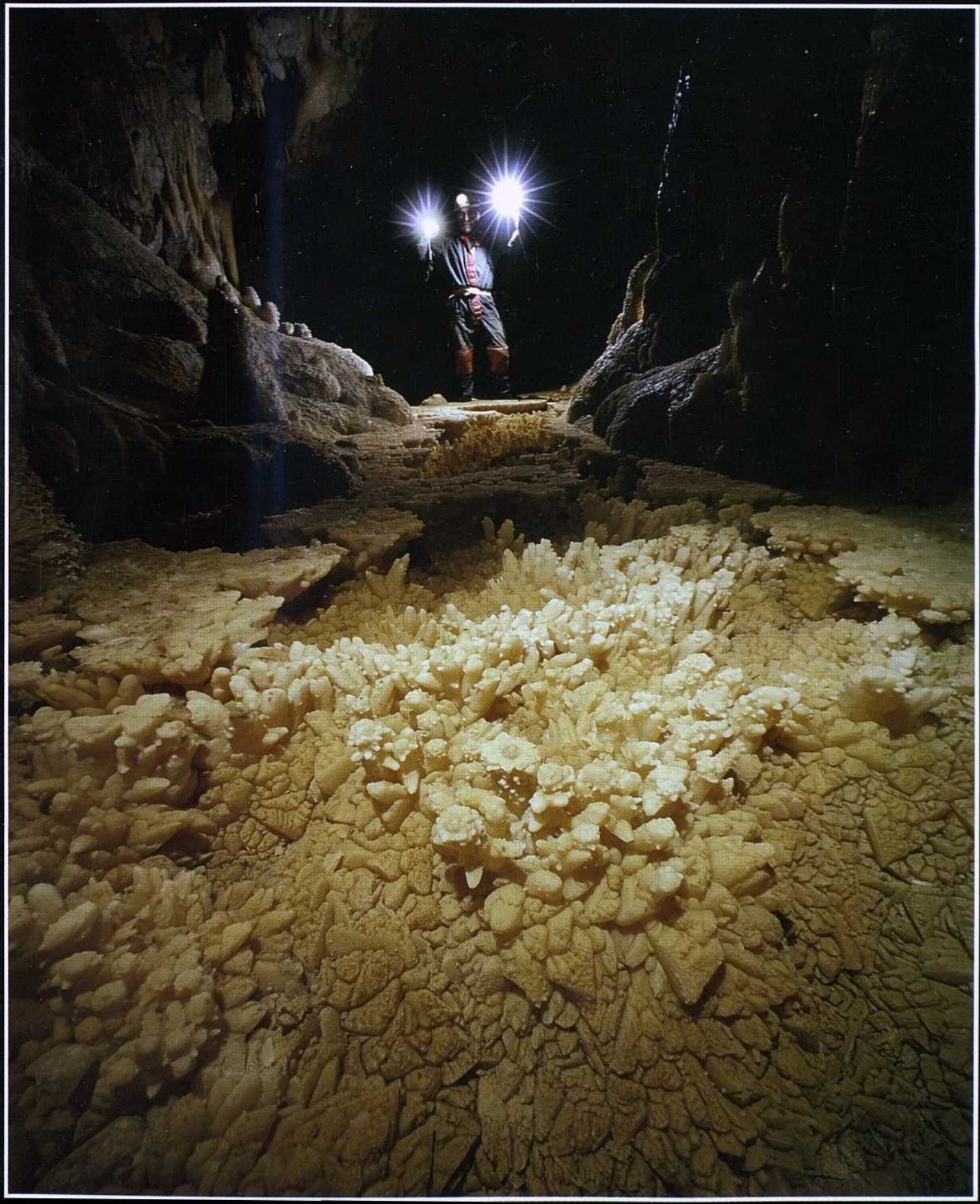
JUNE 2003

NSS NEWS



CALENDAR

U.S.A.

June 20–23,2003—The Central Indiana Grotto is pleased to announce the 50th Annual Cave Capers. This year Capers will be held at Delaney Creek Park near Salem, Indiana, site of the 1992 NSS Convention. More information is available at our website, www.cavecapers.com or e-mail Kathy Welling at kathyd@ccrtc.com.

June 21–28, 2003—National Cave Rescue Commission 2003 Cave Rescue Operations and Management Seminar. Camp Washington Ranch, Carlsbad, NM. Offering Level 1 (team member), Level 2 (team leader), and Level 3 (specialist). Details and registration form on the web at seminar2003.ncrc.info, or contact the registrar at 2003registrar@ncrc.info. Register by May 12 to avoid late fee.

June 22-28, 2003—Restoration Field Camp at Mammoth Cave National Park in Kentucky. Workers are needed to help restore the Echo River area of the cave to a natural state. We will be removing wooden walkways, electrical cable, and lights. This is a great way to see parts of mammoth cave no longer open to the public. Trips to nearby caves can also be arranged. Camping or bunkhouse accomodations and meals will be provided. A small fee will be charged to pay for food bought for the camp. Contact Kevin Betz at cavebum@ligtel.com or Roy Vanhoozer at rvanhoo@aol.com for additional information.

July 18-20, 2003—The annual Karstorama Event at Mount Vernon, Kentucky. Come join us in Rockcastle and other surrounding Counties for caving, hiking and socializing. Guided cave trips available as well as self-led. Sponsored by The Greater Cincinnati Grotto. Contact Wayne Barton at 513-961-5183 or barton@fuse.net.

August 4–8, 2003—NSS Convention in Porterville, California. See the Convention web site at nss2003.com for more information, or contact Peri Frantz (apfrantz@pwpconsult.com) (408) 356-8506 or Lynn Fielding (lynn@wb6hqk.ampr.org) (310) 533-8627.

August 29–Sept 1, 2003—Rocky Mountain Regional hosted by the Colorado Grotto in the Lime Creek Area near Eagle, CO. For more information, contact Barbara R. Smith, smithbr2@juno.com, 303-948-2240 or Christa Schneider, waterbug38@hotmail.com, 303-432-1430 or visit the CG website at www.caves.org/grotto/colorado/links.htm.

September 5-6, 2003—Quintana Roo Speleological Survey Convention 2003, Playa del Carmen, Quintana Roo Mexico. For more information, see www.caves.org/project/qrss/

September 19–22—Western Regional meeting, hosted by the Willamette Valley Grotto, Little Fawn Campground at Elk Lake, 35 miles southwest of Bend, Oregon (www.fs.fed.us/r6/centraloregon/recinfo/recmaps/mcaslaks.html). Event includes camping, howdy party, guided caving trips to lava tubes, catered banquet, a volcanology trip and guest lecturer from Portland State University. Premiere fishing and an excellent fishing guide available, hiking/biking trail access near campground and more. Contact Patti for more details by e-mail at Cave.Goddess@attbi.com. Watch for additional announcements and pre-registration details. Get you grotto's team ready for Speleo-Survivor!

October 9-12, 2003—26th Annual TAG Fall Cave-In, Sequoyah Caverns, Valley Head, Alabama. Hosted by the Dogwood City Grotto for NSS members and their guests. Sorry, no dogs or ATVs. For pre-registration, contact ET Davis (706) 539-9946, e-mail et.davis@mindspring.com, vendors contact Nina Martin (770) 307-3883, e-mail jeffnina@earthlink.net. Registration forms are available on the DCG web site at www.dcg-nss.org

October 13-17, 2003—National Cave and Karst Management Symposium, Shearaton Hotel, Gainesville, Florida. See www.nckms.com for more information.

November 7-9, 2003—Nashville Grotto 50th Anniversary Celebration, Montgomery Bell State Park, White Bluff, Tennessee. Contact Chuck Mangelsdorf at chuckmangelsdorf@aol.com to register.

November 17–20, 2003—*Joint Ventures: Partners in Stewardship conference. Sponsored by* the National Park Service, in collaboration with the U.S. Forest Service, the Bureau of Land Management, the Fish and Wildlife Service, the Bureau of Reclamation, the Bureau of Indian Affairs, the U.S. Army Corps of Engineers, and other outside partners. The purpose of this conference is to increase partnership opportunities to achieve the goal of creating a nationwide network of public places. Conference website: www.partnerships2003.org

INTERNATIONAL

August 9-30, 2003—The Ukrainian American Youth Caver Exchange Foundation (UAYCEF, an NSS project) 10th annual Ukraine expedition. Exploration of the "Giant Gypsums" of Western Ukraine, some of the World's longest caves, and the deep limestone shafts of Crimea. Eastern European Rebelay training available. Visits to Kiev, Yalta, Sevastopol, the Black Sea and other points of interest. Ten-day trips also available. Contact Chris Nicola. e-mail: chris@uaycef.org Phone (718) 204-8373 Snail mail: 2446 43 Street, Astoria, NY 11103, USA Website: <http://www.uaycef.org> for additional details.

October 17–19, 2003—3rd SYMPOSIUM on CAVE ARCHAEOLOGY & PALAEONTOLOGY in Athens, Greece at Harokopion University. The theme will be: New perspectives in Archaeological and Palaeontological research in Caves. The information is on the Hellenic Speleological Society Website (<http://web.otenet.gr/ellspe>) An english version is available by hitting the British flag icon followed by the Symposium hot button.

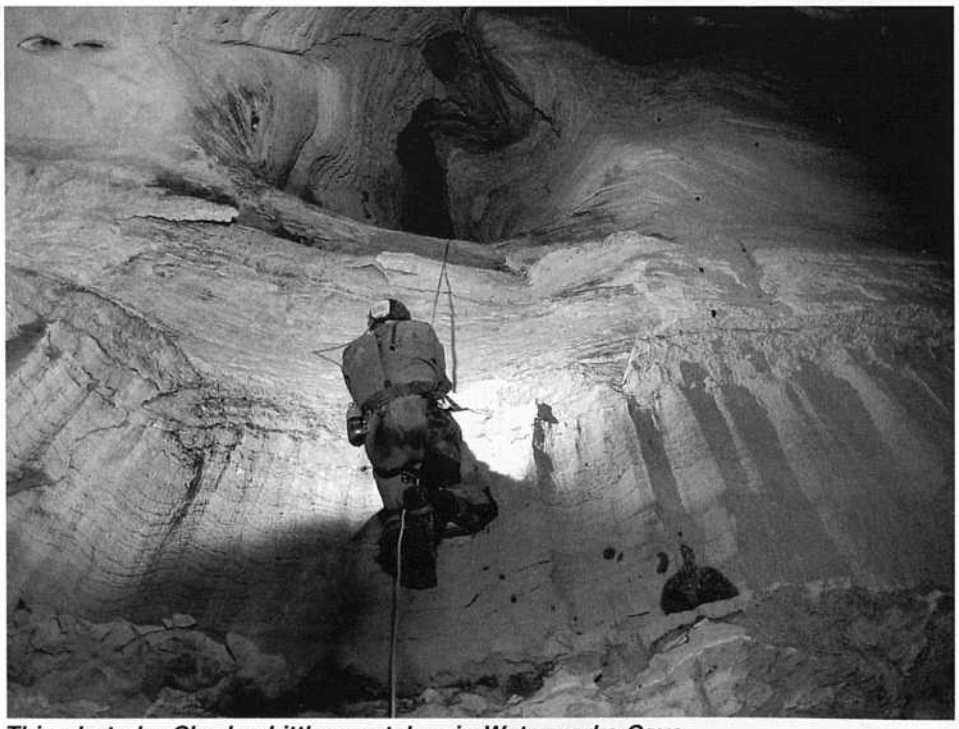
October 30–November 2, 2003—British Cave Research Association Annual Conference, Aireville School, Skipton, North Yorkshire. www.Hidden-Earth.org.uk

May 12–21, 2004—XI International Symposium on Vulcanospeleology, Pico Island, Azores, including pre- and post-symposium field excursions throughout these cave-rich Mid-Atlantic volcanic islands. Official language: English. Travel packages and early registration discounts available. Website: www.multi.pt/speleoazores. E-mail: speleoazores@mail.telepac.pt.

Further International events on the web: http://rubens.its.unimelb.edu.au/~pgm/uis/events.html

Send information on upcoming events to dbunnell@caltel.com, at least 6 weeks prior (e.g, by August 15 to appear in October).

The NSS News Photo Gallery



This photo by Charles Little was taken in Waterworks Cave..

Deadline: The NSS News is mailed the last week of the month preceding the date of publication. Ads, articles and announcements should be sent to the NSS News, Box 879, Angels Camp, CA 95222 by the 15th of the month, six weeks before the month of issue (e.g., material for March needs to be in by January 15).

The *NSS News* (ISSN 0027-7010) is published monthly with the *Members Manual* and *American Caving Accidents* published as additional issues by the National Speleological Society, Inc, 2813 Cave Ave, Huntsville, AL 35810-4431. Periodicals Postage Paid at Huntsville, Al and additional mailing offices. Tel: (256)852-1300; FAX (256)851-9241, e-mail: nss@caves.org, World Wide Web: http://www.caves.org/

Regular membership in the NSS is $33 per year. Subscriptions to the *NSS News* are $18 per year; individual copies are $1.50 each. Contact the Huntsville office for membership applications, subscriptions, orders, or for replacement of issues missing or damaged in the mail.

POSTMASTER:
Send address changes to National Speleological Society, 2813 Cave Ave., Huntsville, AL 35810-4431.

NATIONAL SPELEOLOGICAL SOCIETY, INC. NSS
DEDICATED TO THE EXPLORATION, STUDY AND CONSERVATION OF CAVES

NSS News

JUNE 2003
VOLUME 61 NUMBER 6

FEATURE ARTICLES

DEPARTMENTS

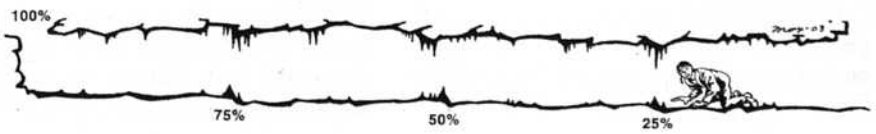
ABOUT THE COVER

Front cover: *Calcite Crystals in Pool Basin*, by Kevin Downey, won an Honorable Mention in the 2002 Print Salon, Digital Color Print Category.

Back cover: *A Nested Pearl*, by Kevin Downey, was a Merit Award winner in the same competition.

Repaying Great X: We're 22% of the way there!

As of May 1, $43,272.38 had been pledged towards repaying the purchase of the Society's newest cave preserve. To make your contribution, go to www.greatx.caves.org



Oregon Caves National Monument – Resource Management Problems

Steve Knutson, Chairman, Klamath Mountains Conservation Task Force, NSS

The National Park Service at Oregon Caves says that it plans to have a session at the National Convention this coming summer, to be part of the "scoping" process that they say is part of all management processes. This process, as I have been made to understand it, is to ask those expected to have more expertise, for input on a management process before actual documents are formulated. In this case, the process in question is an updating of their Cave Management Plan. Since most folks at the convention, and indeed, perhaps all, will have no real knowledge of Oregon Caves, and since there has, in my opinion, been severe management problems at that site in recent years, I feel it is essential that I present my view of the situation, so you can be better able to make meaningful input, should you attend that session, or simply want to write to them.

One reason all cavers should pay particular attention to this issue, and this site, is that this revision of the CMP was forced on the Park Service. The previous plan dated from 1987, and until the current crisis was made public, they had no intention of updating it. And as you will see, this update is just the tip of a larger iceberg of problems, at that site.

I must also say that I have tried to keep the issue local, as much as possible, and only take it to the national level, because the NPS at Oregon Caves is going national with this session at the convention.

A bit of my background: I felt fortunate to have participated in the first caver mapping project at the Oregon Caves, that of Bill Halliday, which was done from 1959 to 1964. During that, in 1962, I led a group that discovered the Bone Room, the last "major" passage discovery in the cave. I could see that this project did not exhaust the leads in the cave, so I later did a project of my own, from 1970 to 1975. This doubled the mapped size of the cave, to about three miles of passage. This is not large for the US, but it is still the longest cave in the (American) Pacific Northwest. We did a lot of photography at that time, and the majority of the photos of the cave possessed by the NPS are still those taken by Mike and Lynne Sims and I. We also did some preliminary studies in the cave, including dye tracing, invertebrate, meteorological, and mineralogical work. In short, I have done as much volunteer work for the monument as anyone, and may know the cave better than anyone.

In the 90s, from '92 to '99, I was hired by the NPS as a seasonal Resource Tech to head an inventory of the cave, and I trained the Earth Watch volunteers who carried out the in-cave work. In the course of this I again visited every part of the cave, to fix tags to the survey stations. I also did an AutoCad map of the cave, which shows all the physical features, each on its own layer, some 100 layers in all, to be used as a management tool.

Overview

The original mandate for the National Park Service is in the act of Congress that created that service. In that it is stated that the resource shall be protected for posterity, for all time, in essence, with no qualifications. It then states that the public may be allowed to experience, or use, that resource, but ONLY insofar as that resource can continue to be protected. Unfortunately, the public use of a national park or monument can come to dominate the management plans and attitudes, and this original mandate can become subverted. That is the current problem at Oregon Caves.

Background

Oregon Caves is a solution cave in marble, situated at 4,000 ft elevation on the side of Mt Elijah, in the Siskiyou Mountains in southern Oregon. It has some 16,000 ft of passage, in a three-dimensional complex, and actually penetrates the mountainside for only about 900 feet. It is thus in reality not a very large cave.

Oregon Caves was discovered in 1874 and pretty much explored to its current limits by 1900. Both conservationists and entrepreneurs pushed for the establishment of a National Monument, and in 1909 this was signed into effect. In the early 1920s a road was put in, a hotel soon followed, and the entrepreneurs took over. A contract was issued to have a private company run the hotel, gift shop, dining room, and give the cave tours. When the Park Service later assumed control of national monuments, this concession management was continued, and it became the only National Park Service site where Park Service ranger naturalists did not interpret the main feature.

The trade-off was that the NPS got by with a very small budget for the site, since they needed few personnel. This seemed fine, until environmentalism came along in the 60s and 70s and when it became apparent that the NPS had little control over operations. Tour size had got to a maximum of 16 tourists per tour, and these were run frequently enough that over 2000 visitors might do the tour on a busy summer day. Huge lint accumulations were in evidence, and the formations along the route were clearly discolored, even if out of reach. Moreover, the passages of the tour route are mostly narrow and twisting, and there was no way the single tour guide could properly supervise a group of 16—the guide often had no idea what was going on in the back of a group, or indeed even if the group was still all there. I was told that the Park Service tried to restrict tour size, but the concession company had the political clout to resist.

In the 1980s things began to change. The Park Service apparently, at long last, decided to assert itself. Craig Ackerman was hired as Superintendent, and John Roth became the first Resource Specialist. Restoration work began in the cave, and among other things, tons of rubble from the construction of the two tunnels along the route, was removed. In the early 90s I was hired seasonally to head an inventory and computer-mapping project, completed in 1999. Paleontologists were brought in, and discovered that the cave appears to be rich in fossils, including microfossils. A new General Management Plan was written and approved, and this had three main objectives. These were to take over the conduct of cave tours, to buy out the buildings on the Monument, partly so an on-site Interpretive Center could be set up, and to expand the boundary so all the karst watersheds would be included as well as the watershed that provided water for daily operation.

A bright, new day seemed to be dawning at the monument.

We cavers, of course, happily embraced and supported these changes. In 2001, ranger naturalists did the regular tours for the first time. The Interpretive Center and boundary expansion are in the works. And to those conservation-minded, it meant the NPS could now give the cave the conservation consideration it had needed, all those many decades, and without opposition from a money-hungry concession company.

Progress during the 90s

When I examined the cave in 1992, to set station tags for the inventory, I found that some rare formations were gone. One of these was a little stalactite with a clump of beautiful crystals on it that had been on the cover of an issue of the NSS Members Manual in the early 80s.

