

CRF/California 2000 Newsletter

CRF/California 2000 Field Schedule

Date	Location	Projects	Leader, Contact Info
Jan 15-17	Lilburn Cave	Survey; CANCELLED WEATHER	C. Vesely; Bill Farr
Feb 19-21	Lava Beds	Inventory, Ice Monitoring, Survey (?)	Janet Sowers 510-236-3009 Home jmsowers@aol.com
Apr 22-23	Lilburn Cave	Survey, Sediments, Electrical Syst Mtce and Diagnosis	Paul Nelson 909-869-7623 Home 213-624-9600 Work california_caver@yahoo.com
May 27-29	Lava Beds	Inventory, Survey, GPS surveys	Bill Devereaux 503-581-4100 Work 503-363-3831 Home caver@adweb.net
May 27-29	Lilburn Cave	Survey, Sedimentology, Restoration, Hydrology (?)	Joel Despain 559-565-3717 Work 559-565-3602 Home joel_despain@nps.gov
Jun 17-18	Lilburn Cave	Survey, Sedimentology, Restoration, Hydrology (?);	Jed Mosenfelder 626-395-6239 Work No Home Phone, yet Jed@gps.caltech.edu
Jn 24-Jy 1	Elkins, WV	NSS National Convention	See Your NSS News
July 1-4	Lilburn Cave	Sediments, Survey, Cabin Mtce Restoration, Cave Diving: Recheck Rise, clean up dive line; hike out empty tanks	John Tinsley 650-329-4928 Work 650-327-2368 Home jtinsley@usgs.gov
July 29-30	Mineral King	Panorama Basin; Inventory, Entrance Tag installation	Jeff Cheraz 626-359-2050 Home gephc@loop.com
Aug 5-6	Lilburn Cave	Cave Diving: Hike in full tanks; haul tanks to Upstream Rise	Bill Farr (626) 357-6927 home whfarr@plex-inc.com
Aug 12-13	Lilburn Cave	Dive of Upstream Rise; Haul out tanks. Survey and sedimentology and restoration.	Carol Vesely (626) 357-6927 home cavesley@earthlink.net
Sept 2-4	Mineral King	White Chief Cave, Tagging, Survey, Inventory Co-Leader = Bill Frantz 408-356-8506 Home frantz@netcom.com	Roger Mortimer 559-432-0503 Home mortimer@ucsfresno.edu
Sept 2-4	Lilburn Cave	Surveying, southern end of cave; Hike tanks into Redwood Canyon; Push dive in the Upstream Rise	Peter Bosted 650-234-9966 Home 650-926-2319 Work bosted@slac.stanford.edu
Sept 2-4	Lava Beds	Inventory, Survey, GPS surveys	Bill Devereaux 503-581-4100 Work 503-363-3831 Home caver@adweb.net

Sept 16-17	Mineral King	To Be Announced	Roger Mortimer 559-432-0503 Home mortimer@ucsfresno.edu
Sept 23-24	Lilburn Cave	Hike tanks into Canyon; push or set-up dive in Rise	Bill Farr (626) 357-6927 home whfarr@plex-inc.com
Oct 7-9	Lilburn Cave	Surveying, south end of cave; Hike tanks into Redwood Cyn; Sediments, Restoration	Bill and Peri Frantz 408-356-8506 Home frantz@netcom.com
Oct. 21-22	Lilburn Cave	Hike tanks out of Canyon	Bill Farr (626) 357-6927 home whfarr@plex-inc.com
Oct 27-30	Lilburn Cave	Hydrology	Jack Hess 702-363-7255 Home jack@dri.edu
Nov 4-5	Lilburn Cave	Hike tanks into Redwood Cyn; Poss. set-up dive in rise	Bill Farr (626) 357-6927 home whfarr@plex-inc.com
Nov 10-12	Lilburn Cave	Sediments, Svy, Cabin Mtce, Restoration, Final Dive of Season?; Hike out tanks	John Tinsley 650-329-4928 Work 650-327-2368 Home jtinsley@usgs.gov
Nov 23-26	Lava Beds	Inventory, Survey, Planning	Janet Sowers 510-236-3009 Home jmsowers@aol.com
Jan 6, 2001	Fresno	CRF SEKI Planning Meeting. Site to be announced. NOTE: Newsletter articles due from PI's	Mike Spiess 559-434-3321 Home mikes@caver.com
Jan 7, 2001	Fresno	WRTC Meeting; Cave Rescue-oriented people should attend this organizational meeting.	Roger Mortimer 559-432-0503 Home mortimer@ucsfresno.edu

