 6 AM and 14 firefighters arrived on scene. They were able to lower the man down to another entrance and help him exit. The rescue took 2.5 hours.

Unattributed, vcstar.comhttp://www.vcstar.com/news/2010/mar/27/firefighters-rescue-man-cave/ 27 March 2010.

Comments: Little information is available on this incident, but considering it was a 2 AM trip to a cave locally known as Stoner's Den probably explains a lot.

6 April

Hilham Pit, Tennessee

caver fall, fatality

While investigating a cold-case homicide near Standing Stone State Park, two sheriff's deputies and two park rangers came upon Hilham Pit. When Deputy Chad Prichard tried to get a closer look into the sinkhole with his flashlight, the ground gave way and he fell to the bottom. The pit was estimated by park rangers to be 161 feet deep. The other deputy and park rangers called to Prichard, but got no response. Fire and rescue crews responded, but it became clear as they worked that Prichard had not survived the fall. It took crews several hours to recover the body.

unattributed, *www.newschannel5.com/Global/story*, "Overton Deputy Dies After Fall Into Sinkhole." April 6, 2010.Comments: The deputies and rangers did not initially know the cave was there, did not know how deep the pit was, and were not equipped for caving. Had they known of the potential risks, Deputy Prichard may not have ventured so close to the edge of the pit.

3 May

Thunder Canyon Cave, California

stuck, injury and aid

A group of seven cavers (Luca Chiarabini, Heather, Steve, Brent Colvin (39), Jim Ness (60), Ben, and Brian) were doing a through trip. The five experienced cavers had done this particular trip before. The cave is wet, and all seven had wetsuits. They entered the upper entrance at 11 AM with the plan of going downstream, and then deciding at the middle entrance whether they wanted to continue. The first 45-foot rappel was into a pool and was "mildly cold." They all decided to continue at the middle entrance. It took some 10-15 minutes to set up the next 80-foot rappel and the group started getting cold. Steve (2nd down got soaked and then had to wait. He began shaking and acting a bit erratically.

After two more rappels, the group reached the "Terrible Traverse" at around 3 PM with no incidents. The 9-inch wide crack in granite is traversed sideways and is so tight you cannot turn your head. Someone placed a wood board to prevent cavers from sliding farther down into the crackand becoming stuck. The crack is 200 feet and less than five minutes from the downstream end of the cave so there is motivation to go through.

The group removed and packed their harnesses. Luca went through the crack first to assist from the entrance side. Steve was feeling very cold and tried to rush through second. He became stuck briefly but was able to get through with help. The next three came through including the two new cavers. While Luca stayed to help the last two through the crack, the four already through tried to figure out the route to the downstream exit. They were unable to figure out the route so Luca took them out. When Luca returned he found Brent stuck. Brent had tried the crack a first time, backed out and took off his wetsuit, tried a second time and became stuck. After a while his arm got tired of holding up his body and he slipped down to the placed block of wood. Jim was behind Brent trying to help, but after 30 minutes Brent was exhausted still very stuck, and he had lost his helmet light in the struggle. Jim was the only person Brent could see and Jim remained during the entire struggle.

By 4 PM the situation was serious. Brent was stuck with no wetsuit between two cold walls in a chilly wind passage inside a 60-degree F wet cave. Heather was sent on the 2-mile hike to

the cars with a cell phone and car keys to call 911 and call the San Bernardino Cave Rescue Team in San Diego.

The new cavers (Ben and Brian) covered Brent with their wetsuits for warmth. The helicopter spotted the cavers at the lower entrance about 8 PM.

At 9 PM the sheriff deputy climbed down to the entrance with Ben. He did not go into the cave and BORSTAR paramedics were two hours away. Repeated requests for heat packets and deploying the cave rescue team were ignored. Then the deputy's radio emitted "Do we need EVAC tonight or can the victim camp out till tomorrow?" The deputy answered with "His condition is stable and he has no numbness," to which Luca told the deputy "Sir, if we don't EVAC tonight they're dead!"

Two BORSTAR paramedics arrived at 11 PM, and were taken to Brent. They correctly assessed the situation and asked immediately for the cave rescue team. Meanwhile the cavers tried to keep Brent and Jim conscious and warm.

San Bernardino Cave Rescue Team members arrived at 2 AM. The team quickly covered Brent with thermal packets and called for a jack to raise the wooden board. The Cave Team used the jack to raise the board under Brent to a point where the crack is the widest, and pulled "like crazy"until they got him out. Brent and Jim were able to exit the cave under their own power at 4 AM where they were short-hauled by the helicopter out of the canyon and transported to the local hospital. They had been underground for 19 hours. The sheriff's office was thanked for coordinating a successful rescue.

Luca Chiarabini, *Incident Report*, "Thunder Canyon Cave Trip Report." May 5, 2010.

San Diego 6 News Team, *www.sandiego6.com/news/local/*, "Two Men Rescued from San Diego County Cave." May 3, 2011.

Comments: Stuck in a cave can be a life threatening situation. The untrained surface personnel were unable to comprehend the completely different climate just minutes from them. The highly trained BORSTAR paramedics immediately understood what they were up against and demanded help. Only then did the command post better understand the desperate situation going on below them.

11 May

Raccoon Mountain Caverns

caver fall, injury and aid

An unnamed woman (38) was on a Heritage High School field trip when she slipped and injured her ankle. The group was about a mile into the cave. She was unable to get out on her own so the group sent out for help.

Patty Perlaky is a tour guide at Raccoon Mountain and is also a member of the Chattanooga-Hamilton County Cave/Cliff Rescue team. She and Ewing Ballard, another cave guide and wilderness EMT, went to the incident site, splinted and "cold packed" the leg, and waited for the rest of the Cave/Cliff Rescue team to arrive.

The rescue team brought a Stokes litter and the extraction started shortly after 2 PM. They were out some three and a half hours later. The patient was transported to the Erlanger Medical Center.

Kevin Sims, *News Channel 9, Chattanooga, TN*, "Woman Rescued from Raccoon Mountain.", May 12, 2010.

Comments: The extent of the ankle injury was not specified, and nothing specific was stated as to exactly how she injured her ankle.

