# The Culverson Creek Cave System

# 10

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**Abstract**

Culverson Creek Cave is an active stream cave with a large surface catchment of 42 $mi^2$ (109 $km^2$). The cave is in the Union Limestone and discharges to springs along Spring Creek. Because of the large surface catchment and some partial blockages along the passages, the cave is subject to flooding. There are ten entrances, large passages, and numerous streams, with a total surveyed length of 20.1 miles (32.4 km).

## 10.1 Introduction and Historical Background

### 10.1.1 Overview

A surface stream called Culverson Creek drains the northwest corner of the limestone belt in Greenbrier County. Just west of the tiny community of Unus, the stream flows underground at the base of a steep escarpment (Fig. 10.1) and becomes the premier river cave in West Virginia—the Culverson Creek Cave System. The resurgence of this large underground stream is 4 1/4 miles to the east, issuing from a series of large springs along Spring Creek. The cave stream can only be followed for less than half that distance (2 miles) toward the resurgence. At this point, a large sump, called Dream Lake, is encountered which has not been successfully dived. Beyond the sump, a conjectured huge cave passage continues for another 2 1/4 miles, passing below the Buckeye Creek drainage basin. Even though the cave stream can only be followed for 2 miles, the accompanying side passages and tributary streams account for 20.1 miles of cave passages.

The Culverson Creek basin is a 42-square-mile closed karst basin (one huge blind valley). During exceptional flood events, the cave system becomes a metering point unable to accept all the flood pulse. When this happens, the Culverson Creek Cave entrance becomes submerged and a temporary lake begins to fill the valley (Fig. 10.2). This lake can become more than a mile in length (Fig. 10.3). Hypothetically, should the cave system be completely blocked, the extent of the lake would be considerably larger (Fig. 10.4).

The Culverson Creek Cave System is developed in the Union Limestone. There are ten entrances, large passages, numerous streams, and plenty of challenges for exploration and study particularly in the field of hydrology. There are many features and curiosities in this cave system. For instance, from the main entrance, the stream trunk passage extends for more than 1½ miles before being blocked by a huge log jam, where hundreds of saw logs and trees, some 75 ft in length, block the passage. Along the way, logs have jammed across the passage 60 ft above the stream. Sediment deposits more than 100 ft high have inspired names like Mudderhorn and Mud Everest. Other names such as Death Canyon, Psycho Siphon, and Dread Pool are indicative of the challenges this wet cave system offers. The depth reached by flood waters in some sections of the cave system is stunning, and the weather conditions certainly played a factor in the exploration and survey of this cave.

**Electronic supplementary material**
The online version of this chapter (doi:10.1007/978-3-319-65801-8_10) contains supplementary material, which is available to authorized users.

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**Fig. 10.1** Main entrance to the Culverson Creek Cave system is where the surface stream, also called Culverson Creek, flows into a large cave entrance at the base of a large limestone escarpment which marks the end of a blind valley. The two figures seen in the entrance are Robert Handley and the Earl Thierry. They, along with Rod Scheer, were the first cavers to enter the Culverson Creek Cave system in 1953. Their figures were added to this modern entrance photograph using digital photographic techniques. Photograph adaption by Philip Lucas

**Fig. 10.2** Cave system cannot accept the peak flow during extreme flooding conditions from the 42-mi$^2$ drainage basin. When this happens, part of the blind valley becomes a temporary lake, more than a mile in length. Photograph by William Jones. Used with permission

In the early years of exploration, there were three separate caves: Culverson Creek, McLaughlin, and Fullers. Each of these caves contained a section of the main Culverson Creek stream, but connections between these stream segments were blocked by impassable sumps and constrictions. Eventually, all the three separate caves were knitted together while carefully exploring all the many leads many of which were flood overflow routes (Fig. 10.5).

### 10.1.2 First Survey Trips

The first direct written record of a Culverson Creek Cave trip, when a survey was conducted, is briefly described in an Oct 1963 issue of the *Cavalier Caver*, Vol. 4. There were two surveying parties on this November 3, 1963, trip. There were eight members, presumably all UVA Cave Club members participating. One party surveyed a side passage near the


**Fig. 10.3** Temporary lake is shown in *red* on this topographic map. The lake as shown here, is 1 mile in length. There have been flood events where the lake has extended much further up the blind valley

entrance that leads to the Fang Room. The other party surveyed from the Hairy Place "onward". On July 4, 1965, Charles Maus and John (Bud) Rutherford surveyed from the Culverson Entrance down to the Mudderhorn and into the Right Hand Passage. Two days earlier Charles Maus, Edward Bauer, Shelly Gordon and, Robert Malis surveyed from the Log Jam upstream to the Mudderhorn. The original survey notes of these trips and many others still exist.

During the summer of 1965, C. Michael Hamilton became very interested in Culverson Creek Cave, McLaughlin Cave, and the Fuller Cave Systems which were not yet physically connected, and began to gather material for his senior thesis. *The origin and geological relationship of the CCCS, Greenbrier Co., West Va., April 1969* was presented to the Colorado School of Mines in 1968. By that time McLaughlin Cave had been connected to Culverson Creek Cave, but the connection to Fuller Cave had remained elusive. Nonetheless, the thesis contained a map of all the surveyed passages in all the caves. This was the first map of the entire cave system and displayed a total of about 10 miles of passages including Fuller Cave.

The connection between Culverson Creek Cave and Fuller Cave took place on May 10, 1970, by Roger Baroody and Philip Lucas during a surveying trip beyond the Hurricane Lake Passage. This was a surprising connection because the Hurricane Lake Passage started as a small tributary infeeder, an unlikely route to find one's way down 180 vertical feet to the main stream passage a mile distant. With this connection, and other discoveries being made, the cave system was rapidly gaining a respectable length. It was becoming clear that a new map was needed. Philip Lucas accepted the role as coordinator for this decade long project. Soon after, William Royster became a co-coordinator for much of the project. William Balfour was a key member of the Culverson team for most of the project. Sandy Van Luik was a willing participant on many long trips and Bert Ashbrook joined the team near the end of the 10-year project. There were many others who braved the cold water and voluminous mud to survey this cave system. One epic trip was a coordinated effort by two parties: one entering the system through the Wildcat entrance and the other from the Fuller entrance with the objectives to rig the various drops,

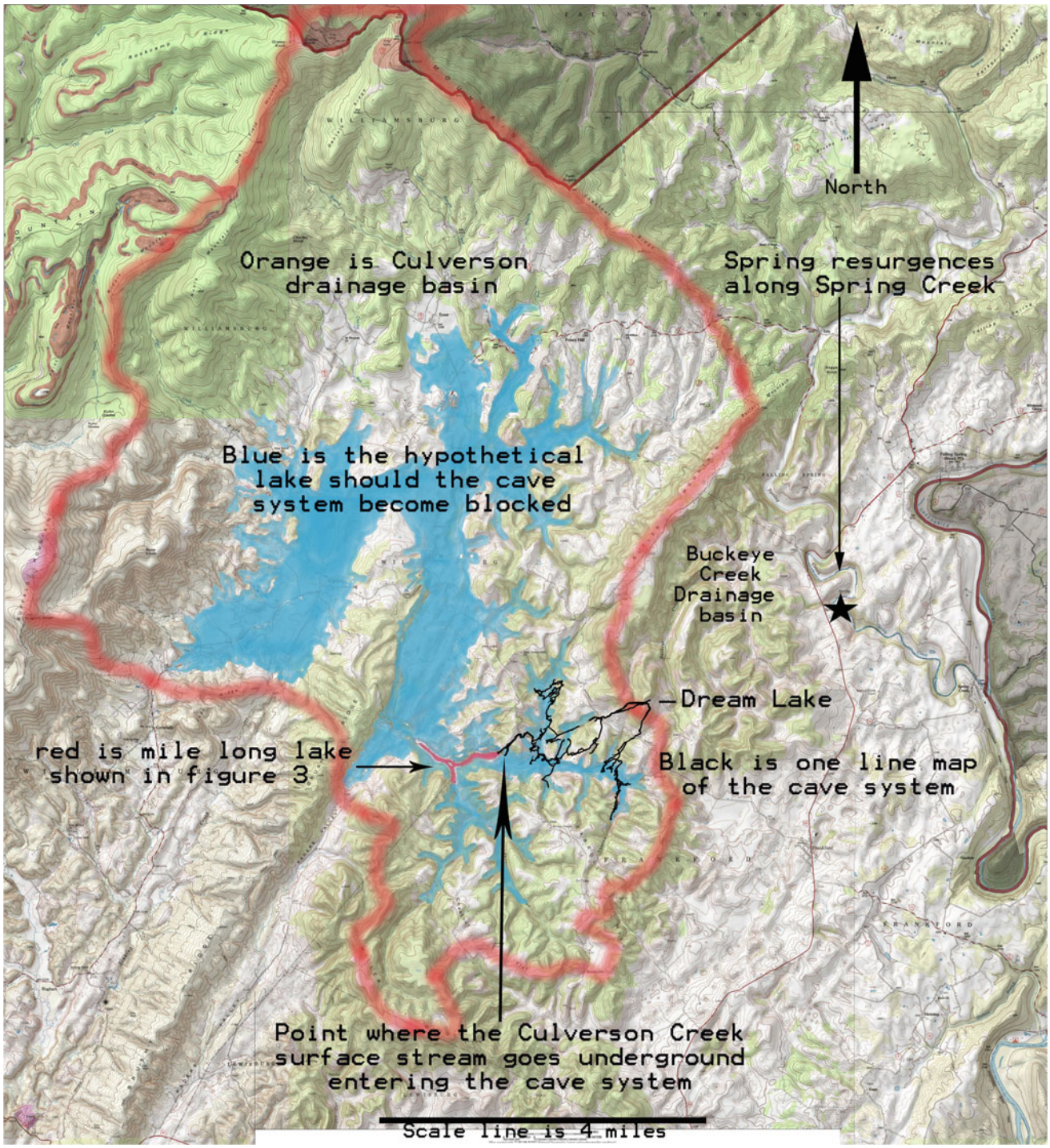



**Fig. 10.4** Topographic map showing the entire 42 mi$^2$ drainage basin. The blue represents the size of the lake should the cave system become completely blocked. The resurgence for the cave system along Spring Creek is indicated by the star symbol which is over four miles to the northeast of the Culverson Creek Cave entrance

perform a dye trace from the Log Jam to the Alien Way, and survey the mile long Lower Culverson Trunk. Each party would exit the cave through the entrance the other party had entered. The two parties crossed paths on the top of Mud Everest on this difficult 5-mile journey with all objectives accomplished (Fig. 10.6).

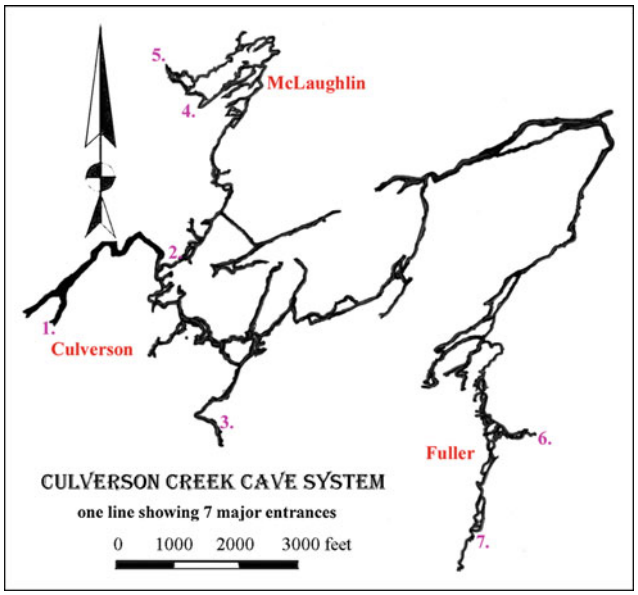



**Fig. 10.5** Line map of the Culverson Creek Cave System showing the three separate caves: Culverson Creek Cave, McLaughlin Cave and Fuller Cave. They were eventually connected to form the cave system. Seven of the main entrances are shown. There are a total of nine entrances

## 10.2 Description of Major Passages and Connections

The sections that follow provide detailed descriptions of the cave. Maps of the area being described provide a guide to the layout of the cave passages and most of the place names that are used in the text. The complete map of the cave is provided in the electronic map file (map M-10.1).

### 10.2.1 Main Culverson Entrance to the Balcony (Map 10.1)

When free of flood debris, the main Culverson Creek Cave Entrance is inspiring. The opening is at the base of a 50-foot-high limestone escarpment. It is 20 ft high and almost 150 ft wide at the dripline, although it soon narrows to 80 ft wide. Culverson Creek plunges into the cave over a series of waterfalls and rapids, bottoming out in a long, deep lake. Beyond the lake, passage continues into big blackness (Fig. 10.7).

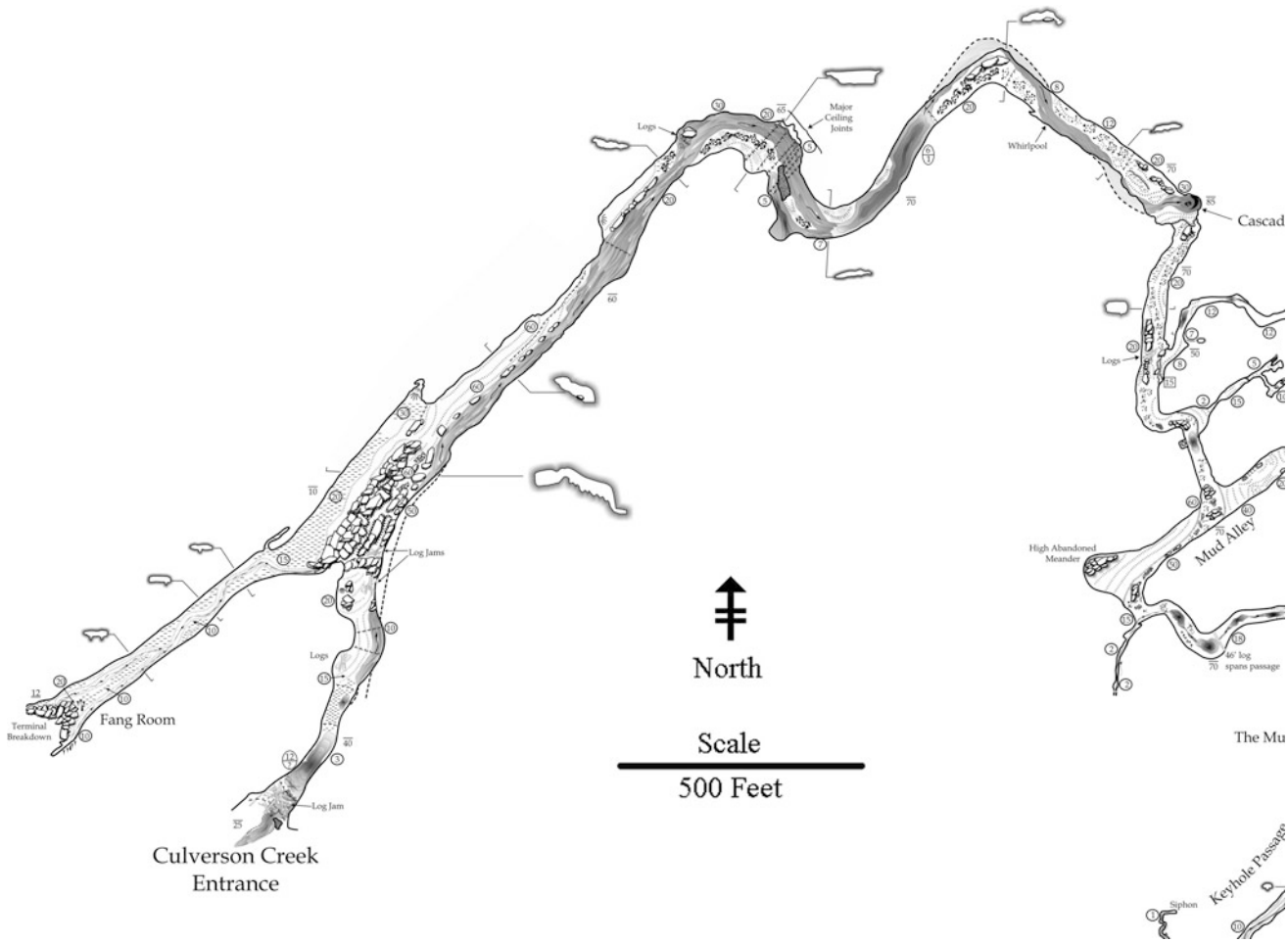
Rarely in the past 25 years has Mother Nature provided such an unobstructed view of the Culverson Creek Entrance. Usually, much of the entrance is obscured by a giant snarl of logs, limbs, and other debris. Each flood rearranges the logjam in its own way, so that the overall appearance of the entrance varies greatly from visit to visit (Fig. 10.8).

