



*View of Main Building*

## Hamilton Valley Update

Richard Maxey

Photos by Roger McClure

Construction at the Hamilton Valley facilities are still underway. The final product of this phase of construction will be a field/research station consisting of a main building, two bunkhouses and a utility shed. The main building houses a kitchen and large pantry, showers and restrooms, office, map and computer room, and central meeting area. A full-length porch offers a spectacular view of Hamilton Valley. Each bunkhouse consists of five individual rooms with built-in bunks that hold four occupants each. The two bunkhouses can accommodate 40 individuals. The utility shed serves as storage space for outdoor upkeep and maintenance equipment. The main complex will accommodate Eastern Operations expeditions, will serve as a field station for karst scientists and graduate students, and will be available for educational, conservation and interpretive-related use as well as other activities consistent with the goals of the Cave Research Foundation.

Progress on the facility has been slow due to many factors, but it is almost finished as far as construction is

concerned. The main building is nearly complete except for installation of door hardware, a minor problem with the kitchen hood, and connecting the water to the well with a pump and a pressure tank. Hopefully these items will be completed by September, if not earlier. The first bunkhouse is nearly complete, though the door hardware remains to be installed. The second bunkhouse is being framed and should also be done by September. Sidewalks will be poured to connect all three buildings to the parking area.

The Hamilton Valley Maintenance Committee will be putting in a gravel road down to the valley and improving the existing road. We will install a gate by the parking area to block access by vehicles to the buildings except for the delivery of supplies. This will preserve the lawn area and make it functional for tent camping. There will be a short walk on a concrete sidewalk from the parking area to the bunkhouse.

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## CRF NEWSLETTER

**Volume 28, No. 1**

*established 1973*

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The CRF Newsletter is a quarterly publication of the Cave Research Foundation, a non-profit organization incorporated in 1957 under the laws of Kentucky for the purpose of furthering research, conservation, and education about caves and karst.

Newsletter Submissions & Deadlines: Original articles and photographs are welcomed. If intending to jointly submit material to another publication, please inform the CRF editor. Publication cannot be guaranteed, especially if submitted elsewhere. All material is subject to editorial revision unless the author specifically requests otherwise. To assure timely publication, please adhere to the following deadlines:

February issue	by December 15
May issue	by March 15
August issue	by June 15
November issue	by September 15

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## Message From The Editor

First, I want to apologize for the long delay since the last printed newsletter. I was supposed to take over last year, but a sudden change in employment allowed me to take a dream vacation trip to Australia for six weeks. Fortunately, Pat Kambesis, Sue Hagan, and Mick Sutton offered to complete November's issue at the last minute. Thank you Pat, Sue, and Mick.

As for the missing issues of February and May 2000, I can only apologize and offer the cheap excuse that a new job in consulting kept me very busy. However, hopefully beginning with this issue I can create timely and interesting newsletters.

I will need your help in getting issues out on time, so please send me items, and photos, for the newsletter. If you have any cartoons or drawings, please submit them because it will make the newsletter more interesting.

It should be noted that there will be no February or May issues. This year will only have two issues, Volume 28, No. 1 & 2.

Paul Nelson

## Make Freeman Pay!

Jack Freeman, one of CRF's distinguished and respected 'old-timers', has generously offered to match certain contributions to the Hamilton Valley Building Fund. Jack wants to support donations from CRF members who have previously given little or not at all. The qualification for the matching grant is that the donor, prior to January 2000, has given \$500 or less to the Building Fund. To receive the match, the new donation must be made by December 31, 2000.

This is a great opportunity to make your gift to CRF because your \$50 gift becomes \$100, your \$500 gift becomes \$1000. Whatever you can afford, it's time to Make Freeman Pay. Most importantly, you will have the pleasure of knowing that your gift is part of making the dream become a reality. If you haven't given before or haven't given much because you believed a little wouldn't make a difference, please take advantage of this opportunity. If your help wasn't needed we would not be asking. You can make a difference, and now that difference is twice what you can contribute.

CRF still needs your help to complete the facilities at Hamilton Valley. While the building will be finished in August, the furnishings still need to be purchased. Please send in your donations to:

Paul Cannaley,  
CRF Treasurer  
4253 Senour Road  
Indianapolis, IN 46239-9437

## Cave Research Foundation

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For information about the CRF, contact:

Pat Kambesis, CRF President,  
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kambesis@bigfoot.com

## Presidents Column Timing is Everything

Pat Kambesis

In Dick Maxey's Hamilton Valley Update (page 1 of this issue) he says "I hope that CRF members and fellows 20 years from now will say in hindsight that we did the right thing at the right time for the right reasons." In looking back on CRF's vision of an independent operation and research facility and at the evolution of the Hamilton Valley Project, one would have to say that timing, is indeed, everything.

Since the inception of the Cave Research Foundation, successive CRF Boards have recognized the probability that CRF-East (Eastern Operations) would, some day, move out of Mammoth Cave National Park, to its own facilities. Though an opportunity to do so did present itself in the mid-sixties, the timing wasn't right and CRF-east continued to work out of Flint Ridge in the Park. The potential necessity to move loomed imminent in the late eighties. In 1989, at the behest of CRF members Red Watson and Roger McClure, the Board initiated a building fund for the construction of not only a new field base for Eastern Operations but also a karst research station and national headquarters.

Just a couple of years later (1991), CRF-East lost access to its independent base of operations at Flint Ridge. We were moved to the Maple Springs facility; one that is also owned and operated by the National Park Service at Mammoth Cave and shared by other researchers and groups. Shortly thereafter, the CRF board recognized that the time was right to start looking into acquiring land for an independent CRF Operation.

In 1992, CRF purchased 196 acres of land in Hamilton Valley and thus began the Hamilton Valley Project. From that point on and through the rest of the decade, fund raising efforts strived to grow a building account with enough money to fully pay for the construction of a facility. In conjunction with that came the efforts of successive Building Committees who continued to review, critique and suggest changes to the architectural plans in order to assure not only that the facility would meet CRF's present and future needs, but was also one that CRF could afford. Immediate past presidents Mel Park and Phil DiBlasi worked hard toward making the Hamilton Valley Facility a reality during their successive tenures—but the financial state of the Building Fund and the prudence of the Board determined that the timing was not quite favorable.

In the mid-to late nineties, the stock market escalated in a most stupendous way. CRF building monies, wisely invested and overseen by Roger McClure, were experiencing significant growth. In 1998, a monetary boost in the form of additional generous donations from a few CRF members further increased the Building Fund. A new Building Committee revisited the

functionality and affordability issues as presented by their predecessor committees. Plans for a main building and bunkhouse were designed by professional architect Rod Hemmi. That coupled with their own additional research and some money-saving design changes resulted in a recommendation to the Board that the design was solid and that the time was right to seek bids for construction of the Hamilton Valley facility.

In 1999, with construction bid in hand, the CRF Board examined the escalating costs of construction, contemplated the future uncertainty of the stock market and considered the political climate at Mammoth Cave National Park. A careful review of the building fund determined that there was enough money in the account to fully pay for the main structure and one bunkhouse. In October of 1999 construction began.

Several months later, discussion came around to the possibility of building the second bunkhouse during this phase of construction. In order to do so, we would have to borrow from our Endowment Fund. However, it was argued that since the contractor was already on site, it would be less expensive in the long-run to go ahead with this construction. And since remaining investments still continued to do well, it was determined that the time was right and the second bunkhouse was added to the building project.

The construction at Hamilton Valley is almost finished and estimated completion time is August of this year. However, even though construction will be complete, we're not done yet. In order for us to be fully functional at Hamilton Valley, the main building and bunkhouses need to be furnished with basic amenities. The time to provide those items is now—if we are going to be fully operational at Hamilton Valley this Fall.

For those who've not contributed to the Hamilton Valley Project, timing of your contribution is important, especially if you want to take advantage of Freeman's Matching funds; see page 2 for details. In addition to funding the purchase of furnishings for the complex, we still need to pay back the bunkhouse loan from our Endowment Fund. The time is right now for your contribution to help us complete and pay for the Hamilton Valley Facility.

Send contributions to:

Paul Cannaley  
CRF Treasurer  
4253 Senour Road  
Indianapolis, IN 46239-9437

**Check out CRF's Website:**

**[www.cave-research.org](http://www.cave-research.org)**

Contact your operations manager for the user id and password for the members only section.

*Hamilton Valley Update (continued from page 1)*

Activity on the utility building has been dormant due to a lack of time by the group working on it and because it has been used for storage by the contractor this past year. We hope to complete it in the next few months. A concrete floor needs to be poured and the side door hung. In addition, the large overhead door that was donated by Daniel Greger and Joyce Hoffmaster, needs to be installed. Once the utility shed is secured, the tractor which was purchased by the Building Committee for mowing our fields, will be stored there.

I wish to thank the Board of CRF for all their support in getting this building off the drawing board and built on our land. It took a lot of money and courage to go ahead with this project and I anticipate that we will make good use of it for many years to come.

I hope that CRF members and fellows 20 years from now will say in hindsight that we did the right thing at the right time for the right reasons. We all should be proud to have achieved such a monumental task for a relatively small organization. As most of you know, Red Watson, Patty Jo Watson and Roger McClure have given a tremendous amount of monetary support. Roger has untiringly worked at Hamilton Valley to secure their vision for CRF in this new century. As visionaries, it has been their goal to make CRF a premier karst research organization with excellent facilities and staff. Let's all work together to make that a reality.

Submitted by Richard Maxey, Building Committee Chair. The Building Committee consists of Joyce Hoffmaster, Daniel Greger, Richard Zopf, Elizabeth Winkler, Cheryl Early, Dave Hanson, and Richard Maxey. Sheila Sands was on the committee for over two years but is currently not on the committee.

**Cave Research Foundation  
Open House & Dedication  
Hamilton Valley Research Station  
and CRF National Headquarters  
October 7, 2000**

CRF's long-awaited research station and National Headquarters has finally become a reality. The complex is located on the Cave Research Foundation's Hamilton Valley property which overlies a segment of Salts Cave (part of the Mammoth Cave System) and is an important part of the Pike Springs drainage.

Come join us on October 7, 2000 for a Members Open House and informal dedication of CRF's new field/research station and national headquarters. The Open House will begin at 1:00 pm central time. Activities include tours of the facility and surrounding property and a poster session featuring CRF research projects and partnership activities. A picnic lunch will be offered in the mid-afternoon; cost is \$6.00 per person. Slide shows on CRF's activities in China and Hawaii will take place in the early evening.

The Open House Activities will follow the 8th Mammoth Cave Science Conference which is being held on October 5-6, 2000 at the Park. (See Science Conference Announcement below for more details).

Please contact us by September 20th, if you plan to attend the Open house. For more information about the Open House or to RSVP contact:

Pat Kambesis  
kambesis@bigfoot.com  
phone: 815-863-5184



*View of the two bunkhouses and main building*

**The Eighth Mammoth  
Cave Science  
Conference  
October 5 & 6, 2000**

Mammoth Cave National Park held its first Science Conference back in 1990. Over the past ten years the conference has grown in both attendance and in subject matter. This multi-disciplinary conference has become an excellent forum in which park and area researchers update their projects and exchange ideas. As in the past years, the conference will be co-sponsored by Mammoth Cave National Park and the Cave Research Foundation.

*Continued on Next Page*

This year's conference will be held at Mammoth Cave National Park's Training Center during Thursday, October 5 and Friday October 6, 2000 in conjunction with CRF's Columbus Day Expedition and Hamilton Valley Research Center Open House. If you plan to attend the Science Conference, please RSVP by September 11th to Joe Meiman.

Those who have attended past conferences know to expect a wide variety of topics, ranging from archeology, botany, aquatic and terrestrial ecology, geology, and hydrology, to cave conservation, historical and social research. Past conferences have been relaxed and informal. Speakers will have up to 30 minutes to present their work, followed by a ten minute question and answer period.

On Friday evening after the conference, CRF will be hosting a cookout and social hour. Cost of meal and beverages is \$6.00 per person (money will be collected at the conference). Please RSVP to the Cave Research Foundation if you plan to attend the cookout/social hour. Deadline is September 21, 2000.

For more information about the Science Conference or to RSVP (deadline September 11) contact:

Joe Meiman  
Joe\_Meiman@nps.gov  
Phone: 270-749-2508

For more information about the CRF Cookout or to RSVP (deadline September 21) contact:

Pat Kambesis  
Kambesis@bigfoot.com  
Phone: 815-863-5184

### **CRF Annual Meeting November 10-12th St. Louis, Missouri**

Scott House

The location for the 2000 CRF Annual Meeting will be in Kirkwood, Missouri, a suburb located about 10 miles from downtown St. Louis. The meetings will be at the Powder Valley Nature Center. There are numerous motels located very close to the meeting site and a list will be available from me or on the CRF Webpage, [www.cave-research.org](http://www.cave-research.org).

Transportation is easy and Kirkwood is about 20 minutes from Lambert St. Louis Airport. The meeting location is at the intersection of Interstate 44 and 270; exit signs for the nature center are on the interstate highways. In addition, Kirkwood has an Amtrak station 2 miles from the meeting location. Below is the current itinerary for the meeting.