When I reported this, the superintendent made some changes. First, there were to be no further off-trail excursions without a permit, and money was allocated for a programmable, magnetic-card-reading lock system for the entrance gates.

It took a while for the bugs to be worked out of the magnetic locks, but it was clear that the days of unauthorized access with a pirated key were limited. But what of access without a key? Was this possible, and by how

large a person?

At the start of the summer of 1997 I decided to do a check of the security of the cave. As far as I could tell, no one had ever done this. If there was someone there, whose assigned duties included cave security, he/she was not doing anything I could measure. This check was quite my own idea, and was done on a day off.

Bat gates are supposed to limit access to someone so immature, they would not be a danger. To check access, I got the services of the son of a coworker, a 5'2", 100-pound, 12-year-old boy. I was the other, larger, test subject, at 6'1", 170 pounds. We checked the various entrances to the cave for possible unauthorized access, assuming the intruder had no key, and would be unwilling to cause visible damage to the gates.

There were at that time six openings in the mountainside that led to the cave. Two of those led to the Main Entrance gate. The others were the Icebox Entrance, the Bulkhead Entrance, the 110 Entrance, and the Exit Tunnel Entrance.

The Icebox Entrance had been dug open the summer before. It was found to have no gate.

The Main Entrance was found to have a hole at the top that I could pass through. The bars were over 6 inches apart and the boy passed through easily. At the bottom was a gap of over 7 inches, which I passed through. The River Styx opening, right next to the gated opening, was big enough that I could pass through in street clothes in 10 seconds, without getting wet.

The Bulkhead Entrance gate had bars over 6 inches apart and was easily passable by the boy. It also looked like you could dig under it.

The 110 Entrance had bars over 6 inches apart and the boy passed it easily. The bottom bar was bolted on with hex-head bolts and I was able, with two wrenches, to take it off, pass through, and replace it in only 5 minutes.

The Exit Tunnel gate had bars over 6 inches apart, and again the boy went through.

In summary, an adventurous juvenile, or very thin adult, could access the cave through any entrance. But it was a bit of a shock to find that there was easy access for even quite large persons. Examination of the specifications for gates that are "friendly" to bats reveals that the ones on the entrances to Oregon Caves were not made correctly. The wrong-sized angle iron stock was used, and the gap between bars was too large.

I wrote up this security check and submitted it to the superintendent. There was no apparent result, and it was not surprising when, on Wednesday, July 23, the first tour through the cave found the Bird of Paradise missing.

The Bird of Paradise was a little stalagmite/stalactite that sits up by itself on a chert ledge near one of the last sets of stairs for the tour coming out of the Ghost Room. It is the image of a white bird, sitting on that ledge, with a little soda straw above it, as the "worm" that has its attention. It was charming, it was striking, and it was gone.

It may be significant that the new General Management Plan had been announced only a few days before, and there might have been angry concession employees about. But the magnetic lock system recorded magnetic key use, and it seemed whoever did it must have used one of the many points of access I had found in May.

For the rest of that week, I sat in the office, waiting for a sign that the security problems would be fixed at last, but, curiously, no word came, to do anything. The gates have since been fixed.

A Resource Revealed—The New Discoveries

Oregon Caves was vandalized from the time of the first visits. Establishment as a national monument changed little. One tour that Dick Rowley ran, in those early years, had over 400 visitors in a single group, as a long chain, snaking through the cave. Gates were not put on the several entrances until the late 1950s. Padlocks were used on these gates until the late 90s, and the cores were almost never changed. The cave came to be seen as something already pretty well vandalized and marred, which it was along the tour route, and only good for running more and more tourists through. One of the "perks" of the guide job was to get to play in the cave. Anything rare, or interesting, was surely long gone.

But the inventory had a wonderful result. It got paleontologists there, and it found the animal prints and scratches.

The inventory folks were told to inventory a list of expected features, but also to keep an eye out for the unusual. One group came into the office one day and said they had found animal tracks in the very back part, and by god they had a sketch of them. I thanked them, but in my mind, I was thinking this had to be bull. I had been by the spot of their discovery many times, as had many others, and such a thing had never been noticed. Hah! We'll see. But when I went to the site, a few days later, I was amazed. The marks looked real, certainly looked ancient, and I could conceive of no natural process that could have made them. Later, some friends and I found more and better ones further along that level (see accompanying photos).

These marks, which appear to be imprints as well as scratches from Black Bear and Grizzly (deduced from the size of some imprints) and the imprint of a large cat. These are in the very back of the cave, and must indicate a paleo entrance there at one time. What other marks, less obvious, might be found, if an expert has a look? And if large animals were in that part of the cave, to leave tracks and bones, why couldn't Native Americans have been in there also? To date, no paleo track expert has been to Oregon Caves, and no archeologist has actually studied any part of the cave.

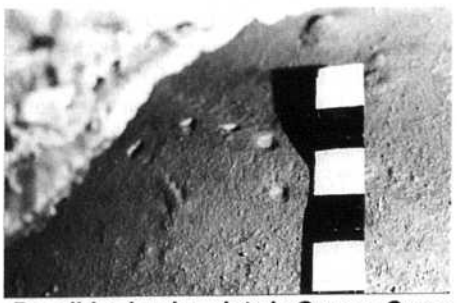
The Paleontologists, Greg McDonald (NPS) and Jim Mead (Northern Arizona University), also visited in the 90s, and reported the sign of fossil content in the sediments almost everywhere they looked. Mead also found microfossils in the sediment, which meant you couldn't assess potential fossil importance with the naked eye—all sediments in the cave were potentially fossiliferous. Jaguar remains were removed, and estimated to be about 100,000 years old. Apparent Grizzly remains were radiocarbon dated, and found to be beyond the method, over 40,000 years old, and much older than known Grizzly remains from the lower United States.

Steve Turgeon, from Charleton University in Canada, came on his own, looking for old flowstone for his thesis work. He did U/Th dating of some calcite samples, and reached 360,000 years, 12 inches down in a 28 in thickness of flowstone. It was clear that the cave could easily be over a million years old, far older than had been thought.

Sediments exist in the cave on all levels, and as remnants in wall pockets and on ledges. In one place, there are extensive deposits plastered to a ceiling. Some of these are associated with flowstones, clearly datable, and are surely of various ages, back into the Pleistocene. The Paleontologists say what they have examined shows fossil content. Oregon Caves has the chance to yield a treasure trove of fossil remains from the Pleistocene.

In the 90s an invertebrate study was also

Grizzly bear claw marks in Oregon Caves



Possible claw imprints in Oregon Caves

begun. This got as far as the trapping of over 10,000 specimens, and the initial identification by Rod Crawford at the University of Washington, of a number of individual specimens, to the extent that a number of these appeared to be endemic—species unique to Oregon Caves. Furthermore, there were said to be more of such, than any other cave in the United States! But only recently do we discover that once these initial findings were reported, there was no more funding, and nothing more was done.

The Current Crisis

In the 90s it really seemed that a new attitude on the part of the Park Service was in place and we were on the way to proper treatment of Oregon Caves, at last. Essential studies were begun and old habits, like concession employees getting recreational time in the cave, changed. The map I did would surely be the basis for the new, proper study and treatment of the resource.

All seemed well and good.

A Complete NEPA Void, Revealed

In the spring of 2001 I learned, quite by accident, that the NPS would be able to implement part of the new GMP and would do the tours for the first time, that coming summer. Additionally they would offer a Spelunker Tour, for the first time. This was set up to go to Echo Dome, passing right by the first animal marks site! These marks were in mud, on a sloping ledge a few feet above the floor, and you had to be within arms reach of them, just to go by. Tourists passing by repeatedly would surely destroy them. I quickly got on the phone to the Superintendent, Craig Ackerman, to appeal to him to route this tour differently. He agreed, and this was reportedly done.

But when I asked for the NEPA document that covered the spelunker tour, this new human impact, I was told there was none.

This came as a shock. From my seasonal work in the 90s I had come to realize that no previous NEPA compliances had ever been done. I had become increasingly disturbed by this, but held off any confrontation, because I knew the Park Service had operated under a severe handicap from the Concession control of much of the operation, and could see from the new GMP that they intended to change that. In fact, when the concession had asked permission to run essentially the same spelunker tour, they had been told they could not, because of environmental concerns. What was going on?

The Tour Route Renovation

In the 90s there had been a renovation of the whole existing, regular tour route. This had involved a lot of digging, to set supports for a suspended walkway, and prepare the bed for concrete pours. I found there were no NEPA or other documents prepared for this work.

Moreover, when I investigated the situation, I learned that the workers had been given no instruction and no on-site supervision by the Resource Department. During the work, workers found both artifacts and apparent fossil remains. To their credit, it appears they tried to do the right thing, as much as they could. The artifacts, if they seemed interesting, were collected, preserved and have now been turned in and can be examined by an archaeologist. When they noticed bones, they were collected and given to resource later. I counted over 50 jaws with dentition in this collection, before I sent it on to Mead.

At one point, however, they found large bones, including a jaw. They realized this must be important, and stopped, and called in John Roth, the Resource Specialist. They reported their surprise, when instead of telling them they would have to stop while a paleontologist was called in, he instructed them to leave them as is, and to install a view box. Then they went ahead and backfilled, and paved the rest over.

In the Organic Act, paleontology is specifically mentioned, as one of the resource considerations that should be preserved. So the lack of NEPA considerations had already resulted in damage to the resource.

Other Examples

I found further examples. The surface project brush burning, already taking place, has no NEPA compliance, and may threaten endangered surface species, and is taking place, in part, on the surface above the cave. The hydrology of the monument is not known. Two karst springs have unknown collection areas. Restoration work in the 80s and 90s apparently moved undisturbed sediments, to improve the cosmetic appearance along the tour. Much material was removed from the cave that was not construction rubble. Peter Clark, a climatologist at Oregon State University is using the U/Th and oxygen isotope methods to get climate information from flowstone. He is using samples donated from a worker's driveway—stalagmites that came from the cave. The Park Service, at one point, reportedly told guides to tell tourists that they could get souvenir cave formations from a rubble pile adjacent to Greyback Campground, where they had dumped material from the cave.

Conservationists Force the Spelunker Tour Issue

We could not ignore what was going on. The NPS was now supposed to be doing things right. NEPA is a law, not a suggestion. Moreover, there is the Federal Cave Resources Protection Act, and the Organic Act to consider. All of these say that protection of the resource, or the environment, deserves top priority.

So, some of us applied pressure through the NPS Regional Office. This resulted in the issuance of a NEPA document. This proved to be a Categorical Exclusion, dated 6-22-01, presumably written by the Resource Specialist, John Roth. None of us who expressed our concerns was sent a copy—I only got one via a Freedom of Information Act request. When I finally got a copy, I could see why. By that time, it was summer and the spelunker tours were already being done.

Note that when there is expressed controversy, which we had already supplied, you actually are not allowed to use a Categorical Exclusion, but, as we were to learn, laws seem to be regarded as mere suggestions at Oregon Caves.

The Categorical Exclusion, the Environmental Assessment, and on, to What?

The CE had substantial inaccuracies. For instance, it said that Jim Mead had done a paleontological survey of the proposed route. I grabbed the phone and called him. He said he had done no such thing. The only site he had really done much work with was the G3d area, near the 110 Entrance.

The CE went on to say that Mead had found nothing along that route. In fact, he once passed through a chamber of that route, when I was guiding him to the Bone Room, and when he stopped in that chamber, he bagged a bear tooth lying on the surface, and a deer bone an assistant spotted, nearby. Furthermore, there is a report in the NPS files of an NPS ranger collecting bones from that route in 1964, and these were identified by Dr Shotwell at the University of Oregon, as mountain beaver, and a "bear the size of a grizzly". So much for "nothing found."

There were other, similar "inaccuracies" in that document.

I contacted the local EPA office, and learned that what I suspected was true—Oregon Caves had *never* filed any NEPA compliances. The only document so labeled, was the new General Management Plan, and that was called an EIS, but it clearly was nothing of the kind. No environmental considerations were in it at all. I asked the EPA rep what he was going to do, now that I had pointed out this NEPA lack at Oregon Caves. He told me I was on my own—the EPA has a limited budget, and could only prosecute violations like toxic spills.

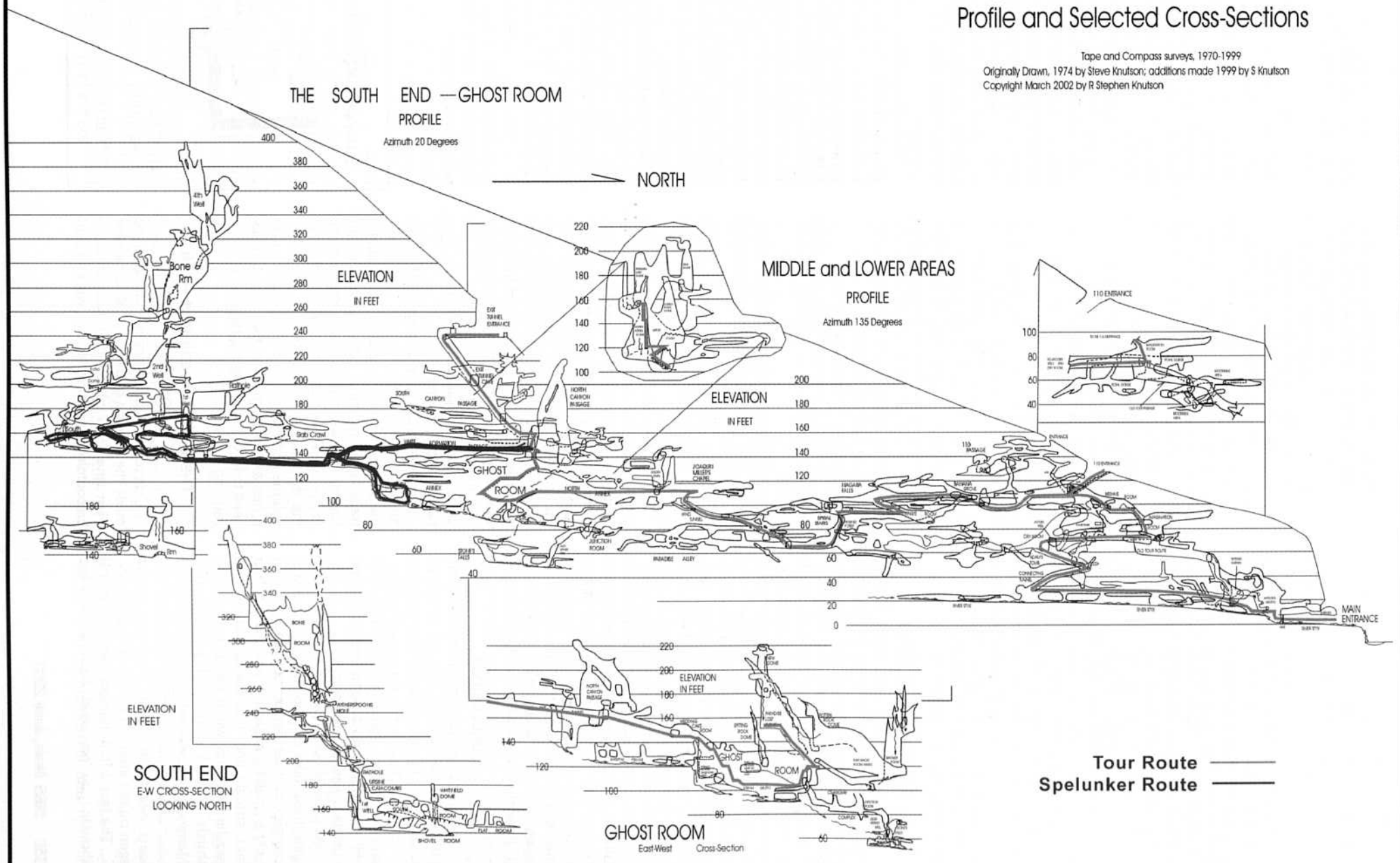
We raised more objections, rallied more support, and at the end of the summer they promised a full EIS. That winter they changed that to an EA. That was issued in the middle of the summer 2001. In my opinion it is almost as bad as the CE. The included map shows the regular tour, with a gross error, and it shows the "proposed" Spelunker Tour.

OREGON CAVES

Oregon Caves National Monument

Profile and Selected Cross-Sections

Tape and Compass surveys, 1970-1999
Originally Drawn, 1974 by Steve Knutson; additions made 1999 by S Knutson



But the text description of the Spelunker Tour route is different from that shown on the map! How can one make meaningful input, when the proposed route is not given correctly or consistently? And we must take note, that in the summer of 2001, when they ran the spelunker tour based on the CE, they changed the route they used, several times, and at one time were going through the chamber where Mead said the Jaguar probably died, and in which he had already found significant fossil remains.

Moreover, it was labeled as an EA of the regular tour as well, and is nothing of the kind. No environmental concerns, and there are many, regarding the regular tour, were discussed or addressed. Apparently they are attempting to remove the regular tour from needing any reassessment in the future, even though it clearly is having a huge effect on the part of the cave it goes through, and almost certainly needs to be reduced, in tour party size, and tour frequency.

An Associated Issue

A few years ago, a new, major solution cave was found, the first such in Oregon in about 60 years. We mapped over a thousand feet into this, before the entrance dig, an 80-foot, unshored tunnel through landslide debris, collapsed (not while we were in it, obviously). David Hodges had engineered the dig, and he named it the Cave Next Door, since it is not far from Oregon Caves. In fact, a dye trace from the Panther Creek sink, inside the current monument boundary, went not to Oregon Caves as expected, but the other direction, to this new resurgence cave.

When the boundary expansion in the new GMP is actually implemented, this cave will become Park Service property. Considering the current attitude, I am very worried for this still-pristine cave. It will be opened up again, but what will the Park Service do with it? Immediately run wild cave tours into it?

Conclusions

So, here we are now, gradually forcing the NPS at Oregon Caves, into an obviously reluctant NEPA compliance. But it is clear from what I perceive as continued duplicity and evasiveness, that what they really would still prefer is to do human impact without outside review or interference.

As I already said, Oregon Caves is a cave with three miles of passage length, but it is complex in three dimensions, and occupies only a small bit of karst. It only extends 900 feet, straight line, into the mountain. The regular tour route winds through about two-thirds of that. Some NPS caves, like Mammoth or Carlesbad, have tour routes that affect only a small percentage of the cave and karst. Not so for Oregon Caves, as can be seen on the included profile of the cave.

The fact is that the new spelunker tour (I shouldn't say "proposed" because they have already done it) invades the only part of the cave still more than 150 feet from a tour route. No study has been completed (very few have even begun in the cave) that shows the effect the REGULAR tour is having, yet that appears to be devastating. Instead of blindly assuming no affect for the new tour, they should be doing studies to see if the regular tour, in the way it is currently being given, is legal and proper. My guess is that the regular tour is heavily affecting about the first two-thirds of the cave. The spelunker tour may take care of the rest. If it is implemented, in essence the whole cave is sacrificed to tourism.

A decision by the Regional Office on the EA is due by May or June, and will presumably have been issued before this article is published. If they decide to go ahead with the Spelunker Tour, we will have essentially no time to rally opposition to it. Do they have any legal right to decide to do it? No, the only "right" they have, is that which they gave themselves, in their internal regulations. As yet they have not done:

1. A paleontological survey of the route.
2. An archeological survey.
3. Initiation of photo monitoring.
4. Species description for the new, endemic species, and a study of their habitats.
5. A survey for additional animal paleo-marks. The known marks were discovered by amateurs.
6. A bat activity survey. Cross' recent survey did not go further south than the Ghost Room.
7. A proper safety assessment—there are tight constrictions on the way into the South End, and places along the route where a clumsy person (tourist) could fall and get hurt. Any suspected spinal injury would have to be strapped to a backboard, and transported in a SKED. It is my opinion, that such a victim could not be removed from that area of the cave without modifying passages.

If the spelunker tour is restarted, we will do as much as possible to oppose it. Your help may be essential.