When the logjam is present, a careful traverse down through the logjam is needed to reach the other side which is a deep lake. The entrance lake requires swimming or the use of a flotation device (Fig. 10.9). After 30 ft, the stream bed becomes shallower. Wading is possible for the next several thousand feet.

About 500 ft downstream from the entrance, the passage enlarges to approximately 200 ft wide. Ceiling heights range up to 60 ft. A 30–40-foot-high mud bank sits along the left wall. At the top of the bank, large breakdown blocks project out of the mud (Fig. 10.10).

A side passages (Fang Passage) takes off to the northwest at this point. Averaging 50–70 ft wide and 10–30 ft high, this passage trends northwest for nearly 700 ft. A small stream has incised itself into the mud floor. The passage ends

**Fig. 10.6** In November, 1974, two teams traveled the 5-mile journey between the Wildcat entrance and the Fuller entrance. The team members were Raymond Povirk, Rockwell Ward, William Douty, Charles Williams, William Jones, William Royster, and Philip Lucas. Photograph by Philip Lucas




**Map 10.1** Main entrance to balcony

at a huge breakdown choke. Leads can be followed for a short distance around both sides of the breakdown before choking off. It is likely that this collapse blocked a former entrance that once opened onto the hillside about 30–40 ft above the present entrance (Fig. 10.11).

Back at the main passage, the trunk continues for over 300 ft before the width narrows to 80 ft. It then continues, 80 ft wide and 60 ft high, for another 300 ft to a deep pool. It is possible to skirt the pool and then the passage narrows somewhat over the next 100 ft and the ceiling height reduces to 20 ft (Fig. 10.12). After another 200 ft, the passage takes a right hand turn. A small log jam is usually present here along the left wall. The passage turns another 90° after another 100 ft. In this bend, strong joint patterns can be seen in the walls. At one point, the passage height reduces to 5 ft. This "low" spot can be avoided by following the right wall to a parallel passage divided by a rock partition. However, this parallel passage requires wading through a pool where methane boils to the surface when rotting debris on the bottom of the pool is disturbed. After 80 ft the rock partition disappears and the passage becomes 50 ft wide and turns back to the northeast. For the next several hundred feet, the creek widens from wall to wall. Passage height averages about 6 ft. Water depths can be up to 4 ft. This is the smallest cross-sectional dimension along the main trunk passage until the log jam is reached (Fig. 10.13).

Finally, the ceiling height increases to 20 ft, and the passage makes an abrupt turn to the right and southeast. It continues in this direction for nearly 400 ft. Up until this point, the gradient of the stream has been very gradual, dropping only a few feet every hundred feet. Here, the gradient increases. The stream tumbles over a cascade, incises itself deeply in mud banks, and enters a deep pool (Fig. 10.14). This pool is known as the First Siphon. In dry

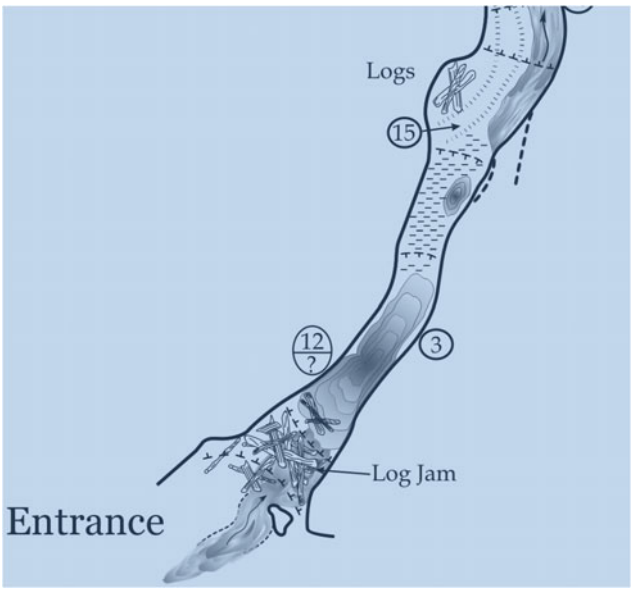



**Fig. 10.7** Plan view of the Culverson Creek entrance shows the existence of the log jam during the survey when there was adequate room between the ceiling and the log jam for a relatively easy entry. There are times where the log jam completely fills the entrance requiring the excavation and rearrangement of logs to get through. There are other times when the entrance is nearly free of logs. It was reported in early June, 2016, to be free of logs. However, on June 23, 2016, 9 in. of rain fell and the resulting flood was estimated to have reached 40 ft above the entrance. Once the flood waters recede, there may be a new debris jam at the entrance once again

**Fig. 10.8** Cave passage beyond the entrance log jam has a lot of flood debris scattered around. Some are huge logs jammed into cracks and crevices. Brian Williams is looking at one of the logs jammed in the ceiling. The photograph is titled; "Having a conversation with the Lord of Logs." Photograph by Philip Lucas

weather, the stream flows out under the left wall, through a tight fissure, heading in the direction of the McLaughlin section of the cave system (Fig. 10.15).

The trunk passage continues beyond the pool at the top of a steep 15-foot mud bank. During wet weather, water quickly overfills the siphon pool, and the overflow stream continues down the trunk passage. The passage narrows to 20–30 ft wide and high and continues with a silt-covered cobbled stream floor for 300 ft. Along this section are several logs "beached" on the mud banks or lying across the streambed. After times of flooding, there is also a chest-deep pool. Above the pool—and on the left wall at the ceiling—is the Balcony Passage. This leads to the Wild Cat entrance (Fig. 10.16).

### 10.2.2 Culverson Trunk from the Balcony to the Mudderhorn (Map 10.2)

At the balcony intersection, the Culverson Creek trunk is approximately 50 ft wide and 30–40 ft high. A cobblestone floor is interspersed with breakdown, mud banks, and sandy

**Fig. 10.9** When there is a log jam at the entrance, the in-cave side of the log jam ends abruptly at the edge of a lake. This end of the lake is deep and must be negotiated by either swimming or using a flotation device to reach shallower waters. Photograph by Philip Lucas

**Fig. 10.10** Further downstream the passage becomes quite large with a huge bank of breakdown on the *left*. Photograph by Philip Lucas

**Fig. 10.11** This is a side passage that goes to the Fang Room which is a large breakdown termination. The passage would be about 50 ft larger if all the sediment was removed. Photograph by Philip Lucas

beaches. Approximately 250 ft downstream from The Balcony, a side lead takes off at the top of a steep mud bank. This lead pinches down to about 2 ft high, but after 10 ft opens up again into a walking passage, 20 ft wide and 15 ft high. There are copious mud mounds. About 150 ft down this passage, mud pits in the floor indicate some lower

**Fig. 10.12** Size of the main stream channel is becoming smaller through this section but is still a nice size walking passage. The white material on the floor is foam left over from the last heavy rain. Photograph by Philip Lucas

**Fig. 10.13** Through this section, the stream channel becomes lower and the stream spreads from wall to wall. Photograph by Philip Lucas

**Fig. 10.14** Gradient of the stream has been gentle until it reaches this point where it cascades down through a jumble of breakdown. Photograph by Philip Lucas

**Fig. 10.15** During low flow, the entire stream disappears into a small fissure in the north wall. This is a new piracy where the stream has been diverted through a new route into the McLaughlin side of the cave. The small passage it flows into is too small for human penetration. Photograph by Philip Lucas

**Fig. 10.16** Balcony Passage connects the Wildcat Entrance to the Culverson trunk passage. Its intersection is about 15 ft higher than the floor of the trunk passage where there is usually a pool of water. Climbing down can be a bit tricky but it is generally free-climbed. Photograph by Philip Lucas

drainage. After 250 ft, the passage encounters mud-covered breakdown. Two small leads head to the right and southeast. Both are choked with mud and breakdown. One small room in the southernmost lead contains a highway road marker jammed into the mud bank. This road marker must have been washed into the cave during flooding.

Further down the main Culverson Creek trunk is a huge side lead extending only a short distance before becoming filled with sediment. Just beyond this point, the passage is filled with a deep pool which can be skirted on the right side without getting more than waist deep—if one is careful to maintain firm footing on a slippery limestone slope. To the right of the pool is a dripping dome pit that becomes a waterfall during heavy rains. About 100 ft beyond the previous side lead, the passage intersects a much larger segment of the trunk, now up to 60 ft high and wide. Another pool at this intersection is easily crossed by stepping on the tops of large submerged breakdown blocks. To the northeast from the intersection, the trunk continues for 150 ft over steep mud banks. This segment terminates in a huge mud fill.

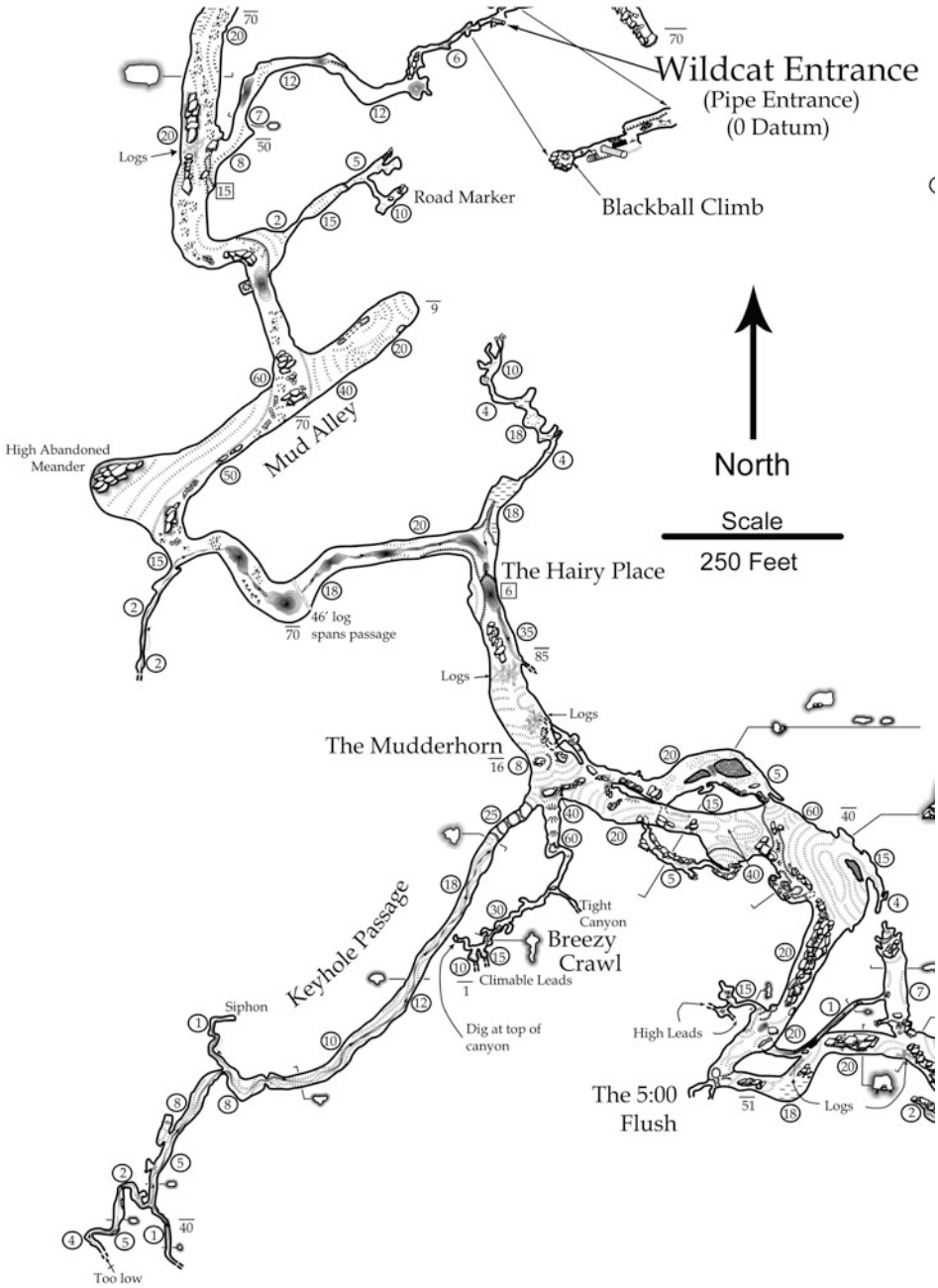
Downstream and southwest from the intersection, the trunk continues for 500 ft with passage widths of up to 100 ft and ceiling heights of 50–60 ft (Fig. 10.17). A series of pools lined with large breakdown blocks sit along the left wall. A steep mud bank, reaching from the stream nearly up to the ceiling, lines the right side of the passage. The passage then turns south and narrows to 30 ft wide for the next 100 ft. A small tributary stream enters from a small side passage on the right and south. This tributary can be followed upstream for 250 ft, and the stream flows even during dry weather.

Beyond this side passage, the main passage turns east for 50 ft and then turns southeast. Scattered pools are encountered (Fig. 10.18). About 200 ft further is a large pool. A pair of logs spans the passage at the far end of this pool. Each log measures 46 ft in length. For the next 300 ft, the passage averages 40 ft wide and 20 ft high and has a clean-washed bedrock floor. Joint sets in the floor create striking designs (Fig. 10.19).

Eventually, a deep wall-to-wall pool is encountered (Fig. 10.20). Here the passage turns to the right and south. A side passage trends north–northeast and contains a small infeeder stream. This passage quickly narrows and within 100 ft leads to a series of tight mud tubes and crevices. These can be followed for several hundred feet to a series of small pockets, rooms, and side passages that eventually end in mud fill and collapse.

Forty feet beyond the intersection with this side passage, the main passage encounters a 6-foot-high waterfall. This is the Hairy Place. The undercut, unclimbable waterfall drops into a deep plunge pool (Fig. 10.21).

**Map 10.2** Balcony to Mudderhorn




By climbing up a steep mud bank on the right-hand side of the passage, it is possible to traverse out above the waterfall and then down a steep mud bank beyond it. From the bottom of the mud bank, it is then necessary to climb down a rough wall for 15 ft to the downstream end of the pool (Fig. 10.22).