**Thursday, November 9:** Arrival of Board and Operations Council (OC). Evening Reception to be announced.

**Friday, November 10:** The CRF Board and OC meetings will be at the Powder Valley Nature Center. These meetings are open only to Board and OC members. However, everyone is welcome to join us for an evening meal at local pub-type restaurant.

**Saturday, November 11:** 8:00 a.m. Free tour of the Anheuser Busch Brewery in St. Louis. This is an old, historic National Register complex. One of the highlights is the Victorian-era stables of the Clydesdales.

About 10 am. A poster session will begin at Powder Valley. There will be room for computers, posters, etc. Please let us know if you wish to display something.

1:00 pm: In the auditorium at Powder Valley, the formal general meeting will begin. Our featured speaker will be Don Kurz of the Missouri Department of Conservation (MDC) will give a presentation on Missouri's Natural Areas System. Bill Elliott of the MDC will be presenting information on Missouri cave fauna. There will be time for additional presentations; please contact me at [rshcrf@aol.com](mailto:rshcrf@aol.com) if you are interested in making a presentation.

The evening banquet will be at Rich and Charlies Restaurant (about 2 miles from Powder Valley). The menu will include Italian entrees, chicken, vegetables, salad, etc. and will be buffet style for about \$17 (includes tax and tips). A cash bar will be available. The banquet will be limited to about 65 people.

**Sunday, November 12.** There probably will be a cave trip to a very nice cave about 1 hour from Powder Valley.

#### **Local Places of Interest and Activities**

The Missouri Botanical Gardens (nominal entry fee) is world class. Next door is the Victorian Tower Grove Park.

In Forest Park there are the following FREE attractions: the world famous St. Louis Zoo (remember Marlin Perkins?), the St. Louis Science Center, the Missouri Historical Society museum, the Jewel Box (a Victorian greenhouse), and the St. Louis Art Museum.

Downtown is the Jefferson National Expansion Memorial which includes the Museum of Westward Expansion, the Arch, the old St. Louis Cathedral, and the Old Courthouse (famed for the Dred Scott decision).

High on my list would also be the City Museum and the St. Louis "New" Cathedral (which is about 90 years old), one of the finest examples of Byzantine architecture in the U.S.

Further away, across the river in Illinois, is the notable Cahokia Mounds State Historic Site, one of the largest prehistoric sites in the U.S. Within just a few miles is the National Museum of Transport with a large collection of old trains.

Lastly, the Powder Valley Nature Center itself has displays of area natural life, touch exhibits for the kids, and several miles of hiking trails.

## Hawaii 2000 Report

Pat Kambesis  
Photos: Dave Bunnell

For the past two years, CRF has been working with the Hawaii Speleological Survey (HSS) on several survey projects on the Big Island of Hawaii. For the 2000 field season, CRF cavers worked jointly with HSS projects that focused on tubes within the 1881 Flow (South Hilo District) and in Kipuka Kanohina (Ka'u District). Following is a summary of fieldwork activities.

### 1881 Flow

The 1881 Flow is a pahoehoe lava flow that originated from the Northeast rift zone of Mauna Loa. The eruption creating the flow lasted for 9 months, stopping at the outskirts of Hilo. The lava traveled a distance of over 25 miles from point of origin to just short of the ocean. Historic written accounts of the volcanic activity associated with the flow give detailed descriptions of the eruptions, the lava flows and the skylights that formed in association with the lava tubes.

In 1998, survey work began in Emesine Cave, a tube in the 1881 flow located high on the flanks of Mauna Loa. Before the 2000 field season, over six miles of tube had been mapped both mauka (up mountain) and makai (toward the ocean). However, the six miles is not all straight-line distance. There are many cut-arounds and tube mazes within the system making for complex passage configurations.

As is typical with lava tubes, Emesine has multiple entrances and the floral suites within the entrances vary with elevation. This makes for an impressive range and variety of plant associations especially since the 1881 flow originates at almost 11,000 feet and goes nearly to sea level; so far the tube only covers a third of that vertical extent.

Since the 1881 flow is on the wet side of the island, Emesine passages are very drippy. Most of the original mineral crusts and deposits that formed during or after cooling of the tube have been washed away. The ohia trees growing over most of the lava surface send roots that reach into the passages forming veils of roots. These veils are host to delicate plant-insect ecosystems.

Emesine Cave is characterized by floors, walls and ceilings of jet black lava. Occasionally, especially near entrances, the lava floors will be bright orange, deep red or yellow in color. The cave has very well developed



*Kaumana Cave*

gutters, levees, ledges and catwalks throughout. Many of the ledges and catwalks are edged with a fine filigree of crenulated lava, probably a function of the viscosity of the lava and the hot air that moved over the surface of the flow.

Just prior to the 2000 field season, Kevin and Carlene Allred continued survey in Emesine Cave. Kevin, who arrived on the island first in November 1999, did a three-day solo trip to extend the mauka (up mountain) end of the tube. Carlene and their sons Soren and Flint joined the effort later in the month. Their survey work added over two miles to the known length of the system. A large maze area was complete and the main line tube extended for another quarter of a mile up a series of lava falls. Unfortunately, the tube ended there in a complete lava sump (ceiling meets floor).



*Emesine Cave*

The next set of trips, which occurred in December 1999, were blessed with a week of sunny weather. The second crew to work on the Emesine survey was composed of Andrew Dubois, Ali Ratliff, Peter and Ann Bosted, Ashley Chan, Bruce Brewer and Don Coons. They did a lot of clean-up survey finishing off nearly all of the leads left in the makai section of the cave. The terminal end of survey was extended by nearly half a mile past two additional entrances, through the Grim Crawl of Death (a low belly crawl on sharp lava) and into a confusing complex of large passages. The entire area was floored and "dipped" for several feet up the walls in a colorful series of lava patinas ranging from bright red, orange, mustard yellow and even green. Some sections were such a conglomeration of color that the explorers call them kaleidoscope lavas. Also discovered in this

**Hawaiian Terms**  
Mauka - Up Mountain  
Makai - Toward the Ocean

area were some of the longest soda straws noted to date. Several were from 1.6 to 1.9 meters long. In addition the area hosts a large number of Cockscomb (Flower Head, Puu Poo) formations. Many had developed "feathers" up to 6 cm long and "tails" more than half a meter long.

Weather-wise, January proved to be much less cooperative. Continuous rain/drizzle and blinding fog was interspersed with about two hours of quasi-sunny weather - in 15-minute increments. The team, made up of Dave and Elizabeth Bunnell, Pat Kambesis, Russell Connor, Cindy Heazlit, Mark Ohms, Renee Rogers and Don Coons finally gave it up after three days and a thorough soaking of all gear. Additional cleanup of leads and one long trip to the bottom of the cave produced just over a

half mile of survey. The lower end of the maze was delimited and the way on reconnoitered. Much remains to be done on next year's trip. Total length of survey in the cave to date is 9.07 miles.

In addition to Emesine Cave, five other caves in the 1881 flow were worked. One was a quarter mile long complex of crawls with some walking passage located about 6 miles makai of the Emesine Camp. Hopes were high that this tube would prove a route into Emesine from lower elevations and could possibly save us the long hike in from the upper entrances. While this did not prove to be the case, there is still one lead that could yield more passage.

A series of three caves separated by short lava sumps was mapped mauka of Emesine Cave at an elevation of 7500 feet. Just over 1700 feet was surveyed in a very delicate and beautiful series of passages. Secondary mineralization of white crystals was common in many areas with frostings of gypsum and mirabilite rimming many areas of floor. A surface hike done by Ali Ratliff and Andrew Dubois also discovered another entrance near the mauka end of Emesine, just two miles below this area. A vertical drop into a "large tube" was observed just 1000 feet away from the Allred end of survey.

Kaumana Cave is located in the city of Hilo at the makai end of the 1881 flow. The main entrance has been developed into a city park and the lava tube sees lots of visitation. The re-survey of Kaumana was started in 1999 and all previously mapped passages were completed this year. Total surveyed passage currently stands at 1.4 miles. However, there is still much remaining in the mauka direction. The potential exists for Kaumana Cave to be the extreme downflow continuation of Emesine. A point of note, the town of Kaumana directs its floodwaters into one of Kaumana

Cave's entrances located in town. This causes significant flooding within the tube during high rains (from December through May).

A plot of all the known tubes in the 1881 flow, laid out to scale, make for an impressive potential with 11.08 miles of cave documented within the flow to date. Its easy to envision all of these caves as one continuous tube within the 1881 flow. However, gaps between the current surveys are considerably longer than the segments that have been completed. There is a lot of work to be done if we are ever to link them all into one continuous system.

### **Kipuka Kanohina**

Located near South Point on the dry side of the island, the lava tubes within Kipuka Kanohina are quite a contrast to the wet, drippy tubes of the 1881 flow. Originating from the south rift zone of Mauna Loa, this lava flow is several hundred years older. Archeology abounds both on the surface and underground. The ancient Hawaiians used the caves for gathering water and as trade routes. On the surface is evidence of their agricultural practices.

The tubes form a confusing knot of multi-level boreholes and sometimes 3 or 4 paralleling passages. This does not even include the braids, cutarounds, mazes and occasional cross-overs from one parallel or level to the next. The tubes of Kipuka Kanohina are very dry and many of the ceilings, walls and floors are encrusted with white mineral coatings. Since it doesn't rain much on this side of the island, the mineralizations don't get washed away like they do on the east side.

Ohia trees also grow on this side of the island and as in Emesine, the roots extend into the area lava tubes. However, because of an on-going multi-year drought, many of the roots are almost dried out.

So far the caves of Kipuka Kanohina consist of two systems. Kula Kai Caverns (2.48 miles) is a developed section of tube which is owned by Ric Elhard and Rose Herrera. They offer an educational, conservation-minded tour of their cave. Eli's Cave is a large parallel complex, which first came under the surveyor's chain just last year. The Maelstrom, is another tube series that was connected to Eli's at the end of the expedition bringing the total surveyed length of Eli/Maelstrom to 5.8 miles and still going. An additional last day discovery named Poha Cave added 2000 feet of survey in just one trip. No connections were made with the other caves yet, but the mauka end of this cave overlies Kula Kai and the makai end overlies Eli's/Malestrom. Once the tubes are connected (and they certainly will be) this will make for an 8.7-mile system.

Project participants: Mick Sutton, Sue Hagan, Pat Kambesis, Cindy Heazlit, Don Coons, Greg Oelker, Helen Brown, Dave Bunnell, Elizabeth Bunnell, Joyce Hoffmaster, Ric Elhard, and Rose Herrera.

### **Mauna Loa**

Doug and Hazel Medville invited our contingent to join them on some of their survey projects located at some of the loftier elevations of Mauna Loa. Two large caves lie roughly parallel at comparable elevations, but in different flows, one historic and one prehistoric. Both break into multi level maze passages in their mauka ends and come together as unusually large trunk passages in their makai extensions. The shorter of the two at just under half a mile was named Booty and the Beast. The longer with nearly 2 miles of survey was named Big Red. This tube proved to be unusual geologically. It lies very deep within its flow; the lower half mile of survey underlies at least two younger historic flows on the "surface" above. No indication of these overlying flows can be seen from within the cave, which finally dies in a lava sump formed of the original flow material within the cave.

Of biologic significance in Big Red, was the discovery of over 100 individual skeletons of Hawaiian Hoary Bat (*Lasiurus cinereus semotus*) located within the lower half mile of survey in the main passage. Some individuals were mummified with soft body parts complete down to fur. Since only one or two other skeletons have ever been identified in any other single Hawaiian cave this site is one of considerable biological importance. To date, no one has actually seen a live bat in a Hawaiian cave. Just why these Hoary Bats were traveling to the back of Big Red and what they were doing there in the first place are indeed questions of interest.

During one of our final days with the Medvilles, Doug suggested that Joyce Hoffmaster and I map a tube located just off of the Saddle Road (the only road that crosses the island in the middle). Joyce and I spent a pleasant afternoon mapping 800 feet of Strawberry Cave. We stopped our survey at a very low, velcro-ish crawlway. Though it was moving lots of air, neither of us were in the mood to shred skin and clothes.

The work accomplished during the 2000 field season puts only a small dent in what remains to be done on the Big Island of Hawaii. We will be busy for years to come.

### **HSS/CRF Participants:**

Dave Bunnell, Elizabeth Bunnell, Don Coons, Marc Ohms, Rene Rogers, Russell Connor, Mick Sutton, Sue Hagan, Peter Bosted, Ann Bosted, Ric Elhard, Rose Herrera, Cindy Heazlit, Pat Kambesis, Kevin Allred, Carlene Allred, Mike Shambaugh, Kev Belsher, Alice New, Chris Hudson, Julie Hudson. Jonna Elhard, Darryl Reichard, Larry Overton, Ashley Chan, Julie Hudson, Mike Eubank, Gregg Oelker, Helen Brown, Joyce Hoffmaster, Andrew Dubois, Ali Ratliff, and Carl McKinney.

## Hamilton Valley Building Project Supporters

Paul Cannaley , CRF Treasurer

The following people have generously given to the Hamilton Valley Building Project during the last twelve months:

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If I have mistakenly left someone off the list who has contributed within the past 12 months, please email me at [cannaley1@home.com](mailto:cannaley1@home.com) and I will make the correction in the next issue of the newsletter.