Attending a CRF Expedition in California: If you as a CRF joint venturer wish to attend a CRF expedition at Lava Beds (LABE), Redwood Canyon (SEKI), or Mineral King (MIKI), please contact the Expedition leader about 2 weeks in advance. We must give the Park Service (NPS) a nose count and we must be certain we have enough trip leaders available to ensure a quality underground experience for everyone. Also, we are subject to a party size limit of 15 persons, a requirement that is imposed by the National Park Service as a conservation measure. Our enforcement of this regulation on CRF expeditions has inconvenienced our personnel from time to time. Please see the discussion of this issue later in this Newsletter for a full description of policy guidelines, so misunderstandings are minimized. Your cooperation and understanding are solicited and appreciated.

If you are interested in cave survey at Lava Beds and can assemble your own team, why not contact Janet Sowers or Bill Devereaux? They may be able to give you an assignment you can do any weekend you choose. Naturally, you will be expected to file the data and draw up the map in a **TIMELY** fashion.

Expedition Leaders: Please send to John Tinsley a list of participants, trip reports, and JV forms after each expedition. This is to maintain an up-to-date JV list available from Tinsley. Also, send a copy of your expedition report to Paul Nelson, Editor of the CRF National Newsletter. Your cooperation is appreciated.

Still WANTED: Cover images of LABE or SEKI project caves for future newsletters. Send graphics files (TIF, JPG, etc.) to Mike Spiess via email to mikes @ caver.com

Lilburn Cave – Redwood Canyon Project Summaries

Lilburn Cave Diving Project

By Bill Farr

whfarr @ plex-inc.com

The primary goal for 2000 is continued exploration in the "Upstream Rise," the most upslope emergence of subterranean Redwood Creek. Exploratory dives in the fall of 1997 reached the practical limit of exploration with a standard side-mount setup of two tanks and one cylinder of pure oxygen staged near the beginning of the dive for decompression. This resulted in a maximum penetration of about 1200 feet, pushing more than 900 feet beyond the northernmost known extent of Lilburn Cave, and reaching depths of about 160 feet below the dive entry point. Permission to continue dive activities was granted August 6, 1999, by Superintendent Michael J. Tollefson. With high expectations for emergence into the "Great North Cave", exploration of the Upstream Rise re-commenced on August 22. However, re-traverse of previously explored passage proved to be much more difficult than expected, owing to sand movement, despite the seemingly mild winters. After three dives characterized by a general lack of sherpa support, exploration was terminated for the season without having reached the limit of previous exploration. However, the sump is still open, and if the new dive line doesn't become buried this winter, conditions are promising. This past year saw the first mixed gas dive and the first stage dive in the Upstream Rise, and the removal of a large quantity of discontinuous old dive line segments.

Description

Access via the 5-mile hike, the 5000-foot altitude that extends decompression requirements, the 7 degree C water temperature, a depth of >160 feet, two passage constrictions, and a relatively short season of high-visibility conditions all hamper cave diving at Lilburn Cave. Push dives now typically involve five or more tanks with three or more gas mixtures, and in Big Spring, depths reach about 250 feet, making Lilburn a world-class cave dive.

1999 Dives

In 1999, push diving into the Upstream Rise was thwarted owing to sediment partly filling the phreatic passage and burying the dive line, at great inconvenience to the diver. The August dive revealed multiple discontinuous dive line segments, owing to partial burial of the line. New continuous dive line was run from the point of entry during near-zero visibility conditions. The October dive was dedicated to removing old dive line

segments, as these represent a serious risk of entanglement. The dive was called after 50 minutes, owing to cold resulting from soaked dry suit undergarments that had been left in the cave in August. A push dive in November penetrated 310 m into the sump, but was called on air (thirds). Much effort was expended in pulling the dive line free from intermittent places where it was buried in sand.

Additional dives would have been conducted in 1999 had there been sufficient sherpa support. Dives are now at the point where serious logistical support will determine the success or failure of this project.

Assuming that sediment accumulation remains at about the same point this year as last, diving can continue. Future push dives will benefit from staging tanks in-sump and in between dives, a step that cannot be risked late in the season. (Recall that an unseasonable July storm several years ago whisked away a dive tank near the Z-Room several years ago; the tank was recovered this past year. The risk of leaving gear in the cave is never zero, unfortunately.)