19 June

unnamed cave, West Virginia

caver fall, injury, no aid

Twelve cavers entered a cave in Pocahontas County on June 19 for a day of surveying. The trip was a cold one and the cavers were wet to the knees. After 13 hours underground, Doug Viner and two companions began heading for the exit. The trip out involved getting their chests wet momentarily in a crawl. Despite wearing a balaclava and a neoprene vest under his cave suit, Doug was beginning to feel the effects of the energy-zapping cold. The group of three stopped to refuel with some food then continued toward the exit. After ascending one rigged drop, Doug then began to free climb an unrigged, 15-foot narrow chimney. As he approached the top his foot slipped. He slowed his fall by extending his arms and legs out, but nearing the bottom, his left elbow struck a projection that sent a great amount of force up into his shoulder. Despite discomfort, Doug managed to complete the climb, a 45-minute crawl, and ascend a difficult entrance pit under his own power. He was later diagnosed with aggravated tendons and inflammation in the shoulder joint.

Doug Viner, *Incident Report*, untitled, 19 June 2010.

Doug Viner, email communication, 15 August 2011.

Comments: Being an experienced caver, Doug was dressed properly for the trip and ate high-energy foods when he felt his energy wane. Mild hypothermia can sneak up on any of us though, especially on long, cold survey trips. In retrospect, Doug believes that free climbing the pitch where he fell was an unnecessary risk, especially since the team was already wearing vertical gear. When we are cold, wet, and tired, even little obstacles can become difficult.

5 July

unnamed cave, Old Man Mountain, Colorado

stuck, no injury, aid

At 11 AM an unnamed 16-year-old became stuck in a 30-foot-deep crack in this popular cave. He was part of a youth group trip of unknown size. Whether he slipped into the slot or intentionally descended into the slot was not indicated in the news article. Mountain Rescue was called and they implemented a 30-foot haul, and used vegetable oil to help reduce the friction. He was freed around 7:45 PM after being stuck almost 9 hours.

Jeffrey Wolf, KUSA-TV, *www.9news.com/news/,* "Teen rescued from cave near Estes Park." July 6, 2010.

Comments: The rescuers reported that this was the third rescue of this type in the exact same spot. This is another example of a leadership shortcoming. Either the 16-year-old was allowed to make an exposed move without a belay, and he slipped or, he was allowed to push passage that was too tight. It is probably the former due to the rescuer comments. Also see report about the next incident at this location on August 20, 2010.

19 July
Rattlesnake (Gutter) Cave, Massachusetts
trapped, no injury, aid

At about 1 PM Maya Hersh (25) was exploring the cave with her family (or friends). The passage went down, goes horizontal for a ways and then drops into a chamber. She slid (or slipped) down a passage about one foot wide and into the chamber. Maya was about 30 feet underground. She tried to wiggle out for four to five hours but was unsuccessful so her friends called for help at about 6 PM.

About 20 rescuers responded but only four or five were skinny enough to get into the cave. Only one rescuer was able to be in the passage at a time and some of them were not able to fit down past the first decline. They spent the first hour trying to help Hersh maneuver up past the first tight areas by dangling two ropes down into the chamber. That approach failed so they passed Hersh a hammer and chisel allowing her to widen the constriction about an inch and move up a bit. Hersh did much of the work herself.

The rescuers provided food, water, a blanket, and put vegetable oil on the rocks to reduce friction. She grew tired about midnight and they took a break. Once she was able to get through the constriction, rescuers were able to help her along by pulling on webbing. After 12 hours underground Hersh was able to exit the cave just after 1 AM. Other than some scrapes and being tired, she was fine.

Ben Storrow, *Daily Hampshire Gazette, gazettenet.com*, "Light of day never looked so good." July 21, 2010.
L. Finch, *Boston and Beyond. Now. Metrodesk, www.boston.com/news/*, "Spelunker freed after being trapped in cave for almost 12 hours." July 20, 2010 pp. 1,8.
Anthony Fay, *www.wwlp.com/ddp/news/,* "Woman rescued from cave in Leverett." July 19-20, 2010.

Comments: Now the kicker … Hersh had been into the chamber before, solo! Somehow she had been able to effect an escape on the previous trip and save her life. Maybe she was thinner then. The news media accounts did not agree on whether the trip was with family or friends or both. She was described as "an experienced caver". Another quote read "She's just stuck. They tried to pull her out, but she swelled some."

2 August
Aden Fumarole, New Mexico
difficulty on rope, injury and aid

William Snyder (late 50's) and his son decided to visit Aden Fumarole south of Las Cruces. William rappelled the 100-foot entrance pit and at approximately 11 PM his son called authorities when he could not feel tension on the rope and received no response when he called down to his dad. The son said his father might have fallen while rappelling. A two man Border Patrol BORSTAR team responded and brought him up the pit. William was suffering from back pain and cuts, and was airlifted to University Medical Center.

unattributed, *www.kfoxtx.com*, "Man Rescued From Crater Near Las Cruces." August 2, 2010.
unattributed, *www.msha.gov/sosa/NearMisses/*, (source KRWG News), "Man Rescued After Falling Into Mine Crater." Undated.

Comments: It appears that the father had an uncontrolled or under controlled rappel. There was also no mention of the father having any ascending equipment.

20 August
unnamed cave, Old Man Mountain, Colorado
stuck, no injury, aid

At 1:10 AM a page went out to the Larimer County SAR for a stuck female in "the rite of passage" at Estes Park. The more the woman tried to get free, the tighter she became stuck. The area has several small openings between some very large rocks. The popular route is traversed by both adults and children, and it is easy to become stuck. Rocky Mountain National Park personnel and Estes Park Fire personnel were able to free her in four hours. They brought vegetable oil for friction reduction.

Unattributed, *http://www.larimercountysar.org/missions2010.htm#2010_8_20*, 2010.

Comments: Visitors repeatedly get stuck in this big jumble of boulders. In looking through three mission reports at this site, the similarities are that the unwary explorer gets into something tight, tries harder and gets stuck more tightly. For these rescues, MAs are usually required, in addition to vegetable oil to help extract the patient.