## Clear Out Your Closet! and Raise \$\$\$ for the Hamilton Valley Research Station

Elizabeth Winkler

The Hamilton Valley Research Station will soon be operational. However, there is a great deal of equipment that we need to get the station up and running. I've come up with a fund raising project that will clear out our closets, while at the same time raise money for CRF. I want every CRF member to go through their gear and find all the stuff that you no longer use and donate it to CRF. Remember, your donation is tax deductible.

Paul Cannaly has already donated a bunch of vertical gear. I'm clearing out, in particular, the eleventy-thousand [that is southerner for numerous. Ed.] lighting systems. Dave West brought some classic carbide lights. I'd love to see some CRF classics too like a Brucker or Zopf jeans or jacket, an Osborn carbide lamp, or a world famous Lost Creek Pack (hint hint Bill!) or a classic Mammoth Cave photo from our own wonderful photographers, the Bosteds. Any cave paraphernalia will do: gear, books, classic t-shirts, etc.

You can either send the donations to me directly (address below) or give them to anyone who is attending any of the next few expeditions in Kentucky or Missouri.

For part two, we need your help too. Now that you have cleared your closets, refill that yawning space with someone else's old gear! After I have gotten a sufficient collection of junk, err, pre-owned classic cave gear, I'll post descriptions on the net and bring the gear to expeditions where it will be available for sale at very reasonable prices. It is a good opportunity to get cave gear for novice cavers and relatives. During the 4th of July expedition, I set up a "garage sale" in the meeting room and we made \$75.00.

We have also been generously donated a signed galley copy of Jim Borden and Roger Brucker's new book *Beyond Mammoth Cave*. The book will be auctioned off to the highest bidder, and bids will start at \$250. Email me ([winkler\\_elizabeth@colstate.edu](mailto:winkler_elizabeth@colstate.edu)) if you are interested in bidding on this book by Thanksgiving. If you caved during that time, I guarantee you will find it an especially good read.

Elizabeth Grace Winkler  
 Dept. of Language and Literature  
 Columbus State University  
 4225 University Avenue  
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 (706) 568-2054 office

## Books, Books, Books!

Paul Steward

CAVE BOOKS has moved into the twenty first century with the unveiling of its own web page: [www.cavebooks.com](http://www.cavebooks.com)! Pete Lindsley has done a superb job of creating a great web page. Here you can find descriptions, reviews, and excerpts for all your favorite books.

CAVE BOOKS is also making a bigger presence on the web through Amazon and Barnes & Noble. These stores now have complete listings and full descriptions of all CAVE BOOKS offerings. We encourage you to log-on to their web pages and add your comments to the customer reviews.

After months of work the CAVE BOOKS catalog will soon be available. This 48-page catalog featuring books, maps, and Annual Reports will be sent to bookstores, public and college libraries, museums, and National Parks across the country. This has the potential to bring in thousands of dollars for CRF. Every CRF member can help by asking your public library and college or university library to buy CAVE BOOKS books for their collections. You could also ask your local bookstore to stock the books. One good way to convince bookstore owners is to show them a copy of the book. Below is what we're working on now.

***The Life and Death of Floyd Collins by his brother Homer Collins*** as told to John Lehrberger in 1955.

This is a family story of American's most famous cave explorer who was trapped and died in Sand Cave in 1925. That story has been told many times, but never before has the complete life of Floyd Collins been presented. Floyd's younger brother, Homer, tells how Floyd was fascinated with caves from his childhood, of his discovery of the famous Crystal Cave on the home property, and of the rescue attempts from the viewpoint of a brother so devoted that his extraordinary efforts to save Floyd were rewarded by his being removed from the premises while others inexperienced in working in caves carried on the unsuccessful attempt. It is a warm story of a man whose love in life was exploring caves, a man who endured his grim death with dignity and pride in his vocation.

### ***Introduction to Speleology***

by Arthur N. Palmer and Kathleen H. Lavoie

Two noted cave researchers, a geologist and a biologist, present the science of speleology in all its detail, splendor, and excitement. Few experiences are more downright fun than those of exploring caves, and when the further thrills of scientific discovery and research are added to this exotic environment, the result is spectacular. In their very comprehensive, well-illustrated, and totally readable book, Art Palmer and Kathy Lavoie provide an introduction to the science of

speleology that has engaged them most of their adult lives. The book is fascinating and entertaining, but it is also ideal as a textbook for semester-long courses in speleology. This is a must-have book for anyone who has ever been intrigued by the sight of a cave entrance in a limestone bluff and wondered what was inside.

### ***Spooky Stories of Mammoth Cave***

by Colleen O'Connor and Charles Hamin

A compilation of armchair horrors, the kind of scrunch-settling reading in a deep armchair that everyone from the age of three to three hundred loves. The authors start out with "Hellish Names," stories of how the many places in the cave named after Satan and the underworld got their names. Then there are stories about all the people who got lost and some who died in the cave. Just the thing to read before your first visit, because many of these lost souls wandered off from a guided tour. Then the gruesome story of the use of Mammoth Cave as a tuberculosis sanitarium where many patients die is told. The stories go on and on, of the display of corpses, of mummies lost and found, of ghosts and Floyd Collins trapped for thirteen days before he died. For all of this, it is a very fun read. We plan to publish it in 2001.

CAVE BOOKS is a Publications Affiliate of the Cave Research Foundation. See their website:

**[www.cavebooks.com](http://www.cavebooks.com)**

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## Tom Poulson Retirement

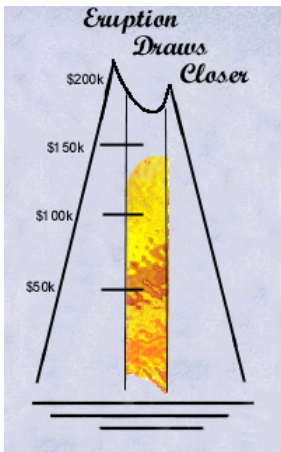
The Cave Research Foundation honors Tom Poulson on the occasion of his retirement for his tireless and inspiring leadership in promoting cave biology research at the highest professional level both within the Cave Research Foundation and in the caving community. A special recognition of his many contributions will be held at the CRF Annual Meeting this fall.

In May, Tom celebrated his retirement from the University of Illinois by hosting the first official use of Hamilton Valley's new main building. He invited former students and several CRF friends to join him in a series of talks and in-cave walks, discussing the highlights of cave biology, past and present. A dinner and humorous 'roasting' of Tom was held in the uncompleted building; participants said the view from the balcony overlooking the valley more than made up for the unfinished interior and lack of other amenities. A sampling of those in attendance include: Beep Hobbs, Jerry Lewis, Tom Aley, Bill Elliott, Jack Freeman, Stan and Kay Sides, Pat and Red Watson. Tom has enticed a distinguished list of people into the deeper realms of cave sciences, and he has been supported in his work by an equally committed group of cavers. He has been a credit to the Cave Research Foundation. We wish he and Liz the best of times in their new Florida home.

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## Lava Beds Research Center Needs Your Help!!

In April 1998, CRF signed a Memorandum of Agreement (MOA) with the National Park Service (NPS) and the Lava Beds Natural History Association (NHA) to raise funds to build a small research facility on NPS property at Lava Beds. It states, briefly, that CRF will be responsible for design, fund raising, and construction. The NPS will assist with the design, handle environmental clearances, permits, and inspections, grade the site, install utility connections, and provide general support during all phases of the project. The NHA will be responsible for collection and disbursement of the funds. The total cost of the 1,700 sq.ft. building is estimated to be \$200,000. As of June 2000, \$140,000 has been raised.



However, your support is needed to raise the remaining amount by the April 2001 deadline provided in the MOA. While many CRF members may never use the facility, please consider sending a donation; this way CRF

can fulfill its commitment in the MOA, maintaining its reputation, and support continued research at Lava Beds. Remember, many persons not using the Hamilton Valley facilities made donations. Contributions can be sent to:

Lava Beds Natural History Association  
 Attn: Kim Kirby  
 Box 867  
 Tulelake, CA 96134

### Why the Need For A Research Center?

Lava Beds National Monument is charged with managing and protecting its resources. Without adequate knowledge this mandate is difficult to fulfill. Only thirty of the 410 known caves have been thoroughly documented. Many contain rare features, plants, animals, or archeological materials, including pictographs. Given the increase in visitation each year, some contents may be lost to theft or vandalism before they have been documented. Similar gaps in knowledge exist in history, archeology, botany, and wildlife biology.

### Lack of Facilities Hinders Progress

The monument staff is committed to other duties, particularly visitor services and resource management. They often lack the knowledge required to conduct specialized scientific research. For some years scientists from academia and industry, assisted by eager volunteers, have been helping to fill this gap. However,

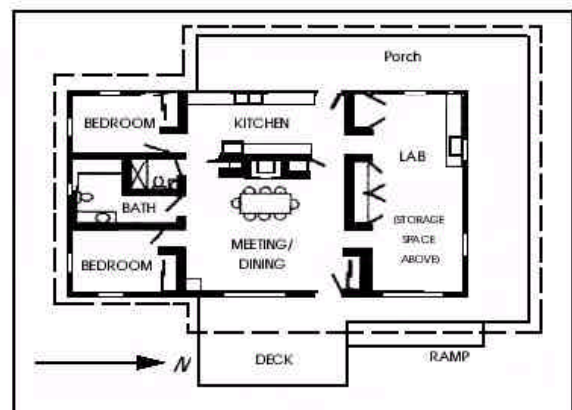
their efforts have been hampered by the lack of on-site work space and housing. Recently, two research projects were canceled due to lack of adequate support facilities.

Many of the principal investigators are from the academic community, either students or professors, who must schedule their field time around class and teaching obligations. Others are volunteers who take time from their regular jobs. Furthermore, their funding is limited and seldom covers more than equipment and supplies. Time spent driving and the expense of motels and restaurants sharply reduce the time actually devoted to research. By providing sleeping and cooking facilities as well as a research lab and a meeting room within the monument, the Lava Beds Research Center will draw these researchers back to the monument.

### More About the Research Center

The Research Center will be a simple, efficient, and versatile facility that provides work and storage space, and housing for visiting researchers. It will be available to anyone whose work will add to the understanding, preservation, and protection of this unique ecosystem. Its versatile design will allow it to double as a small conference center where ideas and data can be exchanged, and also as a classroom for visiting students.

The Research Center has been designed for minimal environmental impact. It is a modest facility, unobtrusive from the outside yet roomy and functional on the inside. The site previously held two portable buildings used as office and research space. These buildings were razed in 1994. Since then, researchers have had to make do with the campground, which lacks lighting and showers, or with seasonal ranger housing, which has limited availability.



*Proposed Floor Plan - Lava Beds Research Center*

The new lab, equipped with large work tables, will provide space for spreading out and drafting maps, charts and other documents. Biologists, geologists, and others will be able to prepare and preserve specimens at the large sink and work counter. The specimens can then be transported to more fully equipped labs for detailed

analysis. Ample storage will allow scientists to leave equipment and supplies on-site, eliminating the need to repeatedly transport bulky materials.

The Research Center will provide two small bedrooms, sleeping three people each. Additional sleeping accommodations will be provided by fold out beds in the meeting area. In spring, summer, and fall, the deck will provide still more sleeping space.

Additional information is available at: [www.pwpconsult.com/lbrc.site](http://www.pwpconsult.com/lbrc.site)

## Book Review

Sue Hagan

*Cavedweller*, by Dorothy Allison (Dutton, 1998)

*Blind Descent*, by Nevada Barr (G. P. Putnam's Sons, 1998)

*Emergence*, by Marian McConnell (Cave Books, 1999).

Several years ago, I lamented the scarcity of quality cave fiction that meets the dual standards of good writing and accurate depiction of caving and caves. That situation has been changing, as these three novels attest. Allison and Barr are experienced novelists who obviously made the effort to develop some familiarity with caving before using it as a setting in their works. McConnell is a caver, and *Emergence* is her first novel. It is her book that best engages the attention of the caving community.

I'll begin with *Cavedweller*. Of the three, this book has the least to do with caving. From a purely subjective literary standpoint, it is the best written, especially the non-caving aspects. The story begins with displaced ten-year old Cissy and her disconnected mother moving from glamorously exciting California to rural Bible-thumping Georgia. It ends with Cissy heading back west to start college, with mother and daughter now each wiser and emotionally reunited even as they go their separate ways. Cissy's coming of age in no small part is due to the relatively minor episodes concerning her underground adventures. A cave entrapment leads Cissy into finding her inner self and becoming a heroine. This is not the best part of the book, the accident is too contrived and the writing contains some speleological errors. The author can be credited for having learned at least enough about caving to have incorporated the cartography aspect. Nice touch, especially for the reader who is a caver.

Nevada Barr is a noted mystery writer. *Blind Descent* follows Anna Pigeon (a character from other Barr books) as she does her dangerous detective work in Lechuguilla Cave. Barr's use of a real cave for an unreal and unlikely scenario was fraught with potential for making a book that would be so speleologically implausible as to be unenjoyable by a caver. However,

Barr did her preparation well; she sought highly experienced cavers to guide her into Lechuguilla and to teach her some basic caving. One has to really nit-pick to find fault with the speleological aspects. As a result, even experienced cavers can get wrapped into the adventure of the book. Though the dialogue, plot development, psychological tension and other aspects of writing talent are not as stunning as in Allison's work, Barr gives us a well-conceived detective story much more focused on the caving theme and more technically accurate.