We hope continued exploration in the Upstream Rise will surface into air-filled cave within the next few dives. The depth and duration of these dives (over 30 minutes swimming one-way at 162 feet) and the extended cold-water decompression for even a one-way trip, plus small passage size and low visibility make this sump one of the most challenging ever attempted.

Tinsley's Note: At my request, Bill Farr has prepared an Upstream Rise dive schedule for late summer and fall which is included in the 2000 Expedition Schedule. The project management intends to help Bill with the logistics of diving the Upstream Rise. Bill and I ask your help to spread the labor of schlepping tanks and equipment into Redwood Canyon. Please examine the schedule, and contact Farr or Tinsley if you can help with the dive logistics. Bill can't do this by himself, although he has been making a remarkable go of it to date. Let's provide additional support towards successful exploration of this remarkable section of Lilburn Cave, before progressive sedimentation plugs the Rise passage, probably until a next El Nino event washes the sediment out and yet

another cycle begins.

Cave Digging

By Bradley Hacker

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Meatbug Sink has yielded some additional passage, but we will wait out the winter rains to see what more may come of it. This sinkhole swallows runoff from a small gully on the flanks of Big Baldy. It has been plugged for a couple of decades, but lately has shown signs of renewed collapse.

Several short digs within Lilburn Cave have yielded additional passage to cartographers. See the Bosted report on Lilburn Cartography, this section.

Owing to the low stream flow reflecting the La Nina winters, we may attempt to extend Mays Cave

toward Lilburn Cave via a short dig near the present limit of Mays Cave. Several years ago, fluorescein dye was used to establish that drainage into Mays Cave from Mays Creek (the Field Station's water supply drainage) reappears just upstream of Scumbag Dome, below the White Rapids area, in Lilburn Cave. The potential of this significant connection beckons strongly, and exploration during low water levels will help make the potential connection a reality. Hope for a compliant winter that favors the success of this enterprise.

Redwood Canyon Cartography

October, 1998 through November, 1999

By Peter Bosted

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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') 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' 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 allowed 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. I still need the survey notes from the last survey trip (Carol Vesely, leader) to enter into the system.

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' tall and 5' 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' away. The new area was mapped in four survey trips for 680' 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.

Sedimentology of the Redwood Canyon Karst

By John C. Tinsley

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The 1998-1999 La Nina winter had a cool spring season that effectively limited the rate of delivery of snow melt to the karst of Redwood Canyon. There was effectively no flooding within the cave, even in areas that typically back up at relatively modest levels of discharge, despite the near-normal levels of precipitation this past winter. From an in-cave perspective, it could have been passed off as a drought year, as sediment transport this past winter was minor to nil. Consequently, the probability that sediment was eroded and re-deposited in volumes sufficient to impede Bill Farr's cave diving is believed to be very small. Bill reports that sediment is again accumulating in the Upstream Rise, where sand buried his dive line at several points. With luck, the sedimentation processes will continue at a slow pace, enabling further SCUBA exploration of this subaqueous route to the Great North Cave.

In summary, it was another dull year at Lilburn Cave for sediment transport buffs. The peak rise in the cave stream above the White Rapids amounted to about 50 cm above the cave stream's low flow elevation. Thirty years of observation of this reach of the subterranean course of Redwood Creek show it to be one of the more flashy points in the cave's hydrologic system. A deposit of breakdown is located below the White Rapids. This

downstream control impedes discharge and commonly impounds water at points above the White Rapids to depths of 3 to 5 meters in years with normal runoff.

No new sinkholes were observed in the Redwood Canyon karst during 1999. Several sinkholes have shown signs of renewed collapse, including Meatbug Hole. Incidentally, it was a banner year for ground-dwelling hornets, known malevolently and colloquially as "meatbugs", given their fondness for carrion and the calculated tenacious ferocity with which they defend their nests.

The Pebble Pile Sink has aggraded fully, to the level of its downstream lip, although the sink still takes water near its lower limit. Thus, at high flow, Pebble Pile Creek again traverses Pebble Pile Sink and after about a decade-long hiatus, has resumed flowing along its former channel below the sink. As the >150 ft high north wall of the sink continues to retreat, it threatens to excise the Redwood Canyon trail. Ten additional feet of retreat of the lip of the sink will require the National Park Service to relocate the trail further up-slope, for safety's sake. There is plenty of area available for this land use, but this is not a part of the Park's trail system that is maintained regularly.

