THE CASCADE CAVER

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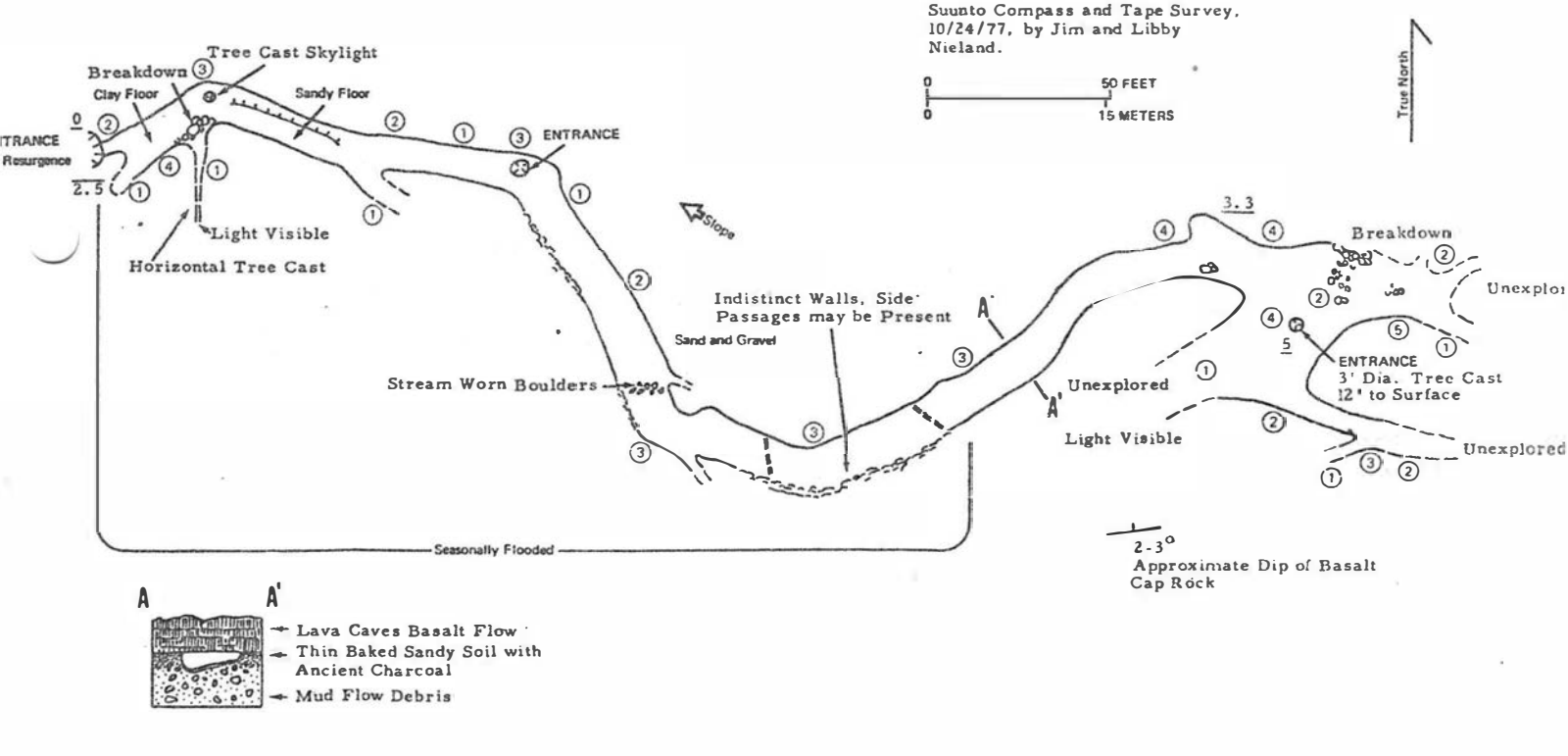
CHRISTMAS CANYON CAVE

COWLITZ CO., WASHINGTON

Suunto Compass and Tape Survey, 10/24/77, by Jim and Libby Nieland.