But the current situation goes way beyond the conduct of a spelunker tour. That is only the iceberg's tip. We need to keep careful track of all resource activities at Oregon Caves. And we must urge the Park Service to live up to their mandate, and not continue the destructive regular tour in the same volume and manner as before, just because it has always been done that way. Studies need to be done, to assess a more reasonable carrying capacity.

The Cave Management Plan Revision

One result of our efforts is that they have made the revision of the Cave Management Plan (the 1987 plan didn't even mention paleontology) a priority for this year, and plan a "scoping" session at the convention this summer. If you attend this, please urge them to leave the South End of the cave, where the Spelunker Tour is going, in a wild state, and to actually do assessments and studies, so proper decisions can be made.

The new CMP should include provisions for extensive paleontological studies and assessments, a real archeological study, completion of the invertebrate study, a mineral inventory, a study of the so-called clay worms, and many other things. Little is actually known about Oregon Caves.

One statement from Oregon Caves is that they like the Jewel Cave Management Plan. If the new plan is modeled after any existing plan, it should be that from a cave that is similar to Oregon Caves, which Jewel is not. Jewel is a huge cave where the tour route and its effects are limited to a small percent of the total cave. Also, Jewel does not have sediments all along and under the tour route that are at least potentially paleontologically important.

There are a number of considerations, as yet unassessed, potentially affected by a spelunker tour. In a way it is not even important what they are. What is really important is that the NPS care about such considerations. The NPS, in the view of the environmentally concerned public, are seen as the "good guys." If the NPS really deserves that image, they should be going the "extra mile" environmentally. They should be doing MORE protection than that required by law. At Oregon Caves, they appear to want to ignore the laws.

Anyone who wishes to express an opinion, do so to the "orca_superintendent@nps.gov" (also craig_ackerman@nps.gov). Pertinent documents can be obtained by FOI, from the National Park Service, 19000 Caves Hwy, Cave Junction, OR, 97523; at the Oregon Caves NM web site or viewed at the Friends of Oregon Caves web site (www.oregoncaves.org), hosted by Jay Swofford. Any comments for me send to sssknutson@aol.com.

The Probable Effect of Thoroughbred on Mammoth Cave National Park

Roger W. Brucker

NSS #HLF 1999, *KEEP Steering Committee, <brucker@graphtronics.net>*

Since 1985 haze has obscured vistas in Mammoth Cave National Park on many days. Haze is visible air pollution. On the hazy days of summer 79% of the haze is ammonium sulfate. Between 1998 and 2000, 34 days were classified as unhealthy by American Lung Association. They awarded Edmonson County an F in air quality for 2002. Most haze comes from coal-fired power plants. Air pollution degrades this famous world-class natural and scenic treasure, although the national park is in a Federal Class I air quality zone, the highest category of protection. "Non-attainment" haze reduces visitors' vistas. Mammoth Cave is the United States' third most polluted national park with respect to haze, according to the National Park Service. Other air pollution hinders their enjoyment of the park and it aggravates respiratory diseases. It also endangers the natural biota of the park both above ground and underground.

In addition to haze, there is significant pollution from ozone, mercury, SOx, NO_x, and others. I have visited the park when Ozone Alerts warned visitors of the dangerous breathing conditions. Extinction rates up to 300 inverse megameters have been reported, a certain measure of visibility degradation. The Green River flowing through the park is subject to a KY Mercury Advisory that warns against eating fish already loaded with mercury poisoning, most of it from coal-fired plants. With air quality already below Clean Air Act standards, Mammoth Cave National Park is being asked to accept increased damage. The threat is from the proposed and permitted Peabody Coal's Thoroughbred 1500 MW generating plant to be built only 50 miles west of the park in Muhlenberg County, KY. As if spoiling this World Heritage site were not enough, contamination also threatens the estimated $116 million annual revenue contribution visitors make to Kentucky's economy. If ever there was a case where the "precautionary principle" applied, this is it. The precautionary principle states that when a practice is proven to be unsafe, it is not required to furnish conclusive scientific evidence of total loss to justify a restriction on the practice.

The Commonwealth of Kentucky and the administration in Washington are repaying political contributions of coal producers by allowing them to kill the goose that lays golden eggs: Mammoth Cave National Park. Thoroughbred plans to burn the dirtiest coal in Kentucky in a new plant lacking the best available pollution controls, will sell all the power to eastern states, pocket the profits, and emit smoke to blow down the throats of downwind people.

How Thoroughbred Will Kill Mammoth Cave National Park

It may seem an exaggeration to use the word "kill." Here's why not. Mammoth Cave, through several natural characteristics, is a concentrator of air pollution's effects. The region's coal-fired plants are already harming the park's surface vegetation and animal life, its vistas, and its underground animal life in this hotspot of subterranean biodiversity. Components of smoke include CO_2, SO_x, NO_x, and heavy metal poisons such as mercury, which accumulate, cannot be removed, and are irreversibly lethal.

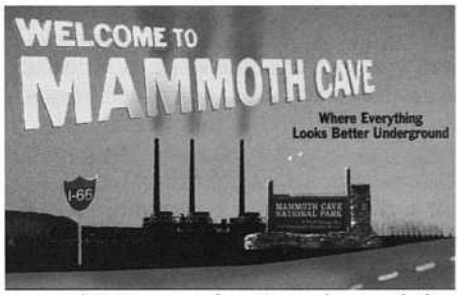
According to Peabody's own estimates, this plant will be the fourth largest emitter of mercury in Kentucky. It will annually emit 420 pounds of mercury, 6,000 tons of NO_x, and 11,000 tons of SO_x. What about arsenic, nickel, and dioxin that all coal fired plants emit, and which are just as toxic as mercury?

The Sierra Club is suing Peabody and Kentucky to revoke its permit. The litigation is expensive and must rely on the generosity of those who value Mammoth Cave National Park and the health of citizens to pay for this effort. Could the Thoroughbred plant be a cleaner power producer? The answer is a resounding yes, but Peabody has rejected or even failed to consider building a plant using today's best available pollution control technology. (See May 2003 *Discover* magazine.)

Who Says Mammoth Cave National Park is at Risk?

Conservationists and scientists say the park will be damaged beyond repair if the Clean Air Act and Clean Water Act are scrapped. I have seen surface vegetation that is already stressed. It shows early signs of dark stippling and dieback. Ozone is clearly injuring the foliage. Lichens are small algal/fungal partnerships that grow on trees and rocks. They are food for insects, habitat for organisms, and some fix nitrogen. They are extremely susceptible to SO_2 and SO_4 in the air. They are the first to die. In Europe, where forests have been wiped out by air pollution, the lichens were the first to go. In 1987 lichens in Mammoth Cave National Park were examined and found healthier than comparable lichens in Indiana, where air pollution was more severe. Some lichens, the natural "canary in the mine," provide advanced warning of air pollution danger, and are already affected. In the park today, lichens show signs of SO_x pollution due to non-attainment of air pollution standards. The trees are not far behind.

SO_x compounds and ozone from NO_x



cause the crowns of trees to thin and die. When the tops of trees thin out, the lower branches begin to die. It takes about 10 years to weaken a tree. Trees do not die of air pollution. Rather, they are weakened and they fall prey to diseases. Observers have noted that the fall color change of leaves that used to flourish in October, now starts in August and September; this is a sign of stress. Wind and ice storms blow down weakened trees. There have been significant tree losses at Mammoth Cave National Park in recent years due to general weakening. This situation is analogous to AIDS; few die of the disease, but die of cancer, pneumonia, and immune disorders. Mammoth Cave's forests are already headed this way from air pollution's effects. Increasing the poison will speed the process. It is not a question of whether, but when. The missing forests of Europe foretell the fate of the park unless air pollution is reduced from its present higher-than-legal emission level. At risk in the northwest corner of the park is the Big Woods, the only virgin forest in the western half of Kentucky.

Haze can cover the park, but is most visible as a white mist or fog in the karst valleys and ravines. Park vistas have been reduced to 17% of normal on some days according to the National Park Service; if on a clear day the view is sixty miles, on bad days haze reduces visibility to ten miles. Trees in the low places are likely to be the most stressed, and the lichens severely affected.

The Green River is already under a mercury advisory against eating the fish. Mercury is lethal in extremely low doses—one drop can pollute an entire lake. Normal fluvial drainage concentrates mercury-laden runoff and groundwater in the low places, such as the Green River. This concentration is accelerated by the karst that lies below the park's woodlands.

Karst is defined as topography characterized by interior drainage, where sinkholes, cracks, and sinking streams funnel rainfall swiftly underground. In the karst valleys of the park, mercury is quickly channeled to the sinkholes in the valley bottoms and then to the subterranean rivers below. It contaminates the underground

environment.

A number of things can convert metallic mercury into the much more dangerous methylmercury. Rainwater picks up humic acid from the forest floor. When mingled with mercury, the end product is methylmercury, a long-lasting substance that accumulates and persists, according to Dr. W. B. White. Also, low oxygen in the soil favors the conversion of metallic mercury to methylmercury by bacteria. Mercury can become a component of the black coating on rocks in cave shafts and drains. These coatings are "magnets" for heavy metals, as are clay-rich sediments in cave streambeds. Cave springs discharge mercury and other heavy metals as sediments remobilize during heavy rains.

The poisonous effect of mercury on commercial fish (bass, trout) is well known. Mercury is a notorious endocrine disrupter that adversely affects reproductive behavior, organ health, and immune response. Mercury poison is cumulative, incurable, and lethal. The federally listed endangered Kentucky cave shrimp and other threatened aquatic species live in close contact with cave streambeds.

Cave aquatic animals are naturally long-lived. Cave fish and cave crayfish may live 25 years. Their food supply is low so they grow slowly and are always on the knife-edge of survival. Even when healthy, cave fish and crayfish breed infrequently. Life underground is naturally precarious, so the addition of poisons quickly impacts this vulnerable community. Since surface fish living only a few years are contaminated with mercury, this means that the much longer-lived cave fish are likely to be much more poisoned. They are doubly at risk as mercury is quickly biomagnified up food chains and slowly bioaccumulates over a long lifespan.

Heavy metal in sediments and subsequent remobilization by floodwaters leads to an increased buildup over the span of years. The fragile underground biota is one reason why Kentucky has provided Tier III water quality protection for Mammoth Cave's underground waters. *Absolutely no contamination is legally allowed where this level of protection is officially designated.* The precautionary principle argues strongly that endangered or threatened species should not be subject to any increased mercury load.

Mercury: A Sentence of Doom

There is no mercury standard in the Clean Air Act. Instead, there is the expectation that BACT (Best Available Control Technology) will be used for all new coal-fired plants to reduce or eliminate mercury emission. However, Thoroughbred plans to use a poor quality coal that has twice the mercury content of good quality coal. It is similar to the pulverized coal burned in the TVA's Fossil plant at Paradise, KY, near the proposed Thoroughbred site. Consideration of an easily achievable lower level of mercury emission was virtually ruled out by the permit application language although better technology and catalysts are readily available.

Certainly, it is cheaper to build a polluting coal-fired plant than to build a plant with the best pollution control technology. But is it wiser?

Air quality standards are MINIMUMS whose purpose is precautionary and preventive. Any quantity of contaminant emissions above the minimum values are unhealthy, harmful, cumulative, irreversible, and intolerable. In short, Thoroughbred's inferior air pollution control technology promises a slow death to Mammoth Cave National Park—first to lichens and cave animals, then to the park trees, animal life, then to area residents, and to those within its plume.

Mammoth Cave National Park is the gift of Kentuckians to the nation and world. Millions of citizens have visited this national park gem since it was established in 1941. Hundreds of thousand of visitors from America and all over the world come to see the park and the longest cave that it contains. They expect to enjoy the views, the forests, the wildlife, and the beautiful river, all of which Congress has charged the National Park Service to protect in perpetuity and to interpret to all forever. The park has brought hundreds of millions of dollars of revenue to Kentucky. Should all of this past, present, and future value be risked for a dangerous commercial enterprise that is designed NOT to use the best available pollution control technology? Should the precautionary principle be set aside as a political and economic payoff for campaign contributions? Wouldn't we rather be safe than sorry? Is all of America's natural greatness to be for sale? If Thoroughbred is the best we can do for America, I weep for the generations to come.

I have reached this sad conclusion based on reading, searching, and understanding the cave as a concentrator of contaminants. Of course, I could be wrong. Some of the research is ongoing, but like the old arguments about whether smoking is unhealthy, death is persuasive. Unless you give money to fight to revoke the Thoroughbred permit, we will witness the slow death of this irreplaceable part of the global Biosphere Reserve.

Make donations payable to Sierra Club Foundation and write "Thoroughbred Appeal" in the note section of check. Checks made out to the Foundation are tax-deductible. Send contributions to: Sierra Club, c/o Oscar Geralds, 259 West Short Street, Lexington, KY 40507.

Roger Brucker is a past president and founder of CRF. KEEP stands for Karst Environmental Education and Protection Coalition.

Coservation Vignettes #1

by Buford Pruitt

Romulus and Remus Cave

There is a pair of sinkhole ponds at the edge of Stafford Lake in Levy County, Florida, that connect via a cave that is totally underwater. Discovered and named Romulus and Remus in the 1990s by cave diver Michael Bruic, this beautiful aquatic through-trip cave is about 50 feet deep and 250 feet long, and one can see both entrances from within the center of the cave. Stafford Lake is a series of interconnected dolines formed at the surface of the water table, and the nearly sterile sands that overlie the limestone leach very few nutrients into the lake's waters, so the lake is relatively clear despite the subtropical setting. When droughts are prolonged, the lake dries up and Romulus and Remus Cave and sinks act as refuges for fish, turtles and other aquatic fauna that formerly populated the lake. Conversely, when droughts end and the lake refills, those aquatic refugees disperse to repopulate the lake. During one drought I saw at least 50 aquatic turtles (*Chrysemys floridana, Deirochelys reticularia, Kinosternon subrubrum, Sternothaerus odoratus* and *Trionyx ferox*) in each of the sinkhole ponds. Can you imagine a more sublime scene to emerge into after exploring a nearly lifeless cave than a crystal clear, rock-walled pond that provides habitat for myriads of fish, snakes, turtles and egrets?

Stafford Lake is several square miles in extent and is wholly contained within a single cattle ranch. The rancher employs many of his young male neighbors on an intermittent basis punching cattle and whatnot, and allows his country friends and neighbors free run of the property. Every time I visited the site I saw several to a dozen people out fishing, walking or riding horseback on the property. Mike befriended the owner and was allowed to explore its underwater caves, and Mike was able to gain access for the rest of us, too, at least for a while. The last time I visited Romulus and Remus, though, I was shocked by the grisly sight and smell of what I saw at the two sinks. All the turtles were dead; all of them, every one. They had been shot with a high-powered rifle approximately a week before. I can only imagine what kind of person would (take a case of beer and) go out to the lake for an afternoon of genocide. The owner won't let us dive there anymore. He doesn't know who did the dirty deed, but he knows all those other people and doesn't know us, so we're it.

SOCIETY NEWS

NSS Positions Open

Market Analysis Chair (OVP Dept.)
Bookstore Marketing (OVP Dept.)
See recent issues of the *NSS News* or the NSS web site for detailed descriptions of these positions.

NSS Officer Positions

The NSS convention is fast approaching. One of the things the NSS does during the convention is elect the Executive Vice President, Administrative Vice President and Operations Vice President.

The NSS Executive Search Committee is seeking candidates for these important positions. Please contact me at mhood@caves.org if you're interested in running for one or more of these positions. Also contact me if you're only thinking about it and would like more information. Finally, I'd like to hear from you if you think you might be interested in running for any NSS officer position in the future.

It takes dedicated volunteers to keep the Society running smoothly. I'd be happy to answer any questions you have about the NSS officer positions.

Mike Hood
Chairman, NSS Executive Search Committee

NSS Medical Section

Recently the Medical Section of the NSS voted to amend its Constitution and Bylaws. The full text of these changes will soon be available on the Medical Section Web page.

The most important aspect of these changes is that membership is now open to all NSS Members:

"FULL MEMBERS shall be those individual members of the NSS who have signified their desire to become members and further the goals of the Section, who have displayed an interest in the healing arts or medical science as it relates to caving and/or Speleology, and who have paid their dues for the current fiscal year."

If you are interested in learning more about the Medical Section or in joining the Section, please visit the Medical Section Web page or contact Stephen Mosberg: cavedoc@citynet.net or at #5 Foxboro Dr. Vienna, WV 26105-1939 or phone (304) 295-5949.

Primary Affiliation now on Address Label

Primary Affiliation is the Internal Organization (Grotto, Region, Section, or Survey) that each NSS member may designate to represent them in the Congress of Grottos (COG). An NSS member is not required to select a Primary Affiliation, but if they do, they may select only one.

An NSS member may select any I/O as their Primary Affiliation. The NSS member is not required to be a member of the I/O they select. The Primary Affiliation does not affect the NSS member's membership in any Grotto, Region, Section, or Survey.

The Primary Affiliation is stored in the NSS database for each NSS member and is used for two purposes.

1. It is used to determine vote allocations in the COG.
2. It is used to determine minimum membership requirements for grottos.

The Primary Affiliation is printed directly above the name on the address label of the *NSS News*.

An NSS member may designate a Primary Affiliation by notifying the NSS office. This may be done a number of ways. The usual ways are as follows:

1. Include it on the NSS Membership Application form.
2. Include it on the NSS renewal form.
3. Included it on the Life Membership information form.
4. Enter it at the NSS web site at http://www.caves.org/info/changeinfo.shtml
5. Notify the NSS office by letter, phone, or e-mail.

The I/O name should be spelled out since there are I/Os with similar acronyms or abbreviations.

Any comments or questions concerning this topic should be addressed to the author.

Keith D. Wheeland,
Co-Chair of the I/O Committee
kwheeland@adelphia.net

Natonal Speleological Foundation, Inc. Seeks Treasurer

The National Speleological Foundation is a 501 (c) (3) corporation that has been established for scientific, literary, and educational purposes. In addition, it holds and invests funds for the benefit of speleological organizations, including the National Speleological Society.

The Trustees are currently looking for someone to fill the position of Treasurer. A candidate should be familiar with accounting software, have knowledge of investments, and be an accountant, preferably a CPA. The Foundation will be meeting with candidates, and the next opportunity will be during the NSS Convention in California. They look forward to welcoming someone who would like to join the Foundation, participate in its projects, and can fulfill the qualifications for this important position.

Trustees: Roger McClure, President; Jeanne Gurnee, Vice President; Theodore O. Kayes, Secretary; David Luckins, Treasurer; Theodore Schad, Gordon L. Smith, Lawrence A. Southam, Joel B. Stevenson, Terry W. Tarkington, and Janet B. Thorne.

Please send C.V. via surface mail to Jeanne Gurnee, 720 Flat Ridge Road, Goodlettsville, TN 37072.

California's San Joaquin Valley Grotto Reborn

The central valley of California, venue of the 2003 NSS Convention and portal to the caves of the Sierra Nevada, is welcoming back a long-inactive NSS Grotto. First established in the mid-1950s, SJVG held its re-chartering meeting on March 5, 2003, in Fresno. Amanda Mortimer was elected chair. Peri Frantz, long-time San Francisco Bay Chapter member and busy Convention organizer, played midwife to SJVG's rebirth. Dave Barber, who chaired the grotto into the mid-1970s, was in attendance. Visit the grotto website at www.caver.com/sjvg.

Howard Hurtt

Exploration of Ice Palace Cave, Marion County, Tennessee

David Cole

Late summer and early fall are preferable times to push caves in the Cumberland Plateau region. Many cavers are out checking leads that might otherwise be impassable due to higher water levels during other times of the year. During Labor Day weekend of 1998 Andy Zellner and I were checking a number of leads in Marion County, Tennessee. Saturday, September 5 was spent checking a number of caves in Rexton Hollow, a 2.5-mile-long hollow in the southern part of the county. This cove was ridgewalked back in the early 70s, and also in 1988 by Kathy Minter and Bob Coney. The cove is best known for Roaring Rapids Pit, a 119-foot, open-air pit, and Bicentennial Cave, a 334-foot-deep, multi-drop cave. These two caves have recently been closed by the landowner due to his liability concerns.