*Emergence* is almost pure caving, start to finish, and is targeted to the caver. Six women and a young girl get trapped underground and eventually perform their own self-rescue. McConnell does her own illustrations for the book. McConnell is an experienced caver and a member of the NSS, so not surprisingly the writing and the illustrations depict cavers accurately. What McConnell lacks in experience as a writer, she makes up for with her experience as a caver.

However, twice my caving sensibilities were grossly offended to the point that I seriously questioned if I could favorably review the book. The first offense involves environmental ethics and the second is an issue of caving safety. Since Cave Books, an arm of CRF, published *Emergence*, these concerns are especially significant.

The first offense occurs when a minor character needlessly kills a copperhead snake at the cave entrance: "Max hated poisonous snakes. He didn't care if it wasn't environmentally correct." In detail, the author describes the lethal knifing of the writhing snake, the skinning of the carcass, and, if all that wasn't enough, there is an illustration of the event. If we believe in 'Kill Nothing But Time', then why not extend this policy to snakes? If the story had included the killing of a bat, cavers would have howled in rage.

Was the snake killing necessary? The author hints at a justification: the snake's abode is on a ledge where people sometimes gather to watch bats. However, the killing of the snake had no connection to the rest of the plot. It could easily have been omitted. But if the author wanted for realism's sake to include the occasional danger of snakes in entraceways and the need for caution, why did she make a point of presenting this in such a non-politically correct manner?

The other major qualm I have with *Emergence* is the fictitious ending where the trapped women escape by diving into a flooding sump—where they never dived previously in tame water conditions,—and popping out into daylight on the other end, victorious and unharmed. This surely is not a caving practice one would want to suggest is in any way safe or sane; better to wait rescue in such a circumstance. In *Emergence*, if the women had waited it might have been days before the men would have rescued them. Do I detect a need for female braggadocio leading the author into this mad moment of sump-diving implausibility in an otherwise quite credible caving account?

So there you have it. Three works of caving fiction. Three female authors of varying level of caving knowledge and writing skill. Take your pick of any or all and you will probably find pleasure. But be forewarned, reading can also be an unsettling experience especially when it pertains to the underground.

### **Special Thanksgiving Mammoth Expedition**

Jim Borden

The Mammoth Cave CRF Expedition for Thanksgiving promises a return to the traditions of years past. As a follow-up to the October Hamilton Valley CRF open house for the new Headquarters, we will be having an informal celebration for those who are unable to attend. We plan on a celebration feast and an evening program, in addition to the large amount of caving planned throughout Mammoth Cave (including trips to the Roppel section). The new book by Borden and Brucker, *Beyond Mammoth Cave*, will be available and the authors plan on having copies on hand for sale. It is already turning out to be a large crowd, so if you wish to attend, get your name in early as space will be limited.

I will be the Expedition Leader and you can contact me by email at [jimborden@attglobal.net](mailto:jimborden@attglobal.net) or by phone at 914-255-4663.

## **Congratulations!**

**Amanda Clark  
&  
Roger Mortimer**



**They were Married on July 29, 2000  
Fresno, California**

## **Regional Expedition Reports**

### **Sequoia and Kings Canyon, California**

#### **Redwood Canyon Cartography October, 1998 - November, 1999**

Peter Bosted

There have been nine survey expeditions to Redwood Canyon between Oct. 1998 and Oct. 1999. There were 22 survey trips into Lilburn Cave, netting a total of about 3400' of new passage in 340 stations, and 800' of re-survey in 80 stations. Lilburn is now about 17.2 miles long.

The largest portion of new survey (1400 feet) was in the Southern Comfort area, first found in late 1997. Pushing through some tight crawls in late 1998 led to a series of larger rooms, which were pushed in 1999 to the top of an impressive pit. A rappel to the water filled bottom revealed that this is Slash-down dome, the southern-most point in the cave, only reachable from the

bottom when water levels are extremely low. A lead heading south from the top of the pit will require a bolt climb to access. Several side passages were also surveyed, including one that connects to the Mousetrack area. Also in the southern end of the cave, low water levels have permitted easier access to the Thanksgiving Hall area, where over 700 feet have been surveyed and several good leads remain heading away from known cave. The third biggest area of activity was the Schreiber Complex and Clay Palace, where the availability of newly completed quads revealed several overlooked leads. Most of the re-surveys were done to improve on the originals sketches, but three were accidental, due to the paucity of permanent station markers and the extreme complexity of the cave.

The map of May's cave had been considered finished except for one small lead, which on a quick inspection trip in February led to a substantial new section. Survey marks indicated that at least part of this was known to the 1970 survey project led by Ellis Hedlund. A couple of rather tight squeezes are involved, but near the bottom of the cave, the passage can get as large as 20 feet tall and 5

feet wide. A small stream flows into a tight crawl that could be enlarged by removing rocks when the water flow is sufficiently low. This might lead to a connection with Lilburn, about 100 feet away. The new area was mapped in four survey trips for 680 feet in 81 stations, more than doubling the length of the known cave. Several leads remain.

Some progress was made on updating existing Lilburn quads with the new 1999 surveys, but not everything is finished yet. Progress was made on the F and G series quads. There are about seven quads (out of 80 total) that have no draft at all, about ten that need updating, and about sixty that are pretty much complete.

I have made computer files for Lilburn, Cedar, and Mays caves in COMPASS format, all tied with surface surveys to A0 (Meyer Entrance). Mike Yokum is in the process of incorporating this in a GIS system. It remains to make a file for Big Springs. The surface survey is available, but I do not yet have the dive survey data from Bill Farr.

For the year 2000, there are still many quads to be checked, and several leads to be pushed. Several of these involve aid climbing. I would like to increase the number of permanent station markers in the cave to aid in future research efforts, and to minimize accidental re-surveys. This effort could be profitably combined with quad checking.

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## **Cave Rescue Preparedness Exercises October 13-14, 1999**

Roger Mortimer and John Tinsley

Six rangers from Sequoia and Kings Canyon National Parks (SEKI), four joint-venturers of the Cave Research Foundation (CRF), and SEKI's Cave Management Specialist jointly conducted successful cave rescue preparedness exercises at Lilburn Cave. The objective of the 2-day event was to introduce key NPS personnel to the cave environment and to make them aware of the kinds of problems that they could anticipate in the event of a search and rescue in a cave in their district. As Lilburn Cave is SEKI's largest and most complex cave, the experience predictably proved to be a sobering one for all hands. Tentative plans for future exercises were discussed, as this exercise was merely a beginning.

The first day, after a quick tour of the karst features in the Mays Creek tributary valley located east of the Lilburn Field Station, we experienced the traditional Lilburn Cave tour as it formerly existed from about 1950 until the National Speleological Society's 1966 Sequoia NSS convention. Entering via the Lilburn entrance, we divided into two groups for convenience and proceeded to the Lake Room via the Double Skungy Chimneys, the Junction Room, and the Corkscrew. This route is

presumably the most likely evacuation route from the bottom of the cave, as it is relatively non-technical and the passages are larger than most of the alternative routes. Everyone was impressed with the complexity of the cave, and with the myriad problems that would have to be solved by the rescue personnel in the course of conducting a rescue and evacuation by litter. We also proceeded through the Curl Passage to the Hexadendron Room (the cave's largest air-filled room) and examined the architecture and connectivity among parts of the central portion of Lilburn Cave.

The second day, we again split into two groups. We invested the morning examining in some detail the route from the Junction Room to the Lilburn Entrance, and considered what approaches would be the best to employ during an actual evacuation. It was a solid exercise, enthusiastically pursued, with all hands contributing thoughts and perspective concerning the most efficient ways to conduct an evacuation along this relatively straightforward 400-foot-long section of cave. The morning concluded with Roger Mortimer demonstrating his SKED evacuation litter with its several bells and whistles. Then we cleaned up the cabin, stored the rescue cache's gear, and hiked out of the canyon, completing the exodus by about 5 PM.

NPS Participants were Joel Despain – Cave Management Specialist, SEKI; Jeff Monroe – Asst. Subdistrict Ranger, Grant Grove; Steve Klump – Kern Subdistrict, (Backcountry); Mike Cole – Mineral King Subdistrict; Bud Walsh – Ash Mountain; Mark Hehl – Ash Mountain; John Kamencik - Kern Subdistrict, (Backcountry). CRF Participants were Roger Mortimer, M.D., Bill Frantz, Howard Hurtt, and John Tinsley

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## **Mineral King Area 1999 Activities**

Roger Mortimer

In 1999, CRF personnel conducted three expeditions to Mineral King. As the project has matured, we have spent less time in the White Chief Bowl and more time exploring karst elsewhere in the district. This year, no significant hydrologic studies were performed, but we spent more time in pure exploration. We also began to implement the inventory tool developed by Carol Vesely and others to document the geology and biology of Mineral King caves. Information gathered is linked to survey stations to quantify findings in a geographic information systems (GIS) format.

Jeff Cheraz's expedition in August focused on exploration of Mineral King valley. We explored the ravines on the east side of the valley as they crossed the two bands of marble that crop out there. Going up Cascade Creek, we found some areas where water emanated from the marble, but found nothing that was

humanly passable. The next day, we surveyed Little Breeze Cave, located high up on the east side of the valley.

Over the Labor Day weekend, we returned to White Chief to continue our survey there. Bill Farr, Paul Nelson, and Jeff Cheraz donned wet suits to survey the breathing space in Resurgence "cave" into the lower stream passage of White Chief Cave. The rest of us stayed dry by doing re-survey in the historic entrance and mystic pools of the cave. Peter Bosted led a group that cleaned up high leads in the upper level passages. Our last day there, we did survey instruction and photography in Seldom Seen Cave, which was now completely devoid of snow. The White Chief survey now stands at 1.2 kilometers. A preliminary draft of the cave map is completed, but much clean-up work remains.

The Columbus Day weekend expedition split time between White Chief and Timber Gap. On Saturday, five of us hiked to White Chief along with Ranger Mike Coles to survey the lower stream passage. Our goal was to link to the cairn left at the sump. The cold made us turn back after we stopped at the base of a pit in the entrance doline. This turned out to be about 30 feet from the cairn, down a lead that we had left on the prior survey. The next day, Bill Frantz and Kirk Hastings ridge-walked the Timber Gap marble while Carol Vesely, Jeff Cheraz, and Erin Lynch continued the survey in Jordan Cave.

In addition, two joint venturers, Roger Mortimer and Jeff Cheraz, did a non-CRF trip south of Mineral King into the Golden Trout Wilderness. They found no caves, but did find evidence of karst at Upper Bullfrog Lake. The return hike allowed some exploration along the main stream of the valley. They found several minor resurgences, but no passable cave.

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## Lilburn Cave

### Memorial Day Weekend 2000 Expedition

Joel Despain

**Participants:** Joel Despain, John Tinsley, Peter Bosted, Ann Bosted, Kate Lysaght, , Roger Mortimer, Amanda Clark, Erin Lynch, Chris Densham, Ana Romero, Jed Mossenfelder, Art Fortini, Brad Hacker, Mary Wenzel, Brent Ort, Ken Urata, Bill Frantz, Carol Vesely, Mark Scott, and Kristen Ankiewicz

On Friday morning, Tinsley and Ort hiked the 4.9 miles into Redwood Canyon to the field cabin. They spent the afternoon starting the water system and partially completing the annual sinkhole check and reconnoitering of the Redwood Canyon karst. Other cavers hiked in Friday night and began to trickle into the cabin by 1 am or hiked in on Saturday morning. By 10 am Saturday, 17 cavers had assembled above Lilburn

Cave. One of them was a special guest of the Bosteds, Ken Urata a preeminent Japanese karst geologist.

Urata, Tinsley, and Ann Bosted took a 6-hour entrance to entrance geologic tour of the cave. Mossenfelder and Ort headed to the south end to complete a climb. Mossenfelder was unable to finish the climb due to a lack of gear that had accidentally been taken from the area by other cavers. Mossenfelder and Ort exited the cave by late afternoon. Peter Bosted, Hacker, Denshaw and Lynch stayed in the cave until dark checking several leads in the Yellow Floored Domes area. They surveyed a cut around and two small, newly discovered passages. Lysaght, Fortini and Despain checked leads near the Big Yellow Hungus Thing in the north end of the cave. Small areas of new passage were found and surveyed. They exited early due to light problems. Frantz, Mortimer and Romero completed a long entrance to entrance trip while marking stations and the main travel routes with plastic poker chips. Tinsley and Clark spent large portions of the day repairing damage to the cabin's wood shingle exterior caused by woodpeckers.

Sunday was another beautiful day in Redwood Canyon. The cavers slowly rose and began to prepare for another day of caving. Mossenfelder, along with recently arrived Scott and Ankiewicz, returned to complete the climb from the day before, though a careful look at the quad maps revealed that the climb would probably access known passage. They also checked other leads in the area.