From the base of the waterfall, the passage continues for 100 ft to the base of a very large mud slope. The stream disappears here into a jumble of soupy mud and logs. As one climbs the slope, the mud firms up after 50 ft or so. The top of the mud slope is nearly 100 ft above stream level and slopes away on three sides. This is the top of the Mudderhorn. It was theorized for some time that the top of the Mudderhorn would be a place of safe refuge during a flooding event. Unfortunately, this theory was later disproved when leaves were found plastered to the ceiling at the very top of the Mudderhorn (Fig. 10.23).

**Fig. 10.17** Culverson trunk passage gathers water from numerous small tributaries until it once again has a flowing stream. The passage becomes rather large in some sections and, although some mud banks have to be negotiated, most of the passage has a bedrock floor. Photograph by Philip Lucas

**Fig. 10.18** This is one of the smaller cross sections in the trunk passage with William Balfour standing near a small ripple in the streambed. Photograph by Philip Lucas

**Fig. 10.19** Somehow these 46 foot logs became wedged in the enlarged joints of the bedrock floor of the stream passage. The caver is William Balfour. Photograph by Philip Lucas

**Fig. 10.20** Where the trunk passage makes this turn a deep pool stretches across the passage. Albert Grimm and William Balfour are carefully making their way around the inside corner of this meander. A steeply dipping and slippery limestone ledge demands a careful traverse; otherwise, a slip provides a quick descent into deep water. Photograph by Philip Lucas

**Fig. 10.21** Roar of this waterfall can be heard from some distance away. Although the waterfall is only 6 ft, the plunge pool below is wide and deep. The water falls through a slot a few feet wide and the walls are undercut on each side. During moderately high flow, caution must be taken if approaching the lip of the waterfall, not to be washed over. Figuring out how to get past this obstacle was not obvious, and it was named the Hairy Place. Photograph by Philip Lucas

**Fig. 10.22** Getting around the Hairy Place requires ascending a steep mud bank to the wall and then following the wall down to a point where a descent down the mud bank brings the caver to a series of ledges to down-climb to stream level. Photograph by William Balfour

**Fig. 10.23** Not far downstream from the Hairy Place is the Mudderhorn. It is a large mound of muddy sediment about 70 ft high. Once, it was thought that the top of the Mudderhorn might be a safe haven from flood waters—until leaves were found plastered to the ceiling. Notice the pile of logs against the wall on the left side. They are about 40 ft above the channel where the stream flows. Photograph by Philip Lucas

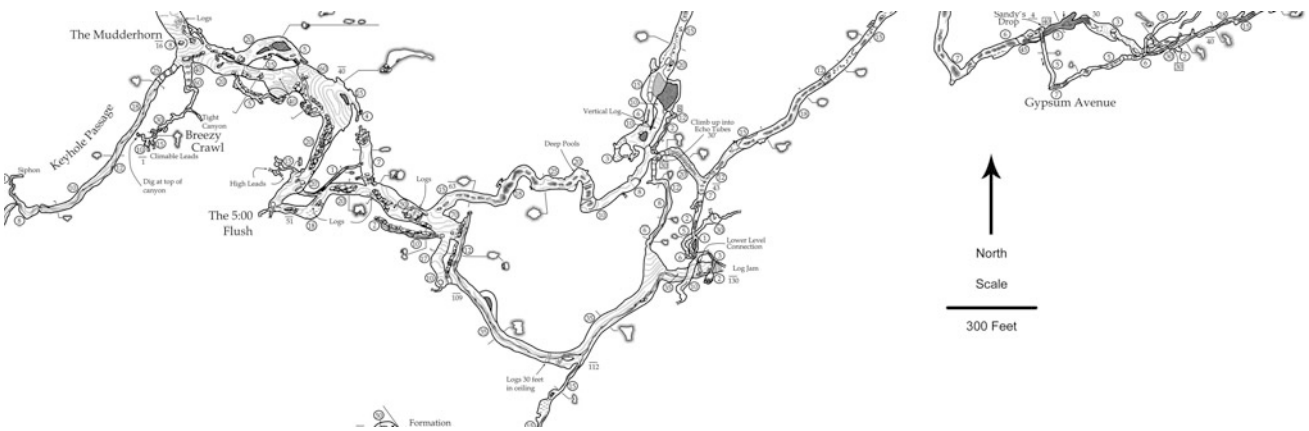
### 10.2.3 Mudderhorn to the Log Jam (Map 10.3)

A caver with a strong light, looking south from the top of the Mudderhorn, can barely see an intersection of passages off in the distance. The main route slopes down a breakdown and mud bank before eventually leveling out into an area of undulating mud banks and mud-covered boulders. Immediately at the bottom of the slope on the left-north wall, the stream can be seen following a lower channel. This lower stream passage reconnects with the main passage 300 ft to the southeast.

Negotiating the next 1000 ft of passage will test a caver's ability to negotiate steep muddy banks and mud-covered breakdown ridges. Passage heights range from 15 ft to over 60 ft. Passage widths vary from 50 to well over 100 ft. Finding the easiest route through this large trunk passage complex can save lots of travel time and energy. Since this section of the cave floods, all signs of a trail are often erased. To further confuse matters, there are many side leads and lower passage segments that loop back into the main trunk.

About 800 ft from the Mudderhorn, at a sharp meander bend, a small trickle of water enters from a passage on the right-west wall. This side lead is known as the Five O'clock Flush. The name stems from an observation by William Royster and Philip Lucas on several trips through this section of the cave.

On the first trip, at approximately 5 pm, William and Philip had surveyed this short passage, which ended in a mud plug, and returned to the main trunk, to pack up their survey gear. Suddenly the small trickle quickly grew into a sizable stream making a considerable noise as it gushed from the side passage tumbling down into a small plunge pool. Being ever alert for floodwaters, this certainly got William and Philip's




**Map 10.3** Mudderhorn to logjam

attention. It even had a funky earthy smell that sometimes accompanies the flood pulse of a thunderstorm. But the weather forecast had called for no rain that day. As they nervously discussed the situation, the flow of water quickly decreased into a mere trickle again. Still wondering about the short-lived flood pulse, Philip and William continued their survey. On the very next trip, they passed the same small side passage at the same time in the afternoon. Once again the little trickle began to gush and then diminish. On several subsequent trips this phenomenon was again observed.

Reduction of the survey data presented some possible answers to the mystery. Overlaying surface features onto the cave map revealed that the little stream passage came very close to the trailer where the-then owners, Mr. and Mrs. Earl Hinkle, lived. The possibility of sewer leakage into the cave seemed logical. The increase in the amount of water flow and the duration might represent the draining of a bathtub or washer.

Downstream from the Mudderhorn, the stream can be seen in short segments of lower levels that are free of breakdown. Approximately 1400 ft from the Mudderhorn, a large passage takes off from the left wall at the top of a mud bank. This is the First Echo Tube. Ahead, another mud bank descends steeply for 70 ft to rejoin the stream. Travel from this point on is made at stream level. Occasional pools dot the passage, but seldom is the water greater than knee deep. After approximately 300 ft, a first-time visitor might be startled to see logs spanning the passage 40–50 ft above the floor. This is flood debris (Fig. 10.24)! Passage widths here are 30–40 ft. Ceiling heights range up to 60 ft.

Just beyond a climb over breakdown, a side passage carrying a small stream enters from the right. This is the Hinkle Unus Stream (Fig. 10.25).

After another 300 ft downstream in the main passage, the left wall becomes a steeply sloping mud bank. Where the passage makes a bend to the right, a large log nearly 40 ft long spans the passageway. At the top of the mud bank above this log, a small passage leads up to the Second Echo Tube.

Approximately another 150 ft downstream is the Log Jam. The Log Jam is a giant jumble of logs. Some are fencepost-sized. Others are large sections of sawed logs 3 ft in diameter. The Log Jam itself is approximately 25 ft wide and high. It completely fills the passage and seems to have plugged it up by the sheer number and volume of logs jammed together (Fig. 10.26).

**Fig. 10.24** Logs jammed in the passage 40 ft above is a reminder to be aware of weather conditions when entering this cave. Photograph by Philip Lucas

**Fig. 10.25** William Balfour stands on a breakdown block which marks the intersection with the Hinkle Unus passage and stream intersecting the Culverson trunk passage. Photograph by Philip Lucas

**Fig. 10.26** Log Jam which completely blocks the master trunk passage. Photograph by Philip Lucas

Closer examination reveals that the ceiling descends immediately behind the Log Jam. The size and shape of the jam has changed from time to time over the years, and it has occasionally been possible to penetrate the jumble a short way. By following the ceiling downward, deep pools of water (filled with logs) were found. Apparently the Log Jam collected at a constriction in the trunk. And although during times of flooding the entire area is submerged, it does not appear that the Log Jam itself is the metering point. Metering is probably at some point downstream.

At the top of a steep mud bank on the north wall, just upstream from the Log Jam, a little waterfall enters from a small passage. This passage offers very muddy and torturous conditions. Going up a series of steep slopes and short drops, it eventually ties into the first Echo Tube near the top of the Third Ladder Drop.

### 10.2.4 The First Echo Tube (Map 10.4)

From the Log Jam Trunk, a short steep mud bank at the top of a larger mud bank leads into the First Echo Tube. The First Echo Tube begins as a phreatic tube-like passage. Mud banks on either side require the traveler to trudge down the center of the passage, through pools of water and sloppy mud. The mud is especially gooey and deep at the onset, and cavers must be careful to maintain some forward momentum lest they disappear up to the knees or even the waist. After several hundred feet, the pools contain more water than mud and travel is a bit easier. However, some of these pools are waist to chin deep.

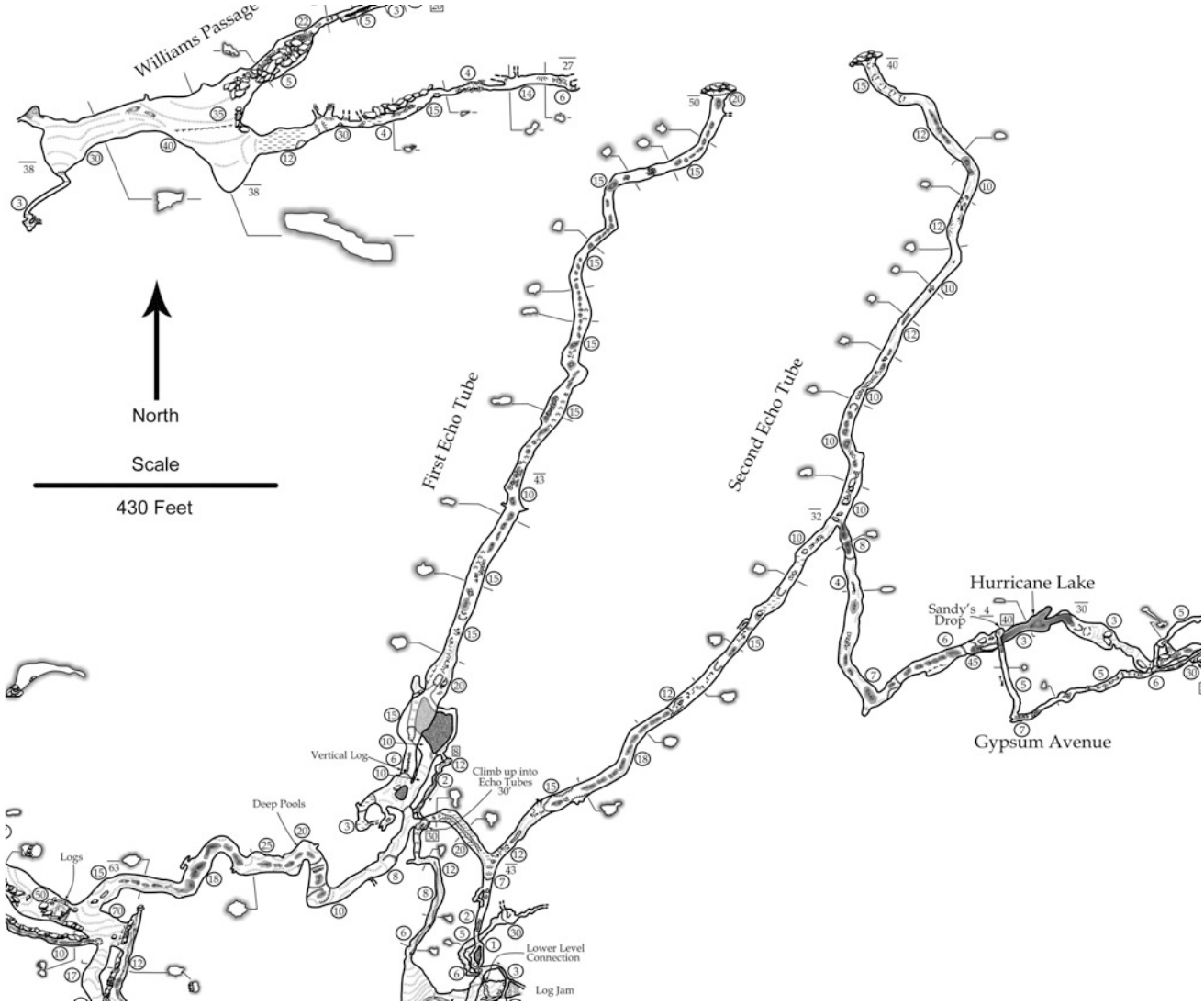
The First Echo Tube follows a meandering course to the southwest for 700–800 ft. At this point, the muddy floor firms up and side passages enter from several levels.

On the right wall is a steep drop of nearly 40 ft. This is the Third Ladder Drop. At the top of the drop on the opposite wall the passage can be seen to continue. In the past, a traverse was made from the First Echo Tube to the Second Echo Tube across the top of this pit. The traverse required holding onto sections of rebar driven into the mud wall and quickly stepping across on mud footholds. Three or four traverses were made in this fashion in the early 1970s before the entire mud wall fell off after the last caver came across.

On the left and northwest wall are two passages that ascend up mud slopes and eventually reach sediment fills. Continuing down the main passage, the First Echo Tube takes on an oval shape. The floors are full of potholes. At several areas along the passage, the fine bedding of the limestone and an occasional small shale bed are visible. Pools are seldom over knee deep and there is little mud. The gentle meanders cause sounds to reverberate spectacularly. A loud shout will echo down the passageway for 10–15 s (Fig. 10.27).

Nearly 1500 ft beyond the Third Ladder Drop, the nature of the First Echo Tube changes abruptly. A short climbdown at the end of the echo tube leads to a seemingly endless area of massive breakdown that would appear to represent the collapse of a major trunk passage. It is possible to negotiate in several directions through the blocks, although the breakdown has not been pushed. Air movement in the First Echo Tube passes through this collapse. Flood waters also flow into the breakdown with no ponding.

The end of the First Echo Tube is approximately 325 ft southwest of the end of the Second Echo Tube. The Second Echo Tube also terminates when it hits a massive collapsed passage. Approximately 400 ft southwest of the end of the First Echo Tube is the surveyed end of the Williams Passage, which at this point is also encountering massive breakdown. The trend of the Williams Passage at this point is directly toward the Echo Tubes. A traverse between the Williams Passage and the Echo Tubes through the breakdown may well be possible. It is also likely that flood waters and airflow from both echo tubes exit via the Williams Passage.