Andy and I were toting hammers, a shovel, vertical gear, and two ropes. The first cave we checked was Canyonlands Cave, turned in by Bob and Kathy. An obscure crawl entrance led to a nice 98-foot pit with excellent airflow and several hundred feet of passage, but we could not find a way on. We walked further up the cove to Only Used Once Pit, a nice 83-foot pit, but there was little passage on the bottom and no airflow. Our next stop was Rockworks Cave. We spent about an hour here trying to dig past a plug of organic debris, but the dig looked hopeless.

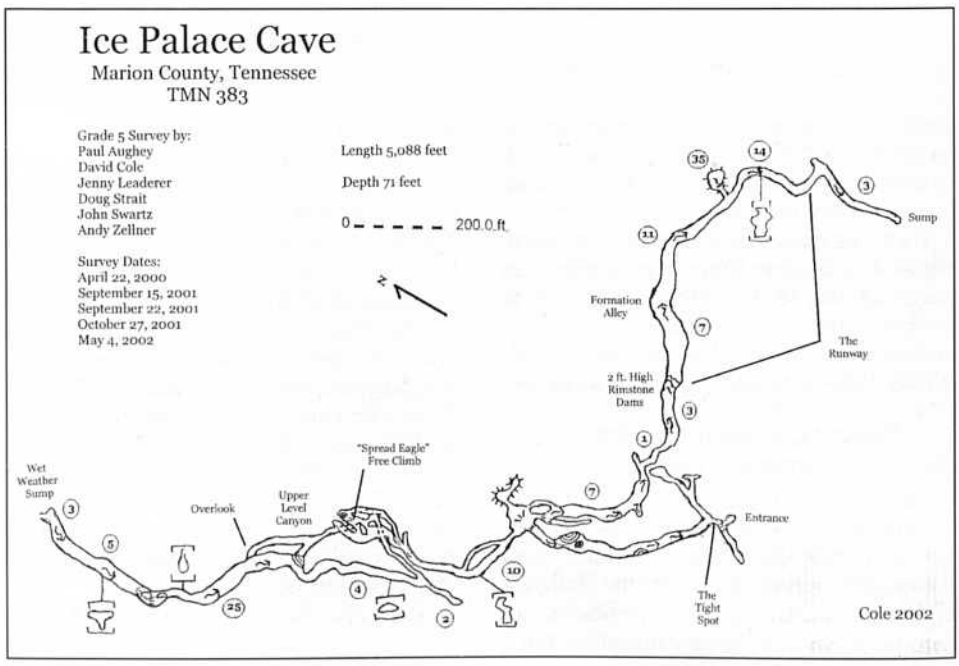
Andy and I then decided to go to another cave, Ice Palace Cave, a remote cave at the head of the cove. Ice Palace was turned in by Kathy and Bob in 1988 as a 125-foot-long cave. It was visited a few years later by Marion Smith and Alan Cressler. They got as far as Bob and Kathy did. Just inside the 20 foot diameter, climb-down entrance, Andy and I immediately noticed strong airflow blowing from one corner of the entrance room. While Andy tried to squeeze through a narrow hole with some of the airflow, I began to hammer on another small hole surrounded by fragmented flowstone. He didn't quite fit through his narrow hole, so we both continued to work on my hole with the hammer. After about 45 minutes of work, Andy decided to try and squirm his way through. He barely fit, and soon came back to report that there was good, going cave on the other side. It was late in the day and we decided to return the next weekend.

We spent Saturday, September 12th doing the first through trip in TAG's deepest "pulldown" cave, the Frenchman's/ Tony Sinks Cave system. September 13th, Andy Porter and John Swartz joined Andy Zellner and I in a return trip to Ice Palace Cave. After we arrived at the entrance, we spent more time making the tight squeeze more bearable. Two rooms were encountered, then we intersected a walking stream passage. We explored upstream for 400 feet and came to a junction room with several leads going off. We chose a lefthand passage and explored several hundred feet of canyon passage and eventually picked up the walking stream passage again. It was obvious that at certain times, the water was high in this passage. We explored up some freeclimbs and found the water coming out of a low airspace tube passage with good air. It was obvious this would require full immersion. I decided to do it anyway in my t-shirt. On the other side, I popped out into a chamber with several domes, and decided to return to the others past the low airspace. We decided to head out of the cave, and intersected an upper level canyon passage on our way. By the time we made it back to the entrance, we had explored just under 3,000 feet of passage.

Sunday, September 27th we went back to the cave and were accompanied by even more friends. The crew was Andy Zellner, myself, Martha Clark, Ashley Chan, Pam Wright, Edie Cowan, Chris Hudson, Doug Strait, and John Swartz. After entering the cave, we went upstream 400 feet to the Junction Room, took a left as we did before, and explored some upper level passages. Several people left the cave after this. John, Andy, and I went back to the Junction Room to check out another passage. It started out as a hands and knees crawl but eventually broke into a very nice, large, clean-washed stream passage! We continued down this and encountered some two-foot-high rimstone dams, and a great deal of white stalactites, stalagmites, and flowstone. After several hundred feet the passage turned into a clean washed sluiceway dubbed "The Runway." Suddenly the passage lowered and the water went into breakdown we couldn't penetrate. We explored close to 2,000 feet of passage on this day.

It wasn't until April 22, 2000 when the survey of the cave began. We had to hike 800 feet down from the top of the plateau to reach the cave, because the landowner at the lower end of the cove did not want cavers to cross his land. On this day, Doug Strait and I surveyed 50 stations from the entrance to the Junction Room and about 200 feet up the left passage. On September 15, 2001 John Swartz joined me in the second survey trip. We surveyed 1,100 feet of passage, 200 feet of which was virgin. September 22, Doug Strait, Jenny "rabbit" Leaderer and I surveyed 500 feet of passage in the upper level canyon. On October 27, 2001, Paul Aughey and I surveyed 1,800 feet of passage from the Junction Room downstream to the sump. And finally, on May 18, 2002, Andy Zellner and Doug Strait helped finish the survey. We surveyed all the way upstream to the low airspace I had gone through years earlier, but the water was up and it was sumped shut.

Ice Palace Cave is just one example of how certain areas that have been visited on different occasions by cavers were not checked thoroughly enough. A "125 foot long cave" was turned into a cave with a surveyed length of over 5,000 feet. Persistence and patience will eventually pay off when checking known caves.



Shelta Cave Preserve – A Bat-Friendly Fence

Paul J. Meyer and John A. French

Shelta's rich recorded history goes back a little over a century. Beginning in 1889 an attempt was made to commercialize the cave, with electric lights, a dance floor, walk ways, and boat rides. There was no mention of bats in news articles; understandably, this would not have been good advertising for prospective revelers. Dr. John Cooper commented that the lights, noise and probable temperature change would have had deleterious effects on a colony.

Then in 1929, William D. Johnston reported a cluster of about 200 bats at the Bat Lake roost. An alternate roost was discovered in Miller Hall much later. One might speculate whether this was the remainder of some previous colony, or a new start after the demise of the dance hall disturbances. Note that in the 1920s and 30s, Huntsville was a small town, not being rapidly developed. In the late 1950s this was changing rapidly. Swamps were being drained, pesticides were in widespread use, and population was rising. Yet William W. Varnedoe made a notable find. Bill related seeing a large mass of bats roosting over water in the back of the cave. A few years later, probably in the mid to late 1960s, Merlin Tuttle made a similar discovery. His estimate was of about 25,000 bats based on guano deposition. He confirmed that this was a maternity colony of the gray bat, *Myotis grisescens,* and highly significant. Also John Cooper reported in the 1960s a sizeable population of an undetermined species of bat. Note that this colony was surviving frequent human penetrations of mostly local curiosity seekers.

The cave entrances were purchased in 1967 by the NSS at the urging of then state geologist Dr. Walter B. Jones. Shelta was now the NSS's biological research preserve. Maternity colonies of the federally designated endangered gray bat are believed to have inhabited the cave periodically from antiquity to historic times. To protect these (and several aquatic) endangered species, "jail bar" gates were installed over both east (small) and west (large) entrances in March 1968. Dr. Merlin Tuttle observed less than 100 young bats being reared the first summer after the gate was installed. On June 7, 1969, John Cooper saw sizable guano deposits onshore and in the lake (13.7 square meters). He observed the feeding of crayfish concentrating near the guano. No "colony" has been reported since two years after gate installation. There was mention of evidence of a bat kill in this time frame, but no details are known. Upon discovering the problem in the early 1970s, plans were made, and then aborted, to replace the jail bar gate with a sturdy fence.

In the 1980s John French attempted to determine the colony status. His did not require entry. He frequently went out evenings and sat quietly near the jail bar gate and waited. During these observations, an occasional pair or two of bats would be seen flying out of the cave. Then a small flock of about 13 bats streamed out near the corner of the gate in April 1985 and again in 1987. Tuttle confirmed that this was most likely a migration group checking out the cave for its suitability. In more recent years (1998 – 2000) there were generally no bats seen emerging during the warm seasons. Meanwhile, aquatic species within the cave were seeing a dramatic decline in population.

Biota population studies were conducted 1995 through 1997 by Meyer, French, and Joan Keever. These studies indicated a dramatic decline in the aquatic biota versus that reported by Cooper. The NSS Board of Governors (BOG) was briefed regarding the conditions at Shelta at their Huntsville meeting in March 1998. The board directed the Shelta Preserve Committee to proceed with investigations and to prepare a report on Shelta.

The west entrance gate of Shelta Cave January 31, 2003

An extensive report was delivered to the BOG in February 2001 regarding the need to replace the existing gate with a perimeter fence. This report evaluated existing cave gates and fences at current and past known locations with inhabitation by gray bats in North Alabama and Central Tennessee. Federal, state, and university wildlife specialists were contacted to obtain their opinion on a proper re-gating approach for Shelta. Legal opinions were also sought regarding removal of the existing gate and any liability that might be incurred by the Society. The Shelta report concluded that a perimeter fence should be constructed that would surround both entrances of the cave. Any other type of approach would not meet guidelines provided by wildlife specialists.

Upon review of the report, the NSS Board of Governors gave approval in April 2001 to proceed with a plan to replace the restrictive gate at Shelta with a more bat-friendly perimeter fence and instructed the Shelta Preserve Committee to seek funding for fence construction. Fund raising proceeded from August 2001 through July 2002. The members and Grottos of the Society responded with tremendous financial and verbal support. The committee was

An eight-foot long section of the Shelta fence being racked into position

Southern side of fence nearly completed

The inner door being cut off the west gate. From left to right are Tony Amundson, James DeForest and Scott Lynch.

Shelta entrances are open and the cave ready for occupants on February 1, 2003

overwhelmed with the generosity of the membership for this worthwhile conservation effort. To briefly summarize, donations were received from 37 Grottos and other Internal Organizations, 35 individuals provided funds and are not listed to protect their privacy. Two groups provided the bulk of the funds to construct the perimeter fence. Grants were received from the NSS, the US Fish and Wildlife Service, Bat Conservation International, the NSS 2002 Convention auction, the National Speleological Foundation, Wal-Mart Foundation, the Robertson Association, Solution Corporation, and Bob and Bob Enterprises. Funds are still pending from a grant with the Alabama Department of Conservation and Natural Resources.

Twelve fencing contractors in Alabama and Tennessee were contacted and provided rough design specifications desired for a perimeter fence. Four bids were received for the project, with Creative Containment Inc. of Huntsville Alabama selected in the autumn of 2002. Fence construction began December 1, 2002 and was completed December 20, 2002. The fence is ten feet tall and extends along a 380-foot perimeter. Removal of the two "jail bar" gates was performed February 1, 2003 by members of the Huntsville Grotto.

Nearly thirty-eight years passed at Shelta before the gates were removed in favor of a perimeter fence. This new fence represents best management practices at the time of its installation and balances the needs of the biota, liability concerns, and physical security. Phase one of the project is now completed and the second phase is underway. This second phase is monitoring of the cave for return of bats. To accomplish this, members of the Shelta committee and the Huntsville Grotto will record the number of bats that leave and enter the cave. Periodically, wildlife specialists will set up harp traps or mist nets to attempt capture of bats for species identification and to assess population.

The Shelta Committee would like to thank the NSS BOG for their continued guidance and support for this project. We most especially wish to acknowledge the insight and assistance provided by the Administrative Vice Presidents with whom we worked: Cheryl Jones, Thom Engel, and Thomas Lera.

Paul and John would like to thank the dedicated efforts of the other Shelta committee members: Randall Blackwood, Christopher Miller, Pati Miller, Ronny Miller, and Bill Torode. The Millers proved especially indispensable to the project as they assisted with typing and reviewed for content and grammar the numerous grant request proposals and letters. We were quite fortunate to have other skilled members of the Huntsville Grotto aiding us with site preparation, site work after the fence was completed, and removal and disposal of the old gates. These individuals are Tony Amundson, Greg Armstrong, Gary Cotney, James DeForest, Don Duffey, Jim Hall, J.L. Jones, and Scott Lynch. Last but not least, we are deeply grateful to John (Jay) Clark for the pro bono legal services he provided to the Shelta fencing project. Without his legal opinion and continued support, this project would not have been possible.

Additional information and photos on Shelta may be found at www.caves.org/preserves/. Your generosity and support for this worthwhile conservation effort are deeply appreciated. Please continue your generous support for NSS cave preserves.

The Shelta preserve committee. Seated (left to right): Ronny Miller, Christopher Miller, Pati Miller, John French, Bill Torode. Standing (left to right): Randall Blackwood, Paul Meyer.

SALON GALLERY

Green Ribbon Winners from the 2002 Slide and Print Salons

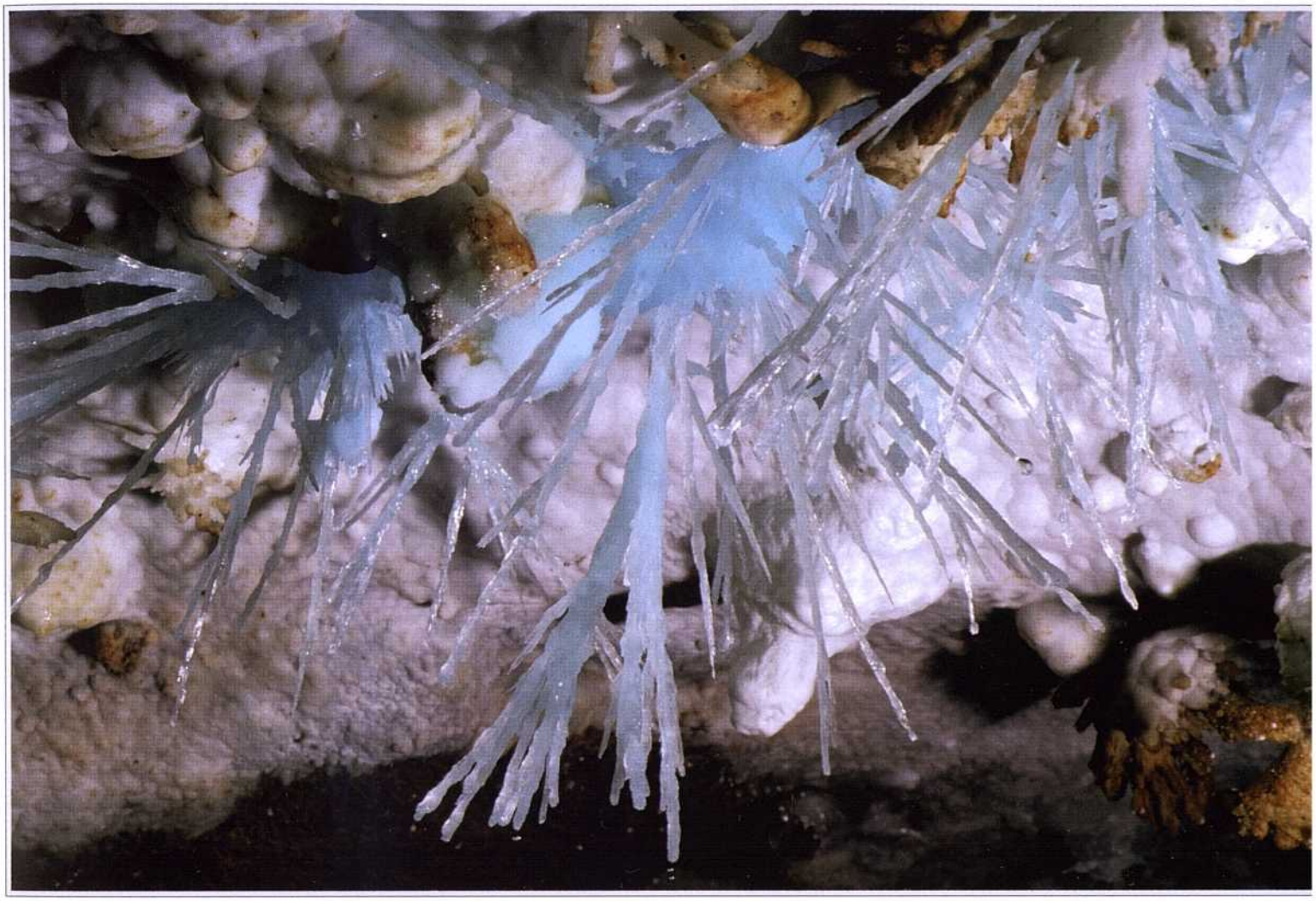
A Mutant in the Dark, by Kevin Downey

Crack in the Ceiling, by Jim Loftin

From the Rim (Neversink), by Dave Bunnell

Pea Pie, by Jim Loftin

Helmets Off to Protect the Pretties, by Dave Bunnell



A Delicate Blue Spray, by Kevin Downey

It's Lonely at the Bottom, by Jim Loftin

Banded marble on the 66-foot Waterfall Drop, Crystal 67

Carol Vesely on a climb, Crystal 67

Looking up the long axis of the Big Room in Crystal 67

Crystal 67 (Haughton's) Cave, California

Lisa Tesler

A short walk from the road within California's Mountain Home Demonstration Forest, a culvert pokes up in the middle of a seasonal pond fed by snowmelt from the surrounding peaks of the Southern Sierra Nevada. Several hundred feet below, the snow-fed stream has carved a mountain of air in the marble bedrock. The steeply sloping floor of the chamber is about 400 feet in length and 80 feet across—roughly the size of a football field. As one of the largest cave chambers in California, the Mountain Room is a highlight of the classic tour route in Crystal 67 Cave.

Crystal 67 is a cold, wet alpine cave located in a vertical bed of marble above 6,000 feet and will be a featured vertical caving trip at the 2003 NSS Convention.

The Mountain Room

The floor of the spacious Mountain Room is a jumble of steep talus and large marble and granite blocks. John Woods first visited this room in 1967. After all these years, the Mountain Room still impresses him. "It's just gigantic," says John. "Rocks as big as houses—literally huge."

While the average roof height is about 50 to 100 feet from the floor as measured by a plumb line, the chamber's 40-degree tilt puts the apex of the ceiling several hundred feet above the lowest point on the floor.

"You can't really get a scale of it because it's so dark in there," says David Dulitz, who managed the Forest from 1974 to 2001. "If you can get enough people in there to light it up, it is a massive room." Among the mostly dark gray rocks, you can catch glimpses of the beautiful banded marble that is a hallmark of Southern Sierra caves. "The formations are kind of tucked in little alcoves around that room," says David. "Every time you look in a little opening, you see something new. There are some beautiful draperies, curtains, and other features in there."