GROTTO EVENTS

JULY 28 or 29	Mt. St. Helens, Spirit Lake area. Call Bill Halliday at 324-7474.
AUG 11	Cascade Cave, Cave Ridge, call Mark Sherman (524-8780) for more information.
AUG 19	Picnic at Bob Brown's. Curt Black and Anne Ruggles will be in town, come down to Bob's and say hello. Call Bob for more information at 569-2724.
AUG 21	Grotto Meeting 8:00, 1117 36th Ave. East, Seattle
AUG 25	Grotto garage sale. Call Al Lundberg (365-7355) for details.
AUG 25	Deadhorse Cave, this will be a trip to clean out Deadhorse, which has had some abuse lately. Call Bob Brown (569-2724) for more information.
SEPT. 1-3	NWCA meeting at Papoose Cave contact Bob Brown at 569-2724.
SEPT. 18	Grotto Meeting 8:00, 1117 36th Ave. East, Seattle
SEPT. 29	Windy Creek Cave, call Mark Sherman (524-8780).
NOV. 23-25	McLaughlin Canyon Cave, call Ben Tompkins (524-9526).

NEW ADDRESS

Larry McTigue
962 Sunset Blvd. NE
Apt. B-5
Renton, WA. 98056

Jim Harp has resigned as the Grotto Trip Coordinator and Jan Roberts has volunteered to take his place. Please contact Jan (778-8503) for any trip information or trip suggestions.

The Grotto will be having a garage sale on August 25. We would appreciate it if people would donate items to the grotto for the sale. Please bring anything you might have to the August meeting, or give Al Lundberg a call at 365-7355.

INTERIM REPORT OF THE MOUNT ST. HELENS CAVES CONSERVATION
TASK FORCE OF THE National Speleological Society
June 17, 1984

1984 field work has included two reconnaissances of the results of seasonal storms on the cave area on the south side of the mountain. In April the chairman also presented a paper at the session on Karst Environments of the Annual Meeting of the Association of American Geographers: Pseudokarstic Phenomena in the May 18,1980 Deposits of Mount St. Helens, Washington.

Field Study or the May 18, 1980 deposits is expected to resume in July 1984. 1984 reconnaissances to date have been in the Hopeless Cave Mudflow area, the Gremlin Cave Mudflow area and the Road 81 Mudflow area. Whereas the 1982-83 runoff season was primarily degradational in the Hopeless Cave areas, the 1983-84 season was markedly aggradational in the vicinity of Hopeless Cave itself, and to some degree in the western part of the aggradational mass behind the controversial dam about 1/4 mile upslope from the main entrance of Ape Cave. The top of this deposit in June 1984 is less than a foot from the top part of this dam west of the main stream channel, and there is abundant evidence of overtopping during earlier seasonal runoff. It is unclear how much of a threat this poses to the much-visited lower part of Ape Cave. Another single mudflow episode comparable to that of about November 1, 1980 would be partially diverted east of the main entrance of the cave. Part would overtop the west part of the dam and would then divide, with some passing through the parking lot west of the entrance and part moving down Road 8303 and spilling into the cave if the volume and velocity were sufficient to rise about one foot higher than that of November 1, 1980 and overtop a hump in the road about 150 meters north of the cave.

Reconnaissances in the Road 81 Mudflow area also included the Gremlin Cave Mudflow which arises separately from the Road 81 Mudflow although also crossing Road 81 farther west. The bulk of the Gremlin Cave Mudflow continues to extend down Road 81 from a point about 200 meters east of Red Rock Pass, thence southeast between Spider Cave and Little Red River Cave, in a braided outwash pattern. Spider Cave and Flow Cave continue to be topographically isolated from these deposits. Some aggradation and sorting continues in the area of Gremlin Cave and a new tongue is spilling directly into the entrance sink just east of the barrier dam which diverted the earlier tongue. A quick reconnaissance in the entrance room suggests that seasonal waters in 1983-84 here were aggradational in the upper part of this section of the cave although the presence of the new tongue is worrisome. Detailed studies along the spelean streamway are needed here.