**Map 10.4** First and second echo tubes to Hurricane Lake

The exact source and destination of the collapsed trunk is unknown. The potential for new passages is high. On the surface, a series of huge sinks that extend up through the sandstone caprock hint at the size of the passage that once existed below.

### 10.2.5 The Second Echo Tube

Just upstream from the Log Jam, a small passage at the top of a steep mud bank leads to the Second Echo Tube. Beginning as a sloppy muddy hands-and-knees crawl, this passage soon opens to a stoop walk and finally into walking canyon. Two hundred feet of walking passage brings one to the bottom of the Third Ladder Drop.

A polypropylene rope and aluminum rung ladder have been left permanently rigged at this drop. The ladder climb is vertical for 30 ft and then up a nearly vertical slope for another 20 ft. Prior to the installation of the ladder, this pit was free-climbed by the "lead" caver who would then belay the remaining party. Free-climbing this pit was difficult because of the slippery mud that covered the walls. When it became clear that many trips would travel beyond this point, the ladder was made and bolted into place by Philip Lucas (Fig. 10.28).

With no small relief, future parties could forego the necessity of free-climbing the drop. However, on the very next trip, when the team reached the base of the ladder drop, Philip Lucas was surprised and very disappointed. There was no ladder! The pit had to be free-climbed once again! When

**Fig. 10.27** Second Echo Tube shown here has dimensions similar to the First Echo Tube. Both are long straight tubes, about 1500 ft long each, both ending in a wall of massive breakdown. Their name comes from the long reverberation of a loud yell which last many seconds. Photograph by William Jones

**Fig. 10.28** Aluminum rung ladder was bolted to the wall at the top of the pit to eliminate the scary 40-foot free-climb up the pit. Above the pit is a steep muddy slope up to the Second Echo Tube. The ladder was later found, still attached to the wall, but instead of hanging down the pit was stretched out its full length up the steep mud slope. There had been a flooding event and the rising flood waters was swift enough to reverse the 40-foot ladder. Photograph by William Jones

Philip reached the top of the ladder drop, again much to his surprise, he found the ladder still bolted to the wall. But instead of hanging down to the passage below, the ladder ascended up from the bolt into the steep narrow mud-floored canyon above. All the way up to the top of the slope, it had gained another 50 ft in elevation. It was clear what had happened. The cave had flooded after the ladder had been installed. Flood waters backing up from the Log Jam had become deep enough and had enough current to wash the rope ladder up the pit and on up the slope until it was fully stretched out in the reverse direction.

The reversed ladder gives indication to the stages and depths of the flooding sequences in the Culverson Creek Cave System. The restriction at the Log Jam can accept only a certain amount of flow. Flood waters will then pond to a depth of nearly 150 ft before flowing out both Echo Tubes. The velocity is great enough to create potholes in the floors of the Echo Tubes and to reverse any dangling ladders. The bottom of the rope ladder is now securely tied down. It is cautioned to all visitors to this section of the cave not to untie the bottom of the ladder, and to watch the weather.

As a matter of interest concerning the corrosion of aluminum in a cave's atmosphere, it is noted that although this aluminum rung ladder has been in place for 35 years, and cavers are still using it today albeit with a belay. The aluminum rungs were made from 1/16 in. aluminum sheets folded into a U shape with a hole drilled and top of the U large enough to accommodate three polypropylene ropes ¼ in. in diameter. It was not expected that this thin-wall aluminum rung ladder would endure the cave's environment for very long. Perhaps the rate of aluminum corrosion varies from cave to cave.

From the top of the slope above the ladder, a narrow canyon soon joins a larger passage. This passage's oval shape characterizes the shape of the Echo Tube. In about 75 ft, a Y-intersection is reached. The right-hand lead can be followed down several small drops and tortuous mud passages. These eventually lead to an intersection with the Log Jam passage at ceiling level.

The left-hand fork is the main Echo Tube. Here loud shouts produce impressive echo reverberations that seem to indicate a passage that will "go forever." The nature of the Second Echo Tube is similar to the first, with shallow pools and potholes in the clean-washed phreatic tube.

Approximately 1000 ft down the Second Echo Tube, a side passage enters from the right. This is the Bath Tub Passage that leads to Hurricane Lake. Beyond, the Echo Tube continues with clean-washed walls, shallow pools, and only occasional small breakdown. The limestone is thin bedded with shale layers.

After another 1000 ft the Second Echo Tube encounters the same collapsed massive trunk passage that terminates the First Echo Tube. Just prior to this intersection, a series of enlarged joints can be seen in the ceiling and walls of the passage. Again it is obvious that flood water flow rapidly through this area in route to a lower level.

### 10.2.6 Bath Tub Alley and the Lake Passage

A side lead takes off from the Second Echo Tube. It looks nice, but a deep pool of wall to wall water discourages casual visitors. This pool is the first of a series of water-filled pothole-like depressions. Although none are more than 4 ft

deep, their smooth slick, curved sides make it easy to slide down into these natural tubs and become completely soaked. Only with extreme caution can this 500-foot stretch of passage be negotiated without at least one member of the party slipping down and out of sight. Near the end of the pools, the passage reduces to a stoop walk, then gradually enlarges again into nice-walking passage. At this point a flowstone slope partially blocks the passage. The last pool continues beneath this flowstone. Above the flowstone is a room with a dome extending into the ceiling. This is Sandy's Drop, which leads up into Gypsum Avenue.

In the floor of this room is a fissure that can be down-climbed until it intersects the ceiling of a low wide passage just above the surface of the water. Air currents blow strongly over the water. This is Hurricane Lake. The passage is approximately 30 ft wide and 3–4 ft high and is nearly full of water. Air space ranges from almost non-existent to 12 in. (Fig. 10.29). The air at times blows across this lake with enough velocity to make little waves. By following a prominent joint in the ceiling you can traverse the 130-foot length of Hurricane Lake without removing your helmet.

At the upstream end of the lake, the passage turns right and southeast, and ascends gradually up through a shale layer. This is difficult to traverse because of the slippery surface and the 1-to-2-foot ceiling height. After several hundred feet, the passage bears left and east, and enlarges into a walking passage floored with deep pools and breakdown. One pool in particular is quite large and deep, and is filled with breakdown blocks below the water surface. In another 600 ft, the passage ascends through a series of ledges into a high-ceilinged room with a large breakdown slope. This is the Junction Room, where Gypsum Avenue enters from above (see the Gypsum Avenue description).

Continuing in an east–northeast direction, the passage follows a strong joint as a high narrow canyon. After 400 ft, the passage turns to the northeast and enlarges to 25 ft wide and 10 ft high with nice speleothems in places. This passage continues with the same dimensions for 400 ft to an intersection.

To the left at this intersection, a wide passage climbs a mud slope before leveling off. It then continues northeast for 200 ft before turning to the east. A slope down through breakdown intersects a lower passage that can also be reached from the previous intersection. This passage continues to the northeast, 25 ft wide and 10 ft high. A sticky mud floor indicates flooding from time to time. Near the end of this passage is a curious set of joints that create perpendicular partitions in the ceiling.

The right-hand passage, from the previous intersection, leads down through areas of massive breakdown and then divides. It is possible to continue down slope and find a route through more massive breakdown to a steeply sloping passage. At the bottom of this slope, another constriction is encountered. Twenty feet beyond this constriction, the passage suddenly intersects a 40-foot-wide and 30-foot-high passage. On the far side of this intersection is the Chocolate Drop, which drops down 30 ft to a stream passage, (Muddy Madness).

Steep mud slopes must be descended to reach the top of the Chocolate Drop. The passage, however, continues to the south beyond the Chocolate Drop as a 40-foot wide, 20-foot high passage with sloping muddy banks. Holes in the floor drop down to the stream passage below. About 150 ft from the Chocolate Drop, massive breakdown blocks the passage. A climbup into a left-hand passage just prior to the breakdown leads up into a large overhead room that is 40 ft wide,

**Fig. 10.29** Hurricane Lake is a shallow pool 3–5 ft deep and 110 ft long. It was named Hurricane Lake for the strong breeze that created ripples on the surface of the lake. Air space above the water varies from 12 to 5 in. along a groove in the ceiling; otherwise there is only a couple inches. Photograph by William Jones

90 ft long, and 30 ft high. A high lead in the northeast corner of this room was not pushed.

### 10.2.7 Gypsum Avenue (Maps 10.4 and 10.5)

Gypsum Avenue is an unusual passage for the Culverson Creek Cave System. About 1400 ft long, it extends between Sandy's Drop and the Junction Room and overlies the Hurricane Lake Passage. Unlike just about every other passage in the system, it is doubtful whether Gypsum Avenue ever floods.

Gypsum Avenue was discovered from the Junction Room, where a steep exposed climbup gives access to this abandoned vadose passage. Beginning as a stooping and walking passage, the floor is covered with gypsum sand that is several inches deep in places. The passage continues as a meandering route and becomes strictly walking after several hundred feet. After 500 ft, the gypsum sands are replaced with scattered breakdown and smooth floors.

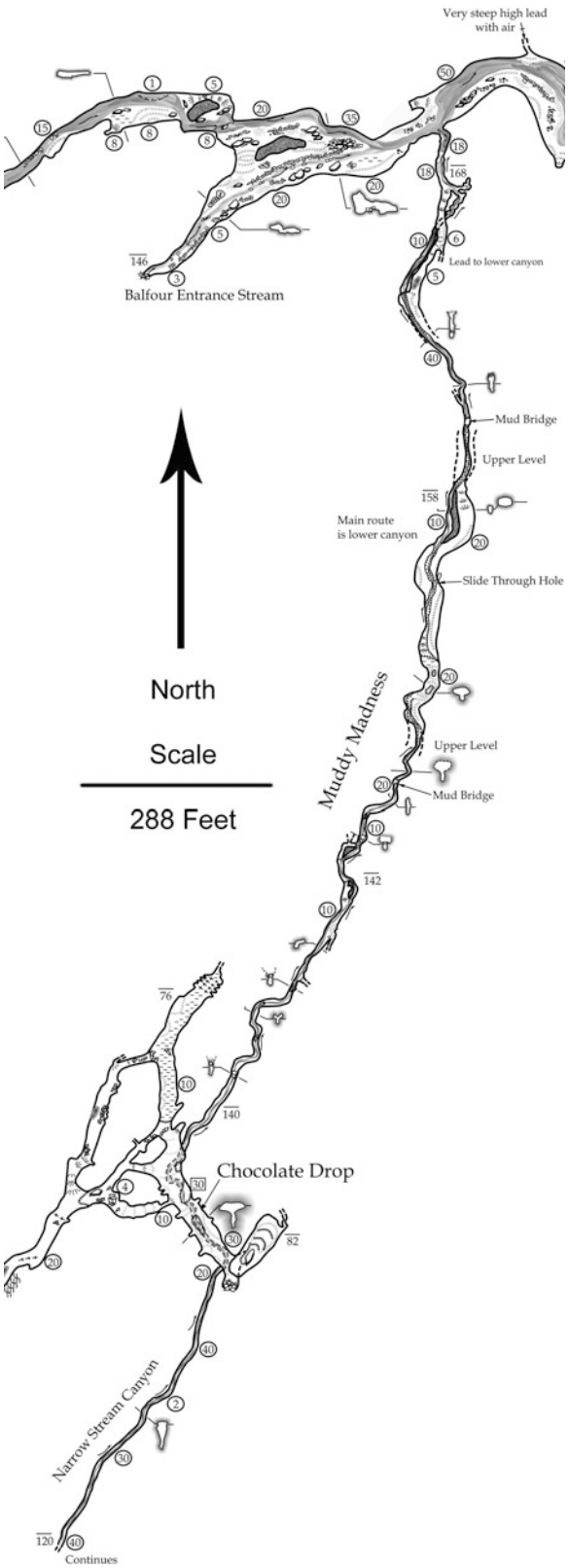
Two hundred feet further, a small crawlway on the left can be followed for over 50 ft before becoming too tight. After another 200 ft, the main passage reaches a series of short climbups and climbdowns. At this point a deeper channel can be followed for about 70 ft where a possible connection may exist with the Lake Passage below.

Beyond these climbs, Gypsum Avenue is a nice flat-floored walking passage. In another 350 ft, a 30-foot pit intersects with Hurricane Lake. This drop is usually rigged with a cable ladder. Gypsum Avenue is now the preferred choice of routes when traveling through the Hurricane Lake area.

### 10.2.8 Muddy Madness (Map 10.5)

At the end of the Lake Passage, the Chocolate Drop leads down into Muddy Madness. At this point, the Madness is a high stream passage that averages about 15 ft wide and 30–50 ft high. It is narrower at stream level.

The passage continues downstream for 500 ft with a gravel and mud floor. Occasional breakdown blocks, pools, and mud banks must be negotiated. In several places, steep mud banks slope down from upper levels. At certain points, it is possible to climb up these mud banks into a larger oval phreatic passage. Approximately 800 ft downstream, it is necessary to climb up into the upper level when the stream level becomes impassable. This upper passage requires careful side stepping on steep mud slopes. Some wiggling through breakdown is also necessary. Eventually, the stream level is rejoined by climbing down a nearly vertical mud slope. Beyond the slope the passage enlarges slightly but




**Map 10.5** Muddy madness

remains a muddy, narrow, tall canyon with a small stream. After approximately 500 ft, the passage meanders to the left becoming wider with a chest-deep pool which must be waded to continue. Around the corner is the blackness of a huge trunk passage and the roar of a large stream—the main stream of Culverson Creek.

### 10.2.9 Hinkle Unus (Map 10.6)

The Balfour (Hinkle Unus) entrance room itself is a rather spacious segment of stream trunk, with ceilings averaging 20–30 ft high and passage widths approaching 50 ft. In places high domes pierce the ceiling. The floor is covered with mud and small breakdown blocks. In the past, cattle would use the cool shadows of the entrance chamber (Fig. 10.30) to escape the heat of the midsummer sun. Fences inside the entrance room kept the more adventurous animals from investigating any further. Several years ago the fencing had been relocated restricting the farm animals from entering the cave. The current owner has converted much of this formerly muddy area into a stoned paved patio.

In wet weather, a stream enters from a passage from the left and south (Fig. 10.31). This passage begins as a walkway, but within 100 ft reaches a constriction. Mud banks require some tight maneuvering. After wiggling over and through the stream, a slightly larger passage up to 2–3 ft high leads on for several hundred feet. Finally, the stream passage regains walking dimensions. After another 200 ft, the LL entrance is encountered. Exiting this entrance requires negotiating through a small collapse.

Back at the Balfour (Hinkle Unus) entrance room, big passage heads to the north, with the stream flowing over a cobblestone bed. After 150 ft, however, the cave abruptly narrows into a 20-foot-high and 2- to 4-foot wide canyon. This canyon meanders for 200 ft and then degenerates into a 2-foot high, wet, silt crawl. Because of manure produced by the cows that tend to hang out at the entrance, a heavy summer thunderstorm makes this crawl particularly disgusting and slimy. For this reason, this entrance, although it is the shortest route to the Echo Tubes and the Log Jam, is not frequently used.

The low silt crawl extends for about 300 ft until a small room finally provides some relief. The stream itself continues beyond into a lower channel, but a 15-foot climbup gives access to an upper passage. This passage extends for nearly 100 ft to an intersection. To the left the passage quickly ends in a mud plug. To the right the passage descends a steep mud slope until the stream is rejoined. Walking passage lasts for 150 ft. A low pinch may force the excavation of some cobbles if there has been a flooding event.