A Truly Active Cave

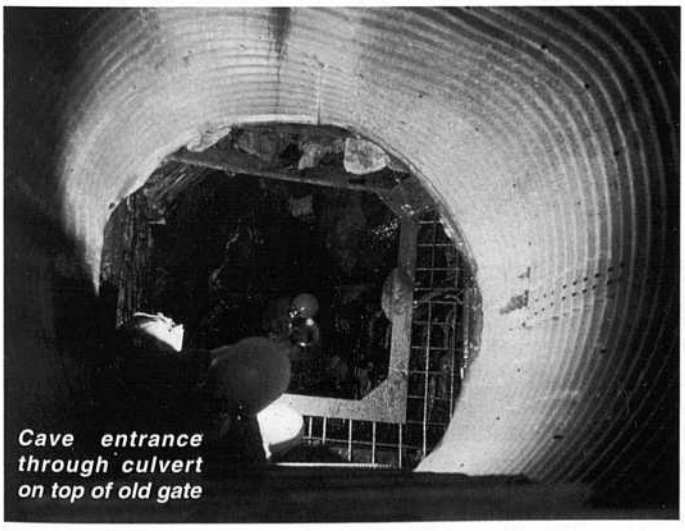
As tempting as it might be to spread out around the shadowy Mountain Room to light it up, trip leaders generally avoid the practice. This is no silent field of motionless breakdown. The floor of the cave rumbles and churns with no warning, sending huge boulders bouncing to the depths below.

"You will never hear the word "ROCK!" as much as you hear it in this cave," warns John. "The Mountain Room is tremendously unstable." In *Crystal '67 Revisited*[1] he writes, "On one trip I watched a 10-foot diameter boulder bound down the entire length of the Mountain Room and smash into the Canopy Pit at the bottom. If anyone had been in the Pit at the time, they would certainly have been killed."

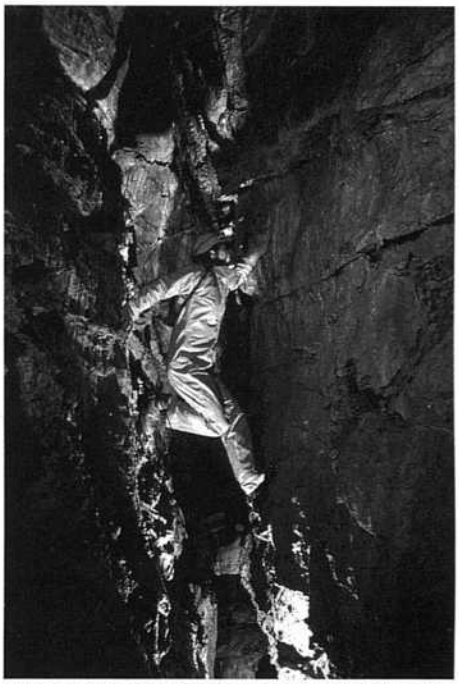
Paul Stovall, who has been pushing leads in Crystal 67 with John for many years, recommends caution when moving through the Mountain Room. If people are at the bottom of the room and you start moving around above them, chances are you will dislodge a 200-pound boulder and it will hit them. Negotiating the room is like traveling through avalanche terrain. "You either move together—close, so that the rock doesn't have a chance to pick up a lot of momentum—or you move one person down to the bottom of the slope, and they get under cover, and then the next person comes down."

The Mountain Room is not the only part of the cave that is unstable. However, because it is the most popular stop along the classic tour, more people tend to gather in it at once. Furthermore, its sheer size allows large rocks to pick up speed more dangerously than in other areas of the cave. This makes the Mountain Room the setting for some of the more dramatic fireside tales. However, vigilance is required in other areas of the cave as well.

John also recalls a downclimb where "One caver ended up straddled across the chimney with a 200-pound boulder sitting in his lap. A 150-pound rock fell across the legs of a caver. This does not count the many small rocks that bounce off helmets, into eyes, and onto other body parts. The aptly named *Teeter-Totter Rock* weighs just slightly less than an average size elephant."



Cave entrance through culvert on top of old gate



Taking the crevice route to the Big Room

Although the tales of heat-seeking boulders and surveyor-swallowing breakdown chambers make for exciting trip reports, most cavers return from Crystal 67 relatively unscathed. As long as you respect the safety protocols and maintain a strong sense of teamwork, Crystal 67 is a wonderful place to explore. "I always just enjoyed the free climbing aspect of it," says David.

Usually, trips go well when everyone follows the rules. "You go in there and say, 'Gee, that wasn't so bad,'" says John. Of course, when a big rock comes down, you realize the stories were right.

Yet, this is what keeps John and the rest of the teams coming back. "It's interesting because it changes," says John.

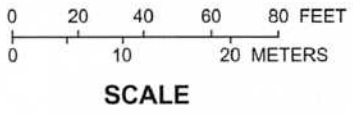
A Place for New Leads

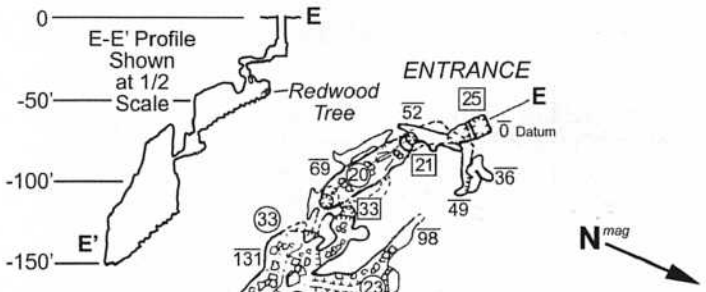
Crystal 67's ever-shifting breakdown creates lucrative opportunities for cavers to find new passage. Paul points out that an obvious passage can open up one year where no evidence of a passage existed before. Conversely, some leads that have surfaced within the last few years are already disappearing.

Below one of the climb-downs near the cave entrance, a redwood tree forms a dark, porous wall on one side of the passage. John is all too familiar with this stump. During a 1990 tourist trip, he made a landmark discovery when he happened to look in a small hole behind the stump. "Suddenly there was cave where there was no cave," he writes in *Behind the Redwood Door*[2]. "In one corner several large rocks (100+

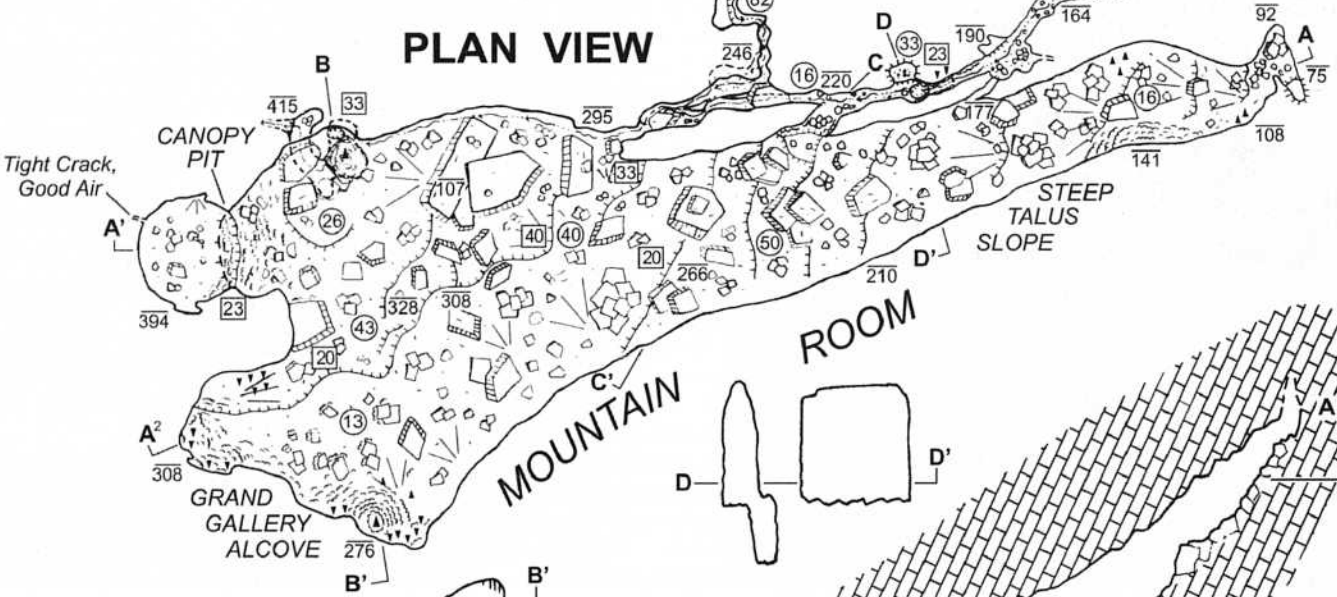
CRYSTAL 67 CAVE

MOUNTAIN HOME STATE FOREST
TULARE COUNTY, CALIFORNIA
Elevation: 1900m, 6232 ft.

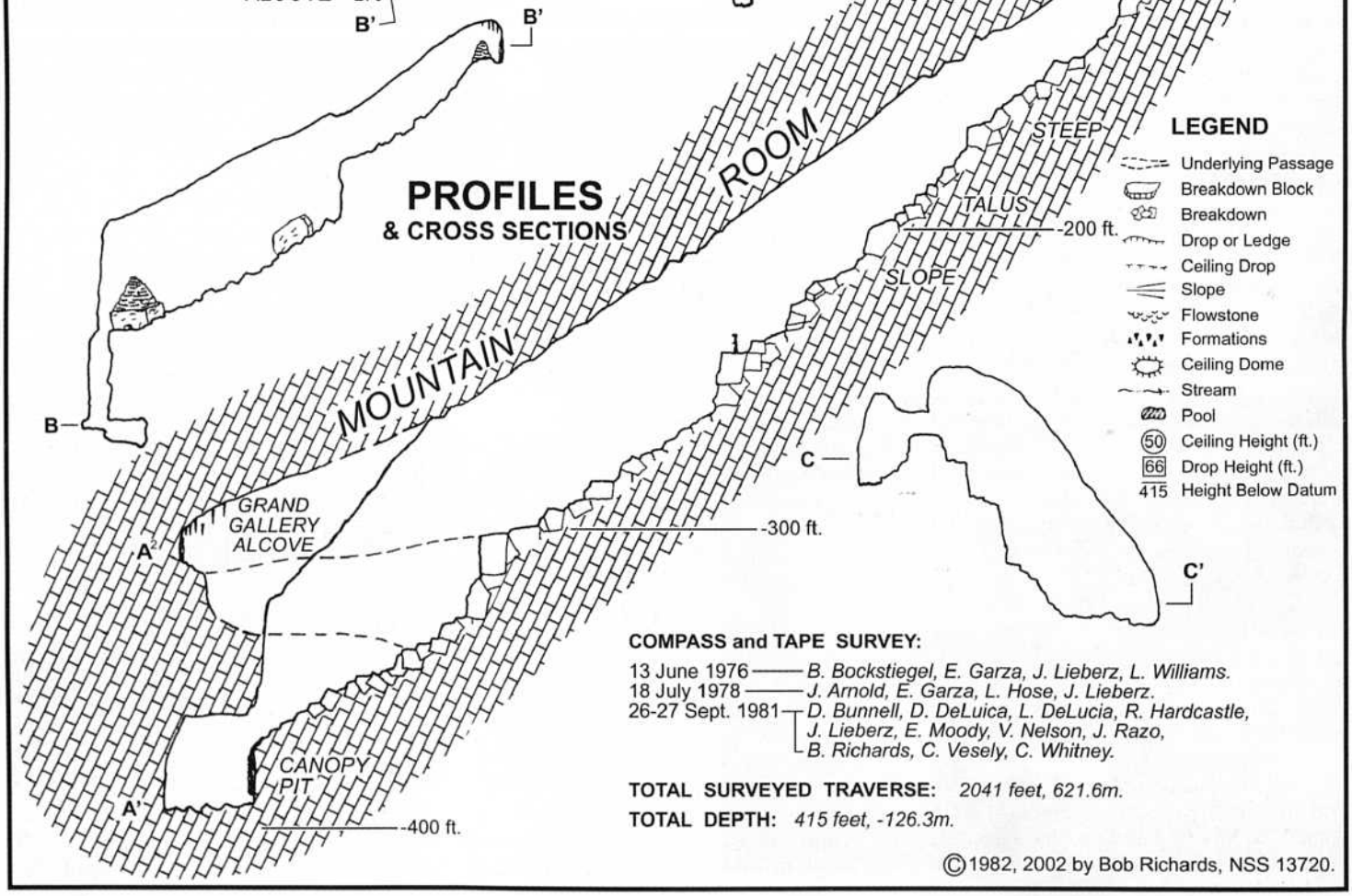




PLAN VIEW



PROFILES & CROSS SECTIONS



LEGEND

- Underlying Passage
- Breakdown Block
- Breakdown
- Drop or Ledge
- Ceiling Drop
- Slope
- Flowstone
- Formations
- Ceiling Dome
- Stream
- Pool
- (50) Ceiling Height (ft.)
- [66] Drop Height (ft.)
- 415 Height Below Datum

COMPASS and TAPE SURVEY:

13 June 1976 — *B. Bockstiegel, E. Garza, J. Lieberz, L. Williams.*
18 July 1978 — *J. Arnold, E. Garza, L. Hose, J. Lieberz.*
26-27 Sept. 1981 — *D. Bunnell, D. DeLuica, L. DeLucia, R. Hardcastle, J. Lieberz, E. Moody, V. Nelson, J. Razo, B. Richards, C. Vesely, C. Whitney.*

TOTAL SURVEYED TRAVERSE: *2041 feet, 621.6m.*

TOTAL DEPTH: *415 feet, -126.3m.*

A caver descends through the upper portion of the 66-foot Waterfall drop, which follows a banded contact zone in steeply dipping marble.

pounds) blocked the way, but I could see a small void beyond. ... I tugged; they crashed. 'S of a B... it goes!'"

Here, only 50 feet from the entrance, he and Richard Chang began to dig while the others waited outside the cave. "Richard...squeezed down the tiny crevice I had first opened," writes John. "Within 10 minutes he was back reporting: 'It looks O.K. but there are loose rocks everywhere.'"

The following year, John and Richard, together with John Chang, Jeff Kwiatkowski, and later David Shoppe, returned to push this new lead, dubbed the *Redwood Bypass*. "Moving boulders and climbing through some of the most unstable cave I have ever experienced, they pushed downward through a series of breakdown rooms," writes John. "One chamber was named the *Damocles Room* because of the...gigantic (10 by 8 by 8 feet) boulder comprising most of the ceiling. Like the legendary sword, it is apparently supported by a hair since we can't find anything else holding it up."

Pushing on through chambers, slots, and a snaking passage they christened *The Sidewinder*, they found traces of previous explorations in some places, as well as additional leads.

While the cave's instability can create new passages, it can also conceal previously known passage. "Since that Redwood Door article, we discovered that there had been traces of people in some areas," says John. "The key was that we had come from above, and the other people had come in from below. The cave is so unstable that when you come from below, you can't pull the rocks out of the way because they'll come down on you."

The classic sporting route through the Great Waterfall and the Mountain Room is relatively undecorated. Thus, the explorers were surprised to find that the newer passages had more features. "A few squeezes, more rock moving, and unbelievably—flowstone!" writes John. "We passed pure white bacon draperies 6 inches thick and 10 feet long. The passage funneled downward between increasingly flowstone-covered walls. Tiny helictites and perfect white soda straws occasionally dotted the walls and ceiling and it was difficult to avoid damaging them."

Based on their surveys and exploration that year, the team predicted that moving further west in the cave could open up more north/south passages.

Earlier surveys of Crystal 67 were performed in the late 1970s and early 1980s by Bill Bockstiegel, Ernie Garza, Joe Lieberz, Lou Williams, Jay Arnold, Louise Hose,

Dave Bunnell, Don DeLuica, Lisa. DeLucia, Ray Hardcastle, Ed Moody, Vance Nelson, Joe Razo, Bob Richards, Carol Vesely, and Chuck Whitney.

Bob Richards is well known for his cartographic work. His map of Crystal 67 set a new standard that is still respected today. A former member of the Southern California Grotto, he has drafted maps of over 100 California caves. His map of Millerton Lake Cave (a featured self-guided trip at the 2003 Convention) was the first computer-drafted map to win the NSS Cartographic Map Salon (1995). The 2003 NSS Convention Guidebook will contain several of Bob's maps.

"I was asked to draft the maps because of my background," says Bob. "I was a draftsman at the time, and I had the resources to produce a nice-looking map." The original maps were produced with pen and ink on Mylar film.

Bob published the maps of Crystal 67 in a 1982 issue of the Western Region's *California Caver*.[3] The article was reprinted the same year in *SpeleoDigest 1982*.[4] The surveys focused on the classic route and the Mountain Room.

"We always knew there were more passages to be discovered," remarks Bob. "At the bottom of this cave you could see a room on the other side of a tight crack, and it blows good air."

David Dulitz says the new leads discovered in the past decade were a surprise to those who worked at the State Forest. "Up until then, I thought the cave had been pretty well discovered, but they opened up some new areas. We developed a pretty thick file on the different aspects of the cave as they found new passageways."

"I knew it could happen," admits John as he recalls his initial discovery over a decade later. "I think the lesson it taught me was not to be complacent in a cave that has been known for such a long time. Because that is essentially what I and everyone else thought: 'It has been known for 80 years; it's all completely explored.' Up until 1990, most people just took the main route into the cave and kind of toured around," says John. "It was a chance circumstance that the stream had washed the debris out that particular time."

The cold, wet climate within the cave adds to the difficulty. In *Crystal 67 Revisited*, John writes about a lead that he, Paul Stovall, Steve Wallace, Lindsay McKinley, and Richard Chang decided to try in the Mountain Room. "The destination was a small window on the southwest wall about fifty feet off the floor," he writes. "Several numbing hours later we had made little progress." he continues. "Although the lead climber was kept warm by the exertion of setting bolts, the belayer and the rest of the party were soon too frozen to continue."

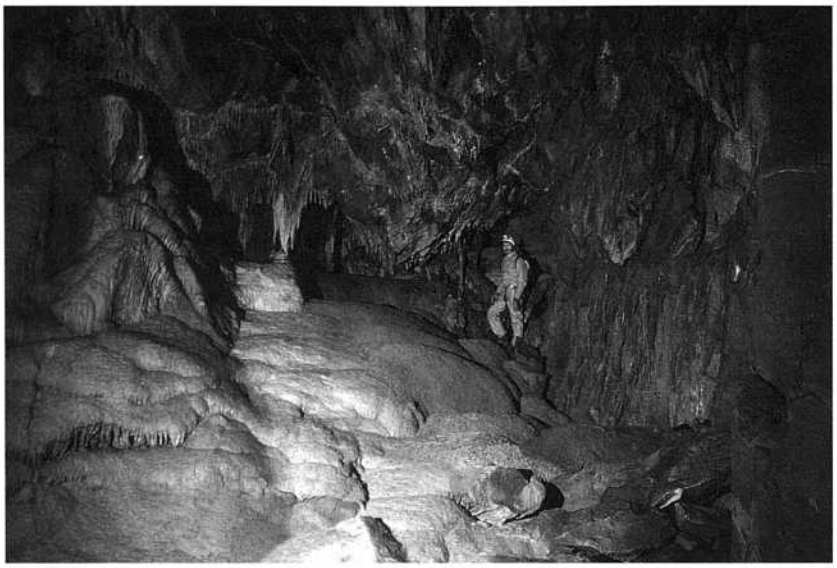
In 2001, Steve and Paul led a new bolt route to the window with Jerry Fritz, and Frank Ester. This time, they started from a large rock that was off at a 45-degree angle from their target. When Steve finally reached the ledge, he noticed an old ¼" bolt in the wall. Through later investigation, John confirmed that the new lead might well have not been so new after all. Conrad Fiederer published a similar find in a 1965 issue of the *Pacific Caver*[5] (a precursor to the *Caifornial Caver*).