3 September
Bat Cave, Arkansas
caver fall, injury, no aid

David J. Thomas (43) was leading a speleology trip of five. They were properly equipped with helmets with lights, boots, and other standard horizontal caving gear. During the trip, Thomas slipped on a mud-covered rock and fell over backwards, extending his arm to control the fall. The fall resulted in a dislocated right fifth finger (pinky) at the first knuckle.

The group was able to exit with no further incident. The students were returned to the college and then Thomas was driven to the White River Medical Center, where the dislocation was reduced.

David J. Thomas, *Incident Report*, November 17, 2010.

Comments: This appears to just be a case of bad luck, or the rock was a bit more slippery than anticipated. Watch your step!

17 September
Lava River Cave, Arizona
caver fall, injury and aid

A 50+ year-old, 5 foot 2 inch, 300 pound woman was part of a Mormon women's group on a weekend retreat. About 15 of the group started touring the cave about 3:30 PM, with most having a single, hand held flashlight. About 300 feet inside the cave, near the bottom of the entrance slope, the woman slipped and fell, hitting her head on the left temple, and bleeding profusely. Others of their group came out for help. Randy Miller was at the entrance, participating in a cave restoration project unrelated to the Mormon group, and responded immediately. Randy wrapped the wound with a compress bandage, and helped the woman exit the cave. The woman was taken to urgent care by members of her group.

Ray Keeler, *Project Report to Coconino National Forest*, "Lava River Graffiti Removal Project", October 2010.

Comments: The group of spelunkers had no helmets, most wore tennis shoes, and most but not all had one hand held light. Some were shining their lights for others who did not have a light. This is totally inadequate equipment for safe caving.

6 October
Coronado Cave, Arizona
2 fatalities, murder/suicide

Walt G. Lemaire (23) and Sheryl L. Allen (23) were discovered dead in a tent in the back of the large entrance room. A Coronado National Monument officer started the investigation after pulling over a vehicle for a traffic violation, The vehicle occupants had seen the tent in the cave and asked if camping in the cave was allowed. Investigators estimated the incident occurred that morning and the initial indications were that it was a murder and suicide.

Derek Jordan, *willcoxrangenews.com*, "Possible murder-suicide in Coronado Cave." October 6, 2010.

Comments: None

19 October
unnamed cave, British Columbia, Canada
difficulty on rope, no injury, aid

A two-person team was exploring an unnamed 23-meter pit on Mount Finlayson when the female caver had difficulty getting back up the pitch. The other caver was able to ascend up but was unable to extricate his partner. He called 911 on his cell phone at 4:45 PM. When the 18 firefighters with high-angle rescue training arrived, they discovered that they knew the calling party as he had been rescued three days earlier in a separate high-angle incident in Niagara Canyon (non-cave incident). The rescue team sent a team member down the pit and raised the patient and the rescuer on a tandem haul using a mechanical advantage system.

Erin McCracken, *Goldstream News Gazette*, "Rescuers free woman from cave." October 21, 2010.

Comments: Rescuers questioned whether it was lack of ability or lack of equipment or a combination of both. Knowing how to use your equipment AND how to help another caver that has gotten into difficulty is crucial. Know your gear. Know how to use it. Adapt when needed.

7 November
Canteen Sinks Cave, Utah
difficulty on rope, injury and aid

Benjamin Buhr (30) was with a group mostly in their late teens and early twenties, who were exploring about 100 to 150 feet back into the cave. The group set an anchor using a large rock for a rappel, but while Buhr was on rappel the rock pulled loose. Buhr fell about 10 feet with the rock-falling directly onto his arm and over his chest. The spot is frequently free climbed and can also be bypassed by a tight squeeze. A group member was able to help Buhr roll the rock off. He had suffered a severe compound fracture below the elbow.

The Cache County Search and Rescue and Logan Fire Department were called and were able to package Buhr and carry him out of the cave.

Lance M. Dickey, *Incident Report*, November 11, 2010.
unattributed, *Associated Press, www. kswt.com*, "Caver rescued in Utah with broken arm." November 7, 2010.
Jennie Christensen, www.cachevalleydaily.com/news/local/, "Arizona man rescued from cave in Sinks area." November 8, 2010.

Comments: The cave is visited regularly, which means one of two scenarios happened: the group rigged to something they should not have, or the rock had been used so much that the anchor integrity was compromised. What we can learn from this is to check each other's anchors and rigging, even though we have been on the pitch before.

11 November
Fang Cave, British Columbia, Canada
caver fall, two injuries and aid

A three-person party was exploring the cave and climbing out of a room called the Coliseum. One caver fell and landed on a second caver. Both injured cavers were in their 20's (a man and a woman). The climber suffered a concussion, a chipped tooth, and a leg injury. She was unable to make the ascent up the pitch. The second caver received leg injuries. The third member of the party was able to surface and call for help using their satellite phone.

The call was forwarded to Bob Rutherford of the British Columbia Cave Rescue. Sixty rescuers responded from eight different rescue groups. They climbed up the mountain in shin-deep snow to the middle entrance, where they found the two cavers at the bottom of a 20-meter deep pitch. Both were able to move with assistance and the 45-minute in-cave operation was followed by a two hour hike down the mountain. The two injured cavers reached the ambulance by 5 AM the following morning.

The Canadian Press,
www.ctvbc.ctv.ca/servlet/an/local/CTVNews, "Rescuers pluck injured spelunkers from Fang Cave. November 12, 2010.

unattributed, *CBC News, www.cbc.ca/news/canada/british-columbia*, "Cave explorers rescued in Prince George area."
unattributed, www.opinion250.com/blog/view/18281, "Rescue Teams Work All Night to Help Cavers." November 12, 2010.

Comments: This is the second time a satellite phone has been used for rescue notification at this cave in two years. Having three members in the party was extremely beneficial, in that the two cavers were able to stay in the cave to help each other and keep each other warmer while the third team member went for help.

17 November
Springhill Saltpeter Cave, Tennessee
caver fall, injury and aid

An unnamed man (25) and a friend were exploring when the man slipped and fell while down climbing a wall about 400 to 500 feet in from the entrance. The slope appears to be a gradual decent but the slipperiness was deceiving. The Anderson County and Knox County Rescue Squads responded to the call. The man sustained non-life-threatening injuries and was extricated after several hours to the UT Medical Center.