Immediately beyond this pinch, the ceiling height abruptly changes. An upper level is visible. A 10-foot climb leads up into several hundred feet of generally walking-sized passage that winds around in a higher layer of limestone. One room contains speleothems and a 50-foot high dome. Another 50-foot high dome is developed in a passage nearby.

The stream continues for nearly 300 ft beneath these upper levels as a 2-foot-high by 4-foot-wide crawl. At one point, a small alcove to the left leads to the bottom of a 40-foot-high dome. Gradually, the stream passage gets larger and higher and eventually reaches walking size. Two hundred feet later it intersects the Culverson Trunk. Here the Hinkle Unus stream joins another stream that flows from the Mudderhorn to the Log Jam. This confluence is approximately 450 ft upstream of the Log Jam.

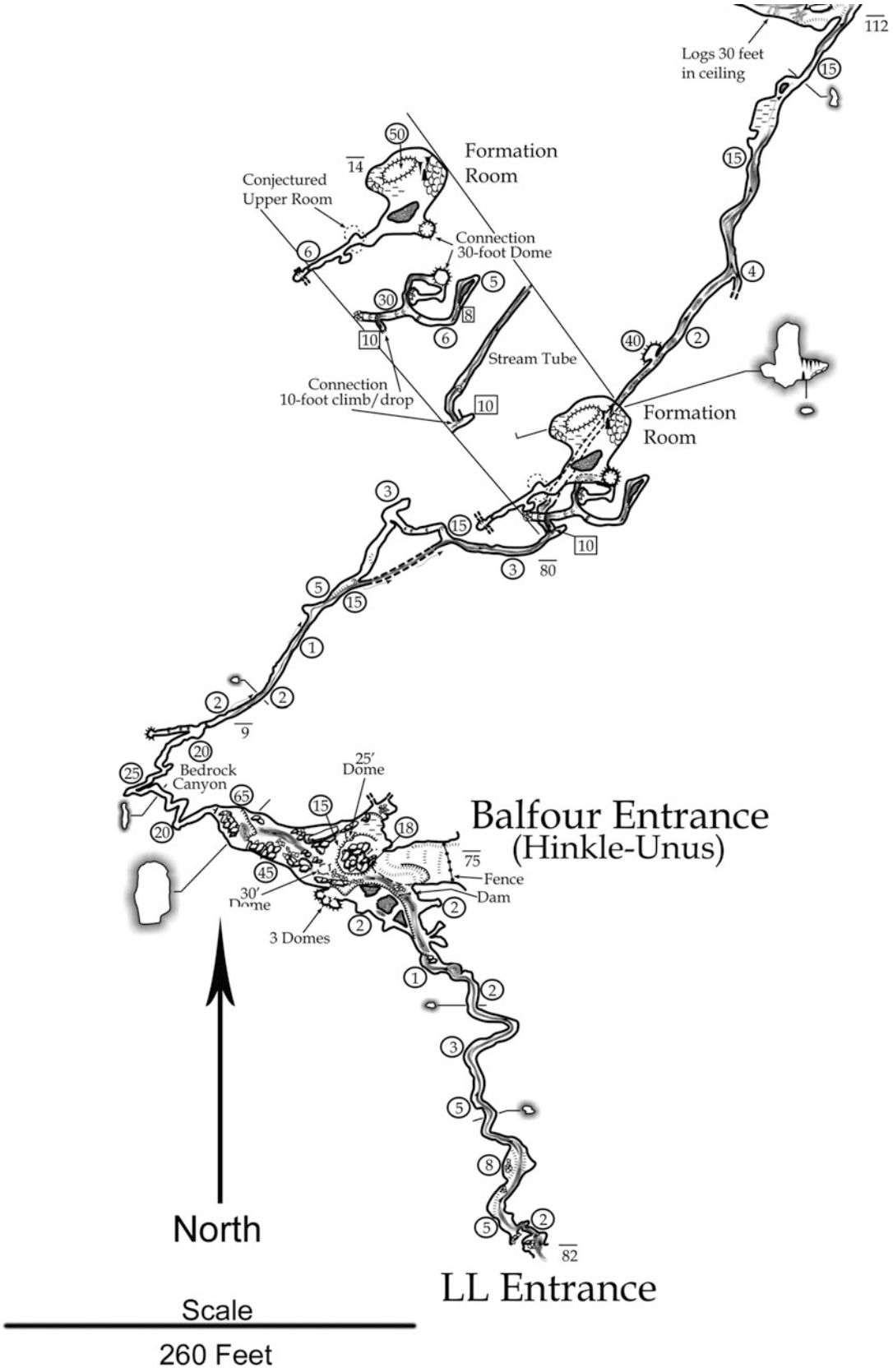
### 10.2.10 Wildcat Entrance to the Balcony Overlook (Map 10.7)

The Wildcat entrance is in a large collapse sink with an imposing limestone headwall on the northern side (Fig. 10.32). The entrance itself is at the base of this headwall and is an 8- to 10-foot climbdown into a passage trending northeast and southwest. To the northeast lies the McLaughlin section of the system. To the southwest is the connection to the main Culverson Trunk.

Due its proximity to the edge of the entrance sink, the southwest passage is unstable. Michael Hamilton and others originally opened up this passage from the in-cave side in the late 1960s. It then collapsed in the mid-1970s. William Royster, Philip Lucas, and others opened it again in the early 1980s by digging down from the Wildcat Entrance. Over the years the entrance again became unstable and in 2006 the entrance was stabilized using a 30-in.-diameter plastic culvert. The culvert now provides access to the balcony passage and on to the main Culverson Creek stream passage (Fig. 10.33).

Approximately 30 ft into the passage is an abrupt down turn into a steep tight broken-rock crawlway. After 30 ft, this crawlway drops vertically into a small room with breakdown walls and floor. Against one wall in this room is a small hole that drops down through breakdown. Fifteen feet down is a small stream passage with pools on the floor. Rapidly moving floodwater keeps this passage clean-washed for the next 150 ft. At one point, it is necessary to climb over a short but very large log (Fig. 10.34).

The passage soon opens into a tube 6–12 ft high and 15 ft wide. It is almost perfectly oval with a small stream groove cut in the floor and continues as a pleasant walking passage for another 500 ft. There are mud slopes on each wall. Occasional pools will sooner or later force you to get your feet wet (Fig. 10.35).




**Map 10.6** Hinkle Unus

**Fig. 10.30** Balfour-Hinkle Unus Entrance, located in a cow pasture, is where cattle would seek shade and cooler temperatures. Photograph by Philip Lucas

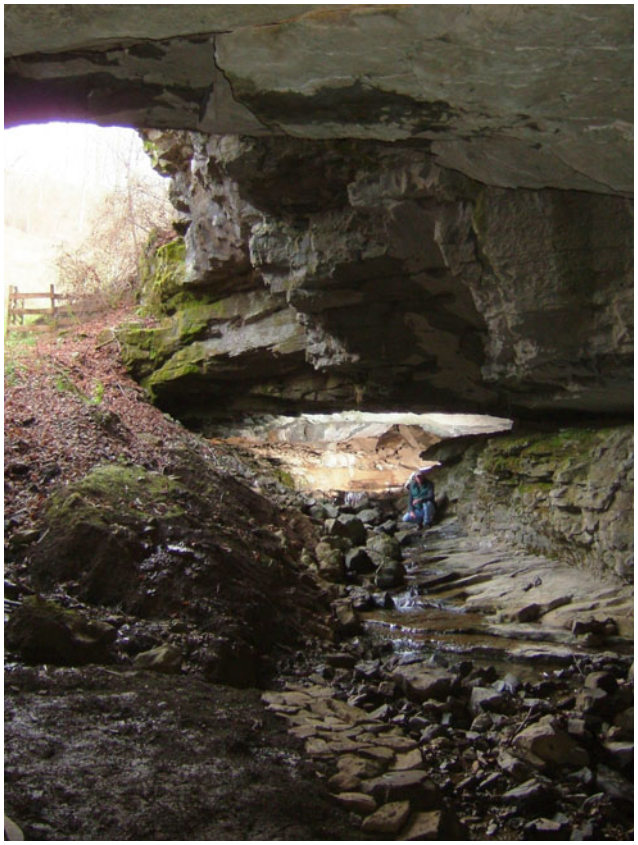


**Fig. 10.31** View from inside the Balfour–Hinkle Unus Entrance shows the owner, William Balfour, eliminating a small stream which enters along one wall. Following this passage upstream 500 ft is the LL Entrance to the cave system. Photograph by Philip Lucas

Eventually, the passage intersects the Culverson Trunk at the Balcony. Here two windows look down about 30 ft into the trunk passage (Fig. 10.36). At first glance, the down-climb from the Balcony looks impossible without at least a rappel or handline. But a fairly straightforward route through the biggest window can be negotiated without much difficulty. The last 10 ft is a chimney in a small fissure which drops into a pool in the main trunk. This pool can be dry or up to waist deep.

During flooding, the view from the Balcony can be quite awe inspiring. At these times, the main Culverson stream begins to back up from the Log Jam, approximately one mile downstream. Given enough rain, the creek will eventually pond nearly to the ceiling at the Balcony, then overflow, and flow toward the Wildcat entrance. It is not clear whether this water somehow reaches the McLaughlin section of the cave under the bottom of the entrance sink, or if it flows into another passage on the other side of the sink toward parts unknown. It is this author's opinion that the latter is true and that there is a "missing" piece of trunk passage that carries the floodwater to Lower Culverson trunk. The lower end of this "missing" trunk would be the collapsed end of Alien Alley where breakdown now prevents further penetration.

### 10.2.11 Wildcat Entrance to the McLaughlin Entrance (Map 10.7)

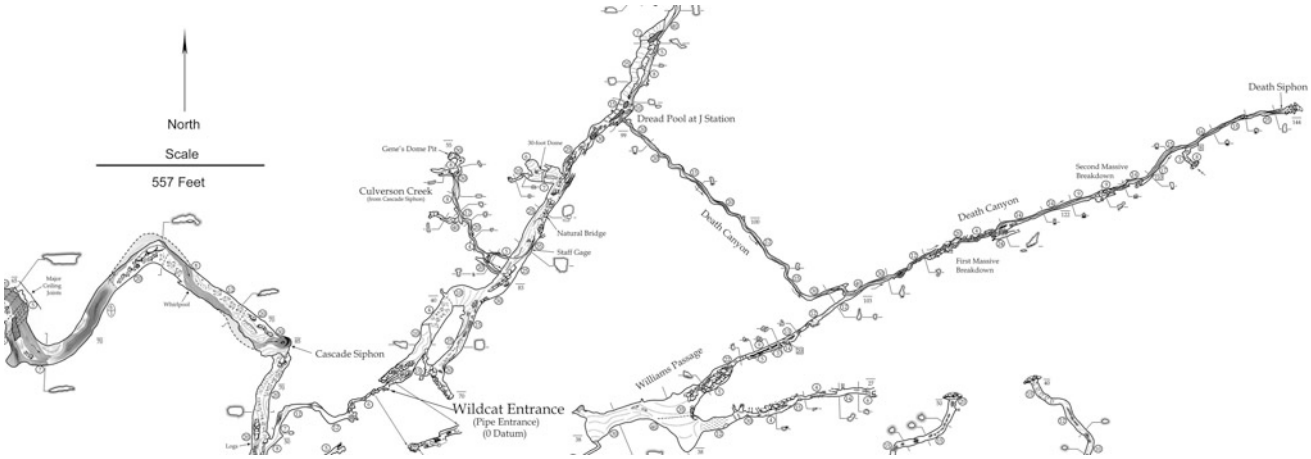
After climbing down into the Wildcat entrance, a sloping fissure to the right (Fig. 10.37) leads down about 30 ft to a 50-foot wide breakdown-floored passage. Within 80 ft, sloping banks of sand and mud are encountered. Large slab breakdown is scattered about.

A short climbup leads into a hands-and-knees crawl. This leads to the top of a large trunk passage. The bottom of the passage is reached by descending a steep mud bank for nearly 100 ft (Fig. 10.38). This large trunk passage has a small stream flowing to the north.

The passage can be followed in the upstream direction for about 250 ft. At this point, further penetration is blocked by large breakdown. Downstream, the roar of big water can be heard ahead. Approximately 100 ft downstream, Culverson Creek gushes from three passages on the left wall. These passages can be followed back through watery channels and cascades for several hundred feet (Fig. 10.39).

At the point where Culverson Creek enters, the McLaughlin Trunk is between 50 and 60 ft high and 35–40 ft wide. It continues with similar dimensions for the next 600 ft. Throughout this section, the streambed can be followed, but in places climbing up into higher routes allows a more reasonable traverse (Fig. 10.40).

Six hundred feet downstream from where Culverson Creek first enters, it flows into what is known as J Station




**Map 10.7** Wildcat to Death Canyon

Lake or Dread Pool. Here the creek abandons the trunk, flowing off through a low area on the right-hand wall into Death Canyon. The McLaughlin stream, coming in from the north, joins with Culverson Creek at this point (Fig. 10.41).

**Fig. 10.32** Wildcat Entrance is located at the base of a limestone escarpment near the bottom of a large sinkhole. Charlotte Lucas is above the Wildcat entrance. Photograph by Philip Lucas

The McLaughlin Trunk continues northeast beyond Dread Pool as a higher level. Intersecting passages lead down steep mud slopes to the lower level and the McLaughlin stream. Two hundred feet beyond Dread Pool, the levels join. One hundred and fifty feet later, they divide again. For the next several hundred feet, a series of upper and lower passages interconnect. Additionally, several side passages enter this somewhat complex area of the cave (Fig. 10.42).

The trunk does manage to continue, although somewhat smaller, averaging 10–30 ft high and wide. It trends generally to the north. After about 1300 ft, a series of plunge pools are encountered. The upstream plunge pool has a 5-foot waterfall. This waterfall can be very difficult to negotiate during high water.

The passage immediately above the waterfall is 12–15 ft wide. After 100 ft, it widens to 30–40 ft wide with 20–60-foot ceilings. These dimensions continue for the next 1200 ft. Several side passages branch off along this segment, both from the stream level and from upper levels. Twelve hundred feet north–northeast of the plunge pools the stream passage narrows to 8–10 ft wide and 20–30 ft high. The next 300 ft of passage follows a series of tight meanders, and the stream continues past a number of intersections. In the bend of one of the meanders, an unobvious side passage to the right leads to a narrow canyon passage that continues for over 500 ft. Another side passage enters from the right, carrying a small stream. This lead can be followed for several hundred feet and ends in a waterfall dome pit.