Carol Vesely, who arrived early on Sunday, took Lynch and Denshaw to the Attic-Attic to look at a number of small leads. They completed a few small areas of survey. Peter Bosted led Ort and Urata to Pandora's Passage. They also completed minor survey in three areas and sketched more than a dozen cross sections. Mortimer, Frantz and Fortini completed 25 stations of re-survey near the Canopy-Jefferson Passage. Mortimer and Clark completed some trail maintenance on the trail to the historic entrance. All of the newly fallen trees have been moved off the trail. Lysaght and Despain stayed on the surface to flag a drop-spot in the dry creek bed for metal storage boxes that are being helicoptered into the canyon by the Park Service. They also looked at an interesting dig near the current sink point of the stream, half-a-mile north of Lilburn.

In early afternoon, Ann Bosted, Romero and Clark joined them for a ridgewalking venture above the south end of the cave. The breezy Mud Heaven passage in the southern part of Lilburn was in their mind as they hiked over boulders and downed logs. One small hole with air was found. After a few minutes they accessed a narrow, shallow pit. More stabilizing late that afternoon revealed two small rooms and holes with air.

Lynch and Denshaw wanted more after exiting Lilburn, and so in the early evening they returned to the dig site near the sinking stream. Unknown to us, however, the sink point had moved about 200 meters downstream that afternoon. But at the new sink point

they found a very promising new dig. Tinsley spent many more hours repairing woodpecker damage.

On Monday morning, those not departing returned to the digs above and near Mud Heaven and at the sink point. Significant progress was made on both digs. Above Mud Heaven, Urata broke through the floor of one of the small rooms found the day before and was able to move down more than six feet. Subsequent digging allowed the cavers to see down several more feet into small, breakdown-choked, but continuing passage. A surface surveyed completed on Monday revealed that the dig is 210 feet south of Mud Heaven. If connected into Lilburn, the new entrance area might be the most southerly portion of the cave. North of Lilburn, the dig at the sink point is into a relatively large passage choked with rocks. There are well-established walls in the dig including a bedrock marble wall and ceiling. Though significant obstacles remain to accessing going passage, these digs will see more activity this summer.

All of the cavers had left the Canyon by 6 pm on Monday. The Memorial Day expedition produced more than 700 feet of new passage surveys, 350 feet of resurvey, and a surface survey to the southerly dig.

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## Lilburn Cave June 2000 Expedition Report

Paul Nelson

The expedition began with a pre-trip for visiting Australian cavers Jennifer and Gary Whitby. Paul Nelson and the Whitbys hiked into Redwood Canyon on the evening on June 13. The next day, led by Paul



*Jenny Whitby at Lake Room in Lilburn Cave*

Nelson, the group went in Meyer entrance on a entrance-to-entrance tour and survey trip near the South Seas. We followed the traditional route to the Hex room, and did the required side trip to the White Rapids; which had typical flow and was very nice. From Hex room we went via the Curl Passage to Lake Room, taking some pictures of Jenny by the lake, then followed flagged route to the South Seas Junction. (This is the point where you can exit the cave or continue to the south end of the cave.) We then began the trek toward the South Seas.

Upon reaching the Flush Room, the passage to the Z-Room was filled with water. It was surprising to see that the cave was still flushing this late in the year. This prevented doing survey at either South Seas or above Thanksgiving Hall. We exited the Lilburn Entrance, stopping at the Giant Cave Pearl and the White Pillar. The group spent 8 hours in the cave and the Whitbys enjoyed visiting one of the best marble caves in California.

The June expedition was held on June 17-18 and had the following attendees: Paul Nelson (Expedition Leader), Joel Despain, John Tinsley, Bill Farr, Erin Lynch, Herman Herz, Chris Phoenix, Roger Mortimer, Merrilee Proffit, and Bruce White.

On June 16, the Park Service transported two storage boxes by helicopter and lowered them into a dry stream bed. The boxes needed to be moved to the field station. All attendees assisted in hauling bear boxes from the drop site, in the dry river bed, to behind the cabin. The boxes are for use during expeditions for food and dish storage to prevent bears and other animals from getting human food. The boxes must then be cleared and cleaned at the end of the trip.

John Tinsely, along with Herman Herz and Chris Phoenix, went to the Z room via the old entrance and the elevator. The area that was full of water on June 14, had now drained and was 3 feet above Bosted's ledge in the Z room, and rose 1 foot in 15 minutes. The cave is still flushing. No sediment interface was exposed. They spent five hours in the cave.

Paul Nelson, Roger Mortimer, and Bruce White continued the Jefferson Passage resurvey and tagging, starting from BXJ22 and re-surveyed along the low bypass of the higher straddle route and ended at BXJ42. The route was tagged with red poker chips. Afterward, we went to view the Jefferson Memorial and noted some new loose dirt. As part of the cleaning effort, a cleaning station and boots off for this area should be established. On the way out, Nelson moved some flagging

*Photo: Paul Nelson*



*Paul Nelson & Gary Whitby at Anastamoses Room in Lilburn Cave.*

*Photo: Paul Nelson*

tape at the White Pillar and noticed calcite has formed under the tape. The tape should be either removed or rerouted. The group spent eight hours in the cave.

Bill Farr, Merilee Proffit, Erin Lynch, and Joel Despain surveyed 15 stations in four-and-a-half hours in Mays Cave at a lead from the Lost & Found Room but it didn't go. Joel check leads in the South part of the cave which didn't go. The best remaining lead is the stream passage.

The cavers that exited the caves with remaining daylight decided to do some digging at the South Dig. Bill Farr, Merrilee Proffit, Joel Despain, Erin Lynch, and Chris Phoenix spent two hours moving a lot of dirt in a passage that has blowing air!

Being only a two day weekend, most cavers proceeded to hike out of the canyon. However, Joel Despain, Erin Lynch, and Merrilee Proffit removed dirt from a promising dig above Redwood Creek. Paul Nelson and John Tinsely began an effort trim branches that are causing shadows during the middle of the day on the solar panels that exist 150 feet up a tree. The charging current drops significantly around 11:30 in the morning. Due to lack of proper ascending equipment, the effort was put on hold until the next trip.

While not much new survey was completed, probably due to Peter Bosted's absence, a lot of new cave search and study was performed over the weekend.

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## Lilburn Cave July 4<sup>th</sup>, 2000 Expedition Report

John Tinsley

**Participants:** John Tinsley (Expedition Leader), Paul Nelson, Jeff Cheraz, Joel Despain, Kate Lysaght, Greg Stock, Christopher Phoenix, Howard Hurtt, Lynne Jesaitis, Charlie Hotz, Amanda Clark, Damian Grindley, Lisa Tesler, and Bill Farr.

The July 4th, 2000, CRF expedition to Lilburn Cave and the Redwood Canyon karst took place over July 1-4 (Saturday-Tuesday). Some 15 joint venturers attended the expedition, and work was conducted in several venues, including pursuing two digs to apparent termination, conducting an annual sinkhole reconnaissance of the surface karst of Redwood Canyon, trimming branches of a huge white fir to un-shade the photovoltaic solar collectors, and a reconnaissance SCUBA dive of the Upstream Rise.



*Moving one of the bear boxes into place behind the field station. Left to right: Bill Farr, Bruce White, Merrile Proffit, Herman Herz Roger Mortimer, and Erin Lynch*

Several parties pursued two permitted exploratory digs, one in Redwood Creek and one in Pebble Pile Creek, located slightly north and south respectively of the present mapped extent of Lilburn Cave. Both were blowing air. One was pushed to a narrow crack that will be impenetrable; the other requires additional measures to deal with large boulders possessed of varying degrees of instability.

John Tinsley and Greg Stock conducted a surface reconnaissance of the sinkholes located in the mantled karst north of the mapped extent of Lilburn Cave. Owing



*Moving the other bear box into place. Left to right: Joel Despain, John Tinsley, and Chris Phoenix. Photos: Paul Nelson*

to the light winter, there were only few minor changes noted since last year's reconnaissance. It was Greg's initial exposure to that part of the karst, so time was expended to explore the deeper portions of the major sinkhole complexes that mark the contact between the marble of the Redwood Mountain roof pendant and the Big Baldy granite along the eastern side of the karst.

Jeff Cheraz did yeoman service by ascending up the 180 feet high white fir and trimming more than a dozen limbs that had grown to the point that they were shadowing our solar collectors (130 feet off the ground) that recharge our batteries that power our field station and radio. Of the prime 4 hours of nearly perpendicularly incident sunlight when some 80 per cent of the charging occurs, we were in

shadow for 60 per cent of that time. That situation has been mitigated, thanks to Jeff.

Led by Paul Nelson, with Damion Grindley and Park Ranger Laura Wilvert, the group went to explore new leads in the 2 by 2 complex. It was also an opportunity to introduce the ranger to Lilburn Cave, and show her some on the sights and complexity of the cave. The group located some possible leads and corrected errors on the existing quad map.

Bill Farr, assisted by numerous sherpas, conducted a reconnaissance dive of the Upstream Rise, wherein the cave stream first appears in Lilburn Cave. Bill unburied about 200 feet of dive line (of more than 1000 feet of dive line laid last year). Diving efforts will continue during the months of August and September in an effort to enable additional push dives late in the year when water levels are at minimums and visibility tends to be at maximums.

While no survey was added to the cave on this expedition, due to Peter Bosteds absence, valuable surface work was completed. The problem with the shadows on solar panels was mitigated. And Bill prepared for future dive trip. It was a productive weekend.

On Tuesday, everyone hiked out of Redwood Canyon and headed home.

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## Lava Beds, California

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### Highlights of 1999 at Lava Beds

Janet M. Sowers

Highlights of the year include the continuation of basic cave documentation (survey, reconnaissance inventory, installing entrance markers, entrance GPS readings), ice level monitoring, gating another cave entrance, and the first public showing of our virtual reality cave tour of Valentine Cave. As of mid-October, we fielded 15 expeditions in 1999 totaling 948 person-hours in the field. We also have spent a great deal of time on the fund raising drive for the Lava Beds Research Center. We held 6 meetings of the Lava Beds Research Center Campaign Committee and raised about \$65,000 as of late October 1999. About 948 volunteer hours were expended in the field; 120 volunteer hours were invested in constructing the gates at home; Mike Sims spent 60 hours drafting cave maps. Hours for others including travel to and from Lava Beds are not reported.

#### **Cave Survey, Inventory, and GPS Location**

We have continued efforts in the area of basic cave documentation—cave location, survey and cartography, and inventory. Bill Devereaux continues to lead the cave location effort, working with monument staff to obtain high-precision cave locations with the monument's GPS system. He has also been installing brass markers at the cave entrances that serve as our GPS reference points as well as identify the cave by name and by number. This past year we completed setting markers and taking GPS readings for all the caves in the Elmer's Trench system.

Cave survey has continued at a somewhat faster rate this year primarily due to the efforts of Cindy Heazlit and dedicated survey crews that don't mind shredding their coveralls in spikey lava crawlways. In 1999, we completed the survey of fifteen caves, for a total of 1080 meters. Cindy Heazlit and Robert Mudry have put all the survey data they collected into Compass and have transferred some of that data on disk to Kelly Fuhrman, the Lava Beds Cave Specialist. Kelly was delighted with this. He will be exporting the data into the Lava Beds GIS. Kelly's goal is a GIS layer of subsurface features that can be viewed with any above ground layer.

We conducted complete resource inventories of a complex of three caves: Balcony, Boulevard, and Shark's Mouth. The inventories follow our 1991 protocol and include and survey of cave biology, geology, hydrology, cultural resources, paleontology, visitor impact, and management recommendations.

#### **Monitoring**

We continued with long-term monitoring of ice levels in the ice caves, and winter bat population counts. Bill Devereaux has led the ice level recording effort, recording ice levels in six caves twice a year at the time of their expected minimum and maximum ice levels.

#### **Gating Project**

The cave-gating project, headed by John Blum, Mike Sims, and Pete Gerhart, is being conducted on specific caves of concern at the request of the Monument. Last year, a gate was installed at the lower entrance to Post Office Cave. This year a new gate was constructed and installed in Crystal Ice Cave to replace the old gate. The Crystal gate was built at home in the shop and six trips to Lava Beds were made in construction of the gate. John Blum also repaired the gate on Post Office, which was damaged by vandals. A gate on Gemini Cave will be constructed in 2000.

#### **Virtual Reality Tour**

Last year, Peri and Bill Frantz conducted an experimental photography session at Valentine Cave to begin developing the techniques needed for constructing a virtual reality (VR) tour of the cave. They shot pictures from five locations in the cave, taking 18 pictures covering 360 degrees at each location. In early 1999, they shot additional pictures, and by the spring were able to put together their first virtual reality tour of Valentine Cave.

The VR simulation is currently being shown at the Oakland Museum of California in the new Underground Worlds exhibit. This exhibit, showcasing caves of California, was put together by CRF member and museum curator, Christopher Richard.

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## Guadalupes, New Mexico Region

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### Lincoln National Forest Capitan Peak Study Area

by Dick Venters,  
LNF-CPSA Project Coordinator

In 1991, CRF instigated the Lincoln National Forest/Capitan Peak Study Area project (LNF-CPSA). The project began as a field mapping expedition to locate karst features within the Lincoln National Forest, Capitan Peak area of New Mexico. To date, field data collected within a 15 square mile area has yielded a multitude of diverse types of geologic/structural and bio-environmental features. LNF-CPSA is now in its second phase which involves an in-depth investigation of the structural geology, lithology and paleo-karst formation within the study area. A question of particular interest is

how the association and diversification of paleo-environments formed many diverse bio-environments within the known caves of the study area. Though the area has seen surface geologic mapping on a large scale, no extensive structural geologic work is known to have been conducted. CRF hopes to improve on this and to determine the structural significance of cave formation and paleo-karst features and to determine how these relate to the area cave systems.