Hydrologic Activities in 1999 at Redwood Canyon

By William D. Howcroft and John W. Hess

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Hydrologic efforts in Redwood Canyon have seen diminished activity in 1999 relative to prior years owing to a number of factors including a redefining of the scope of Bill Howcroft's dissertation, and continued problems with the data loggers at Big Spring and within Lilburn Cave. Time has been used this year to collate and better organize the data collected over years past, rethink present and future research projects in Redwood Canyon, and focus on compiling and eventually publishing the results of our work. In addition, Nizar Abu-Jaber, who is a visiting professor at DRI on sabbatical from Jordan, is examining the chemograph data from Big Spring and Redwood Creek.

As a result of repeated equipment failure, logistics caused by heavy snow years, and laboratory analytical problems, the hydrograph separation work

previously planned for Redwood Canyon has been indefinitely postponed. At this time, only the data logger at Redwood Creek is fully operational. During the most recent Hydrology trip, the data logger at Big Spring was found to be inoperable. It was therefore removed from the site, sent back to the manufacturer for repair, and is now awaiting re-installment in early 2000. Similar problems occurred with a different data logger at Big Spring in 1998. The data logger within Lilburn Cave continues to be plagued by wiring problems; its future is currently being discussed.

Cave survey data from the Redwood Canyon Caves, in addition to other caves across the U.S., including Lechuguilla, Carlsbad, Wind, and Jewel Caves, continue to be examined for self-similarity using fractal algorithms. The results of some of this work were

presented at the Karst Waters Institute Karst Modeling Conference in Charlottesville, Virginia in February. The fractal studies and modeling now comprises the scope of

Bill Howcroft's doctoral research, with completion anticipated later this year.

Cave Restoration

By Bill Frantz

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One restoration trip was conducted and dedicated a continuing to clean up the area below the Jefferson Memorial. The area is extraordinarily delicate and is fairly dry, so water and other cleaning supplies must be packed into the area. The Cave Restoration project has sacrificed itself in past years by contributing personnel in support of other CRF projects, a role that the other PI's and the Project Coordinator appreciate very much.

Cave Rescue Preparedness Exercises, October 13-14, 1999

By Roger Mortimer and John Tinsley

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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

Mineral King Area

1999 Activities

By 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, we did no significant hydrologic studies, but 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.

The CRF Mineral King Karst Tagging Project

By Jeff Cheraz

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Mineral King has a strong place in my heart. I fell in love with the Mineral King Valley years before volunteering with the Cave Research Foundation (CRF). Mineral King is a place of tremendous beauty, where most artists would love to put the valley's colors on a sheet of canvas. It is where different types of bedrock have seemingly been mixed together by the hands of God Himself. The mixed bedrock creates the most interesting bands throughout the whole of the terrain. Groves of trees also dot the valley adding contrast not only to the main floor and slopes but also in and around many of the hanging valleys.

The cave-entrance-tagging project will help CRF to complete a survey of the karst features in the valley. The task is seemingly quite simple. We need but to locate all of the known karst features so that the National Park Service will be able locate their resources on a map using global positioning satellite surveys. We anticipate that we will place an ID tag at each cave entrance or group of entrances. The caves and pits are to be tagged so as to eliminate the guesses by researchers, NPS personnel, and other users of the Parks while afield as to which resource is which, and if the karst feature is cataloged.

The tags and anchors will be of stainless steel, cemented into the rock with epoxy, in order to exclude the elements and prolong the life of the tag. The ID numbers and letters will be assigned by the Cave Management Specialist and will also be the name for each file containing information about that particular cave or pit. Information gathered about each cave or pit will eventually be compared to data stored in other Mineral King files, using GIS or other means of study.

This project will help to minimize the impact of cavers on the caves and will save researchers time in locating additional karst resources and determining what additional work may need to be completed. Comparisons among cave systems will be enhanced owing to the growing body of improved location data.

At present, most of the caves and pits known from existing cave files have been located. We were fortunate to find a few new caves two years ago. One of those finds was determined to be among the larger caves of the valley. This last year was not so kind to the cave hunters, as the weather was inclement and winter came early.