Unattributed, *www.wbir.com/news*, "Man rescued from Anderson Co. cave, TN." November 17, 2010.

Comments: There were no references to the skill levels or equipment used by the pair of explorers. Anyone can slip, and anyone can make a misjudgment on how hard a slope will be to negotiate. If there is a risk of falling and sustaining a substantial injury, use a belay.

21 December
Sótano de Ahuihuitzcapa, Veracruz, Mexico
caver fall, fatality

A local resident (a non-caver), was just watching the entrance, when he fell into the 180 meter (590 feet) deep entrance pit. An Espeleo Rescate, Mexico team from Veracruz was alerted and went to the cave to confirm the death. The body recovery started at 8 AM on December 23rd and was completed by 4 PM the same day.

Antonio AA, email post to *Texascavers list*, "Fatal cave accident in Sótano de Ahuihuitzcapa, Mexico." December 22, 2010

Antonio AA, email post to *Texascavers list*, "Fatal cave accident in Sótano de Ahuihuitzcapa, Mexico." December 24, 2010

Comments: This unfortunate accident could have been easily avoided by observing basic precautions when near the edge of the pit. The man was a local and had decided to spend the day on top just enjoying the vista.

29 December
Lariat Cave, Idaho
stranded, no injury, aid

Three adults and seven young boys of a Pocatello Scout troop went to visit Lariat Cave and spent the night in the cave. While they were at the cave, the weather turned bad and they discovered that they were unable to leave due to drifting snow. A 911 cell phone call at 11:30 AM alerted authorities of the problem and the scouts and dads were reached at 4:30 PM that afternoon.

Kendra Evensen, www.idahostatejournal.com, "Scout troop rescued after becoming stranded." December 29, 2010.
John Bulger, www.idahostatejournal.com, "Official on Scout troop rescued after getting stranded near A.F." December 31, 2010.

Comments: The National Weather Service had issued a winter storm watch with a warning for road closures for blowing snow. The adults either did not check this, or just disregarded the warning. Initial reports complimented the scout leaders for "doing all the right things" until the obvious error in judgment was brought up.

Always know the localweather status affecting the cave or caving area to which you are going.

Common Caving Mistakes and Consequences

Primary light failed; did not carry backup lights, or backup lights were inadequate – stranded.

No map, no guide, and poor route-finding skills – lost.

Wore inadequate or inappropriate clothing for conditions – hypothermia.

Did not bring extra clothing – hypothermia.

Moving but not paying attention – caver fall.

Free-climbing more than a body-length without belay – caver fall.

Traversing above drop without belay or safety line – caver fall.

Ignored rainy weather forecast; entered water cave – flood entrapment or drowning.

Careless movement in tight passage or crevice – stuck.

Entered bat cave or passage without precautions – histoplasmosis.

Solo caving and something went wrong – stranded.

Did not tell anyone of plans – delayed rescue by hours or days.

Did not clear loose rocks from lip – struck by falling rock.

Climbing or descending rope hand-over-hand – lost grip and fell.

Climbing cable ladder without belay – fell off.

Lost control of rappel; no bottom belay or rappel safety – fell to the bottom.

Out of shape or unfamiliar with climbing system – stranded on rope.

Did not know how to change from rappel to climb or from climb to rappel – stranded on rope.

Hair or clothing stuck in rappel device; did not know how to recover – stranded on rope.

Rappelling without wearing climbing system – stranded in pit or on rope.

Attempted pull-down trip without map or guide – stranded.

Sharing vertical gear; lost equipment passing it up or down the pit – stranded.

Did not tie a knot in the end of the rope – rappelled off the end and fell.

Moving around lip of pit without being belayed or being on rope – fell into pit.

Did not check attachment of rappel device to harness – became detached from rappel device and fell.

2009 Cave Diving Accident and Incident Reports

May
Ginnie Springs, Florida
equipment issues, no inury, no aid

Barbara am Ende was cave diving with new tanks (108s) and someone of authority had convinced her that if she slid the bands up on the tanks (which moved them down on her body), she would now need shoulder weights to counterbalance her now heavy feet.

The plan was simple. She and her buddy, Ken, would swim into the Devil's Ear without a line, drop their decompression tanks at the warning sign, then Barbara would lead into the Keyhole. They would then do the Bone Room circuit, and exit via the Devil's Eye (an easier exit).

They got to the gap and Barbara was at 1750 psi in the left tank, 2200 in the right (down from 3550 in each). Normally she wouldn't have broken the rule of thirds, but she felt it was OK for this particular dive, due to the high current on exit, and familiarity with the route.

Barbara began to have some issues with buoyancy. She was light-weight (, due to low gas) and air trapped in the drysuit. She also began having trouble keeping the air out of her feet.

They reached the sign and she had great difficulty with air in her drysuit boots. She swam 4 to 6 times around the sign, hanging on and trying to force her feet down. Ken tried to get her feet down, which worked only partially and temporarily.

Barbara saw daylight and decided on an immediate exit, then realized it was the Ear. The current was ferocious. She knew it was critical not to get blown out to the surface, for fear of dying of gas embolism, or getting bent. So she clung to the rocks as best she could. She was now completely upside down with her feet dangling above her. One foot pulled out of the overly inflated boot. The fin was still on, but was essentially useless.

She tried climbing up the rock wall, upside down, aiming for the 20-foot decompression stop.

Barbara rode the outgoing current to the "Deco Log" at 20 feet of water depth, reverted to a head-up orientation, and tried to switch to oxygen, but the regulator had gravel in it. During the process of clearing it, she drifted below the safe depth for pure oxygen, and resumed breathing gas from her sidemount tanks (containing oxygen-enriched air). She breathed one of her tanks empty, but at this point she was again above 20-feet and could breathe off the now clean O_2 regulator.

Somewhere during this ordeal, she realized, 'A person could panic about now.' But she didn't.

They finished decompressing, and headed for shore, but the current was still strong in the river, and Barbara still only had one fin. Ken managed to tow her out of the river, and they made it to shore.