The main stream passage continues over a wet cobblestone floor for another 200 ft before finally reaching a long pool. Water is knee to chest deep with ceiling heights of 5–6 ft. The strange popping sounds made by the water as it slapped against low ledges led to the name Psycho Siphon. Continuing on for 200 ft, Psycho Siphon eventually gives way to dry

**Fig. 10.33** Wildcat Entrance is critical as an easy access to both the Culverson and McLaughlin parts of the cave system. Unfortunately, the entrance was not stable and frost shatter caused the scree slope from the escarpment above to fill and collapse the entrance. To remedy the situation, the unstable area was enlarged, shored, and a 20-foot plastic pipe was inserted as the final stage of the new secure entrance. A recent update—flooding from the 9 in. rain of June 23, 2016, filled the cave to such an extent that water back-flooded out of the Wildcat Entrance blew the 20 foot length of culvert out of the entrance. Photograph by Charlotte Lucas

**Fig. 10.34** Albert Grimm and William Balfour pass over a large log, and other debris that has been washed during a large flood event from the Culverson master trunk up through the Balcony Passage and into the McLaughlin part of the cave system. Photograph by Philip Lucas

**Fig. 10.35** William Balfour stands in the round tube of the Balcony passage. Photograph by Philip Lucas

**Fig. 10.36** Albert Grimm and William Balfour look through a portal between the balcony passage and the Culverson master trunk passage. Photograph by Philip Lucas

**Fig. 10.37** Just inside the Wildcat Entrance, a fissure leads down a slope of breakdown into the McLaughlin side of the cave. William Jones and Albert Grimm are the cavers. Photograph by Philip Lucas

**Fig. 10.38** Several hundred feet from the Wildcat Entrance and after scrambling over some breakdown, the roar of water can be heard ahead. A stoop walk over a slab of breakdown comes out at the top of a large passage with a steeply down-sloping mud bank. This is the McLaughlin trunk. Photograph by Philip Lucas

**Fig. 10.39** Edward Bauer peers into one of the crevices in the wall of the McLaughlin trunk where the pirated Culverson Creek spills into the McLaughlin Cave. It has been witnessed during flooding, that Culverson Creek comes out of the wall with such velocity that it nearly reaches the opposite wall. On the right wall is an old staff gauge. William Balfour and William Jones are the cavers standing next to the staff gauge. Photograph by Philip Lucas

**Fig. 10.40** McLaughlin trunk downstream from the old staff gauge is washed nearly free of mud by the Culverson Creek stream during high flow conditions. The cavers lighting the way are Albert Grimm, Edward Bauer, and William Jones. Photograph by Philip Lucas

**Fig. 10.42** In many places, the McLaughlin trunk passage is clean-washed limestone bedrock with fast flowing water. Here, Edward Bauer climbs a natural bridge while William Balfour watches. Photograph by Philip Lucas

**Fig. 10.41** Dread Pool is where the Culverson Creek leaves the McLaughlin trunk channel and turns to the northeast into Death Canyon. Water levels in the Dread Pool can vary, and it is usually necessary to stoop beneath an undercut wall to get into Death Canyon. A mat of leaves and flood debris rest on the bottom of the Dread Pool. When stepped on bubbles of methane rise to the surface. Photograph by Philip Lucas

**Fig. 10.43** McLaughlin Entrance is an opening where a surface stream flows underground in the bottom of a sinkhole. The entrance is usually covered with flood debris. Photograph by William Balfour

**Fig. 10.44** Caver passing through the Dread Pool. Years ago carbide lamps were used. These lamps produced a bright flame. This was somewhat of a hazard if the carbide lamp flame ignited the methane bubbling up from the rotting flood debris on the bottom of the pool. Photograph by Bill Jones

passage, and the breakdown room inside the McLaughlin Entrance is quickly encountered. The McLaughlin Entrance itself is a very dynamic hodgepodge of logs and flood debris that changes greatly from year to year (Fig. 10.43).

### 10.2.12 Death Canyon (Map 10.7)

The Dread Pool is where the main Culverson stream takes a right turn into Death Canyon. Here is a rather large pool reaching a depth of perhaps 6 ft. During flooding, 2 or 3 ft of leaves and debris would accumulate in the bottom of this pool. In summer when the flow Culverson Creek is still warm, the decay of the debris is active. Bubbles of methane gather on the bottom of the leaves, trapped in a tangle of stems and twigs. Back in the "good old days" when cavers use carbide head lamps, first-timers passing through the Dread Pool could get quite a surprise as they stepped on this decaying debris releasing a bubbling and boiling discharge of methane. If they held their heads low to go under the low ceiling, the carbide flame would ignite the bubbles of methane. The sudden flash of flame would singe eyebrows, eyelashes, and produce squeals of surprise and fright. Even veterans of this area would amuse themselves by holding the carbide lamps above the water while stomping the methane laden debris generating great bursts of yellow flame that illuminating the dark surface of the Dread Pool (Fig. 10.44).

On the other side of the Dread Pool near duck-under is the beginning of Death Canyon. This is probably one of the more famous sections of the Culverson cave system. It is a somewhat improbable major cave passage that, geologically, is a youthful piracy of the main Culverson Creek stream. Beyond the Dread Pool duck-under, the canyon immediately becomes a 40-foot-tall Canyon with polished scalloped walls with a cobblestone floor over which flows the swift flowing Culverson Creek (Fig. 10.45). Its width averages between 6 and 8 ft and continues in a southwest direction and a nearly straight line for over 800 ft. Then it abruptly turns to the northeast for the next 1400 ft where it reaches Death Siphon. After turning northeast, a side passage about 100 ft downstream intersects Death Canyon as a steep but climbable ascent to a narrow fissure that soon opens into a broad and muddy passage called Williams Passage. This passage turns to the northeast roughly paralleling Death Canyon for several hundred feet before encountering massive breakdown. This breakdown can be negotiated for several hundred feet, and it is thought by some that a persistent push in this direction might lead to a connection at the northwest end of the First Echo Tube.

From the Williams Passage intersection, Death Canyon continues for approximately 200 ft as a clean-washed, mud-free, canyon passage. For the next 200 ft, breakdown is encountered scattered along the Canyon passage. This breakdown, however, can be negotiated fairly easily with only a few spots where climbing up and over and down through cracks is necessary. This breakdown lasts for about 200 ft until open canyon passage is reached once again. The next 300 ft is easy strolling until once again massive breakdown is encountered. This breakdown is not so easily negotiated and persists for about 100 ft. Then it is open canyon passage again with only an occasional breakdown

**Fig. 10.45** Albert Grimm in a typical section of Death Canyon passage. The strong current of the stream and scalloped walls are typical of a canyon rapidly downcutting. Photograph by Philip Lucas

block for 500 ft. At that point, massive breakdown once again becomes prevalent. At the base of the breakdown is the terminal siphon of the Death Canyon Passage. This siphon may well be a complete sump, but because of strong currents and a narrow passage, no one has been able to verify this. To this author's knowledge, no diver has attempted to penetrate this point. It has been reported that, just prior to the siphon, the massive breakdown can be ascended to the northwest for 100 ft or further. The distance between the Death Canyon Sump and the Double Siphon in Lower Culverson is 800 ft.

### 10.2.13 The Woodson Entrance to McLaughlin Section (Map 10.8)

The Woodson entrance is comprised of several portal openings into a passage, although only one is "reasonable" for cavers (Fig. 10.46). This entrance leads to a 25-foot-wide passage floored with breakdown that continues for over 400 ft. Several side leads are encountered over the length of this passage. One of these leads off to the left and east, rising up over a series of rimstone dams. The surface of the "final" pool comes to within an inch of the ceiling. On the initial survey trip, echoes heard beyond the pool indicated more passage. The pool was drained on a subsequent trip with a 1-in. plastic hose, allowing easy access into the passage ahead. As it turned out, this passage rejoined the main stream passage at a point just beyond where the last survey had ended.

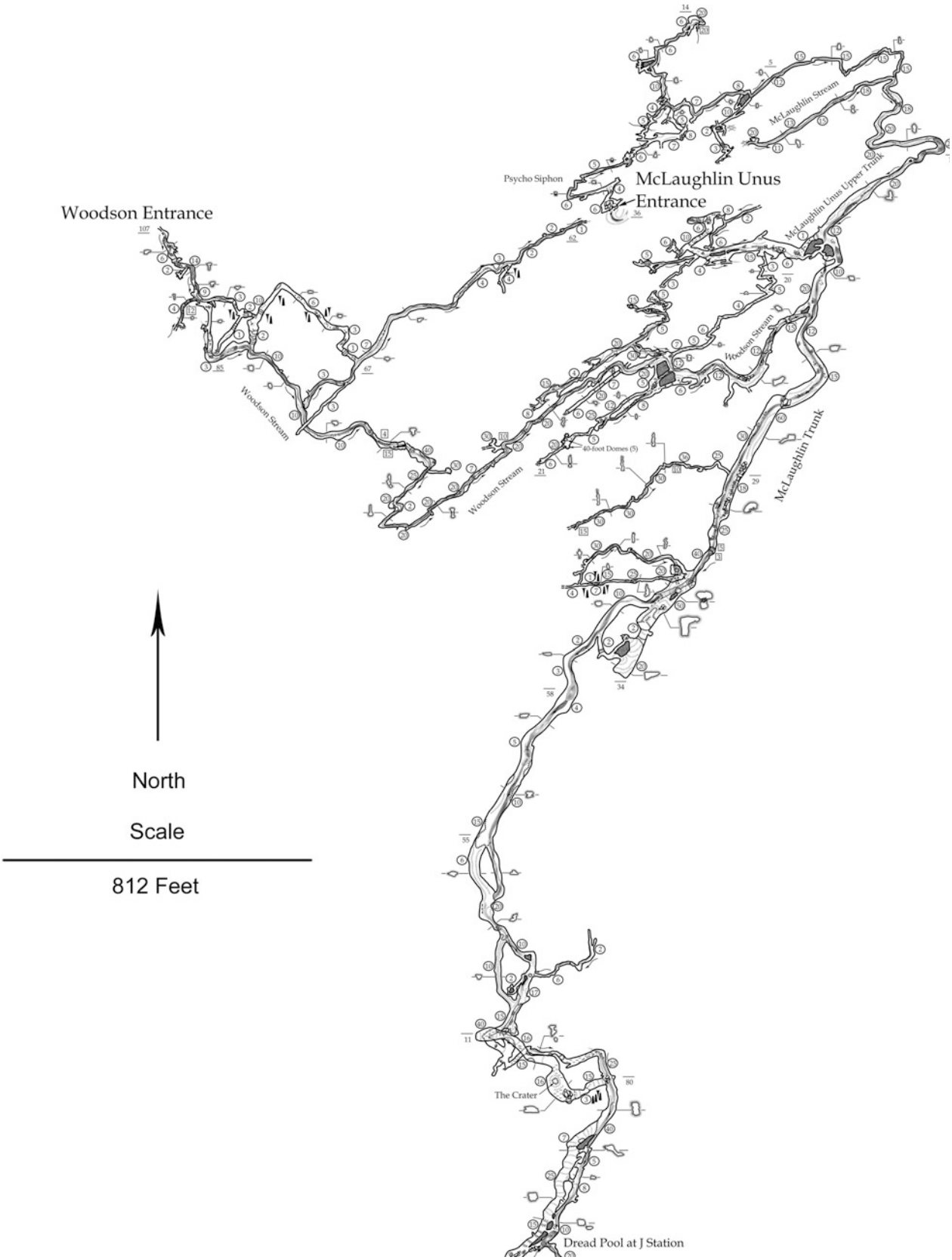
The main Woodson stream passage continues on downstream through a 3-foot high crawl and then into a pooled area. The next 500 ft is generally 10 ft high and 6 ft wide. Eventually a 15-foot waterfall is reached. This requires a rope or short ladder. At the base of the waterfall, there is a small corkscrewing passage. This corkscrew spills out into the top of a 20-foot wide by 50-foot high flowstone slope. A hand line is helpful at this second climbdown.

From the bottom of the flowstone, the stream passage averages three to 12 ft wide and 6–40 ft high. The passage eventually intersects with the McLaughlin stream passage after nearly 2000 ft of walking. There are a number of side passages between the 15-foot waterfall and the McLaughlin intersection. Most come from higher levels and some are quite extensive. Not all have been fully explored.

### 10.2.14 Fullers Entrance to Bypass Area (Map 10.9)

The Fuller Stream first disappears into a series of segmented cave passages and karst windows, approximately 700 ft up Thorny Hollow from the main Fuller's entrance (Fig. 10.47). The stream is small in normal weather. Most of the passage segments are walking-sized with large wide entrances. The last downstream segment does require some stoop-walking and minor breakdown crawls before emerging into the bottom of the Fuller entrance sink.

There are actually two entrances in the main Fuller entrance sink (Fig. 10.48). One is at the bottom of the sink and it takes the stream. The other is about 30 ft higher and is a window into the top of the canyon leading away from the lower entrance. This upper entrance is the original phreatic tube that forms the top of the canyon. It resembles a giant keyhole at this point, with the roundish upper tube continuing above the canyon as far as one can see. To add to the complexity of the Fuller sinkhole entrance, the small stream in the bottom of the sinkhole entrance is beyond the drip line of the western side of the sink which is a vertical limestone escarpment. The stream can be followed in the upstream direction for several hundred feet where it emerges in a wide




**Map 10.8** Woodson and McLaughlin

**Fig. 10.46** Small surface stream flowing down a hillside ravine until it reaches the limestone, is quickly diverted underground at the Woodson Entrance. Photograph by William Balfour

entrance. This entrance is actually a part of a elongated karst window as described in the above paragraph.

Continuing downstream from the main Fuller sinkhole entrance, the bottom of the canyon passage averages 6–10 ft wide, although there are numerous places where it is necessary to turn sideways to continue downstream. The ceiling varies from 30 ft to over 60 ft high. In many places, the top of the passage cannot be seen due to the three-dimensional meandering of the lower canyon.

The phreatic tube in the top of the canyon passage is generally 15–20 ft high and wide. It can only be reached in certain locations and then only followed for short distances. Approximately 100 ft downstream from Fullers entrance, a side passage enters from the right-east wall. This passage begins as a tiny meandering infeeder, but quickly widens to 20 ft. Massive breakdown accompanies 50-foot ceiling heights. Above the breakdown at one point, it is possible to see daylight filtering in. Using this entrance would not be easy.

Approximately 300 ft from the main entrance, a high canyon passage enters from the right and east wall. Climbing up 30–40 ft accesses the Oh No, No Truck Passage. A phreatic tube approximately 800 ft long, the Oh No, No Truck Passage has several intersections with the top of the main Fuller Canyon. Following the Oh No, No Truck passage to the south for 200 ft leads to the Oh No, No Truck Entrance. Downstream in the main canyon from Oh No, No Truck passage, the stream plays "peek-a-boo," sometimes flowing in the main passage while at other times pirated into a lower route. Soon the main canyon itself begins to braid on various levels. Interconnections between levels are common, and the area can be confusing if the wrong route is taken.

One prominent upper passage, the Finger Canyon, leads to a series of domes and climbs. A fairly large dome, 30–40 ft in diameter and 60 ft high, is visible through a small window. The sound of falling water echoes from beyond, but no entrance into it seems possible without enlarging the window.