Mineral King is alive with many different types of interesting plant and animal life. Probably the most interesting of the animals are the bears, deer, and marmots. The bears act as if they own the place, and maybe rightfully so. The deer show very little sign of fear. In fact they have been known to walk right up to if not through camp while people are there. Marmots, an

even bolder creature, have a very simple creed. If you brought it in to the valley it belongs to them. They are so bold that the little creatures take anything they can get their paws on. NPS Ranger Linda Wallace told me, "I was looking through a pair of binoculars when I felt a tugging on my foot. Looking down I saw a marmot chewing on my boot." These little mountain dogs seem to stop at nothing to get what they want. Because of the bold nature of the animals in the valley, extra care must to be taken to keep caver's food and products of civilization away from them. The animals are a great attraction, but in the Spring, the valley's wildflowers may be even more spectacular. The fields are carpeted with blue, purple, red, yellow and white wildflowers. One can only marvel at the beauty of this alpine valley and what it has to offer mankind as a spiritual refuge.

A foundation of this abundance of life is the seemingly endless water flowing throughout the valley. Many creeks and streams find their way down the valley slopes and thereby give life to a variety of riparian habitats. It was not until I started working for CRF that I gained a deeper respect for the subterranean levels of Mineral King as well. All of the natural conduits or caves running through the hills deliver water to many different sections of the valley. So I am looking forward to continuing the process of trying to understand Mineral King's special ecosystem, one that continues to fascinate and enthrall enthusiastic cavers!

Highlights of 1999 at Lava Beds

By Janet M. Sowers

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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 a 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 next year.

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 at each, from which they constructed a walk around the first pillar. 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.

The Lava Beds Research Center Capital Campaign

By Janet M. Sowers, Chair

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To recap last year's report, in April 1998, we signed a Memorandum of Agreement 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. We spent the remainder of the year finalizing the building design, writing and submitting to the NPS our fund raising plan, and preparing fund raising materials. Joan Chaplick, of the National Park Service, served as our coach and mentor.

The total cost of the project is estimated to be \$200,000, with \$150,000 of this being actual construction costs. As you may recall, the architectural services, estimated value of 30k, have been donated by Minert Architects, Inc. and the site preparation work, estimated value of 20k, will be provided by the Park Service. Our fund-raising goal, therefore is \$150,000.

Activities this year:

This year we began fund raising in earnest. We have held meetings of the Capital Campaign Committee about every two months (2/10, 3/9, 4/20, 6/1, 9/9, 10/28). Committee members include Janet Sowers (Chair), Peri Frantz, Bill Frantz, John Tinsley, Christopher Richard, Bruce Rogers, Pat Helton, Peter Bosted, Amy Ponsetti,

and Richard Minert. At these meetings, we continued work on the fund raising materials, brainstormed lists of people and organizations who might be interested in donating, discussed who to ask next, and strategized publicity for caving conventions such as the NSS convention, the NCRC, and Western Regional.

Peri Frantz has assembled a website to provide basic information about the project and to keep people informed of our progress.

The website site is up for viewing at <<<http://www.pwpconsult.com/lbrc.site>>>. We hope to link into the CRF site soon. We tried to send out thank-you letters to all donors in a timely manner and do regret that the system failed this summer. We believe that we are back on track now.

Building design drawings:

At the September meeting, Richard Minert showed us the new drawings he had recently completed for the building. The drawings are at a scale of approx. 1"=15' and include floor plans, reflected ceiling plans, roof plan, elevations, and cross sections. The dimensions of the building, not including the deck, are 52' x 32' for total interior space of 1,664 sq. ft. An eight-foot-wide deck wraps around about half of the building. These are not the final construction drawings, but are detailed enough to allow us to move to the next step, which is to find a contractor in the Klamath Falls area that can give us a pre-bid estimate of the cost to build. Our working estimate of \$150k for construction was based on an approximate \$100/sq ft cost for a 1,500 sq. foot building.

Fund raising progress:

We have been actively soliciting contributions since about the first of the year. Peri and Bill Frantz kicked off the campaign in December by handing over a check for \$5,000. Janet Sowers and Jerry Horn followed suit, as did Janet's mother. The other committee members and relatives also made substantial pledges. By the end of February we had \$21,000 in the bank. In March, we finally got our fund raising packets together and sent them out to the CRF board and to others we felt we were ready to approach. We received donations or pledges totaling \$3,500 from five of the CRF board members, including the President.