Barbara am Ende, *Incident Report*, "Near Disaster at Devil's Ear, Ginnie Springs, FL, May 2009." August 10, 2010.

Comments: Testing a new gear configuration is best done with a simpler dive plan. Going below two-thirds of your starting gas supply is never a good idea, even in a high-outflow cave. Part of a cave diver's total weight is the compressed gas in the tanks, so using too much gas can make the diver excessively buoyant. While it is considered bad form and difficult in high current, going vertical to dump the excess air out of the drysuit would have helped a lot. Her logical approach to solving the problems, and avoidance of panic, kept her alive in a harrowing situation.

4 September
Devil's Eye, Florida
fatality, drowning

Bruce Clark (58) was diving with Gary Hildman. They went to the start of the Hill 400 jump, and Bruce went into "Harry's Crack," without a jump line. Gary didn't feel comfortable, so he waited for Bruce to return.

Gary didn't follow Bruce because there was silt coming out of the Crack, and he couldn't see the line in the tunnel. Gary waited for Bruce to miss him, and return. When he didn't reappear, Gary went to the other side of the Crack tunnel to theExpressway side. Not seeing Bruce there, and being low on gas, he exited and got someone else (an instructor) to search for Bruce. That search lasted around 90 minutes. Corey and Joel found Bruce Clark's body near the top of the Wormhole, in the Hill 400 tunnel.

Gary also said they started their dive with two loops up the main line, into the Expressway tunnel, then into the Bone tunnel, and back again to the Hill 400 jump area.

Lise Fisher
http://www.gainesville.com/article/20090904/ARTICLES/909049950/1002?Title=Cave-diver-reported-overdue-at-Ginnie-Springs.
http://www.gainesville.com/article/20090908/ARTICLES/909081011/1002?Title=Around-the-Region-Sept-8
Cave Divers Forum.
http://www.cavediver.net/forum/showthread.php/11230-Devil-s-Eye-9-4-09/page2.

Comments: There are several theories on this dive. The most popular is that Bruce waited for Gary to enter the "Crack," then returned to find Gary gone. Bruce then searched for Gary until he ran out of gas (air).

Another theory is Bruce returned to the gap where he last saw Gary, and missed the line in the siltout, and went the wrong way until he ran out of gas.

This appears to be a result of bad planning, and failure to follow all the safety rules. If Bruce had put in a jump line to the line in the "Crack", possibly Gary would have been willing to follow him. That also would have eliminated any possibility of anyone getting lost.

3 November
Eagle's Nest, Florida
fatality, drowning

James D. Woodall (39) and Gregory S. Snowden (34) came to Florida to attend the annual Diving Equipment and Marketing Association show in Orlando. Though experienced open-water divers they had no cave-diving certifications. They went diving in Eagle's Nest and had swam in about 1000 feet upstream swimming, not using scooters. Both were diving rebreathers with an 18/30 mix. On the way back out, Woodall started showing signs of agitation in the Super Room.

About 500 feet from the entrance and at a depth of 270 feet, Woodall started having trouble with his breathing equipment. Snowden tried to help Woodall and offered Woodall his bailout gas three times. It was rejected three times, then Woodall went comatose on the bottom. Woodall was apparently a very large man, so towing via swim was not an option for the survivor.

Joel Anderson, with contributions by Will Gorham
http://www.tampabay.com/news/publicsafety/accidents/kentucky-man-dead-missing-after-cave-diving-accident-in-hernando-county/1049287.
http://www.cavediver.net/forum/showthread.php/11688-Eagle-s-nest-accident-11-3-09 Post #10.

Comments: They failed to follow two of the five "rules" of safe cave diving. They had no cave-diving training, and were too deep for the gas they were using.

The diluents in the rebreathers were 18/30 (18% oxygen, and 30% helium, the remainder nitrogen). This is considered by most technical divers to be too rich in oxygen, and not enough helium for the 270 foot depth involved. The symptoms reported by the survivor indicate that the victim suffered nitrogen narcosis, and possibly also oxygen toxicity. It is also possible that the rebreather scrubber was no longer removing sufficient CO_2, which could have caused the victim to switch to bailout.

2010 Cave Diving Accident and Incident Reports

8 July
Peacock Springs, Florida
fatality, drowning

Patricia Barkley (67) and a male dive buddy of similar age were a two-person team who had been diving together once a week for the last four years. Both were introductory level cave divers. The planned dive was the Main Line to the Crossover to the Peanut Line. Both were wearing doubles. No jump reels were installed.

At around 800 feet on the Peanut line, Barkley began to doubt that her current direction was the way out and she suddenly started swimming back towards Crossover Tunnel. The male buddy (who was in the lead) caught up with Barkley and tried to convince her that she was going the wrong way. He used line arrows and pointed to the direction of the exit.

Barkley ignored this information and bolted back into the cave system, heading back towards Crossover Tunnel.

The buddy could not keep up with her and, at some point decided to backtrack to the Main Line, thinking that Barkley was going to swim back the way she came. The buddy waited for her at Pot Hole. After reaching a critically low air pressure he swam to the basin and found Larry Green in the water. (Larry was teaching a class at the time.)

Larry and the buddy surfaced, the buddy explained the problem, and Larry Green immediately went in to look for Barkley. She was found around 800 feet on the Peanut Line.

Ms. Barkley was found with her mask on, no water in mask, regulator out of mouth, and tanks empty. Her starting tank pressure was 3275 using hp 80's.

Lise Fisher, Ocala.com
http://www.ocala.com/article/20100708/articles/100709737/1402/news.
Cavedivers forum, "Diver Fatality at Peacock"
http://www.cavediver.net/forum/showthread.php/13813-Diver-Fatality-at-Peacock/page2.

Comments: There are several safety rules for cave-diving. The first rule is to be trained for the type of dive, which she wasn't. The second rule is to have a continuous guideline to the surface. "No jump reels were installed" means that there were at least two gaps in the guideline. The third rule is to save two-thirds of your breathing gas for exit. We can only surmise that when she had used the first 1/3 of her gas and she wanted to exit. Apparently she didn't understand that they had already passed the halfway point, and were on the way OUT when she turned to go back the way she came. This may not have happened IF there had been a continuous guideline. It is very easy to become confusted under water. She swam right past the tunnel she had come in from, because there was no "jump reel" installed.