The 1999 October CRF-LNF-CPSA expedition was an excellent, educational and new experience. The weather was excellent; good for cave digging/hunting and the caver-volunteers made this project one to remember.

As coordinator, please accept our thanks to all of the LNF-CPSA people who made this expedition such a success. Thank you for your friendship, understanding, camaraderie and the supreme-effort you all put into "our" project. Without these generous qualities, there would not be a CRF-LNF-CPSA Project.

Following is a summary of the field work conducted in April and October of 1999.

### **LNF-CPSA Expedition**

#### **April 17th through April 22nd, 1999**

Attendees for the project were: Dick Venters, David Sherrow, Lloyd Swartz, John Corcoran III, Dorothy Corcoran, Randy Cabeen, Marty Cabeen, Dennis Worthington, Jeffery Worthington, John McLean, Rick Lytle. Total volunteer hours expended on the project were: 398.

April 17<sup>th</sup> The dig crew (all attendees) went to Doc's Gastropod Cave dig on Baca Ridge. After a preliminary excursion into the dig, ideas were discussed as to our next plan-of-attack. The dig entrance was blowing cool-moist air at about 6 mph. The dig crew cleaned up some debris that had fallen into the entrance and the dig was continued until late that afternoon. The total depth from the entrance to the dig area is now 22 feet.

April 18<sup>th</sup> After a restful nights sleep, our dig crew went to Dick's Blowfly Cave (DBF). After a preliminary check within the cave and dig area, the crew got together to re-assess the dig, it's potential, and the direction of the proposed cave passage. It was decided to continue the dig into the North-West wall area, where most of the good air seems to be blowing. This area also has the easiest digging potential; mostly loose gravely dirt (soil), without large boulders. The soil is slightly moist, and rock debris is fairly rounded. The passage with this type of soil constitution may possibly have been a flood wash-in type of debris flow from the surface and could have covered the cave passage we are looking for. The dig continued until late in the afternoon.

April 19<sup>th</sup> Our crew returned to the DBF dig site. Most of the debris being removed this time seemed to be in a multi-layered, humic, light brown calciferous type of

soil with minimal (large) rock debris. The dig is following the same North-West trend toward and central to the main ridge. The dig continued until late in the evening. Total dig depth: 44 feet.

April 20<sup>th</sup> Dig crew was dispatched to Doc' Gastropod Cave dig. The dig is continuing through calcareous-boulder debris, some breccia and following the path of "good" air. Total depth/length: 33 feet.

April 21<sup>st</sup> Break Day! Some of the crew wanted to go to Serpentine Root Cave for a tour and picture taking expedition. After lunch, we decided to do some ridge walking and surface geologic survey work on the Hydrothermal Hill (HT) and 3-paleo-sink ranch (3PSR) area near the camp.

While searching for marker beds in a canyon between HT Hill and 3PSR, we located an excellent fossil bed (assemblage) within the San Andres FM. John Corcoran III and Dick Venters completed a photographic record, Fig.1, of some of the best fossils and lithologic layering in the limestone within this area. This area was GPS'ed for future reference.

April 22<sup>nd</sup> "Short Day", we returned to the HT Hill / 3PSR fossil area for more paleo-study. We followed the marker bed of fossils to the N until we lost it in the Capitan Granite float. (This marker bed was also noted to the south of the L57 forest road previously.) (April'93)

April 23<sup>rd</sup> Broke camp and returned home.

### **CRF-LNF-CPSA Project Area Expedition**

#### **October 9th through 15th, 1999**

Attendees for the project were: Dick Venters, David Sherrow, Dennis Worthington, Jeffery Worthington, John McLean, Lloyd Swartz, John Corcoran III, Dorothy Corcoran. Total volunteer hours expended on the project were 384.

October 9<sup>th</sup> Dig crew (all attendees) were dispatched to Dick's Blowfly (DBF) cave dig. Dig is continuing in moist-humic soil toward the NNW center of the ridge. Cool-moist air (approximately 3 MPH) continues to come out of the entrance. Dig continued until evening.

October 10<sup>th</sup> Dig crew continued at DBF dig. Approximately mid-afternoon, the crew broke through, into what seems to be the lower part of a boulder-breakdown-room (dome room). The room contains very large breakdown boulders blocking the main passage. The air movement, through the breakdown, seems to have increased at this point.

After a bit of discussion and summarizing this new situation, we decided it would require a larger crew size than what we have now, to remove the larger boulders from the passage. Being close to the pack-up time, we decided to return to camp for more in-depth discussion on this situation.

October 11<sup>th</sup> Our dig crew was dispatched to Doc's Gastropod Cave dig. Digging continued in an area of highly brecciated limestone and passage seemed to

continue to the South-West (not good!). Large blocks of limestone (2-tons plus) were cemented-in on each other and over-hang the digging area. As the dig continued, the area was looking less promising and more dangerous. Digging continued with diggers trying to stabilize the area to no avail. We decided to break off the dig until the next day and possibly re-evaluate the site.

October 12<sup>th</sup> The dig crew started anew at Doc's dig. After a brief period of stabilizing the dig area, the crew continued the dig. Material being removed from the area now consisted of larger loose rock, calciferous dark dirt (soil) and numerous tree roots. As the digging continued, the area is becoming more precarious and needed to be re-evaluated for safety again. Noticeably, there was no air movement in this part of the dig area that had previously been felt in the early part of the original dig. Most of the digging seems to be in a highly brecciated limestone fault zone, without a real "cavy" look or passage. During the lunch break, all diggers made a unanimous decision to move the dig area back to an area on the north end of the dig. There were small (3 to 4 inch) "phreatic" worn zones, where you can look into known cave, has good air movement and is a potentially safer digging environment.

That evening, at the campfire get-together, our dig crew decided (unanimously) to move the campsite near Crash Cave, where we had started digging in August 1999, in the LNF just south of Ft. Stanton Cave. The new campsite area will be located on top of Water Tank Hill.

October 13<sup>th</sup> "Campsite Moving Day!" Moved our camp to the new campsite location on Water Tank Hill. All attendees did some reconnaissance of the area near Crash Cave and the surrounding area. After lunch, we decided to ridge-walk an area to the South-West of the cave. We located a large sink 60 feet in diameter near the camp, GPS'ed the location and continued reconnaissance of the area. John and Dorothy Corcoran, Dennis and Jeffery Worthington and David Sherrow had to leave to go back to work, so we lost some of our dig crew.

October 14<sup>th</sup> John McLean, Lloyd Swartz, and Dick Venters continued digging in Crash Cave. After a couple of arduous hours of digging in Ball Mill Crawl, Lloyd broke through into a small terminus room (Recovery Room, 15'X8'X5'). This room continued through a left hand passage to a larger room (Arch-Canyon Room, 70'X12'X15'). The Recovery Room has some very interesting features. The South-West wall has corroded-gypsum rind on the upper part of the wall. As you enter the Arch-Canyon Room (ACR), you can see a massive drilled gypsum block in the center of a 10 foot-pit in the middle of the room.

The ACR gypsum block is a (approximately 15 to 20 feet thick) lenticular-shaped block within the upper-San Andres Limestone FM. The gypsum block has multiple drill-holes at varying parts of the room, some go all the way to the floor, others only partially into the block.

ACR also has large limestone break down blocks in the NW portion of the room. Along the east and west sides of the room, we noted the same type of gypsum rind seen in the Recovery Room. It is multi-colored, has nicely crystalline structure and similar drill holes. We continued to look for a passage to the NW on the north and south walls, down below the breakdown blocks, but with no luck. Finally, we saw a small breakdown hole at the NW end of the room. John McLean volunteered to move the blockage. When the breakdown was removed, we broke into another room (Boulder Crawls). John and Lloyd pushed forward through the "V-Notch Crawl" down a right-hand crawl into the "Hall-of Pain". The Hall-of-Pain leads to a bi-furcated passage. This passage continues in two different directions to the North-North-East and North-West.

Dick pushed a lead to the upper left of Boulder-Crawls. This lead goes up and back about twenty-five feet to an area with perpendicular passages. The left hand passage goes to a solution breakdown crawl into a stooping/walking passage. The right hand passage goes to more crawl/breakdown passage.

It was getting late in the day and all three of us were getting tired and ready to call-it a day! We still had to go through the Ball Mill Crawl (30' of narrow, sharp debris filled) passage to the main entrance. We exited the cave in the late afternoon (5PM), tired, hungry, and sore and relishing the wonderful sights we had seen.

October 15<sup>th</sup> After our long day in Crash Cave, the journey through Ball Mill Crawl (4X), bruised, bumped and beaten-up, we decided to ridge walk some of the ridges to the SW of the campsite. To our luck, Lloyd found three good-sized caves! One of the caves had been previously dug (estimating about 20 plus years ago do to the growth of moss and over-brush in the area). This cave, Dug Cave, looks as if it may not have been previously pushed, the openings were rather small (dwarf sized) openings, and has lots of moist-cold air coming from the entrances. The other two caves look very "doable", nice air and look as if they were not pushed in the past.

We continued the ridge walk to the south and located two more sinks (diggable), three caves (small), and four blowing-holes. They all look good and "diggable" for future trips.

As we continued around the east side of the ridge, we "scoped" the opposite ridges. Lloyd eyed a (pretty) good-looking hole on the opposite ridge and as we continued the walk up the main ridge, Lloyd decided to check out this area. John and Dick continued up the ridge and told Lloyd to meet us back at camp about 6pm.

When Lloyd returned that evening, he told us of five new large cave openings on that opposite ridge. His original hole did not pan out, but the new ones were blowing good air, "diggable" and need more study (April 2000). We also need to GPS the new finds and check the area for more potential caves.

October 16<sup>th</sup> Broke up camp to return to civilization!

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## Ozarks Region

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### November 1999-June 2000

Mick Sutton

#### Mark Twain National Forest

Survey work continued in Crocker Cave, Howell County, where a party returned to the downstream lead. It was felt that this section could be completed, as the passage was only a couple of hundred feet from a surface ravine that has terminated all other passages in that direction. After 160 ft. of survey, the party entered a 40 ft. by 50 ft. room devoid of footprints but with several exits. The lead at the downstream end of the passage appeared too small to allow further penetration, but an inlet passage continued, and the crew began a survey heading upstream into the opposite ridge from where they started. In all, 300 ft. of survey was completed. A follow-up trip mopped up a small amount of survey in the downstream lead, resulting in a total cave length just in excess of a mile.

Work in the Eleven Point District continued, with a trip to map and inventory Slave Cave, in a remote and beautiful setting along Little Hurricane Creek. The cave was short (150 ft.) but interesting. The pit entrance led to a 60 ft. wide, 10 ft. high room the floor of which was below the level of the adjacent dry creek bed. Numerous holes in the breakdown floor all fizzled out, while a breakdown-filled dome at the far end ascended almost to surface level. The most obvious biological feature was a remarkably high density of hibernating pipistrelles: 93 in this small area, along with a few other bats. Although aquatic habitat consisted of only one tiny drip pool, it was inhabited by numerous small isopods and amphipods. The other biological feature impossible to ignore, unfortunately, was a recently deceased skunk.

Much of Little Hurricane Creek was acquired by the Mark Twain Forest relatively recently, as part of the Greer Spring purchase, and there were four reported caves in that section of the creek, with no information other than names and vague locations. An overnight float trip to the mouth of Little Hurricane was the springboard for the search. We succeeded in finding three of the four caves, but Little Hurricane Cave remains a mystery. Muddy Cave and Prickerbush Cave were both short (c. 30 ft.) and hard to find—the anonymous author of the earlier reports evidently did a thorough job of checking the valley. Further upstream, Beaver Spring Cave was longer and more interesting. As the name suggests, the cave is beaver habitat; although no beavers were presently in residence, the large quantities of sticks and shredded bark had a profound effect on the cave's biology, with large populations of

terrestrial invertebrates and unusual stream fauna, including the only example we have seen of mosquitos breeding within a dark zone. The survey extended into what seemed to be previously unentered territory along a very wet crawl interrupted by standing-high domes, for a total of about 300 ft.

Also in the Eleven Point District, there was an unproductive trip deep into the Irish Wilderness in search of Coffin Cave, a long-standing mystery entry in the Missouri cave catalog. We had obtained a precise location from MTNF files; unfortunately "precise" doesn't equal "accurate", and no cave was to be found anywhere near the reported location.

The biggest job on the Mark Twain during this period took place at the Chadwick Motorcycle Area on the MTNF in Christian County, a section of the Ava District given over to off-road vehicle recreation, with an extensive network of developed ORV/ATV trails in addition to, as we discovered, a prolific network of unofficial trails.

CRF cavers were joined by our National Forest liaison, Neil Babik. The agenda was to assess the caves for adverse impact, especially to the caves' biology, due to the heavy ATV use. None of the ten caves known within the ATV area are very large; the largest is Rattlesnake Cave at about 250 ft. Rattlesnake Cave has a bike trail right outside it, and casual visitation is encouraged. The wall-to wall coverage of the entrance bluff by graffiti was impressive, but the cave apparently gets cleaned of trash periodically. The most notable biological finding was that use of the cave by hibernating pipistrelles is significantly reduced compared to the Gene Gardner inventory of 1979.