Bryan Lavender and Collin O'Neill joined Steve and Paul on a follow-up trip in 2002. "As usual there were some 200-pound rocks that were barely pasted on the walls," writes John. "If Steve had dislodged one of these rocks, Paul said he '...would have been dead meat for sure.'" In the end, the passage pinched off to an impassable crack with good airflow.

The current length of Crystal 67 is uncertain. Back in 1982, surveys put it at 2,041 feet. "My guess would be that it has doubled," says John. "We have certainly pushed the most obvious leads, but again that can change. It has potential to be tremendously deep."

"The cold and the water and the instability make it very difficult to find anything easily," adds John. It just does not yield its little secrets with any ease at all. You work a lot for very small return."

"We still have one going lead that we're going to push in an area we call the *Rain Room*," says John. On their last trip of 2002, they did some digging in small holes, close to an area that Paul had dug before. "We squeezed through a small hole and came into this room that's literally raining on you. It seems like the main stream course," says John. "We could see that the crevice went up, and we hadn't tried it yet—we had been



Pristine white flowstone in the Great Gallery in the southeast corner of the Big Room

concentrating on going downward from that point. This time we tried up. I went straight up the wall about 25 to 30 feet and got to a point where I could stand on a chockstone, and I could see that there was a passage continuing on above me, but we need some artificial protection to continue." They saved this lead for next summer.

The Entrance

Each winter, the snow closes the roads to the cave. As the snow melts, streams begin to wash down into the entrance. "In the springtime, it's just a torrent down that thing, rather like being in England," says John.

Located in the bottom of a large sinkhole, the discovery entrance was buried under 12 feet of sediment in a massive flood in 1966. "It completely covered it up," says David Dulitz. "You couldn't even see the cave." A staff member of the Department of Forestry happened to be in charge of a local inmate camp, and used their labor to open the entrance after the flood. "They actually dug down about 10 or 15 feet to find the old entrance, and they installed a new wooden gate that was that much higher than the old one," recalls David.

In 1994, John Woods and Richard Chang designed a new steel gate. Several California Grottos and the Department of Forestry joined forces to install it. The original gate now sits nearly 20 feet below, at the bottom of the huge culvert pipe. "It's in a lake almost all year round," says John. "The stream course has changed—when you go there now, even in August, the culvert pipe is sticking out of this pond. It's very, very wet."

Over the years, the passages near the entrance have changed as well. "If you read [William R.] Halliday's account in *Caves of California*[6], he has a very detailed description of the entrance," says John. "It doesn't sound like you're in the same cave—it has changed so much."

Below the gate is a ladder climbdown. "It's just raining down inside," writes San Francisco Bay Chapter caver Glenn Butcher in an SFBC trip report[7]. "Not your usual dripping stuff—but raining down all around." A chimney drop follows three more climbdowns. To reach it requires a 20-foot lateral traverse over a chock rock. "Down I plunged to emerge into a large beautiful waterfall room," writes Glenn. "The walls receded to a spectacular view of brilliant white banded marble."

This is the classic route into the cave. Another route involves a couple of little squeezes and is a double pitch (45 and 25 feet). "Most people like the main classic route into the cave," says John. "It is a little airier—a nice, free-fall line. It's a beautiful crevice drop."

The Canopy Pit

Below the Mountain Room, the 50-foot deep *Canopy Pit* is named for a large flowstone cascade that forms the upper half of the drop. Not long after they found the Redwood Bypass, John and the others pushed a very small, tight passage at the bottom of the Canopy Pit. "It was tight for me, and I'm a small guy—they call me 'Little John,' for a reason," says John. "I pushed through and got to a crack where I could see that the passage continued. It is blowing a lot of air. I could hear a waterfall thundering down below. You can't blast your way through this, though. It's just solid bedrock."

The House of Cards

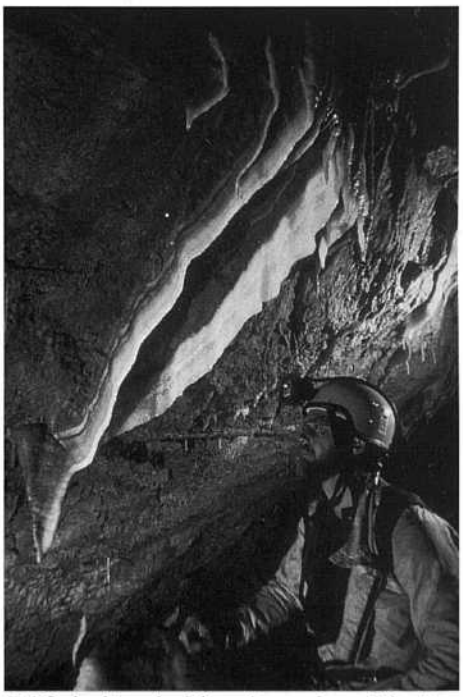
At the high end of the stream passage, John, Paul, Art Fortini, Steve Wallace, and Erin Lynch found yet another interesting chamber. "There was a little hole in the ceiling and I said 'Hey Art, take a look up there. Nobody's been up there.' He was gung ho, so he poked his head up in there and hollered 'Well, it goes! But it's going to take some digging.' So, he just went right to it," recalls John.

Art and Paul took turns digging, and after about 20 minutes, Art was able to squeeze through the opening and moved a few more rocks so the rest of the group could enter. "We got into this chamber that was just a mass of breakdown. It was very spooky," says John. "Erin had been having trouble with her Petzl Ceiling Burner light on the whole trip. By the time I squeezed through the hole, she had fixed it, but the gas had built up. So, she had this enormous flame about 8 inches tall—it was brilliant. It looked like the fires of hell when I climbed up into the room. And nobody was saying anything. I thought this was odd, so I crawled up in and asked, 'What's going on?' Art just sorta looked at me and said 'Look around.'"

"We couldn't actually see the walls. The chamber was just a void in the boulders, probably 10 or 12 feet across and 10 or 15 feet tall. I don't think I've been in a place that scared me more than this little chamber. We dubbed it the House of Cards because it looked like this place was just going to fall down on us at any moment. Once again, because we came in through the bottom, we had to abandon it because the debris is just too loose."

Chilled to the Bone

For cavers who take the classic route, the unstable breakdown is usually less of a problem than the cold. "That's generally what drives people out of the cave," says John. "It's a small cave, but it's real easy to underestimate it. People get to the Mountain Room and they're warm from moving around. Then they sit down to have lunch.



Ed Schultz admiring draperies at the top of the Big Room

In ten minutes they're just freezing."

Like many other alpine caves, Crystal 67 stays at 42 to 43 degrees year round—about 15 degrees colder than Mammoth Cave in Kentucky or Bristol Caverns in Tennessee.

"I have heard many tales cautioning about cold and wet caves," writes Glenn Butcher. "HA! Here I am soaked thoroughly through to the bone. Forty-three degrees and I am not cold whatsoever." After several hours touring the cave, he is still quite comfortable. However, as he stands around, waiting his turn at the bottom of the 65- to 70-foot rope climb, his body temperature begins to drop. "Now feeling what 'really cold' is, no amount of jumping jacks seems to help shake that numb feeling."

Modern cold-weather gear advanced the exploration of Crystal 67. "In the old days we went in wearing cotton coveralls," recalls John. "We rappelled down on goldline and came out on ladders. That was state of the art at that time. Now, Petzl (PVC) suits protect you from the water—and if you stay dry, you stay a lot warmer. I think it encourages a little more exploration because you are more comfortable. You're not just concentrating on retaining body heat after 8 hours."

A Cave by Any Other Name

According to Bob Richards' research[8], the cave was discovered in 1884 by Edward Houghton and was dubbed *Haughton's Cave* [sic]. Vacationers staying at nearby Camp Lena toured the upper portion of the cave and called it *Camp Lena Crystal Cave*, the name also used in *Caves of California*. In a 1950 list of California caves[9], the name was shortened to *Crystal*—one of several to share that name, but the only *Crystal* to be 67th on the list. "I always call it *Haughton's Cave*," smiles David Dulitz. "That is the official name from the State's perspective."

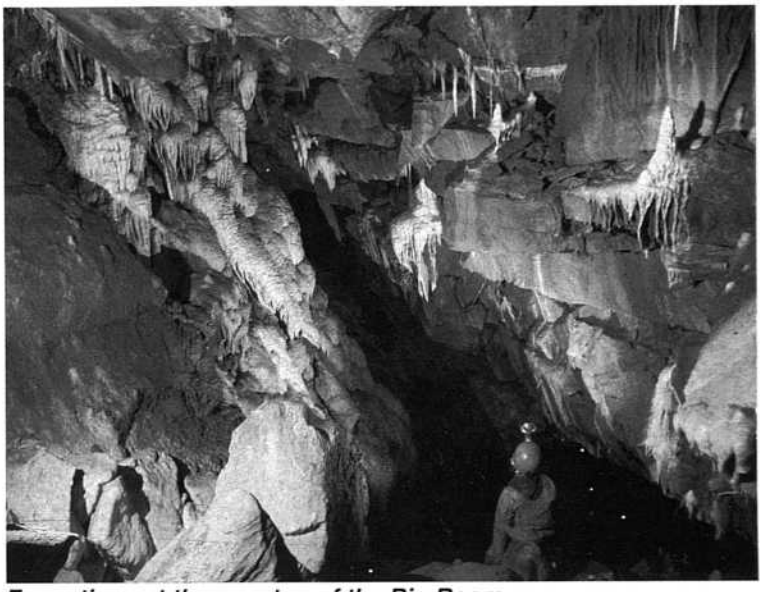
Haughton's Cave is one of several caves owned and managed by the State of California. Two others of interest to Convention attendees are Mitchell's Caverns and Cave of the Winding Stair. A cave permit system for access to Crystal 67 has been in place almost since the State Forest was established in 1946.

Little is known about the prehistory of Crystal 67. Archaeologists have looked for evidence of early Native American use. "Usually, after they saw the wet condition and the vertical nature of the cave, they kind of threw up their hands and said 'No, it's not going to have any evidence of Indian occupation,'" says David Dulitz. "It's kind of curious, because you can get into the upper portion without using a lot of ropes or gear."

Convention Trips to Crystal 67

At the 2003 NSS Convention, tours of Crystal 67 will be held daily and on the Saturdays before and after the Convention. Expect trips to last eight to ten hours, including drive time through the beautiful redwoods. "Just getting there is some of the most beautiful scenery in the United States," says David.

All visitors to the cave need to sign up at or before the Convention, and they must sign a separate waiver provided by the Department of Forestry. Arriving on time is important, as a staff of only two people manages the entire forest operation and the six campgrounds.



Formations at the very top of the Big Room

Because it is not on federal property, Crystal 67 is one of the few caves in the Convention area that allows the use of carbide.

The gear requirements for Crystal 67 trips are described on the Convention web site (www.nss2003.com) and in the guidebook. Perhaps most importantly, a strong sense of caution and a willingness to adhere to the safety protocols are necessary. Trip leaders may turn away inadequately prepared cavers. They may also cut the trip short if participants have difficulty with the environment.

"It is very sporting, with lots of climbing. As far as I know, it is still one of the nicest caves in the state to see," says Bob Richards. "However, this is not a cave for beginners."

At 6,000 feet, the Mountain Home Demonstration Forest is about 20 degrees cooler than Porterville. For Convention participants who just want to get out of the heat of the valley, it's an ideal day trip.

The Mountain Home State Forest is one of eight forests operated by the California Department of Forestry and Fire Protection.[10] It comprises a 4,800-acre area within Sequoia National Forest and features giant, old-growth sequoia trees, as well as black oaks and conifers. It is also adjacent to the Golden Trout Wilderness Area, and the southern part of Sequoia National Park.

Overnight campers are welcome in the free campgrounds. Recreational activities include equestrian trails, hiking trails, trout fishing in the rivers and ponds. Rock basins, typically four feet in diameter and three feet deep, are a local curiosity. No one knows if these basins are natural or if they were created by ancients who dwelled in the area long ago. One of the largest and oldest of these sites is at Sunset Point. "It's been dated to 8,000 years, which is very old for a Sierra Nevada Indian site," says David.

Relationships have been good between California cavers and Jose Medina, the Supervising Ranger, and his predecessor, David Dulitz. "I always welcomed the expertise of people from the Southern California grotto—John Woods and all the people down there—and the people from San Francisco," says David. Once you get past the historic entrance, "The cave is pristine. The people who have gone into it have just preserved it very well."

[Special thanks to John Woods, David Dulitz, Bob Richards, and Paul Stovall for participating in interviews for this article.]

References

[1] Woods, J., 2002, "Crystal 67 Revisited", *The Explorer*, September, pp. 85-88.

[2] Woods, J., 1991, "Behind the Redwood Door", *The Explorer*, October 1991, pp. 140-143.

[3] Richards, B. et al, 1982, "Crystal 67 Cave", *California Caver*: CA, Western Region of the National Speleological Society, Vol.e 33, No. 1

[4] Richards, B. et al, 1982, "Crystal 67 Cave", SpeleoDigest, National Speleological Society

[5] Fiederer, C., 1965, "The Pendant Passage", *Pacific Caver*, Volume1, No.1, pp 9-10

[6] Halliday, W.R., 1962, *Caves of California*: Seattle, WA, Western Speleological Survey and National Speleological Society, 194 p.

[7] Butcher, G., 1998, "Haughten's Crystal 67 Cave", *SFBC Newsletter*: Stanford, CA, National Speleological Society San Francisco Bay Chapter, Vol. 41, No.11.

[8] Richards, R., 1982, "Crystal 67 Cave", *California Caver*

[9] Bischoff, E.W., 1950, "A List of Caves of the Pacific Coast Area", *California Caver*, Vol. 33, No. 1

[10] www.ceres.ca.gov/ foreststeward/html/ stateforest.html

2003 NSS Convention: California Here I Come

2003 NSS Convention Planning Committee

Directions to the 2003 NSS Convention

Whether you are driving across the country or coming from an airport, you will be making one of two basic approaches:

From the south (Los Angeles) take I-5, and then California Highway 99 north. From the east, take Highway 99 in Bakersfield. From Highway 65, (approximately 5 miles north of Bakersfield), it is about 55 miles to Porterville. As you approach Porterville, take Highway 190 east one exit (towards Springville). Exit at Main Street and turn left. In one block, turn left onto College Avenue. Porterville College will be on the left. Park at the far end of the lot, and follow the signs to registration.

From the north (Sacramento, San Francisco, Yosemite, etc.) take Highway 99 south. (Finding Highway 99 is left as an exercise for the driver.) Exit on Highway 190, and follow it east (towards Springville) until you cross Highway 65. The next exit is Main Street. Turn left on Main, and in one block turn left onto College Avenue. Porterville College will be on the left. Park at the far end of the lot, and follow the signs to registration.

Beware the Flea Market! Porterville holds a Flea Market every Saturday, at the stadium across the street from the College. If you arrive Saturday before 2:00 PM, traffic will be heavy, and parking limited. There will be parking reserved for registration only. Follow the signs.

Rules, Regulations, and Guidelines

Ernie Coffman & Dave Cowan

The 2003 Convention Committee wants everyone to have a great time in Porterville, and we have worked hard to minimize the need for rules. However, there are a few policies we must insist on. These are matters of public safety, state law, and community relations.

Fireworks and Carbide Cannons

California's dry season runs from May through October. During this time, there is seldom even a trace of rain. By August, California will be tinder dry. The use or possession of fireworks is strictly prohibited by state law, and the law is vigorously enforced throughout California. Even though some cavers consider the use of fireworks and carbide cannons to be a convention "norm," they are inappropriate in California, and they present an extreme safety hazard. Please do not bring fireworks with you to the Convention. Anyone found using them will be asked to leave the Convention, and registration fees will not be refunded.

Noise Policy

Porterville College is within city limits and subject to local noise ordinances. We have sound permits for the Howdy Party, Campground Party, and Banquet, but loud noises from other sources are not acceptable. The use of Carbide Cannons, in particular, is not allowed (also see "Fireworks and Carbide Cannons" above). If the Police receive complaints from nearby residents, they will respond and the offenders will be cited. Repeat offenders will be asked to leave the Convention, and registration fees will not be refunded.

Alcoholic Beverage Policy

In California, with a few well-defined exceptions, it is illegal to possess or consume alcohol on any school property. Porterville college has agreed to apply those exceptions to us, since we are essentially an adult group. However we must be discrete and responsible in our alcohol use. The following rules apply to all Convention activities:

Alcohol is permitted in the campground and community tent. Alcohol may not be consumed in any other campus location, with the following exceptions:

Monday, during the Howdy Party, alcohol will be permitted in the interior quad.

At the wine tasting, alcohol will be permitted in the Gymnasium.

Wednesday, during the Campground Party, alcohol will be permitted in the inner quad.

Friday, during the Banquet, alcohol will be permitted in the inner quad.

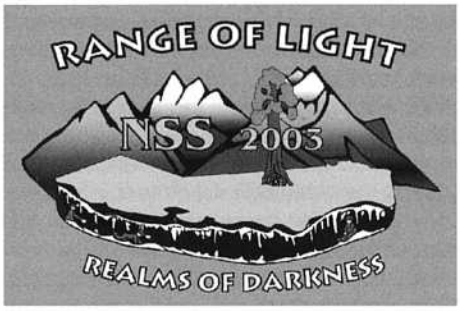
In California, the legal drinking age is 21. Minors may not consume alcohol at any time. Convention badges will clearly indicate the drinking status of attendees, and minors will not be served at any Convention event. Minors found to be under the influence will be detained by security until they can be turned over to their parents.

Education Division Luncheon

Amy Bern

Don't miss Monday's Education Division Luncheon!

Interested in spreading the word on the wonders of caves, teaching good caving techniques, and learning about key factors of cave and karst conservation? The Education Division is having its first annual luncheon at the 2003 NSS Convention on Monday, August 4 at noon. Committee Chairs or representatives from each of the five committees within the division (Environmental Education, Safety and Techniques, Youth Groups Liaison, TV/Video Production, and Grants and Scholarships) will be there to discuss Division goals and answer questions. All interested persons are invited to join this round-table forum. For more information, contact Amy Bern (amybern@juno.com), Education Division Chief.



Volunteers Needed

Peri Frantz

The convention needs volunteers to help with security, staff the registration desk, and help set up the banquet. We also need certified lifeguards so that we can extend the pool hours. If you can spare some time for your fellow cavers, contact volunteer coordinator, Jennifer Ong (jong69@yahoo.com).

Southern Sierra Cave Troll Spotted

Peri Frantz

The 2003 NSS Convention committee has just learned of several recent sightings of the Southern Sierra Cave Troll. The elusive Cave Trolls are believed to inhabit the twilight zone of certain local caves, where they jump in front of unwary cavers, give them a big hug, and then run away into the shadows. They apparently possesses an uncanny ability to distinguish real cavers from the general run of the mill tourist, in whom they show no interest. Local legend recounts that the only time it leaves its lair is when a large collection of cavers congregates nearby. We do not believe that a Cave Troll would venture as far as Porterville; however, we are monitoring the situation, and if necessary, will take protective action.

Western Cave Conservancy Get Acquainted Gala

Marianne Russo

On Wednesday, the 6th of August, at this summer's Porterville Convention, the Western Cave Conservancy will host an evening of wine, beer, delicious food, door prizes, interesting speakers and the opportunity for everyone to become acquainted with the conservancy. This will be held before the Convention auction in the college gymnasium. There will be plentiful

finger food, enough to make this your evening meal! We plan to have several speakers on a variety of timely caving topics to entertain you while you munch away. The wine and beer will be complimentary and served throughout the party and on into the auction as long as it lasts! Get your free glass at the party so you won't be left out.

Check out our door prizes during the week at our information table where you can purchase your tickets to the party between Saturday and Tuesday. This will be the best event to attend on Wednesday! Please join us for this festive celebration and help the Western Cave Conservancy get off to a great start saving caves in the west!