2009 Caving-Related Accident and Incident Reports

9 July
unnamed abandoned mine, New Hampshire
stuck, no injury, aid

Cassandra Miller (16) was exploring with 54 other Camp Wanakee campers in a small, abandoned lead mine (reported as a cave) on Pine Mountain. About 4 PM she became stuck in the tight spot known as the "Lemon Squeeze" located some 20 feet from the entrance. The New Hampshire Fish and Game Department received a call from a camp counselor at 4:28 PM, and the Gorham ambulance and fire department responded. The rescuers built a rock platform, positioned personnel on either side of Miller, and were eventually able to free her around 7:30 PM after 3 ½ hours. She suffered no significant injuries from the entrapment.

J.J. Higgins, *www.EagleTribune.com*, "Salem, N.H. girl spends hours stuck in cave," July 10, 2009,
Jarret Bencks, *EagleTribune.com*, "Salem, NH, teen unscathed after being wedged in cave for 3 hours." July 11, 2009,

Comments: There was no mention of a fall in the report. The girl was placed in a situation where she just did not fit. This was a leadership issue. There were 55 youth campers in the group, and even though the mine is only 70ish feet long, putting that many untrained youth into tight passage is questionable.

September 19
unnamed sea cave, Oregon
parasail crash into entrance, injury and aid

A woman was parasailing along the ocean cliffs of Cape Lookout near Tillamook. She crashed into the cliff and then swung into the sea cave entrance and under the drip line. She was only able to cling to the rocks for about five minutes before falling into the surf while still in her harness. A nearby hiker witnessed and reported the crash. The Air Station Astoria launched a helicopter crew, which located the crash site and deployed a rescue swimmer. The rescue swimmer was able to cut her shroud lines, keep her from being washed farther into the cave, and get her into a rescue basket. The parasail pilot was hoisted into the helicopter, taken to the hospital and treated for hypothermia and other minor injuries, then released.

Deena Schroeder, *Daily Astorian*, "Coast Guard rescues woman who crashed while hang gliding." September 21, 2009

Comments: The video of the rescue showed heavy surf and gusty winds. The parasail pilot did what she could in a bad situation.

A flurry of motion around the litter - NCRC - Indiana 2009
Photo Jansen Cardy

Belley Crawl - NCRC - Indiana 2009
Photo Jansen Cardy

2010 Caving-related Accident and Incident Reports

21 April
unnamed cave, Idaho
fatality, living in cave

Richard Zimmerman, known as "Dugout Dick," lived in a cave along the Salmon River. He was truly off-the-grid and lived almost entirely off the land. Zimmerman had been at home in the caves at the end, and "it was his wish to die there," said Connie Fitte, who lived across the river. Zimmerman had been in declining health prior to his death.

Tim Woodward, *Idaho Statesman, www.thenewstribune.com*, "Idaho: Man known as Dugout Dick dies in his Salmon River cave home." April 23, 2010.

Comments: None

18 May
unnamed cave, Arizona
fatality, living in cave

The body of a 55-year-old transient was discovered in a cave off of a hiking trail near Kingman. The man appeared to be living in the cave. He appeared to have died of natural causes.

Erin Taylor, Daily Miner, "Transient's body found in cave by trail." May 18, 2010.

Comments: None

30 May
unnamed abandoned mine, Oklahoma
fatality, drowning

Joie Roland (31) had left his home near Fort Gibson to go solo hiking and exploring caves on Sunday. His family reported him as missing on Monday afternoon. Multiple agencies from Cherokee and Muskogee Counties participated in the search and Roland was found at 8:30 PM Tuesday evening in a lake in an abandoned mine it appeared he had drown in about 10 feet of water. He was reported by the family to be an "experienced caver and that he'd gone out to explore the cave on his own."

Josh Newton, *Tahlequhdailypress.com*, "Area man's body found in cave." June 1, 2010.
press staff writer, *Tahlequhdailypress.com*, "Missing hiker found dead in cave." June 2, 2010.

Comments: The old mine was used as a quarry by the U.S. Army Corps of Engineers to build the Fort Gibson dam. Pillars were left about every 50 feet in the mine to support the ceiling. Roland made numerous mistakes contributing to his death, including going underground solo and entering the water while solo.

6 June
unnamed cave, Quintana Roo, Mexico
6 fatalities, murder

Police found six bodies, four men and two women, in a cave near Cancún. Three of the six bodies had been mutilated. Drug cartels were suspected in the murders.

Radell Smith, *Atlanta Pop Culture Examiner*, "6 Cancun cave murders, 3 removed hearts: Is it safe for Atlanta vacationers to go to Cancun?" June 7, 2010

Comments: None

6 June
unnamed sea cave, California
other, marijuana found in cave

1,400 pounds of marijuana was found in a Point Loma cave near San Diego by the Coast Guard. They had been called by a concerned resident who noticed a small boat that was beached around the Sunset Cliffs area. Officials moved in, arrested two men and recovered the marijuana. The men were turned over to the U.S. Border Patrol.

Shelby Grad, *Los Angeles Times, latimesblogs.latimes.com*, "1,400 pounds of marijuana found hidden in San Diego cave; 2 men arrested."

Comments: None

8 June
Bums Cave, Virginia
fatality, living in cave

Ricky Dean Burks (50), a transient, had been living in Bums Cave for an undetermined time when a fire broke out. The Roanoke Fire-EMS responded to a brush fire and after extinguishing the fire discovered that a fire fatality had occurred. It was later determined that the incident was not of a criminal nature. Burks was remembered as a "really nice person," and "He was always wanting to help and would never ask anybody for anything."

Mary Lou Stock, *Incident Report*, untitled, March 10, 2011
unattributed, *Roanoke Times*, "Brush fire kills person in Roanoke cave." June 8, 2010
unattributed, *WDBJ7-TV*, "Friends remember man killed in cave fire." July 18, 2010

Comments: The cause of the fire had not been determined, however the death appears to have been an accident.