Meanwhile, another crew looked elsewhere at a cluster of caves: White Worm Spring, Infant Maze and Pegleg Cricket. These are also alongside a trail, and trash was quite profuse inside. Next, the parties regrouped and assessed Merman Spring, which turned out to not meet any reasonable definition of a cave, and Cascade Spring, far enough from a trail to curb most visitation. Finally, they located and mapped Camp Ridge Cave, then located and mapped a nearby unreported spring cave with an interesting CCC-era water catchment basin outside.

Next day, they searched without notable success for the tiny Strawberry Cave, inventoried the short spring cave, Mahmud no. 3, and remapped and inventoried Pole Cave. The latter involves a short pit at the entrance, made more exiting by a 45° showerbath. The short but interesting cave at the bottom consists of high, branching canyons. It had small numbers of colonial bats in addition to pipistrelles. The cave is not currently receiving heavy visitation but if illicit trails continue to proliferate in the area, it's only a matter of time before it is rediscovered by motorbiking "spelunkers."

#### Ozark National Scenic Riverways

A party checked out several archeological sites which might or might not constitute caves in the Jerktail

Landing area of the Ozark National Scenic Riverways. The CRF crew was joined by NPS ranger Becki Bulls. The first site, Standing Rock Shelter, was deemed worthy of inclusion in the cave catalogue. While some of the crew did a quick inventory of the already mapped Luther Williams Cave, the rest checked out a neighboring archeological site, finding that it was a real cave, complete with a dark zone and a large room. Named Porthole Cave for a window giving a scenic overlook of the Current River, the cave was 130 ft. long and contained a small stream, probably an upstream section of the same stream encountered in Luther Williams Cave. The next shelter was too small to be considered a cave, but nearby Big Overhang Shelter was mapped and inventoried. A "new" cave was discovered high on the hillside; Sierra Cave mapped out to 50 ft in a single fairly large tunnel. Having finished with that area, the crew paid a quick visit to Bay Branch Arch Cave to assess visitor impact. The following day, still working in ONSR, four cavers relocated Mose Prater Pit, which will be the subject of a future survey trip. Attempts to relocate Mud Cave came up with only one very small shelter which may be Pyatt Cave.

Later, Scott House and Bob Osburn worked with ONSR staff on reconciling archeological reports with the cave files. They then checked out another archeological site—Partney Farm Caves turned out to be two entrances to a single small 75 ft. long cave overlooking the Current River. Next day a larger crew went to a pit lead near Red Bluff on the upper Jacks Fork. Cedar Pit was supposedly only 20 ft. long at the bottom, but it turned out to have a side passage. The crew mapped the pit to a climb which they could not get down due to the narrowness of the crack and lack of footholds below. Rymer Spring was then visited, and six small caves and shelters mapped. Scott noted that "Walled Cave was a miserable, disgusting feature with no redeeming qualities whatsoever."

A small shelter, Brandyweide Shelter, was located and mapped between the Log Yard and Powder Mill on the Current, and the next day, Red Cave was located and renamed Red Shelter. There was a brief trip to located Owls Bend Cave and to search the Little Bloom Creek valley.

### **Missouri Department of Natural Resources**

Fisher Cave is the large, well-decorated show cave in Meramec State Park. The CRF resurvey resumed when a party mapped 300 ft. to the Waterfall Room, the terminus of the "Cave Explorers' Paradise" arm of the cave. A few small crawl and canyon leads remain. On a later trip, a two-person party did a modest amount of survey through the heavily decorated Weeping Willow passage. Next day, a larger geologically oriented crew mapped 450 ft. along a disused tour trail beyond the Sunset Room. This was a complex area, with many domes and side passages. A later trip incorporated a good deal of survey training for novice surveyors, but 120 ft. of real survey was also accomplished.

### **Pioneer Forest**

Pioneer Forest is the largest privately owned woodland in Missouri; for many years, CRF cavers have been assisting Pioneer's managers, who have a strong conservation ethic, with assessment of cave and karst resources. There was a trip to assess the condition of Cookstove Cave, a large and well-known "party cave" in Shannon County. Although the cave has been signed to bar winter visitation, ATV traffic in the area is very bad and visitation continues to be heavy. This is a big concern, as two winters ago, CRF parties had documented a significant colony of hibernating bats, tentatively identified as Indiana bats. Traffic in nearby Holmes Hollow Cave was also extremely heavy, with ATVs riding more than 500 ft. into the cave, not too difficult to do, as the cave is a large, level "railroad tunnel." Finally, a small 25 ft. long crawl, George Cave, was relocated and mapped.

Later, Mick Sutton returned to Cookstove Cave with Rick Clawson, bat specialist with the Missouri Department of Conservation and Greg Iffrig, manager of Pioneer Forest to check the bat status. Rick confirmed our supposition that the resident bats were Indianas, and counted 1000, about the same as our estimate from two winters ago, although the distribution was different, with most of the bats now in the remoter of the two roosts. Holmes Hollow Cave also housed a couple of dozen Indiana bats, probably overflow from Cookstove as Holmes Hollow is not cold enough to serve as a prime hibernation cave. The Pioneer manager is pondering ways to reduce illicit motor vehicle traffic into the cave area.

A party visited two caves along Blair Creek (also in Shannon County). Stroup Cave was mapped to a water crawl which will await warmer weather. The cave had delicate features including cave pearls, and also had ATV tracks going into it. Nearby, Spout Spring turned out to be an enterable cave with a very unstable boulder collapse. The outer part of the cave was mapped quietly, but the dangerous breakdown dissuades entry into a "nice" looking water crawl. Another small cave was mapped, and another spring turned out to have potential (at least in warmer weather).

### **Arkansas—Buffalo National River**

Since the last Missouri report of October, 1999, CRF's Missouri and Arkansas operations have been merged into the Ozarks area.

There were two expeditions to map small caves within the Buffalo National River. Over March 11-12, one party mapped 700+ ft. in Horseshoe Cave along Indian Creek. A second group went further up Indian Creek to map Christmas Candy Cave, basically one large room with minor radiating passages. Next day, a party mapped Great Disappointment Cave, perhaps named for its total length of 43 ft., and another group mapped "SF7" Cave, a small natural bridge along Leatherwood Creek. They also located an unreported cave which is at

least 150 ft. long and very wet. The precipitous nature of the terrain along Leatherwood Creek was brought home when the party became involved in helping to carry-out a tourist who had fallen from the ledge in front of the cave and broken her leg.

During the April 29-30 trip, three teams mapped small caves along the Buffalo downstream from Ponca. The first group had another encounter with a ledge, the entrance to Ivy Cave. The result though, was only a twisted ankle, and survey of the cave proceeded for a total of 135 ft. A second team mapped 130 ft. long Spider Cave, well named as it was full of *Meta ovalis* spiders. Team 3 mapped Azalea, Sandstone and Toga-toga Caves. The first two were small, but Toga-toga Cave was 3-dimensionally complex and involved significant vertical work. It is developed at the contact between the limestone and an overlying quartzose sandstone. One caver got into what seemed to be unentered passage, which remains to be pursued.

### Miscellaneous

CRF crews have been involved in mapping and paleontological work in a large, privately owned Pulaski County cave. The cave is notable not only for its large trunk passages, but also for the well-preserved remains of a short-faced bear. The articulated bones were in a deep cave site protected by a fairly large amount of crawling. Paleontologist Blaine Schubert and project leader Jim Kaufmann patiently excavated the remains and encased the bones *in situ* in plaster before transporting them out. The project has been very labor intensive, and there were a total of eight trips during this period, the last one involving a large number of porters to remove the last of the bones. A small amount of survey sketch and biological inventory was also accomplished during this trip. The remains of the bear are being studied and curated by Blaine Schubert at the Illinois State Museum in Springfield, Illinois.

A two-person crew mapped 125 ft. of smallish, dampish passage to complete the survey of Catholic Church Cave, owned by the Lesterville School District, Reynolds County. The cave contains an exceptionally large population of long-tailed salamanders.

There was an educational trip for a local Audubon Society chapter to privately owned Banker Cave, where CRF has been conducting a cave survey. The ten participants were shown primarily cave biology, but we also extended the survey for a couple of shots in a demonstration of cave mapping technique.

**Participants:** *Crocker*—1) Steve Irvine, George Bilbrey; 2) George Bilbrey, Jim Kaufmann; *Slave*—Mick Sutton, Sue Hagan, George Bilbrey; *"Coffin Cave"*—Mick Sutton, Sue Hagan; *Little Hurricane Creek caves*—Mick Sutton, Sue Hagan; *Chadwick area*—Scott House, Patti House, Sue Hagan, Mick Sutton, Neil Babick (MTNF); *Jerktail Landing area*—Scott House, Bob Osburn, Doug Baker, Sue Hagan, Mick Sutton, Becki Bulls (NPS); *Mose Prater Pit*—Scott House, Doug

Baker, Bob Osburn, Becki Bulls (NPS); *Cedar Pit*—Scott House, Doug Baker, Bob Osburn, Becki Bulls (NPS); *Shelters*—Scott House, Jerry Wagner, Michael Carter; *Owls Bend*—Doug Baker, Scott House; *Fisher*—1) Bob Osburn, Maggie Osburn, Micaela Evans; 2) Scott House, Robert Kramer; 3) Bob Osburn, Scott House, Natasha Johnson, Eric Hoff, Bob Chris; 4) Scott House, Paul Hauck, Phil Newell, Michael Carter, Jerry Jeremiah; *Cookstove*—1) Scott House, Patti House, George Bilbrey, Danny Vann; 2) Mick Sutton, Rick Clawson (MDC), Greg Iffrig (Pioneer); *Blair Creek*—Bob Osburn, Scott House; *Horseshoe*—Scott House, Danny Vann, Mike Pierson, Keli Gill; *Christmas Candy*—Bob Osburn, Pete Lindsley, Micaela Evans, Maggie Osburn; *Great Disappointment*—Scott House, Pete Lindsley, Mike Pierson; *Leatherwood Creek*—Bob Osburn, Maggie Osburn, Micaela Evans; *Ivy*—Scott House, Patti House, Jerry Wagner; *Spider*—Mick Sutton, Sue Hagan, Danny Vann; *Toga-toga*—Bob Osburn, Pete Lindsley, Mike Pierson; *Pulaski County cave*—1) Jim Kaufmann, Andy Free, Ryan Warnol, Dave Matteson; 2) Jim Kaufmann, George Bilbrey; 3) Jim Kaufmann, George Bilbrey, Matt Goska; 4) Jim Kaufmann, Andy Free, Jeffrey Crews, Trevor Stroker; 5) Jim Kaufmann, George Bilbrey, Matt Goska; 6) Jim Kaufmann, George Bilbrey; 7) Jim Kaufmann, George Bilbrey, Matt Goska, Christy Shannon; 8) Jim Kaufmann, George Bilbrey, Sue Hagan, Mick Sutton, Dave Matteson, Andy Free, Jeffrey Crews, Kenny Sherrill, Michael Carter, Kally Gehly.; *Catholic Church*—Sue Hagan, Mick Sutton; *Banker*—Sue Hagan, Mick Sutton.

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## Eastern Operations

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### Mammoth Cave August 1999

Mick Sutton, & Sue Hagan

The July 31, 1999 expedition had 17 participants. There were three Roppel trips in support of Central Kentucky Karst Conservancy objectives. Two of these were cartography trips in the south end/ Approximate area; one was a restoration trip to Arlie Way. A single party was fielded in support of CRF Mammoth Cave cartography; Kevin Downs led a party doing resurvey for sketch improvement along the main line of East Bransford Avenue.

The Bransford Avenue crew (Kevin Downs, Fish Brooks, Dave Matteson, Jason Walz) knocked out about 1,000 ft. of high quality sketch along one level of the East Bransford main line. An interesting inventory note from this trip was an inscription at the Bransford/ Logan junction indicating that this area was discovered in 1924 by Roy Gipson [?], Carl Hanson, Fred Doyle, Jack Chapman, and John Turpin.

The Approximate party (Seamus Decker, Joyce Hoffmaster, Rick Olson, Alan Glennon) got off to a slow start when Alan's car broke down. Alan was then diverted into helping Dave Weller check on conditions at the historic Roppel Entrance following a recent break-in. The remaining three party members mapped 300 ft. of smallish loops in the area of Coons Room, all in unentered passage, and found a 100 ft. high dome/pit. A rope was left for descent of same the next time.

The Arlie Way clean-up crew (Bill and Kathryn Koerschner) worked on obliterating old footprints and flagging a trail. These aren't quite paleo-sediments as Arlie Way still gets water in exceptional (e.g., 1984) floods.

We know few details of the mega-trip (27 hours) to the south end of Roppel, but the 3-person party (James Wells, Dick Market, Fred Schubert) put in 90+ stations in a canyon which occasionally had a floor.

Dan Greger worked on applying paint to the Spelee Hut porch, partly to discourage carpenter bees.