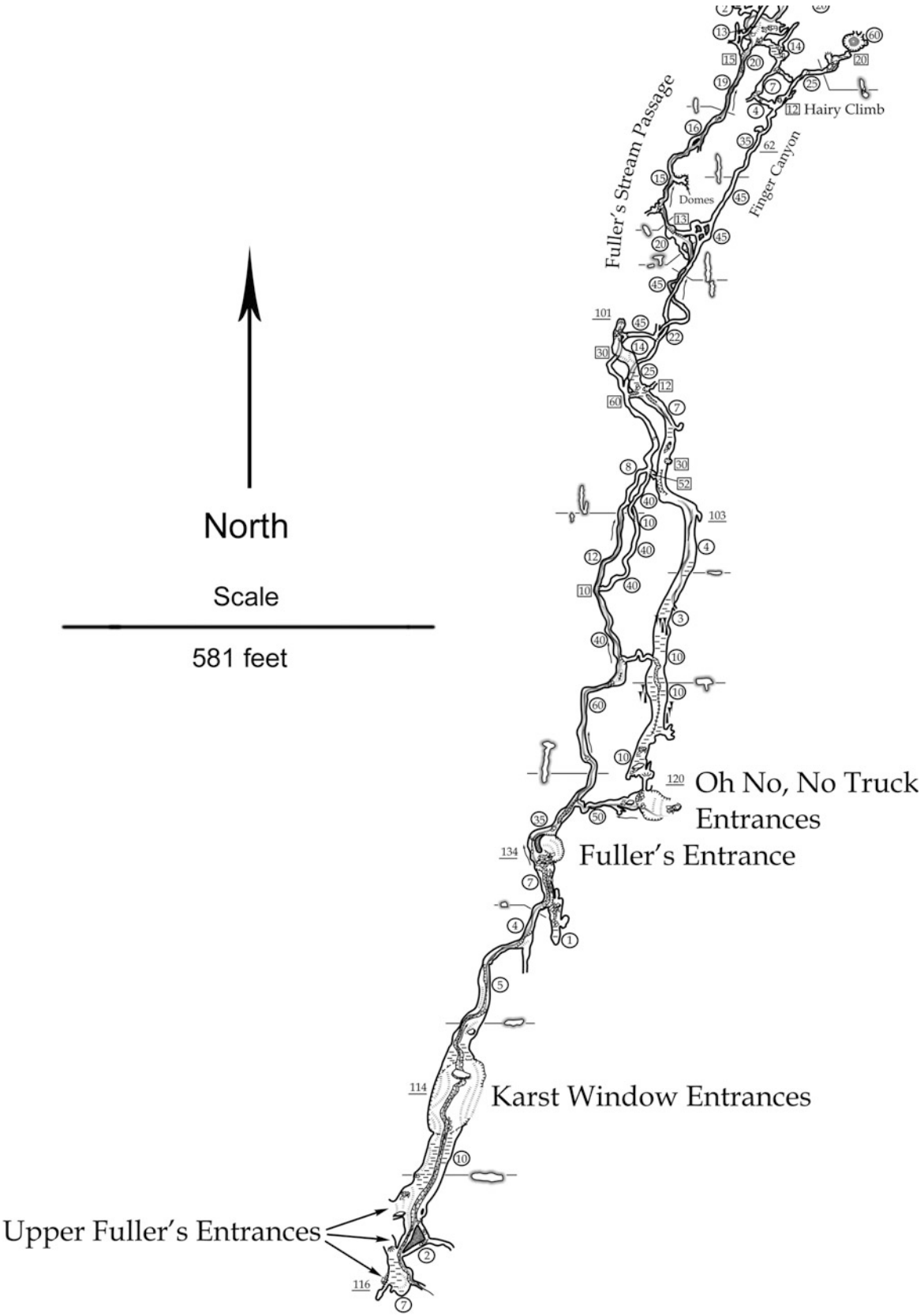
Four hundred feet downstream of the Finger Canyon is a confusing network of upper levels and lower level canyons with the base-level stream passage. For 250 ft, the stream flows from pool to pool through a 2-foot high cobble crawl. This area can flood quickly. An upper route, the Bypass, avoids the crawl and can be reached by climbing straight up from the stream canyon at Station 79 (marked on the wall). Beyond an area of breakdown, a canyon passage provides a walking and climbing route back down to the main stream passage. Explorers of Fuller Cave would do well to know the exact route of the upper level bypass. It provides a safe route around the stream crawl in case of a sudden afternoon thunderstorm. On the other side of the low stream crawl, all routes seem to converge into a single passage 10–15 ft wide and 6–15 ft high (Fig. 10.49).

### 10.2.15 Fullers Stream Passage—Bypass to Waterfalls (Map 10.10)

On the downstream end of the Bypass, a side passage to the right enters carrying a small stream. This is the stream from the SSS entrance. Approximately 100 ft downstream from the bypass is an intersection of upper canyons. To the left is Mason's Lost Passage, which can be followed for several hundred feet before tying into passages entering from the Peterbilt Trunk.

Back at stream level, the main stream passage continues as a marvelous meandering canyon full of plunge pools, pot holes, and occasional rapids (Fig. 10.50). Flowstone enters at many points along this route, enhancing the beauty of the canyon (Fig. 10.51). A few pools make getting wet to your navel (or higher) a possibility, but nonetheless this 2000-foot section is some of the most spectacular stream canyon in West Virginia (Figs. 10.52 and 10.53).

Approximately 500 ft downstream from the bypass is an area of passage intersections. Some lead up into the Peterbilt Passage, while others lead to small parallel canyons. Approximately 1000 ft downstream from the bypass is a series of side passages along the left (west) wall. These lead into a confusing upper network of canyon passages. Known




**Map 10.9** Fuller to bypass

**Fig. 10.47** Upstream from the Fuller entrance is a series of karst windows and cave entrances. This entrance, the Fuller Karst entrance, receives the small stream flowing from Thorny Hollow. The cave passage and stream flow through the Fullers entrance which is actually yet another karst window. Photograph by William Balfour

**Fig. 10.48** William Balfour is using a hand line to descend into the Fuller Cave entrance. Unfortunately, in years past, the cave was used as a dump to dispose of trash which included the old truck body seen in this photograph. Photograph by Clifford Lindsay

as the N Survey, this section lies lower than, but very close to, the upstream end of the Cataract Avenue. Several attempts have been made to connect this area to Cataract Avenue without success.

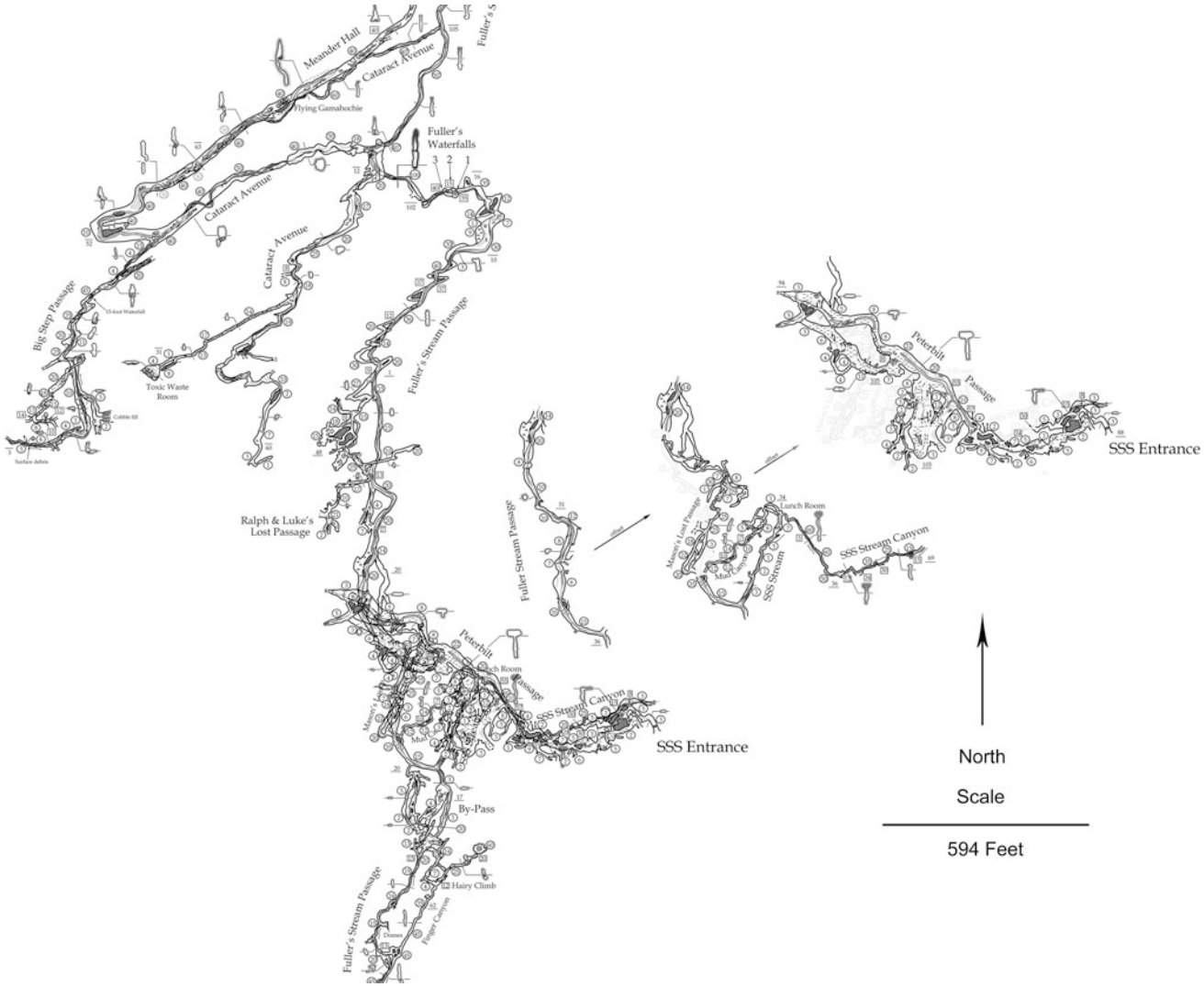
Continuing downstream in the main canyon, areas of downcutting through the chert can be seen. Excellent examples of prismatic jointing can also be seen in the bedrock ledges. About 1500 ft from the bypass, the canyon begins to meander severely. Eventually, as the explorer continues downstream, the roar of a waterfall can be heard. Twenty feet upstream of the first falls is a small gravely

**Fig. 10.49** Fullers Stream canyon is mostly clean-washed limestone. If you do not mind wet feet, it is a joy to explore. Juliette Balfour is the caver traversing the canyon. Photograph by Philip Lucas

beach where vertical gear can be unpacked and assembled. Ahead, the stream plunges over the top of the First Drop as a nearly circular column of water to the plunge pool below (Fig. 10.54).

### 10.2.16 SSS Entrance and the Peterbilt Passage (Map 10.10)

Although there are several SSS "entrances," only the southernmost gives passable access to the Culverson Creek System. Lying near a fence line that separates a patch of woods from the nearby cow pasture, this entrance leads to a low, wide stream crawl (Fig. 10.55). After crawling for about 70 ft, 60 ft of walking passage leads to a stream entering in from the right and east. This stream has gone below ground via the northern SSS entrance. This stream leads down a narrow meandering canyon. A series of three to 6-foot-high waterfalls and many cascades makes the next several hundred feet "sporting." The passage quickly loses




**Map 10.10** SSS fuller to waterfall

about 70 ft of elevation before it eases off into a more gentle gradient.

The stream disappears under the left wall just before reaching the Lunch Room and then reappears inside the Lunch Room. The Lunch Room can be followed downstream for approximately 120 ft until it becomes choked with cobblestones. A small passage leads west out of the Lunch Room to a series of upper levels crawls, climbs, and narrow canyons. These passages can be negotiated for several hundred feet. Ultimately, the main Fuller Stream Passage is reached, just downstream of the bypass area.

Back near the entrance, where the stream begins to downcut, a crawl leads off to the left. It rejoins the canyon in about 50 ft. This same point can be reached by staying high in the canyon as the floor begins to fall away. Also at this point, a short climbup leads into another crawlway. Fifty feet down this crawl is another intersection. Straight ahead the passage rejoins the top of the stream canyon.

Turning left at the intersection leads to a short crawl that soon opens into a low, wide mud-floored passage (Fig. 10.56). This passage unwinds into a confusing network of phreatic channels, some of which are highly decorated. Continuing to the west, after about 350 ft, the "main" passage widens and then intersects a large passage. This is the Peterbilt Passage, with ceiling heights up to 30 ft and a width averaging 50 ft. It also has a 4-foot-wide canyon that is 70-ft-deep meandering along the floor for the first 400 ft of passage (Fig. 10.57).

A large left-hand passage 6–10 ft high and 50 ft wide leaves the Peterbilt Passage at the intersection and finally loops back 100 ft "downstream." Peterbilt continues for another 200 ft before it again divides into three branches.

**Fig. 10.50** William Balfour is carefully stepping from the lip of one pothole to the next in this stretch of the Fuller Canyon. The *light gray color* of the Union Limestone makes this passage especially beautiful. Unfortunately for the photographer, muddy water has caught up with the caving party before the photograph could be taken. Photograph by Philip Lucas

**Fig. 10.51** There are places along the stream canyon that have beautiful speleothems flowing down from the narrow canyon above. William Jones looks up at one such location. Photograph by Philip Lucas

The right branch contains a series of meanders. After approximately 400 ft, this branch ends in a too tight crawl. The left branch runs parallel to the right branch and connects with it at two points. The left-hand passage has a number of very beautiful speleothems and is quite photogenic. The Peterbilt Section as a whole is probably the most highly decorated area in the Culverson Creek Cave System (Fig. 10.58). The third branch is a lower canyon. An easy down-climb through a fractured zone, this passage leads approximately 100 ft to an intersection. A left-hand side passage leads in the direction of Mason's Lost Passage and eventually connects with the Fullers Stream Passage. Continuing straight ahead from the intersection, a canyon can be followed at both upper and lower levels. The upper level eventually ties into the two main parallel Peterbilt branches. The lower level continues for several hundred feet until reaching an area of collapse. No penetration has been made beyond this point.

The canyon containing the SSS Stream meanders below much of the Peterbilt Passage. Although the canyon is up to 70 ft deep, it is narrow enough to easily step over in most places. A rock dropped at one of these "step-over" will clatter for quite a while as it bounces from wall to wall before splashing into the stream (Fig. 10.59).

### 10.2.17 Lower Fullers Canyon—Waterfalls to the Breakdown (Map 10.11)

The first waterfall in the Fullers Canyon drops 30 ft into a plunge pool that is 25 ft in diameter and over 6 ft deep. Stainless steels bolts installed on the left wall at the top of the drop make it possible to descend without hanging in the waterfall. Incidentally, all bolts installed in the waterfall series are stainless steel. At the bottom of the falls, a ledge along the left wall avoids the depths of the plunge pool. Immediately on the other side of the pool is a 10-foot cascading waterfall. This climb is no problem during low water,

**Fig. 10.52** Scott Olson admires another section of flowstone that adds to the canyon's beauty. Photograph by Philip Lucas

**Fig. 10.53** As the stream canyon progresses downstream, it gradually becomes larger. William Jones looks over his shoulder at the various layering in the Union Limestone and at the large chock stone wedged between the canyons walls. Photograph by Philip Lucas

but a bolt on the left wall allows a short rappel in case of higher water.

Just beyond the bottom of the cascade, the stream plunges down a 40-foot waterfall. An exposed, 15-foot traverse on ledges along the left wall leads to a wide "belay" ledge. Another bolt allows a clean 25-foot drop to a landing ledge. A route then leads along the tops of large blocks of breakdown to a final 15-foot drop and the floor of the canyon.

The next 1500–2000 ft comprises some of the most outstanding vadose stream passage in West Virginia. In many places, the stream flows over limestone bedrock and the entire passage is washed clean. Only an occasional piece of breakdown mars the open conduit run of the Fuller Stream. In several places, water cascades down into potholes, and at one point the stream drops 15 ft in a series of cascades. The ceiling of this passage probably reaches 100 ft in height, but is difficult to measure due to the three-dimensional twisting of the canyon. This passage probably allows the fastest travel time in the Culverson Creek Cave System.