The caving conventions this summer and fall were a good opportunity to publicize the project and generate support. At the NSS Western Regional we raised \$1,910 in cash and pledges including \$342 from the auction. As a publicity stunt, we gave away a lava lamp (yes, one of those 60's hippie icons) to the highest donor for the weekend!

Our current total in cash and pledges, as of October 15, 1999, is about \$65,000. This represents donations from 28 individuals (including Superintendent Dorman), three organizations (CRF, NHA, and the Mother Lode Grotto), and one corporation that matched

its employee's donation. Individual gifts break down into categories as follows: \$10,000 gifts (3), \$8,000 (1), \$5,000 (2), \$3,000 (1), \$1000 (7), \$500-999 (12), and under \$500 (5). We are left with \$85,000 yet to raise.

Plans for next year:

In our Memorandum of Understanding we are allowed two years, or until April 2000, in which to raise the money. If the money is not raised by then, we have the option of extending the campaign up to one additional year if it seems likely that we will be successful. I am guessing we will probably be close to our goal by April, but will need to extend the additional year. Our plans are to continue to approach the people on our still-lengthy list, and to start exploring corporate donors and grants now that we have sufficient money to demonstrate the worthiness of the project. With any luck we will be breaking ground in 2001.

So, Please send your tax-deductible contributions to:

Lava Beds Research Center Fund
c/o Paul Cannaley, II, Treasurer
Cave Research Foundation
4253 Senour Road
Indianapolis, IN 46239-9403

In Memoriam of Paul Travis

By Bill Devereaux

We at Lava Beds lost a dedicated JV on January 5, 1999. Paul Travis of Ashland, Oregon, died that Tuesday evening of complications from cancer. Paul started working with us in 1989, to help in the bat counts and general cave inventory projects of CRF at Lava Beds National Monument. He also helped Bill Devereaux, Mike Sims, Janet Sowers, Chris Rountree and others in ice level monitoring, cave mapping, cave reconnaissance, and GPS/brass monument installation projects. Paul served in the US Army in WWII. He had degrees in physics and geology. He was an avid 'birder'. After he had retired from government service, he often acted as a volunteer for the Tule Lake Wildlife Refuge. There he worked behind the counter at the Visitor's Center and lead trips into the refuge.

Eventually, he wandered up the hill to Lava Beds National Monument. He worked as a frequent volunteer at the Visitor's Center. His interest in flying critters lead him to becoming involved in bat counts. He worked with Steve Cross, Kim Strassburg, Chris Rountree, Gary Hathaway, Sarah Nichols, and Michele Moore.

In retirement Paul was a wanderer who planned his year around field trips, seminars, and volunteer assignments that interested him. Some weeks it was helping CRF at Lava Beds, other times joining the Klamath bird count, taking a field seminar in southwestern archeology, sitting in on classes at Southern Oregon State University, or hanging with the Friends of the Pleistocene in the Nevada desert. He never stopped learning.

We walked in sunlight. We walked by starlight. We walked up Lyon's Trail by moonlight alone, listening to the coyote's song. We walked in foot-deep snow to take ice levels in November. We walked in the rain and listened to the chee of the towhee. We got 'lost' in the woods together looking for Craig Cave, Spider Cave, and caves which we still believe exist, but may not. His laugh would sometime annoy, but more often would lighten our burden and make the trip seem shorter. He knew rocks. He knew trees. He knew birds and flowers and bugs and the wind. He was my friend and I will miss him sorely.

HEADS UP FOR EXPEDITION LEADERS AT SEKI AND MIKI

HEAD COUNT ISSUES: CRF has had a couple of years experience with the party size limit of 15 persons for our expeditions, a limit that is required of us by the

National Park Service. Some of you have been inconvenienced and have complained about being excluded from expeditions owing to this restriction. So a

few words of explanation seem to be in order. First, the regulation was imposed several years ago in result of larger organization such as the Sierra Club taking large numbers of people on overnight activities and thereby impacting the Parks' ecosystem in unseemly ways. So the regulation is fundamentally a conservation measure, and CRF supports the NPS in their efforts to conserve the resources that are enshrined in the Parks. We will observe this limit on each of our expeditions. The exception will be for those activities for which the Superintendent expressly suspends the rules. This happens occasionally when NPS wants us to do something that they want to achieve, such as the time when we jointly staffed an expedition with the San Bernardino County cave rescue a year ago in July. But in practice, how can we best conduct our expeditions? I (Tinsley) have thought a lot about this, and have talked to many of you concerning what might work best. Let's try the approach outlined below during the 2000 field season, and see how it works. Fine tuning is always an option. For this to be successful, the Expedition Leaders must be proactive and assertive. Here's the plan.