11 June
Cool Caves (abandoned mine), Pennsylvania
stuck, no injury, aid

Three men (ages 18 to 20) were hiking when they decided to go into "Cool Caves" in the Martic Township. They walked about 150 feet into the narrow passage when the second hiker got stuck in the chest area. The second hiker's position prevented the first hiker from escaping. The third man was able to run back and call for help.

The Pequea Fire Company responded, and dozens of firefighters and rescue workers spent two hours to free the men. They used soap and water to lubricate the stuck man and slide him out. One of the men was treated for minor injuries.

Samica Knight, *www.whptv.com*, "Hikers trapped in cave; freed with soap and water." June 12, 2010.
several contributors, *CaveChat.org*, "Pennsylvania Cave Rescue." June 12 through September 17, 2010.

Comments: Though this happened in an abandoned mine, an important lesson can be learned. Always put your weakest member, with respect to the obstacle, in the middle of the group. In this case the obstacle was a constriction. The team put the largest person in the middle which was the correct thing to do. This way the other team members could help. When a self-rescue is not possible, a team member could still leave and go get help.

July 2010
unnamed cave, Arizona
other, drug spotter hideout

A Silverbell resident was flying his private plane in July when he spotted someone standing near a cave at Wild Cat Peak south of Gila Bend. Authorities were notified and law enforcement sent a team to investigate. Hiram Rendon-Rios, a 23-year-old illegal immigrant with communications and surveillance equipment was arrested. He had been living in the cave illegally and it was suspected he was a spotter for drug and illegal alien travel activity. Rendon-Rios was deported.

unattributed, *www.kpho.com/news*, "Sheriff: Drug Spotters Living in Ariz. Caves." September 15, 2010.
unattributed, *www.kvoa.com/news*, "Illegal immigrant arrested in cave." September 15, 2010.

Comments: The area has been an active drug and illegal alien smuggling route for many years. In September, night vision equipment and weapons locked in a gun safe were stolen from another resident's home less than a mile from the cave.

30 July
Cool Caves (Wind Cave) (abandoned mine), Pennsylvania
caver fall, injury and aid

The abandoned mine is right along a popular hiking trail. An unidentified girl (13) was part of a group of 12 to 15 youths and one adult. She was fairly far back when she slipped on the wet rocks and fell over backwards, striking her back on the abandoned mine floor. She also received head and neck injuries in the fall. To reach the girl, rescuers moved single file to the back of the mine, packaged her in a Stokes litter, and carried her out. The girl's injuries were not critical.

Amy Alexander, *Intelligencer Journal/New Era*, *www.emsl.com/search-rescue/*, "13-year-old girl injured in Pa. cave fall." August 2, 2010
Larry Alexander, *articles.lancasteronline.com*, "Girl, 13, injured in fall in Martic cave." August 2, 2010

Comments: Many times an incident occurs as a culmination of several poor decisions. In this case there was one adult with 12 to 15 children. The adult-to-youth ratio was too low. Second, the girl was in an exposed enough position that when she fell a significant injury occurred.

31 July
Big Four Ice Caves, Washington
fatality, rockfall

The Tams family was on a family outing to the Big Four Ice Caves in Snohomish County. It is a mile-long hike along the trail to the caves and they had brought a picnic lunch. Grace Tam (11) was sitting on a rock with her parents about 15 feet outside the entrance when a chunk of ice about the size of a pick-up truck fell on Grace. Strangers jumped in to perform CPR while others ran down the trail and then drove another 7 miles to get cell phone signal. It took 2 hours and 20 minutes for rescue workers to arrive. Grace died of crushing pelvic injuries.

Eric Stevick, *Herald Writer, www.heraldnet.com*, "Big Four ice caves victim remembered for her smarts, sweetness." August 3, 2010.
Kyle Moore, *KING 5 News*, "Father of girl killed at ice caves presses for safety changes." August 13, 2010.
Thump-N-Seek, *www.geocaching.com*, untitled, July 30, 2011.

Comments: Though it was ice, this incident is placed under rock-fall. Falling rocks around entrances is always a concern. There are large yellow signs posted along the trail saying not to enter the ice caves. The girl was just in the wrong place at the wrong time.

11 August
unnamed cave, Illinois
dog rescued from cave

Bobbie (no last name) posted a message (1:51 PM) on CaveChat that their dog "Threat" had gone into a cave almost 72 hours previous to the posting. A second dog had gone into the cave and had managed to get out, muddy and wet. Bobbie's husband heard the dog calling for help on the third morning and contacted the local fire department. The fire department would not go in for an animal, only humans. One rescuer mentioned that he had been in the cave as child and that there was a Y and a pit below it. The dog must have fallen down the pit. Bobbie's husband had been in the cave over 100 feet and was worried about his safety. Bobbie was asking on CaveChat if anyone could help, provided a phone number, and a location about one hour north of St. Louis, Missouri.

"Sherppa" moved the CaveChat thread from the Diggers Forum to the Rescue Forum. Phil Winkler contacted the Meramec Grotto in St. Louis at 3:44 PM. By 6:30 PM five members of Meramec Grotto were en route. By 8:50 PM the dog was out of the cave and safe. It had taken the grotto members less than 1.5 hours from getting on site to get the dog out.

Bobbie, Sherppa, and Phil Winkler, *CaveChat (CaveDiggers Forum and Rescue Forum)*, "Help, Dog trapped in cave – IL." August 11, 2010,

Comments: Our whole-hearted congratulations to the CaveChat moderators, Sherppa, Phil Winkler, and the five cavers from Meramec Grotto who located and rescued the dog.

30 October
unnamed cave, North Carolina
dog trapped in cave

Evie, a small terrier, had disappeared from the Griffith family home the week before. Evie had been let out for a run and had not returned. The Griffith family searched all over without luck until the next day when the neighborhood dogs led them to a narrow crack in the hillside that apparently led to a larger cave. Would-be rescuers tried looking for and digging other entrances, using the Jaws of Life and other tools, but were unsuccessful. The Fire Chief suggested lighting a flare, putting it in the entrance, and looking for smoke. This method showed smoke coming out at one of their dig locations. The dig was widened, the Fire Chief belly-crawled in, and discovered a big rat moving about. After the rat disappeared, the Fire Chief was moving loose dirt with a stick when the dirt moved and the dog plopped out. Evie the dog had been underground for several days but was uninjured.