Little Peoples Cave is in an area of rapidly enlarging flood plain of the part of the Gremlin Cave Mudflow diverted by Road 81. This cave has received much inflow during the 1983-84 season, of sufficiently high velocity that the sandbag dam through the NW part of the entrance sink has been eroded to its base. This dam was in the wrong location originally. No information is yet available about conditions in this threatened cave.

Reconstruction of the sandbag dam here, completely outside the entrance sink, appears essential before the 1984-85 rainy season.

At Little Red River Cave, flood plain deposits continue to aggrade, but the channel about 100 meters west of the entrance is larger and deeper than in the past; the risk of overtopping of high-load waters into this cave appears less now than in 1983.

Along the east margin of the west lobe of the Road 81 Mudflow, Mud Pond Cave now is completely filled and additional aggradation has occurred in what remains of Sand Cave as well as erosive redistribution of the previous spealean mudflow tongue. The entire western lobe of this mudflow is enlarging rapidly, with marked enlargement of floodplain deposits between Sand Cave and the Utterstrom's Caves, and it is likely that Sand Cave will be completely filled in the 1984-85 season regardless of any attempts at diversions.

The Utterstrom's Caves themselves are unaffected by the mudflows. There appears to be no current danger of overtopping the elevated rim of the Breakdown Cave sink. It is suggested that future visits to these caves be by way of the old trail east of Sand Cave; the view of the flood deposits is very impressive.

Especially needed at this time are studies in Little People's and Gremlin Caves, looking toward recommendations to the U.S. Forest Service.

William R. Halliday, M.D.
Chairman.

"Relax, Worthington . . . As the warm, moist air from the jungle enters the cave, the cool, denser air inside forces it to rise — resulting in turbulence that sounds not unlike heavy breathing."

SPELEODELTIOLOGICAL NOTE

William R. Halliday, M.D.

Several members of the Cascade and Oregon Grotto have copies of an old postcard which shows a grizzled man sitting atop one of the entrances of Ole's Cave. Recently, I ran across a copy of a photo picture book of northwestern scenes, containing the same photo, with the date 1903 on it. A second man is shown in the lower part of the photo, which was cropped for the postcard. The photo was by the author and publisher of the book, F.H. Kiser of Portland. The book has no page numbers and is undated but must have been published around 1905. The publisher was listed as Wonderland Souvenir company, and the title is Pacific Coast Pictures. The copy I saw is selling for $75.00, in case anybody is interested.

MT. ST. HELENS CAVE INVENTORY
RECOMMENDATIONS FOR MANAGEMENT, PART ONE: FLOOD CONTROL

by Clyde Senger and Rod Crawford

NOTE: During much of 1983, the authors were engaged in an inventory of the biological resources of the Cave Basalt lava tubes, Mt. St. Helens National Volcanic Monument, for the U.S. Forest Service. The project is now completed and the final report has been accepted by the Forest Service. It is intended to publish selected sections of the report in the Cascade Caver from time to time. The following is the first part of the "Recommendations for Management" section, which will be followed in due course with the sections on visitor management, interpretation, surface management, and so forth.

FLOOD CONTROL: Teigen (1980) stated that diversion of the post-1980 drainage and sediment transport system from the area of the "upper caves" [the area from Ape Cave north to Utterstrom's Caves] would be prohibitively expensive, and instead recommended positive protection of individual entrances. We are inclined to agree, though diversion might be worth looking into. It is also desirable for flood protection structures to "look natural", so as not to draw attention to entrances or wild caves. Specific recommendations follow.