Expeditions leaders will have to be certain that their expedition's objectives are in line with available staffing. This isn't a new idea, but we must formalize our oral folklore employed to assemble a CRF expedition.

Firstly, like it or not, there is a pecking order for CRF expeditions. The Principle Investigators always get to attend, as this is a research project and PI's are key to the long-term success of the CRF operation. PI's must not abuse this status; they need to let the Expedition Leaders know as soon as possible that they are planning to attend an expedition, for the PI content largely establishes the agenda for the expedition.

Secondly, especially for cartography activities, the Expedition Leaders must be sure that they have party leaders and sketchers who can lead productive survey trips. Peter Bosted's successful cartography program depends upon a cadre of competent personnel. This also is key to assuring that all who attend a CRF expedition have a quality underground experience. In short, we want to run an efficient operation both in terms of staffing and

objectives, in order to minimize impact on the cave resource and to gratify the ego of the project coordinator, if nothing else. So when you have your PI's and party leaders identified, then you are prepared to fill in with other joint venturers, including first-timers. I limit first-timers to 2 or 3 at most, depending upon the demand for slots in the expedition. Don't hesitate to tell a caver new to Redwood Canyon that it would be better for them if they were to attend a future expedition. I've done this many times. But then follow through on your recommendation. Instruct the newbie to contact that expedition leader well ahead of the expedition. Then you contact that expedition leader and explain the situation.

It is vital that new blood be continuously recruited, for several reasons, although there is no denying that a party size restriction can complicate that effort, especially on "popular" weekends.

A practice that I have used to good ends is to "overbook" expeditions by 1 or 2 people. Years of experience demonstrate that attrition will claim 1 to 2 people out of 15 for various reasons. We don't care why, but we do need to take advantage of that statistic. Also, people don't stay for an entire expedition, either coming or going in the middle of the weekend. I take a snapshot of the number of overnighing CRFers and don't let that number exceed 15. We have also experimented this year with running both MIKI and SEKI activities on some of the popular weekends, so as to better accommodate the "demand" to engage in project caving. A few MIKI trips have been conducted on a day-hike basis from Cold Springs campground, which is probably best for all concerned.

For their part, the NPS has been wholly cooperative to date in choosing not to be completely inflexible on the issue. So let's continue to follow the regulations as closely as possible. In practical terms, so long as we don't flagrantly abuse the party-size head count of 15 persons, I think we will be OK. After all, it was well-known so-called conservation organizations that were taking dozens to hundreds of folks on wilderness hikes that triggered this rule in the first place.

Help Support Research at Lilburn Cave—Buy a T-Shirt

Howard Hurtt is spearheading a T-shirt sale, celebrating the past 20 years in the dark at Lilburn Cave and to raise a few bucks for the project. T-shirts are of the finest Hanes manufacture, and have on the back a Dave Bunnell photograph in livid color, showing Bill Farr taking on one of the more white-watery reaches of the Enchanted River. The front left chest area has a Hurtt-ese quip about celebrating 20 years in the dark. Current stock is 5 adult S, 5 adult M, 30 Adult L, 10 XL and 2 XXL. Prices are \$18.00

for XXL, and all the rest are \$15.00 each. No, we don't do mail order, being a small-time cheap outfit, so contact Howard Hurtt and arrange to pick up your order via the caver equivalent of sneaker-net. Checks should be drawn payable to Cave Research Foundation and marked Lilburn Field Station. Send your order to Howard. You'll have to show him the money, I suspect. But it is a good cause, eh? And a fine T-shirt it is, to boot. I don't have the size

information beyond the designations listed above.
Howard can supply that information.

Howard's email is: hhurtt @ caver.com

Some URLs of Interest to CRF Folks

As the world goes increasingly digital and linked via the internet, the caving community is not far behind. Mike Spiess has put up this newsletter exclusive of the address list of joint venturers on our CRF California web site, available for viewing at

<http://www.caver.com/crf>

The CRF National has its own web page at

<http://www.cave-research.org>

The Lava Beds Research Center web page is found at:

<http://www.pwpconsult.com/lbrc.site>