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**Mammoth Cave  
1999 Labor Day Expedition  
September 9, 1999**

Bob Osburn, Expedition leader

The 1999 Labor Day expedition was small and moderately enjoyable. The high point of the expedition was not the caving but rather the fine maps Mike Yocum was displaying and the growing mammoth data set demonstrated by Don Coons. Bravo to both. Eighteen people attended part or all of the expedition with the intent to cave; two others were present in non-caving roles. The Green River ferry was inoperative during the entire expedition due to low water. We elected to keep the expedition at Maple Springs anyway due to poor facilities at Hamilton Valley and the difficulty of hauling the necessary equipment both ways.

On Saturday, five cave parties were organized. Two cave groups supported Mike Yocum's digital video project and the other three supported Mammoth Cave cartography. Several video shots were accomplished at Violet City, Mummy Ledge, Side Saddle Pit, and Fat Man's Misery. The survey trips accomplished 1380 feet of survey, with 146 ft being new survey. For the survey trips Tom Brucker led Sue Hagan, Elizabeth Winkler, and Barbe Singleton to the downstream Mystic River sumps to extend them as far as possible due to the very low water conditions caused by the extensive drought. All objectives in that vicinity were accomplished for a total of 340 ft of survey. Mick Sutton lead Bill Baus, Doug Alderman and Cheryl Early to continue enhancing the survey of the lowest levels of the main canyon complex of Lower Salts east. The trip accomplished 680 feet of survey, 80 ft. of which was new. Finally, Kevin Downs lead William Napper, Scott Cundiff, Dick Maxey

and Bob Lodge to East Cocklebur and accomplished 350 feet of resurvey.

In summary, this was a small expedition that accomplished as much as it could with the personnel available under the current park-required procedures. The trend to fewer people, fewer larger parties and little flexibility severely curtailed the production of this expedition.

Thanks to Maggie Osburn and Michaela Evans for managing the camp for the second year running. Helping to close camp, in addition to Maggie and Michaela, were Mel Park, Lacie Braley, Pat Kambesis and Don Coons.

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**Mammoth Cave  
1999 Columbus Day Expedition  
October 8-11, 1999**

Chris Groves, Expedition Leader

As caving plans were drawn up for the 1999 Columbus Day expedition, they focused on one of the few 'silver linings' associated with extreme drought that had been plaguing south-central Kentucky since the last significant rainfall 99 days earlier. With river levels approaching historically low levels, teams would be sent to Hidden River, Sides, and Roppel Caves, with great expectations of significant new survey. As the weekend approached, however, heavy rains were forecast for Friday night. When Saturday morning arrived, the same three inch rainfall that had Kentucky's farmers looking out to their fields had me wondering what to do with twenty-some enthusiastic cavers who needed air-filled cave to survey.

Thanks to quick help and ideas from a number of folks a set of objectives was made, and teams went off to survey leads in Wilson's Cave and the River Styx area of Mammoth, to dig at a spot near the entrance to Diamond Caverns, to shoot video along the tour paths of Mammoth Cave, and to make photographs in Roppel Cave for the upcoming book by Jim Borden and Roger Brucker.

Both the photo and video teams returned safely with their objectives having been met, and I'm very happy to say that with great excitement each of the push teams returned with reports of new, large, and going passages.

In Diamond Caverns, a slim group worked on a dig that had previously been started by Gordon Smith and others near the base of the steps leading down into the commercial cave. Eventually they contorted upwards into a large, beautifully decorated room with a large passage taking off, down which they surveyed for over 400 feet. They left the going trunk for later, when the super-tight dig could be enlarged slightly to accommodate the more normal-sized Diamond Caverns cavers.

In Wilson's Cave, which is in the park north of the Green River, the CRF group surveyed into a crawl and several hundred twisty feet later stood up in large trunk as well. They left after about 800 feet of survey, with the passage still large and still heading away. I had not previously known much about this cave, and was surprised to learn that it has surpassed Buffalo Creek Cave as the Park's longest cave north of the Green River.

Even with the Friday rains, the River Styx area of Mammoth Cave was deemed safe due its position near the downstream end of the Echo River Basin, as well as its open and easy access from above along old tourist trails. This was a high priority for survey in conjunction with Park Service goals, with many changes taking place in this part of the cave associated with the continued removal of the old walkways by the park and NSS cave restoration teams. The team had excellent climbers, and one of the goals was to check a few high leads above the Styx catwalk. To their surprise one led to an overlook, too steep to climb down without a rope, into a 30' high by 15' wide passage taking off in both directions. They returned back to the river, making careful and interesting observations about the varied responses of the various stream fragments there in response to the previous night's intense rains. These should really help to unravel additional detail about the locally complex hydrology of the Echo/Styx distributary section at the downstream end of the basin's flow network.

On Sunday the sun emerged and while it began to dry out the camp, CRF teams headed off to survey in Mammoth and Cub Run Caves, and to examine the hydrogeology of the large karst valley to the southwest of the park that contains the entrance to Whippistle Cave. The Cub Run teams surveyed through much of this rarely visited former tourist cave, compiling an inventory of the various resources preserved there. Back in the lead above River Styx in Mammoth Cave, the same group that had been there the day before explored and surveyed over 400 feet in what turned out to be a large, previously unknown shaft complex that in places comes with 15 feet of the tourist trail, but with solid limestone between.

All in all this was an enthusiastic and productive weekend for CRF in the Mammoth Cave area. The most fun for me was to share in the excitement of the assembled crowd, both in those reporting the discoveries as well as those hearing the stories. Our friends at Diamond Caverns were beside themselves with the new finds there. To me this is a big part of what caving with CRF at Mammoth Cave should be about. In order to effectively protect this fantastic karst landscape we have to understand its nature, and gathering the information necessary to do so has been a huge task that has occupied CRF for the last half century. It has meant a lot of hard work and in my opinion, the fun and satisfaction that come with unraveling the landscape's hidden secrets are

the among the most effective currencies we have to recruit and keep help for this task that will take more than the rest of our lives to complete.

At the conclusion of this expedition, I was mostly just relieved and pleased that everyone who participated ended up safe, happy, and didn't starve during the weekend. However, one of the best quantitative measures of the success of any expedition is the number of hours that its participants end up, while lying awake in their bunks or driving home, dreaming of that borehole taking off to who knows where, over and over speculating on the next bit just around the corner. While I don't have any hard data, this measure seems to have been pretty high over the Columbus Day weekend at our new home at Hamilton Valley!

I'd lastly like to comment on the excitement that our friends at Diamond Caverns are generating with their new operation there. A consortium, which includes veteran CRF members Roger and Carol McClure, Stan and Kay Sides, and Gordon and Judy Smith, has recently purchased the cave and with their enthusiastic staff have really generated a lot of new energy for the cave area. I am very pleased to have participated in a successful joint venture between CRF and the Diamond Caverns cavers and shared in the considerable excitement with the opening of the cave's new section over the expedition weekend.

I'd very much like to thank Deana Groves, Ashley Yaeger, and Rhonda Pfaff, who kept everyone fed during the weekend, and Alan Glennon, who did the accounting. Darlene Anthony was very helpful in meal planning. I also appreciate the help of everyone there, especially Joyce Hoffmaster, Dave West, Karen Willmes, and Elizabeth Winkler, in helping with the details of the expedition as it went along.

New Survey: 2,720 feet (Mammoth Cave: 340, Wilson Cave: 860; Diamond Caverns: 260; Cub Run Cave 1,260). Resurvey: 0.0 feet

**Participants:** *Mammoth Cave, River Styx:* Rick Olson, David Ek, Elizabeth Winkler, Rick Toomey, Mammoth Cave, *video:* Mike Yocum, Lacie Braley, Kathleen Womack, Robin Dickerson, Matt Mezydlo, Jon Smith, Joyce Hoffmaster, Bob Hoke, Eric Sikora, Stan Sides; *Diamond Caverns:* Dave West, Karen Willmes, Joanne Smith, and Joyce Hoffmaster; *Wilson's Cave:* Erik Sikora, Jeff Marts, Miles Drake, and Bob Hoke; *Roppel Cave:* Bill Baus, Mindy Grayson, Shannon Smith, and Roger Smith; *Cub Run Cave:* Matt Mezydlo, Miles Drake, Shannon Smith, Roger Smith, Dave West, Karen Willmes, Joanne Smith, and Jeff Marts; *Whippistle Cave (surface):* Alan Glennon, Deana Groves, Chris Groves.

## CALENDAR

Before attending any expedition, you must contact the expedition leader as trip sizes may be limited. Failure to contact the leader may prevent you from attending the expedition as the trip may be full.

### MAMMOTH CAVE

**August 4-6**, sign-up deadline July 21, Mick Sutton & Sue Hagen, 573-546-2864, sue&mick@mail.tigernet.gen.mo.us

**Labor Day Weekend, September 1-4**, sign-up deadline August 14, Bob Osburn, 314-984-8453, osburn@levee.wustl.edu

**October 5-6**, Eighth Mammoth Cave Science Seminar, Mammoth Cave National Park Training Center, Joe Meiman, 270-749-2508, joe\_meiman@nps.gov

**Columbus Day Weekend, October 6-9**, sign-up deadline September 22, Chris Groves, 502-745-5974, chris.groves@wku.edu

**October 7**, Open House, CRF Hamilton Valley Research Center, Pat Kambesis, 815-863-5184, kambesis@bigfoot.com

**Thanksgiving Weekend, November 23-26**. Jim Bordon, 914-255-4663, jimbordon@attglobal.net

All Eastern Operations CRF members who have not attended an expedition safety orientation must do so before they can participate in expedition activities. The safety orientation is scheduled at the beginning of each expedition after the morning meeting. Those who have attended one safety orientation are not required to participate in another. New members should arrange to be at the expedition early enough to attend the orientation. Those who do not attend will not be allowed to participate in expedition activities. Contact expedition leader for more details about the orientation.

### OZARKS

Missouri trips occur frequently on a generally irregular schedule. Scheduling is usually flexible enough to accommodate all CRF members who wish to sample some Ozark caving. Please contact: Scott House (314-282-3246) or email him at rshcrf@aol.com

For Fitton Cave, Arkansas schedule contact: Pete Lindsley, 972-727-2497, lindsley@raytheon.com

### GUADALUPES

For information about upcoming expeditions at Carlsbad Caverns National Park, contact Barbe Barker, Area Manager, at cavers@gte.net

### NATIONAL CRF ANNUAL MEETING

**November 10-12**, St. Louis, Missouri. Scott House, 314-282-3246, rshcrf@aol.com

### CALIFORNIA

#### **Lilburn / Mineral King**

**August 5-6**, Lilburn, Cave diving, Bill Farr, 626-357-6927, whfarr@plex-inc.com

**August 19-20**, Liburn, Carol Vesely, 626-357-6927, cavesley@earthlink.net

**Memorial Day Weekend, September 2-4**, Mineral King, Roger Mortimer, 559-432-0503, mortimer@ucsfresno.edu; Bill Frantz, 408-356-8506, frantz@netcom.com

**Memorial Day Weekend, September 2-3**, Lilburn, Peter Bosted, (h) 640-234-9966, (w) 650-926-2319, bosted@slac.stanford.edu

**September 16-17**, Mineral King, Roger Mortimer, 559-432-0503, mortimer@ucsfresno.edu

**September 23-24**, Lilburn, Cave Diving, Bill Farr, 626-357-6927, whfarr@plex-inc.com

**Columbus Day Weekend October 7-9**, Lilburn, Bill & Peri Frantz, 408-356-8506, frantz@netcom.com

**October 21-22**, Lilburn, Remove Dive Gear, Bill Farr, 626-357-6927, whfarr@plex-inc.com

**October 27-30**, Hydrology, Jack Hess, 702-363-7255, jack@dri.edu

**November 4-5**, Lilburn, Cave Diving, Bill Farr, 626-357-6927, whfarr@plex-inc.com

**Veterans Day Weekend, November 10-12**, Lilburn, John Tinsley, (h) 650-327-2368, (w) 650-329-4928, jtinsley@usgs.gov

#### **Lava Beds**

**Memorial Day Weekend, September 2-4**, Bill Devereaux, (h) 503-363-3831, (w) 503-581-4100, caver@adweb.net

**November 23-26**, Janet Sowers, 510-236-3009, lmsowers@aol.com

#### **CRF Sequoia & Kings Canyon Planning Meeting**

**January, 6, 2001**, site to be announced, Mike Spiess, 559-434-3321, mikes@caver.com

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## PROJECT AREA CALENDAR

### **Lincoln National Forest/ Capitan Peak Study Area**

Contact Dick Venters, Expedition Leader for schedule, 505-892-6121, rventers@aol.com

### **HSS/CRF Hawaii Caving - Big Island**

The next expedition to the Big Island of Hawaii will be during the month of January 2001. For more information., contact Pat Kambesis 815-863-5184, kambesis@bigfoot.com

### **CKKC - Roppel Cave, Kentucky**

As a result of the partnership between CRF and Central Kentucky Karst Coalition (CKKC), CRF cavers are welcome to participate in Roppel Cave Project trips. For more information on trip schedule contact Jim Borden at jim\_borden@attglobal.net

### **China Caves Project - Guizhou Province**

4-6 weeks trips are run every other year. Contact Ian Baren, Project Coordinator, 914-478-5133, chinacave@aol.com

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