Keep California Green: 2003 NSS Convention Recycling Program

Caroline Brown

Throughout most of California, residents have to do curbside recycling on trash day. What is accepted for recycling is determined by market price, but the mandate to recycle is set by the state. Cities are heavily fined if they fail to meet their recycling goals to reduce landfill waste.

For your convenience, the NSS convention staff has arranged for campground recycling containers. At registration you will be given a reusable, heavy-duty trash bag to store your clean recyclables until it is filled and then you can take the bag to the recycling container and happily put the stuff where it can be reclaimed and reused. For the most part, this will be aluminum cans, plastic and glass bottles, paper and cardboard. There will be posted notices if there are any changes by the time of the convention.

For campsite waste that cannot be recycled, use any trash sacks available, paper or plastic grocery bags, and dispose of them in the campground garbage cans.

We conserve caves. In addition, we conserve the canyons of California by NOT filling up more of them with garbage that could be recycled. We care for California.

Photoshop for Cavers Workshop

Many cavers are using digital cameras in caves, or are scanning their film images. Two workshops are planned for Wednesday afternoon at the Convention's computer lab, for cave photographers who wish to improve the look of their digital images. Adobe Photoshop is the most widely used software for processing digital images, and offers many tools for dealing with those "less than perfect" cave pictures.

A Beginner class will be taught by Hazel Barton and an Advanced class by Dave Bunnell. There will be a limit of 20 per class. See the web site for more information or contact Dave (dbunnell@caltel.com) for more info or to reserve your spot.

Caving at the 2003 Convention

Joel Despain

Cave Specialist for Sequoia and Kings Canyon National Parks

One of the best parts of NSS conventions has always been the caving: an opportunity to see and enjoy caves in another part of the county with the assistance of the locals who know them best. In 2003, we hope to provide convention-goers with a fun and enjoyable suite of caves that will add to their convention experiences and leave a lasting positive impression of the caves of the southern Sierra Nevada.

As in all parts of the country, our caves and the landscape they lie within are unique, and cavers will need to adapt to the local cave temperatures, access realities, and rules and regulations. The Sierra Nevada is a beautiful mountain range featuring the world's largest trees, giant sequoias, and the largest mountain in the US outside of Alaska, Mt Whitney. But, mountain travel to reach the caves also means slow drives on narrow winding roads and steep hikes. Trips to Palmer, Church, Packsaddle, Marble Falls, Lilburn, Millerton, Thunder Canyon, White Chief, and the Marbles will all involve long and hot hikes. Luckily the scenery is a great distraction. The hike to Lilburn, for example, is through the world's second largest grove of sequoias and features dozens of red-barked trees more than 30 feet in diameter. Other local challenges on hikes include poison oak, rattlesnakes, and biting mosquitoes, wasps, and bees.

Bears are also common. Although they are a wonderful sight to see, these large, strong animals also cause tens of thousands of dollars in damage to cars and property each year as they search for human food. To protect the bears and human property, the national parks and forests of the area have strict regulations on food storage. When you camp or even hike in the park, check local regulations to insure you are doing your part to protect local wildlife. For more information about the bears see: http://www.nps.gov/seki/snrm/wildlife/food_storage.htm

Mountain caves are also cold caves, particularly Crystal 67, Lilburn, White Chief, and the caves of the Marble Mountains. PVC outer-suits are required for Crystal 67, where cavers will get wet, and are strongly recommended for the other caves listed above. Lilburn and Crystal 67 are in the low 40s, whereas caves in White Chief Valley and the Marbles caves are near freezing.

Caves of the area are themselves steep. Many passages in caves such as Lilburn and Church almost require ropes due to precipitous drop-offs and steeply sloped floors. Cavers at this summer's convention need to be comfortable with climbs, chimneys, and exposure. Caves here also have many tight constrictions. These can be found in Crystal Sequoia, Church, Lilburn, and Thunder Canyon. Check the convention web page (www.nss2003.com/cavetrips/index.html) or the trips information desk during the convention, to see which caves fit your skill level and level of comfort with these challenges.

NSS conventions often have more than 1,000 participants. As the largest caving events in the nation that move to different locations each year, conventions are a threat to any and all featured caves. Any time that many cavers come to town, convention organizers must meet the serious challenge of protecting local caves. Some of the caves featured this year will see what is normally two year's worth of visitation during the single week of convention.

In addition, most of the caves of the area are managed by the federal or state governments. Admission to Sequoia and Kings Canyon National Parks and Giant Sequoia National Monument is $10. But keep your receipt, which is good for seven days. While government management means that local caves are well protected, it also means that the caves have numerous and sometimes complicated restrictions and regulations. This includes prohibitions on carbide, limits on party size, designated trip leaders, and flagged trails for some caves. Please be sure to check the information in the convention web pages and at the trips information desk in Porterville for more detailed information on what you need to do to protect the caves of the Sierra Nevada. A successful convention is one where no damage occurs to local caves. Please help us meet that goal this summer.

Signing up for led trips can be done in two ways. Those who have registered for the convention can sign up online for one trip before convention begins. People can sign-up for other trips at the trips information desk in Porterville in the cafeteria near registration. Caves with led trips at convention this summer include:

Crystal 67 has a huge room, great formations, fun ropework, and challenging climbs. Crystal 67 will have daily trips during convention and both pre and post trips.

Crystal Sequoia is both a commercial cave and available for three different off-trail trips. The cave features nice formations, a stream flowing over banded marble, and prominent rooms. Convention attendees will receive half price tickets to the cave tour ($4.50) by showing their convention badge. Remember that you cannot buy tour tickets at the cave; they must be purchased in advance at a park visitors center. The off-trail trips will all be short, allowing an easy

day from Porterville. These trips will occur every day during the week, and pre and post.

Lilburn is California's longest cave and features amazing marble, a few nice formation areas, lots of fun climbing and crawling, and spacious rooms and passages. Visiting Lilburn requires backpacking. There will be two-day pre and post trips to the cave and a two-day trip during the week on Tuesday and Wednesday.

Soldiers is one of the state's most popular wild caves. It includes three short rope drops, mazy passages, and scenic formations. There will be pre and post trips, and trips every day during the week of convention.

Church is the state's third longest cave and has big rooms and canyons, spectacular pits, and some formations. There will be vertical and horizontal trips pre and post and on most days during the week.

Palmer is a short but very scenic cave with big rooms and great formations. There will be both pre and post trips to Palmer.

Boyden is the other commercial cave in the area. The cave is well decorated and is in the very scenic Kings River Canyon.

Additional pre and post trips will go to **Thunder Canyon,** a sporting three-drop talus cave near San Diego, and to the **Marble Mountains,** home of spectacular **Bigfoot** and dozens of other fine caves in northern California.

Caves that you can visit on your own include:

Millerton, a sporting talus cave with thousands of feet of sculpted granite canyons. Dave Bunnell's favorite California Cave.

White Chief and **Cirque** are mazy, fun, alpine caves in beautiful White Chief Valley in Mineral King.

Overhang and **Hidden** are small vertical caves one hour from convention.

Greenhorn is an extensive talus cave and abandoned gold mine in the scenic Kern River Canyon.

Marble Falls and **Wild Child** are short horizontal caves with active streams and nice marble banding.

Packsaddle is a short cave with large (but vandalized) formations and large passages.

Local cave managers and the 2003 Convention staff all hope that you will join us this summer for the 2003 NSS Convention and for some fine caving in California's Sierra Nevada Mountains—see you then!

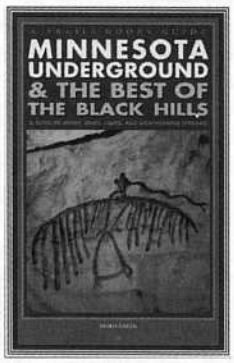
Surf's Up

Surf the Web for all the latest Convention news! We will make every effort to keep information on the Convention web site (www.nss2003.com) up to date and relevant. Need information about the Convention schedule? New sessions and activities? Last minute changes? Check the web.

READING

MINNESOTA UNDERGROUND AND THE BEST OF THE BLACK HILLS

Doris Green. Trails Books, a Division of Trails Media Group, Inc., Black Earth, Wisconsin, 2003. 6 by 9 inches, 175 pages, softbound. ISBN 1-931599-24-6. $18.95. (Can be ordered from the publisher at P.O. Box 517, Black Earth, Wisconsin 55515. Add $4.00 for shipping. For Wisconsin residents, add $1.26 for sales tax.)



This is the second of a series of Trails Books guides featuring underground caves, mines and tunnels in various states. The first guide was *Wisconsin Underground*, and came out in 2002. *Iowa Underground*, the third book in the series, is in production. It will be edited by speleo historian Greg Brick, and come out in 2004.

Minnesota Underground not only covers 38 underground sites or features within Minnesota but 15 underground sites in South Dakota as well. An additional four sites in the border areas of Ontario, Canada, Michigan, and Wisconsin, are also included. A significant part of the book deals with mines and surface-related features dealing with mines. While some are simply open pit mines you can view, a few are really exceptional and of interest to cavers. For example, did you know that at Soudan Underground Mine State Park in St. Louis County, in northern Minnesota, you can take an underground tour that is deeper than any show cave in the entire U.S.? You descend to the mine's 27th level in a wheeled cage. It takes three or four minutes to descend, and you can reportedly see passage openings and bats as you start your deep descent. How deep? 2,353 feet! The ore mine has 50 miles of tunnels, and your journey starts with a three-quarter-mile long underground train ride!

Interstate State Park in Chisago County, Minnesota, has more glacial potholes than anywhere else in the world. "The Bottomless Pit is more than 60 feet deep, and some of the unexplored potholes in the park may be even deeper." A quarter-mile-long trail makes a visit to these potholes easy.

Show caves located in both Minnesota and South Dakota are all featured, including Crystal Cave in Wisconsin, which is not far from the Twin Cities. A total of 52 photos and two location maps illustrate these caves and other underground attractions The Mystery-Minnesota Cave System, Niagara Cave, and Spring Valley Caverns are all featured in Minnesota, as well as all nine show caves, three tourist mines, and other features in South Dakota. Information is given on the length, accessibility, public facilities, and hours of operation in the 57 featured sites. These include tunnels open to the public, even though man-made.

The text is exceptionally well written and full of history. Of course, you will always have a few errors, like a contradiction in the book where the entry for Sitting Bull Crystal Caverns mentions the mud washed in from the flood resulting from a dam break in June of 1972. A few pages previously, in the text for Crystal Cave Park, it mentioned this same dam breaking and inundating many Black Hills Caves in 1971. For the record, the dam broke on June 9, 1972. As for the text otherwise, information and facts are plentiful, and it was obviously not a hastily done project by an amateur writer. Doris Green, the author, has a masters degree in mass communications and journalism from the University of Wisconsin. She is also an NSS member and as well as a member of the Wisconsin Speleological Society.

She has a nice section of the book related to resources, web sites, index, and glossary of cave and mine-related terms. Conservation information and safety comments are included within the text. I personally was pleased to see the comments about Jewel Cave: "Lint tarps under the metal mesh walkways on the Scenic Tour collect more than 100 pounds of lint annually." Geology is nicely covered in the text, largely I imagine, due to the efforts of Greg Brick, a Minnesota historian-geologist, who wrote the foreword for the book.

The book is well worth adding to any resource library, and fills a needed gap in these areas. In trying to present an honest and fair book review, I must point out that unfortunately, the location maps have at least five sites pinpointed wrong. For example, underground tunnels in Lawrence, Pennington, Custer, and Fall River Counties in South Dakota are shown as being in Isle Royale National Park in Michigan! Crystal Cave in Wisconsin is shown as being in Minnesota, while Banning State Park in Minnesota is shown where Crystal Cave should be in Pierce County, Wisconsin. When I informed the publisher of this, to their credit, they made the decision to reprint the book with these pages corrected.

I highly recommend the book to all cavers and the general public.

Gary K. Soule

THE ADVENTURES OF ANOTHER POOH: CAVING EXPLORATIONS AND ESCAPADES

David Yeandle. Writers Club Press, San Jose; 2002. 6 by 9 inches, 139 pp, softbound. ISBN 0-595-22466-0. $13.95.

The late David "Pooh" Yeandle's caving memoirs from Britain, mostly about caving and cave-diving trips in the seventies. Only well-read, long-time American cavers will be already familiar with the names of the people and caves in this book. Included are some contributions by others, and in fact the most entertaining parts are their descriptions of the making of a TV film on cave diving in 1979.

This is the second, and by a good measure the more fun to read, book by British cavers to come from Writers Club Press in 2002. (The other one was reviewed in the *NSS News* last December.) I have faithfully copied the data from the title page, which also claims offices in New York and Shanghai, to the introductory paragraph above. In fact the Brits have discovered iUniverse of Lincoln, Nebraska, before American cavers have. That company will, for a small fee, get your book an ISBN, print it in small quantities as needed, and make it available commercially. That doesn't mean it will be easy to find, though. My two attempts to order it from Barnes and Noble failed, and I finally got it from Amazon, whose computer said they had one copy in stock. Cave-book specialists may be a more reliable source. The author also gets better royalties, on a percentage basis, than he would from a real commercial publisher, but he is responsible for such publisher's functions as editing, typesetting, layout, and publicity; see www.iUniverse.com. When this sort of thing becomes more common, I expect lots of awful garbage, but then I've noticed that a more conventional publisher is no proof against that.

Pooh's book, though, proves that a good read can come out of author-supported publishing, and while the subject matter is not inherently of great interest to an American caver, he will enjoy the amusingly told adventures of a British cave bum.

Bill Mixon

LIFE ON A LINE: A MANUAL OF MODERN CAVE RESCUE ROPEWORK TECHNIQUES

Dave Merchant. About 200 pages. Free download of 2.7 megabytes of PDF files from www.draftlight.net/lifeonaline.

The clarity and organization of this nice manual illustrate what a single talented author can do. The price is certainly right, but you will have to download your copy, which is time-consuming over a telephone, and print it yourself. The format allows for easy revision to correct mistakes, describe new devices or techniques, or update legal information, which all applies to the European Union, as far as device standards are concerned, or the United Kingdom in particular. A disadvantage of the format is that it will be hard, when discussing the book in the future, to know what edition is meant, since the various parts can be updated independently and frequently. This also means that page numbers in the table of contents are impractical, and there is no index at all. In fact, Part 3 doesn't even *have* page numbers yet. I have the first release of Part 3, dated March 2003, and early releases of Parts 1 and 2 that are nearly a year older.

The content implied by the title is strictly adhered to, and there is nothing about medical care, patient packaging, or organization of rescues and a merciful absence of extraneous stuff about dogs, helicopters, or ham radios. It's all ropes, knots, anchors, and hauling systems, with careful distinction always made between normal vertical caving and rigging for rescue, with its requirements for sturdier and redundant rigging. The author was not afraid to use enough words to clearly explain things, and the chatty style relieves the tedium of what might otherwise be very technical material. The style also includes, though, a certain reluctance to be pinned down, and I wasn't left, for example, with any very firm sense of what sort of bolt might be best installed in a rescue situation. Of course, as the author explicitly recognizes, the configuration of the cave trumps all rules, and in the end you do what you have to do.

Cave-rescue people ought to read this book. Ordinary vertical cavers will find much of it, especially the chapters on ropes and knots, interesting, and some of the rigging techniques could be applied, albeit without all the redundancy, to self-rescue if the party carried a couple of pulleys in addition to normal vertical gear.

Bill Mixon

INTERNATIONAL NEWS

DEEPEST FREEFALL PIT FOUND

On March 13, 2003, members of the French expedition Guizhou 2003 found the deepest free-fall pit in the world near the village of Heibai (near the great basalt escarpments of Dabashan, 2558 meters high). The entrance pit is 424 meters deep (1391 feet) and is followed by another pit of 40 meters (131 feet) and one more of 73 meters (240 feet), bringing the total depth of the cave to 560 meters (1837 feet), and making it China's fourth deepest cave. It was named Baiyudong in Chinese, Gouffre de la Pluie Blanche in French, and it means White Rain Cave in English.

(Source: IFONet e-mail list)

CHARCO FINALE, MARCH 2003

A group of dedicated cavers met for one last time at Cueva Charco, near San Miguel Santa Flor in the mountains of Oaxaca, Mexico. After coordinating schedules and getting psyched, the first group of three went into the cave for a seven-day camp. The upper section of the cave is tight and sinuous, and takes serious contortions to get through. Carrying a pack makes it even more hideous. The rest of the cave doesn't get much better. The group spent one night at Camp I, then proceeded on to set up a second camp at over -900 meters deep. They found a place that was adequate for three hammocks, with a flat spot for cooking. In two long push trips, they surveyed over a kilometer of passage, and finally came to a sump. About 300 meters before the sump, the nature of the cave changes. Most of Charco follows a stream—the general trend of the cave is a straight line. While most caves tend to get bigger as they get deeper, the passage in Charco remains narrow, best described as a cheese grater, with tight squeezes even below -1000 meters. Just before the sump the stream passage intersects a borehole. The upstream section of the borehole is blocked by flowstone, and the downstream section leads to the sump.

A second group of three met the first group as they were exiting. The second group spent five nights underground, and thoroughly checked the sump and possible bypasses, but could not find any way to continue. They packed up the camps and made the long and tortuous trip out of the cave for the last time.

Meanwhile, four cavers spent two nights at Camp I to check a significant lead at an infeeder, appropriately named "The Showerhead". The passage varied between tight belly crawls and fair-sized rooms, always following the water upward. The passage kept going, so another team went in to The Showerhead on a very long day trip. They followed the stream until they came to a place where the water poured out of small holes—too tight to continue. They took photos of some of the very pretty formations in the stream passage and in a short, dead-end side lead.

With all the data tallied, Cueva Charco is -1278 meters deep and 6.71 kilometers long. According to the latest information we have, this makes Charco the third deepest cave in Mexico, behind Sistema Huautla and Sistema Cheve. Charco is arguably the most difficult cave in Mexico.

We would like to thank the members involved for not getting injured in the cave, as any kind of serious rescue beyond the first kilometer would be impossible.

Nancy Pistole

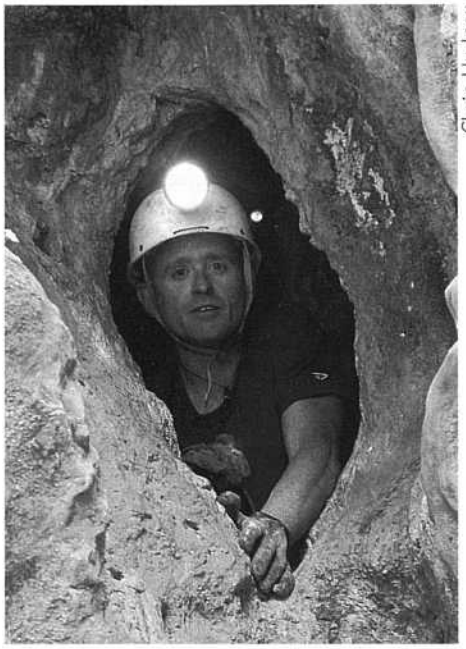
SPELEAN SPOTLIGHT

by Bill Steele

Some cavers are so incredibly active that they go caving every weekend, year after year, and use all their vacation time for it too. A few have other interests as well, which match the locales of caves. Such is the case with Arizona, and former Georgia caver, Alan Cressler. Also a fern expert of renown, he's one of the most experienced cavers in the USA.

Alan Cressler

NSS #24392, FE



Chris Hudson

Alan, you moved to Arizona from Georgia not long ago. Why did you do that, and what are the differences between the caving scenes and the caves?

I was born and raised in the Atlanta area. The city has grown so large in the last 10 years that doing anything outdoor related is problematic. Every Friday when I would leave for caving, I would sit for hours in traffic. I was just sick of it and one day I saw a vacancy announcement for a U.S. Geological Survey job in Tucson. I applied for it and got it. Tucson is one of the only other places in this country where I would live. I had vacationed in Arizona many times over the last 20 years and had actually done a number of caves. I knew the cave resource was large enough to satisfy my needs.