Jonathan D. Austin, *www.citizen-times.com,* "Rescuers pull terrier from cave." November 2, 2010.

Comments: Even though using a flare was successful in finding another entrance into the cave, this method is not recommended. The fumes and smoke could be hazardous.

5 November
unnamed cave, Tennessee
caver fall, injury and aid

Zach Holland (20) and Matt White (18) were at a party when a noise complaint was logged. Those involved took off when authorities showed up,. The authorities caught and arrested three, but Holland and White ran up to the foot of Monteagle Mountain and fell into the cave. Chattanooga Hamilton County Cave & Cliff Team responded and spent five hours getting them out. Holland was hospitalized in critical condition.

staff reporter, *WDEF News 12*, "Two Men Rescued After Falling in a Cave on Monteagle Mountain." November 8, 2010.

Comments: Even though this was a cave rescue, it is listed in Caving Related since neither of the two patients knew about or intended to enter the cave. Running blindly through the forest in cave country at night can be hazardous.

27 November
unnamed abandoned mine, Pennsylvania
caver fall, injury and aid

Eight teenagers were camping in the area and were exploring an abandoned mine in Longswamp Township, when one teenager fell and hit his head. Three of the group stayed with the injured person while the other four went out and called 911. Several fire departments assisted in rescuing the four teenagers. They were treated at the Lehigh Valley Hospital for a single head wound and hypothermia.

staff reporter, *www.wfmz.com/berksnews*, "Teens Rescued From Cave." November 27, 2010.

Comments: This injury would probably have been avoided if the teenagers were wearing helmets, and the fall might have been avoided if the spelunkers had been wearing boots. Having and using proper equipment, whether in an abandoned mine or in a cave reduces the chance of injury.

5 December
unnamed sea cave, California
other, fatality

Kristopher Carlsen (27) was open-water scuba diving for lobster with his father during the morning of December 4th. They were diving north of Fraser point off Santa Cruz Island when Carlsen failed to surface from the dive. He was determined to be missing at 10:30 AM and an extensive search was initiated by the U.S. Coast Guard. Carlsen's body was recovered in a crevice at the entrance of a sea cave.

unattributed (Associated Press), www.sfgate.com/cgi-bin/article.cgi, "Body of missing diver found near SB County cave." December 6, 2010.

Comments: This is listed under Caving Related as it is unclear whether Carlson even knew about the cave, and his body just washed in the entrance.

Report accidents and incidents via the Internet at **www.caves.org/pub/aca**
or mail reports and information to:

American Caving Accidents
National Speleological Society
2813 Cave Avenue
Huntsville, Alabama 35810-4431

The National Cave Rescue Commission

The National Cave Rescue Commission (NCRC) is a volunteer group developed to train cave rescue personnel throughout the United States. It is part of the National Speleological Society, and located within the Department of the Administrative Vice-President.

The NCRC does not perform cave rescues. It organizes, develops, and provides training in cave rescue techniques, maintains lists of individuals trained in cave rescue, and can help locate rescue resources in times of need. Most NCRC-trained cavers do participate in rescues, but not as part of the NCRC. They work as members of their local rescue teams, civil defense units, or cave rescue groups.

The NCRC also works to:

Maintain good working relationships with other rescue-oriented individuals, organizations, government agencies, and sources of specialized equipment and services (for example, the Air Force Rescue Coordination Center and the Center for Mine Safety and Health Administration).

Maintain current files of potentially useful equipment (for example, underground communications equipment and cave-oriented medical kits) and services that can be obtained through the above sources.

Acquire and maintain a limited supply of certain equipment, such as special rescue litters and vertical rescue gear, in key locations throughout the country.

Increase the number and proficiency of cave rescuers across the United States by sponsoring training sessions and seminars, and by encouraging other caving, rescue, and EMS organizations to sponsor such educational programs.

Encourage international cooperation by developing contacts with cave rescuers and rescue agencies in other countries, by pre-planning with these groups where US involvement is anticipated, and by inviting participation of cave rescuers from other countries in NCRC seminars.

Organization

The NCRC is led by a Board of Regional Coordinators that includes a National Coordinator, Training Coordinator, Medical Coordinator, and Diving Coordinator (each of whom coordinates resources and activities at a national level), and Regional Coordinators for each of ten regions in the United States and its territories. Board members are nominated by cavers and cave rescue personnel, and are appointed by the NSS Board of Governors. The NCRC depends on many volunteers without official positions whose special knowledge, talents, or contacts make the network more effective.

Training

The NCRC sponsors a week-long Cave Rescue Operations and Management Seminar each year that is held in various locations around the United States. The seminar serves as a "boot camp" of cave rescue and provides three levels of training. Cave rescue is constantly evolving, and the most up-to-date techniques are presented each year. In addition to the annual national week-long seminar, the NCRC regions sponsor regional week-long seminars, regional modular seminars (taught over a series of weekends), courses in small-group and self-rescue techniques, and weekend cave rescue orientation courses.

NCRC seminars consist of extensive classroom and field work designed to maximize the learning experience. The seminars include lectures, demonstrations, and field exercises on underground environments, vertical rescue, mechanical advantage systems, extrication techniques, basic medical principles, communications, and the management of cave rescue operations. Emphasis is placed on practical skills and techniques, with realistic exercises in a variety of cave environments.

The seminars provide basic and advanced material for students, who typically include cavers, emergency services personnel, and emergency managers. During the eight days of a seminar, students receive about 100 hours of instruction, and are on the move from early morning well into the evening. The NCRC uses and teaches the Incident Command System (ICS) used by fire departments, rescue squads, and other emergency agencies and services.

Course Listings and Contact Information

Information on NCRC operation, activities, and training, including contact information for NCRC Coordinators, is published each year in the *NSS Members Manual*, and is also available on the NCRC website at www.ncrc.info. Upcoming seminars are announced on the web site and in the *NSS News*.

National Cave Rescue Commission Course Listing and Contact Information:

www.caves.org/io/ncrc