GREMLIN AND SPIDER CAVES: Presently, the surface over Gremlin Cave between the two entrances is covered with mud and alluvium deposited in and after 1980. A runoff channel crosses the middle of this area and continues downslope, eventually to sink into the lava upslope from Spider Cave. In 1980 and the following winter some of this material flowed in Gremlin Cave's lower entrance, partly filling all the northern passages, blocking some, burying some of the cave's fragile geologic features, and severely impacting habitats. Apparently little or no material is being washed into this entrance presently, though a minor drainage channel passes with 10' of it [this was written in 1983; during the subsequent winter the barrier separating this channel from the entrance was breached and more water and debris flowed in]. Similar alluvium has recently begun to wash into the cave's southern passages via cracks around the base of the little lava upwelling containing the upper entrance pit. The level of mud

in that area has risen, perhaps because of runoff chiefly from the higher ground to the northwest, rather than the main drainage. It may be desirable to protect remaining features and habitats in the cave's southern passages; one possible approach would be construction of a barrier around the north and west sides of the upper entrance area which would deflect local runoff from the cracks now taking mud, toward the central channel. A structure of logs (available in the area), backed by rocks and soil, might be more leakproof than one of sandbags, and would attract less attention to the cave. A caterpillar or other roadbuilding equipment could reach the area easily via the old logging road leaving road 81 just north of there; this could be done most economically while working on the washout area of 81, nearby. The lower entrance may need no action presently [written in 1983], but should be checked occasionally for breaching of the rock and stick dam separating it from the nearby minor channel or additional invasion of this entrance by runoff.

As noted above, the runoff channel through the Gremlin Cave area heads toward Spider Cave but presently sinks before reaching it. A larger and currently more active channel passes a short distance to the east of the Gremlin Cave mud deposits and just downslope from there splits. The main channel from that point joins the stream in the badly eroded roadbed some distance east of Spider Cave, and poses no threat; but an overflow route from the split heads directly toward the cave. On 23 October 1983, we noted a significant amount of mud from this source within 600' of the Spider Cave entrance, and some, perhaps of local origin, within 100' of the entrance. A great deal of unstable debris on the Gremlin Cave "mud flat" stands ready to threaten Spider Cave via the western channel if major floodwaters pass through the area again, and even without this, ordinary runoff in the eastern, split channel may well carry mud to the cave's entrance within a few years. This could severely impact the cave's features, habitats, invertebrates, and hibernating bat populations, and should be prevented if at all possible. This would be a larger operation than those outlined here for Gremlin, Little Red River, and Little People's caves, but the importance of Spider Cave is such as to justify considerable effort. As a start, the western channel (through the Gremlin Cave mud flat) and the overflow route from the eastern channel should be diverted into the main eastern channel, which perhaps merits deepening to accommodate potential floodwaters. Access to the area for tractor equipment would be via the road to Gremlin Cave and its continuation from the southweat corner of the mud flat. Perhaps, also, the mud surface in this vicinity and around the upper entrance of Gremlin Cave could be stabilized by seeding or planting with native vegetation such as would normally occur in the area. Lupine would be one possibility, but its resistance to erosion is limited, and probably something better could be found.

LITTLE RED RIVER CAVE: This cave received no mudflow deposits as a result of the 1980 eruptions, but is along one of the major channels for such flows, and is at risk if future eruptive activity should cause additional flows on the south side. The present channel 200' west of the cave is well developed, but would probably be of little significance to the front of another large mudflow. The lesser channel 220' east could overflow under ordinary flood conditions [apparently such did occur in the winter of 1983-4, but so far without affecting the cave]. Fresh mudflows seem unlikely for a number of years, but become more probable as the lava dome nears the south rim of the crater. We noted that rainwater on the slope above the entrance is presently channeled into the cave. If mud reached this area it would undoubtedly invade the cave, and a major mud deposit could severely impact the habitats and species present.