I have caved in many areas of the country but my start was in TAG. I am still partial to that type of caving but I appreciate every kind of cave. Caves in Arizona are highly diverse. The caves in the southern part of the state are formed differently from the ones on the rim and canyon areas to the north. Some of the northern caves remind me of TAG caves with deep pits, flowing water, cold temperatures, mud, etc. The caving scene was the most difficult thing for me. I came from an area where the flow of information was protected but free to an area where the flow of information was basically nonexistent. I didn't let that stop me. I bought geologic and topographic maps for the caving areas and began to educate myself. I also met a couple of individuals who had a little more Arizona experience than I had. We worked together and began to figure it out. Persistence paid off because I managed to do 170 different Arizona caves in one year and that didn't include any Grand Canyon Caves. I recently learned that an old timer Arizona caver said I was dangerous because I knew too much and I had a big mouth. He is correct on both counts.

How did you get started in caving?

I entered my first cave in 1961 when I was four years old. I actually have a picture on my wall that my father took of me and my family entering Cathedral Caverns in Alabama. He managed to capture the whole cave entrance, sign, and us in one frame. I remember from way back a human skeleton they had on display in the entrance shelter. I consider my official caving start to be around 1980. I was heavily into the study of pteridophytes (ferns) and that eventually took me to northern Alabama. There are some ferns that only live on limestone and some that only live in cave entrances. I went to a number of cave entrances and every time I would venture a little farther into the darkness. Before long I was going to Alabama to cave rather than to look at ferns. On one trip to Russell Cave National Monument in 1981, a SERA Cave Carnival was being held at the site. This was in the days when only about 100 people attended such events. I was taken in by the very friendly group and spent the weekend there. I met Merilyn Osterlund who happened to be Marion O. Smith's partner at the time. Merilyn and I hit if off well and she introduced me to John French who took me to the Morgue Entrance to Fern Cave and Guess Creek Cave. I was not only amazed by the ferns but by the extreme beauty of the entrances. Later that summer, my friends and I met John and Marilyn Reed near the Hiwassee River in Tennessee. They were boating and we were rappelling. They invited us to join them on a pitting trip, which we did. They took us to Neversink, Valhalla, The Diggings Pit, and Stephen's Gap Pit in one day and it about killed us. Through them we learned of the TAG Fall Cave-In. We attended that in October. Our group was at Moses Tomb and I was the last one out of the 225-foot pit. I was almost at the top when this "old" man stuck his head in the hole and cursed me for taking so long. It was Marion O. Smith. Before we could get our gear packed he had yo-yoed the pit and was on his way up the mountain to Kudzu Cave. Little did I know that this "old" man would shape the rest of my life. In November of 1981, John Reed invited me to go on a push trip to a cave named, It's Curtains for Us Pit in Alabama. Marion was there and it was the first time I truly caved with him. From that weekend on, over the next 10 years, I basically caved with Marion and a group of dedicated explorers every weekend.

You're an accomplished cave photographer. How did that come about?

I have thousands of pictures I took with 110 and 35 mm film point and shoot cameras. I have always considered them as a record of my life. They don't really mean much to anyone but me. Around 1993, I purchased a nice Canon 35-mm SLR camera. I continued to use it mostly as a point and shoot. I beat the heck out of it. In 1996 I purchased a more serious camera and began to teach myself how to take surface pictures, mostly landscapes and waterfalls. I slowly directed the interest underground. There is a slow learning curve with cave photography, at least the way I was doing it. I shot thousands of frames, learning the limitations of my equipment and developing a creative eye. Nancy and Brent Aulenbach and Paul Aughey were my most faithful cave photography partners. A lot of my better shots were actually taken in Brent's "horrible" project caves. Just kidding Brent. I have taken very few cave pictures in Arizona for some reason. I guess I am more motivated by water and mud than by formations.

I understand that you got involved with documenting cave archaeological sites. Please tell me about those experiences.

As a kid, I was very interested in archaeology. I never pursued the interest beyond reading. Very early on in my caving career, I began to find archaeological sites, especially human burials. I guess because Marion Smith lived in Knoxville, Tennessee and worked on the campus of the University of Tennessee he knew people who were interested. I don't have that many talents but the one talent I do have is my power of observation. I can find a dirty, quarter-size pottery sherd in a pile of a thousand flat sandstone rocks. My archaeological interest peaked in the mid-1990s when I responded to a TAG-Net request from Jan Simek,

professor of archaeology at UTK. He was interested in prehistoric cave art. I knew of some so we met and that began a long and wonderful friendship. I had all the benefits of essentially being an archaeological student with my only classroom being underground. Paul Aughey, Gerald Moni, and others also joined the group. I began an "unofficial" TAG Archaeological Survey. Once Jan taught us what to look for, we documented hundreds of cave archaeological sites in the tri-state area. My cave photography also became useful, especially documenting the cave art. I was forced to develop photographic techniques that I am not sure anyone else uses. Even though I live out west, I am still very active in these projects.

Please tell me about these photographic techniques that perhaps no one else is using.

I use a combination of reflected fluorescent light and filters to create the best contrast I can with these extremely faint images. I take long exposures with small apertures to give a great depth of field. Many times the images are on irregular surfaces.

What was the most interesting cave site you ever visited?

I would have to say Big Bone Cave in Tennessee. There are some truly famous cave archaeology sites in this country, especially Kentucky, but there is no way I would ever get to visit them. Big Bone Cave has almost as much. It would take years to completely study that cave. There is nothing I like more than crawling down a dusty passage and coming face to face with a foot long prehistoric turd.

If the question is related to caves in general then I have to say Cueva de la Villa Luz, in Tabasco, Mexico. Where else can you get 2nd degree chemical burns on your ass cheeks from sulfuric acid and cave in an environment that has many times the lethal limit of hydrogen sulfide?

Please tell me more about your experiences in Cueva de la Villa Luz.

I was working for National Geographic Magazine, more specifically as a photo assistant to Stephen Alvarez. He was covering a Louise Hose and Dave Lester expedition. Several of the big names in microbiology were also present. Stephen and I were there for three weeks. We went into that cave 16 times during the period and subjected ourselves to the deadly environment every time. I remember going into one restricted area in the back of the cave. All of our meters were alarming and the atmosphere just felt strange. It was one of the most beautiful places I have ever been, with sulphur crystals everywhere. I think it took days to recover completely from being in there for five minutes or less. The cave was very warm and wet so it was not necessary to wear many clothes. Since I was doing the lighting, I would be stuck in one place for a long time. When I was tired I would sit down on the gypsum banks. After several days, my butt cheeks began to hurt and then began to scab over. I finally realized that the gypsum had a pH of 2 or something like that because of the sulfuric acid.

You're a recognized expert on ferns. How did that come about, and tell me some of the highlights of your fern work?

My study of ferns came about because someone asked me one time what kind of fern one was and I didn't know. I bought a book and began to learn them. Before long, I realized that some of these plants lived in some really interesting and difficult habitats. I traveled all over this county in the late 1970s looking for them. Most of my really important work was done in south Florida, where plants from the Caribbean basin reach the northern extent of their ranges. Not that this will mean much but I rediscovered *Thelypteris patens* in Dade County, Florida. It had not been seen since the early 1900s. I discovered all the known populations of *Asplenium monanthes* in Alabama. This rare tropical fern has only been found in Florida, North and South Carolina, and Arizona. The Florida population was extirpated in the late 1960s and I rediscovered a new population in another part of the state in the mid-1990s. I located a very disjunct population of *Asplenium abscissum* in a cave in northern Alabama. This is 300 miles farther north than the previous northernmost location in central Florida. I have collected hundreds of books related to the subject.

Where all have you caved?

In the United States I have caved in: Alabama, Arizona, Arkansas, California, Colorado, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Kentucky, Maine, Maryland, Missouri, Nevada, New Mexico, New York, North Carolina, Pennsylvania, Tennessee, Texas, Vermont, Virginia, and West Virginia. Internationally I have caved in Belize, Guatemala, Mexico, and Oman.

How many caves have you been in?

I started keeping a detailed journal of my spelean adventures from the very beginning. My whole caving career is well documented. Surveying caves is not at the peak of my pyramid but a written description is. I have a detailed handwritten description of every cave I have been in. To date, I have been in 3,033 different caves and I have been on 4,019 cave trips since 1980. I finally have all of this computerized.

What's the longest you've ever stayed underground at one time?

For me, it seems like all cave camps have about the same duration. I think the longest camp trip has been 6 nights and 7 days. I guess the limiting factor may be the amount of food that can be carried. That was in Chiquibul Cave in Belize. I have been on other long camps in Mexico but I don't think they were any longer. I start molding if I don't see the sun in five or six days.

Were you in on the exploration of Rumbling Falls Cave, Tennessee? If so, would you please give me a summary of the controversy over that cave?

I was not involved in the exploration of Rumbling Falls Cave. I knew Marion Smith was working in a secret cave and I didn't really pressure him to tell me. I know how he is about things and I didn't push it. He asked me on two occasions if I wanted to participate on a survey trip and because he wouldn't offer any details and the fact I really don't like to survey, I declined. I guess I went on one of the first tourist trips after the cave was made public. For me personally, I don't really like that type of cave. I tend to not like the multi-mile long monsters. I find a 1,000-foot long nerd cave much more interesting. I will only say one thing about the controversy. It greatly saddened me to see the two people who I respected the most in my caving career end up as enemies.

What do you see in your caving future?

I am 45 years old and I feel stronger than ever. I still cave every weekend or close to it. My best caving buddy, Jason Ballensky, is 20 years younger and we are very evenly matched. He has the same level of interest and we cover a lot of ground. My life in general is about to take another turn for I am moving back to Atlanta in June. I am excited to get back to the caves I love the most. I guess I will cave every weekend until I am no longer able. Hopefully that will be a long time. I plan to resume my cave archaeology interest. I'll also have to explore as many caves as I can. Marion Smith is only 2,000 caves ahead of me.

JAY'S JOURNAL

by Jay Kennedy

The Virginia Speleological Survey publishes *Virginia Cellars* and it is one of my favorite newsletters, partly because Virginia Tech was my undergraduate university but also for the wealth of cave maps and interesting photography. The December 2002 edition is no exception! The front cover features a Phil Lucas photo of bacon-rind formations in "a newly discovered Virginia cave." Barry Horner contributes maps and articles detailing Highland County's **Williams Cave** and **Bullpasture Mountain Cave**. Described in *Caves of Virginia* as a 94-foot pit, Williams Cave is used as a convenient trash disposal site by locals who "say they just throw it in and it don't make a sound!" Surveying down a "vertical wall of trash" Barry and friends tape the first drop at 55 feet, noting the bottom "crunched and popped" when they touched down. Apparently there is forty feet of trash accumulated in the pit! The surveyors were able to find a way onward down an 8-foot pit in the trash, netting a total of 94-feet of horizontal survey with a 79-foot depth. Bullpasture Mountain Cave is more pleasant, with abundant formations (including a stalagmite with a dead, hanging bat that is beginning to be encrusted by calcite). It did take two trips to find, since reliance on a GPS unit was unsuccessful but a topographic map allowed Barry to find the 30-foot entrance pit "the old fashion way." Marian McConnell has a story on "Cave Stewardship." Accompanied by Bob Alderson's map, she describes the management plan for **Catawba Murder Hole** in Botetourt County (that's pronounced "bought a tot" by the way!) The property containing the cave was purchased by Marian and her husband Dan in 1993 and has also yielded four virgin caves: **Miracle Ridge**, **Floyds Hole**, **Blowing Hole** and **Percolator Pit**. Among her management concerns have been safety for groups negotiating the Murder Hole's occasionally vertical passages as well as problems with trespassers on the property.

How many cavers have wondered for an efficient way to dig into caves, or at least one where they didn't have to work so hard? Warren Netherton describes how Fillmore County (Minnesota) "Sentence to Serve" labor helped excavate **Ground Hog** and its sinkhole entrance to yield 40 to 50 feet of belly crawl leading to a 3 by 7-foot room. The sink takes a large quantity of water during wet weather, without flooding into nearby fields; Warren ponders the significance of this in light of Dr. Calvin Alexander's 1991 dye trace connecting the sink with nearby Saxifrage Springs. Details are found in the November/December issue of *Minnesota Speleology Monthly*.

California's Mother Lode Grotto celebrates its fortieth anniversary in the Winter 2002 volume of *Valley Caver*. A grotto reunion at **California Caverns** reunited old cavers with newcomers and furnished numerous photo opportunities. Included in this issue is a foldout group photo, with most folks conveniently labeled! The back of the large sheet includes a similar group shot from the MLG's 30th Anniversary Reunion bash, again with a sketch of the subjects and most of the faces labeled. Matt Leissring narrates "The LAST Trip to Ponderosa" in which he weaves a tale of disposable camera woe while checking Heather McDonald's map of **Ponderosa Cave** (Calaveras County). Seems a disposable camera was left on the hood of his truck while a large rock was removed from the rough road leading to the cave. Found on the trip home, the camera had apparently been run over multiple times, but still worked. It emitted a large FLASH when used initially, but then lost the flash feature although it still worked for the rest of the film roll. Heather's map of the cave accompanies the article and show abundant passage detail.

Wisconsin is NOT one of the caves that immediately spring to mind when thinking of caves and caving. That reputation has not stopped the members of the Wisconsin Speleological Society from having fun in two of the state's more famous caves, **Paradise Pit Cave** and **Horseshoe Bay Cave**. At least 21 cavers attended a monthly WSS meeting held in conjunction with a dig at Paradise Pit Cave. Gary K. Soule documents the club's annual pilgrimage to Horseshoe Bay Cave, which has grown in three short years from 23 cavers from 13 cities to 66 cavers from 17 cities. Breaking down the cavers into groups that did or did NOT want to get wet, the "dry group" also visited nearby **Wellever Cave**, scene of the 1981 Hodag Hunt wedding. Because the event was held in January, maybe the dry group was thinking straight! The event even brought Door County Parks director George Pinney to the underground realm. Dawn Ryan supplies photos and a brief note about the **Wequiok Cave** protection project. This ensured stabilization and access structure construction for a cave entrance uncovered during highway construction. Aaron Buchholz adds "The Caver," a crossword puzzle, for the "Caving Kids Page" (Aaron is 11 years old, nice job on the crossword!)

The Journal of Spelean History is the official publication of the American Spelean History Association and the July-December 2002 edition is a wealth of interesting articles. Marion O. Smith documents one of Alabama's Civil War saltpeter caves in "**Trinity Cave** Nitre Works." Included is a list of seventy-one individuals from the nitrate-mining operations payroll, as well as sources of supplies necessary to mine the cave for saltpeter. Dean Snyder furnishes "The Reading Society of Natural Sciences' nineteenth-century excursions to **Crystal Cave**, Pennsylvania and **Luray Caverns**, Virginia." Formed as a scientific association in 1869, the group served as an alternative to the numerous social and benevolent organizations of the day (for example, the Masons). The group is invited to explore Crystal Cave, a newly opened cave in a limestone quarry near Greenwich Township, Pennsylvania. Although he was unable to determine the exact date when the group visited the cave, Dean notes that their description of the findings, especially the mineral formations, was used in advertising for more than sixty years. The Society's trip to Luray Caverns on October 11, 1881 was an overnight excursion that included the

(continued on facing page)

LETTERS

THE TOP TWENTY CAVES

As a fellow geek I enjoyed reading Andy's article in the January *News*. However, it seemed to me that a further interesting comparison was lacking. I thought that it would be interesting to weight Andy's second two rankings using the square mileage of each of the states to calculate a cave density. Undoubtedly there are some other states that would merit inclusion on these lists using my criteria (given the data for all states) while some would get bumped off of the lists. However, given the data in the January *News*, here are the new rankings:

Total number of caves over one mile in length per 10 thousand square miles of land area.

1.West Virginia	43.18
2. Tennessee	42.94
3. Kentucky	31.21
4. Hawaii	28.02
5. Indiana	17.01
6. Virginia	16.16
7. Alabama	15.57
8. Missouri	8.42
9. Arkansas	4.22
10. Florida	3.71
11. Georgia	2.59
12. New York	2.54
13. Oklahoma	2.18
14. New Mexico	1.65
15. Colorado	0.96
16. California	0.90
17. South Dakota	0.79
18. Texas	0.76
19. Wyoming	0.72
20. Arizona	0.70
21. Montana	0.41

Total cave mileage (in caves over one mile) per 10 thousand square miles of land area.

1. Kentucky	228.97
2. West Virginia	197.77
3. Hawaii	190.25
4. Tennessee	132.00
5. Virginia	55.36
6. Indiana	54.97
7. Alabama	37.81
8. South Dakota	32.13
9. Missouri	28.29
10. New Mexico	15.66
11. Arkansas	12.94
12. Florida	12.63
13. Georgia	9.38
14. New York	6.45
15. Oklahoma	5.00
16. Illinois	4.98
17. California	3.32
18. Wyoming	2.91
19. Texas	2.82
20. Colorado	2.58

A comparison shows that my new ranking using cave density does not dramatically alter the overall rankings. The reason for this is that most of the states on the list are relatively close to the same size. However, for very small or very large states there are some major differences. It helps out West Virginia considerably by moving it to the top of the first list and greatly decreasing the gap between it and Kentucky on the second list. This makes sense because West Virginia is small and much of the state is cave rich. My weighting gives an even stronger boost to Hawaii's standing, knocking it up from twelfth to fourth on the first list and from tenth to third on the second list. In fact, Hawaii stands not far behind West Virginia and Kentucky in overall density of cave passage. Given the current rate at which new cave is being found in Hawaii, it may soon be the most cave-dense state! This again makes sense when you think about the fact that Hawaii is so small and much of its land area is covered in lava flows. The states that suffer most by my rating are big states with isolated cave dense regions. For example, Texas drops eight rankings on both lists. New Mexico and California also each drop a bit. Anyway, I hope that this analysis sheds a bit more light on which states are the best cave states by giving an idea of the actual density of caves in each state, or the likelihood that one might happen to find a mile-plus cave while just randomly walking around the state.

Matt Covington

WHERE IS THE AMCS?

An article in the April *NSS News* that directs readers interested in the Association for Mexican Cave Studies to the web site www.amcs.org requires us to clarify the current situation. That site, as well as a post office box numbered 7037, are operated by an individual who deserves great credit for initiating the AMCS's publications program in the middle 1960s. However, his efforts essentially ended in the late 1970s, and other cavers were forced to start the ongoing *AMCS Activities Newsletter* to replace the moribund *AMCS Newsletter*, and they have also recently resumed publishing the AMCS bulletins series. While some older AMCS publications may be available from his web site, those wishing to support the current program of publications and other activities of the Association for Mexican Cave Studies, which is now an official project of the National Speleological Society, should use the addresses www.amcs-pubs.org or PO Box 7672, Austin, Texas 78713.

Bill Mixon (OS, AL),
AMCS Editor;
James Reddell (SC, CM), William Russell (HM, CM), Peter Sprouse (LB),
AMCS Advisory Committee

Jay's Journal

(continued from page 174)

dedication of the Double Column in Giant's Hall to the memory of the first secretary of the Smithsonian Institution, Professor Henry, and his successor who was born in Reading: Spencer F. Baird. Aldemaro Romero recounts the life of Theodor Tellkampf of Germany. Tellkampf was one of the first cave fauna researchers at Kentucky's **Mammoth Cave** although he trained as a physician in Vienna, Austria.

When you have an address change, please notify the NSS Office ASAP!!!!

The USPS charges the NSS .70 a pop for each address change notification. On one day, we received 14 notifications for a total charge of $9.80.

Your assistance in this matter is greatly appreciated.

Stephanie Cothron

CLASSIFIED ADS