This cave's biological importance is such that protecting it deserves a substantial effort. A relatively small diversionary structure 100' or so upslope from the entrance might provide a great deal of protection at low cost. A V-shaped bank of rocks and debris or a couple of logs backed by dirt might be adequate. As with the work recommended for Gremlin Cave, such could be relatively inexpensive if coordinated with construction on road 81 to the east. It might be desirable at the same time to channel or divert mud from the lesser flow area to the east away from the entrance.

LITTLE PEOPLE'S CAVE: This cave is on the edge of a mudflow and the entrance apparently did receive some mud at that time, and considerably more the following winter in the form of alluvium. There seems to be some subsequent erosion or those deposits, but it is not clear whether they are merely being washed into the lower portions of the cave or are being flushed out an unknown lower opening. Since the entire length of Little People's Cave is already mud-impacted and its fauna is not as unique as that of Little Red River Cave, protecting it would be a lesser priority but still desirable if someone can devise a feasible procedure. The present sandbag structure affords some protection, but is beginning to deteriorate, and allows water and perhaps mud to flow into the cave through cracks outside the sinkhole perimeter [in the winter of 1983-4, the sandbag dam was breached and more flooding into the cave occurred]. If this were to be replaced, it might be worth while to enclose a larger area so as to block some of these cracks. Since the surrounding surface is relatively flat, a diversionary structure would probably be of little value in the event of major flooding or fresh mudflows.

Flow Cave was not investigated during this study, but is known to have significant geologic features, and may well have an important biota. Since it is in the "mudflow area" near Little People's Cave, it would be worthwhile to inspect the area and see if it also is in need of protection. Halliday (1981) considered Flow Cave to be in some danger from nearby mud tongues.

APE CAVE: The upper entrance of Ape Cave is separated by a kipuka from the route followed by mud and alluvium down the flow, and thus in no danger. The early mudflows during and following the 1980 eruptions ran to the west of the lower skylight, and the edge of the mud is about 50 feet from it. There seems to have been little activity in the area near the skylight since the fall of 1980, and no significant increase in deposits there. Alluvium is obviously moving downslope past that point, but seems to pose no danger at this time. however, the skylight entrance is not far above the present alluvial deposit level, so it may be desirable to monitor the area, especially the main drainage channels upslope and to the west, in case channels relocate and threaten that entrance. An interruption in the drainage pattern a short distance to the northeast of the main entrance might cause buildup of deposits in that area, and possibly flooding into the cave. The same might occur in the parking lot to the west, particularly if the rock barrier beside the road to the north was breached. Thus it might be wise to monitor those areas and remove any obstructing materials that might accumulate. Even if such flooding were to occur, however, it is unlikely that large volumes of debris would be swept into the cave. On the other hand, additional mudflow activity might reach that far and cause significant filling. Adequate protective measures against such an event would probably be expensive, but should be considered.

The Utterstrom's Cave System appears to be in no need of flood protection at present. The caves downslope from Ape Cave are unlikely to be invaded by alluvium in the near future, but this may change if the drainage channel passing west of the Lava Cast parking lot and toward the west edge of the flow were to fill with alluvium and overflow at any point. It might be worthwhile to check on this occasionally.

FURTHER NOTE: Naturally, some might disagree with some provisions of these recommendations. They were based on somewhat limited information obtained during a largely biological study. The Forest Service may or may not act on them. We certainly feel that the Cave Basalt caves deserve whatever flood protection is feasible.

REFERENCES CITED

Halliday, William R., 1981. Further impact of post eruptive mudflows on the Mount St. Helens Cave, Washington, May 1981. Western Speleological Survey Bulletin 63:1-6.

Teigen, Melroy H., 1980. Mudflows threatening the caves in the "Caves Basalt Flow". Letter to Forest Supervisor, G.P.N.F., Dec. 10, regarding 2370 Other Areas and 7170 Materials Engineering.

Cascade Caver
207 HUB (FK-30) BOX 98
University of Washington
Seattle WA. 98195

12/84

Dr. William R. Halliday

1117 - 36th Ave E.
Seattle, WA 98112

Grotto Meeting: AUGUST 21 at 8:00