**Fig. 10.54** There is a series of three waterfalls that occur in the Fuller Canyon about a mile from the Fuller Entrance. At the first waterfall, the stream flows through a V-shaped notch, forming a round column of water that plunges 30 ft into a deep pothole. This photograph was taken during low flow conditions. When the stream is flowing a bit deeper, negotiating the waterfalls becomes a bit more "sporting". Photograph by Philip Lucas

**Fig. 10.55** Jessica Lindsay is entering the SSS Entrance. Photograph by Philip Lucas

**Fig. 10.56** Kneeling below a ceiling of anastomoses, Jessica Lindsay patiently poses, providing scale for the setting. Photograph by Philip Lucas

Continuing downstream, breakdown becomes more numerous. Eventually, it becomes necessary to climb up and over breakdown chokes. Then layers of mud begin to coat the tops of the breakdown. Finally, an area of massive collapse seemingly blocks the way. But by following fissures between the breakdown near stream level, a way eventually leads 450 ft to the other side of the collapse. These passages are confusing, torturous, and tiring, but better than a newly discovered overhead route that requires pre-rigging from the downstream direction.

In 1994, an upper passage was found from the downstream end of the Breakdown Section. A series of mud slopes eventually lead up to a large walking passage 30 ft wide and up to 60 ft high. Called High Hopes, it was felt that a bypass to the Breakdown Section had been found. Indeed,

**Fig. 10.57** At this point the Peterbilt Passage is wide and spacious. William Royster peers down a narrow slot canyon cut in the floor of the Peterbilt Passage. The slot canyon is 70 ft deep. Photograph by Philip Lucas

after 700 ft the floor falls away into a steep slope and then a vertical drop to the stream below.

The upstream end of High Hopes is nearly 80 ft above the Fuller stream. A bolt was set and a rope left to provide easy access into the High Hopes for future trips. Unfortunately, it was soon determined that the extreme muddiness of the drop made ascending the rope far more of an effort than it would be to negotiate the Breakdown Section in the first place.

### 10.2.18 Lower Fuller Canyon from Breakdown to Culverson Intersection (Map 10.11)

The passage characteristics change abruptly downstream of the First Breakdown. Passage dimensions reach 40 ft in width and nearly 90 ft in height. It is now often necessary to climb above the stream over large, mud-covered breakdown or to traverse large mud slopes.

At a point nearly 300 ft downstream of the First Breakdown, the passage suddenly closes down again, reducing to

**Fig. 10.58** Clifford Lindsay looks up at a dripline of flowstone curtains and stalactites that decorate this section of the Peterbilt passage. Photograph by Philip Lucas

6 ft high and 10–12 ft wide. An upper-level meander with flat muddy floors bypasses this section. Beyond the "restriction," the passage soon regains its former dimensions. It is possible to walk at stream level for the next several hundred feet.

Eventually, an area of collapse known as the "Slippy Poo" is reached. Here a section of very slippery mud-slickened boulders demands full concentration. Any slip would result in a slide down through gaps in the boulders and into some deep pools below. Luckily, the Slippy Poo extends only for 50 ft, when a section of leisurely walking stream passage saves the day. This passage continues unobstructed for the next several hundred feet.

The next obstacle is the Water Maze. It first appears that an overhead traverse may be necessary. But by carefully following the stream through fissures in the breakdown, a way can be found through the Water Maze into more wide spacious passage beyond. It is an easy stroll downstream for the next 800 ft. At this point, a mud bridge requires a quick climbup and climbdown. Beyond the bridge it is more easy strolling for the next 800–1000 ft to the intersection with the Lower Culverson Trunk at the Dragon's Breath Room (Fig. 10.60). What had seemed like large passage up until this point is now put into a different perspective, dwarfed by the blackness of Lower Culverson.

### 10.2.19 Cataract Avenue (Map 10.11)

Cataract Avenue intersects the main Fullers Canyon about 800 ft downstream of the Fuller Canyon Waterfalls. A small stream cascades out of Cataract Avenue and joins the Fuller stream. Beginning as a narrow canyon, the first 100 ft or so of Cataract Avenue is fairly straightforward but tight. The top of the canyon continues upward until it meanders out of sight. At one point, a large breakdown block must be climbed up and over. For the next several hundred delightful feet, one cascade after another is encountered. In places the

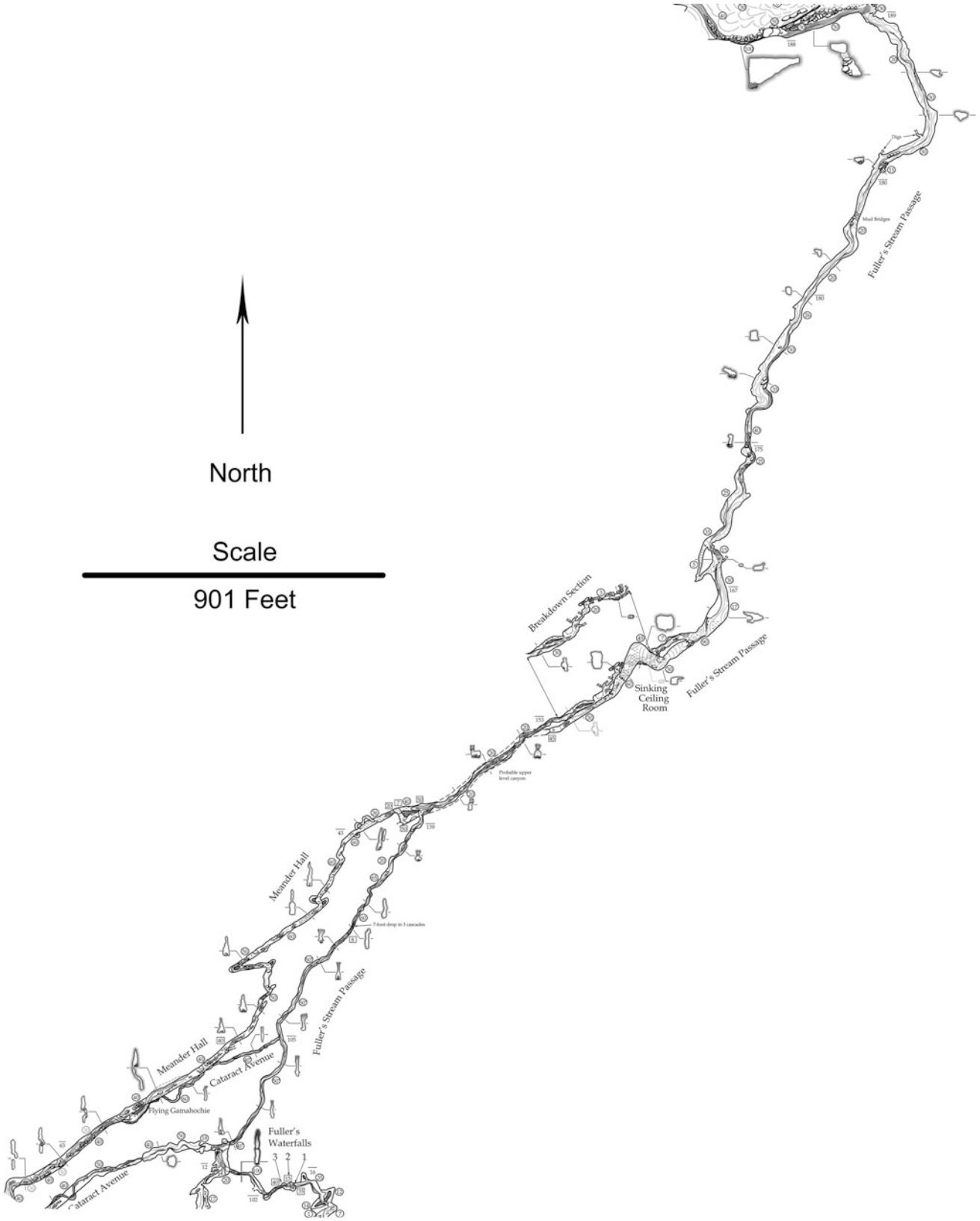
**Fig. 10.59** Taking a big step across 70-ft-deep slot canyon, Clifford Lindsay does not look down. Photograph by Philip Lucas

canyon stays very narrow. Black voids loom overhead. After about 1000 ft, it is possible to climb up into the overhead passage. Near this point, a passage with a small stream enters from the right and south. This goes to the Big Step Lead.

Continuing upstream in the bottom of the canyon, the distance separating the canyon and the large overhead passage becomes less and less until the two passages become one. Here the passage averages 25 ft high and approximately 40 ft wide. It continues with these dimensions for the next 1000 ft, at which point the passage begins to divide and become smaller. After another 400 ft, the passage narrows even further in an area where many dry pools of crystals decorate the floor. Soon after, the passage crosses up through the "crappy layer" and pinches in collapse.

The large paleo upper passage can be followed back downstream beyond the point where it merged with the lower canyon. Traversing this passage requires stepping across the narrow stream canyon at several places. The stream can be heard cascading far below. The upper passage soon becomes 40 ft high and 40 ft wide and continues over breakdown slopes for the next 1300 ft. Sharp meandering can be seen in this stretch of passage, especially in the ceiling channels. At one point the passage takes an abrupt left-hand turn and then nearly doubles back on itself with a sharp right-hand turn. In this sharp meander, the inside bend of rock has broken and the end of what otherwise would be a huge rock pendant nearly blocks the passageway. At this point, the passage has become nearly 50 ft high but has narrowed to approximately 20–30 ft wide. It continues straight for nearly 800 ft to a point where another intersection is reached. This intersection is the top of the Fuller's stream canyon. Although the stream is 80 ft below, mud in Cataract Avenue indicates back flooding from the Fullers Stream. Cataract Avenue appears to merge into the top of the Fuller Canyon. It can be seen to continue beyond, but without a floor.

Back near the merge point between the large upper passage and the lower canyon sits the Big Step Lead. This lead marks a clear division between the upper "original passage" and the younger canyon that has downcut approximately 70 ft to the present level of the Fuller Stream. Some climbing is involved to gain access to the Big Step Lead. A little side stream comes out of a too small crack, but a climbup into an upper canyon leads to a scramble across the top of a large breakdown block. This passage continues, but gradually loses its floor until finally it is necessary to drop into the stream. The water is pooled a couple feet deep in a narrow "hands-and-knees' passage for 40–50 ft. At this point, it is necessary to chimney up approximately 15 ft over a restriction into a larger overhead passage. Continuing upstream in this passage, a 15-foot waterfall guards the opening to a passage 30 ft high and 15 ft wide. This is the Big Step. In order to negotiate the waterfall, it is necessary to traverse out on a small ledge and then take a "big step" across to the top of the waterfall. Several hundred feet of passage has been explored beyond this point. No surveying has been done, and several leads remain. Several hundred feet beyond the Big Step, William Royster and Bert Ashbrook used a walkie-talkie to make voice contact with Clifford Lindsey on the surface. They were able to maintain contact for some distance while crawling down a passageway. This passage is apparently beneath the hard surface road in front of Clifford Lindsay's garage.




**Map 10.11** Waterfall to Dream Lake

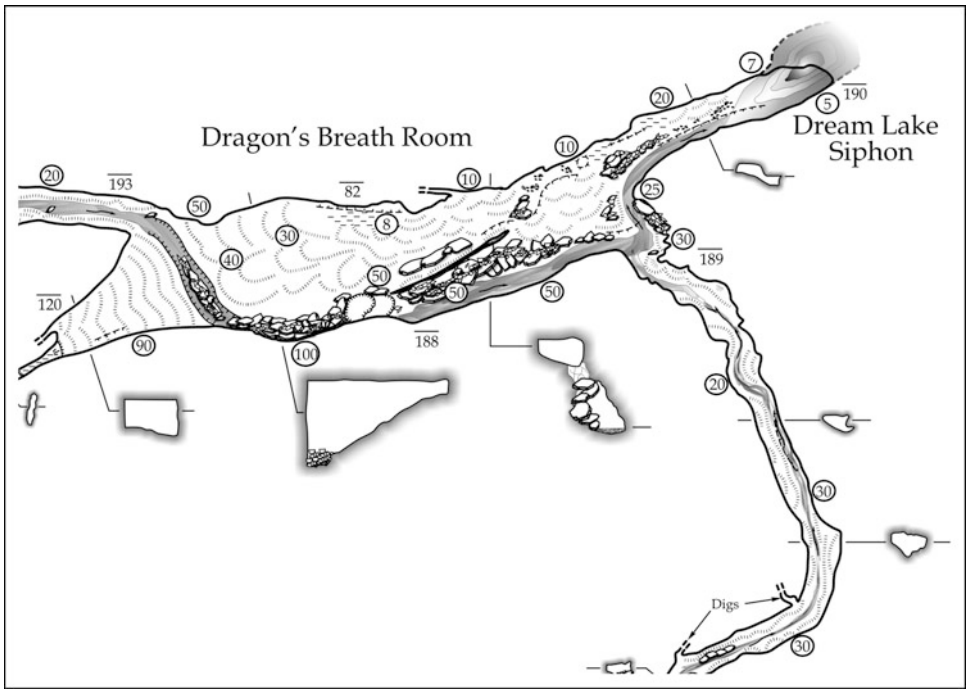
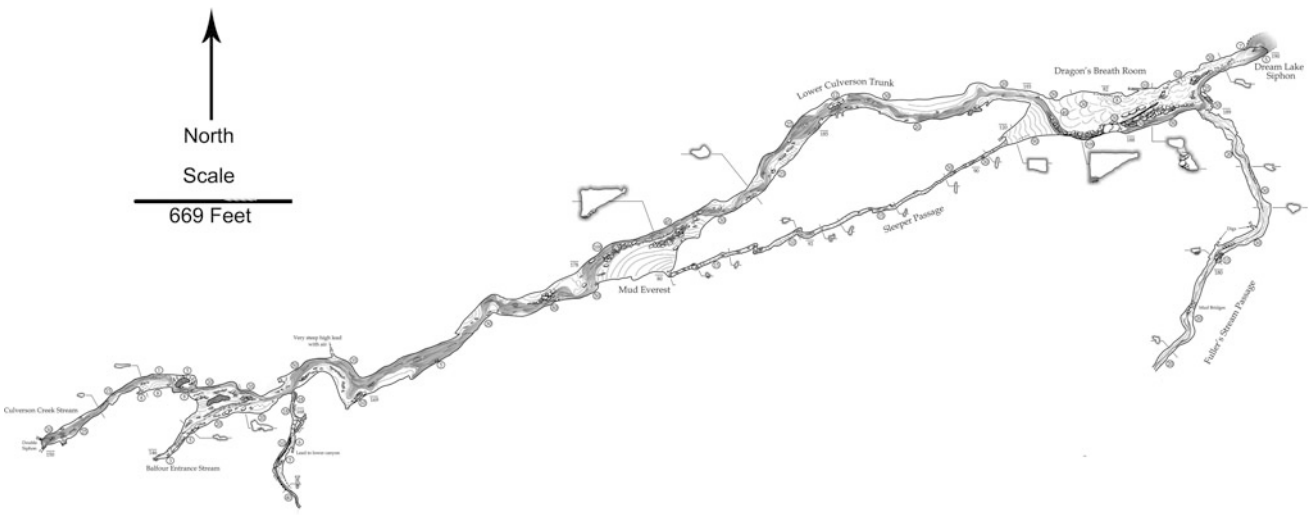



**Fig. 10.60** This illustration of the Dragon's Breath Room and Dream Lake will have to take the place of photographs; there are none. During the summer and fall, the Culverson Creek stream retains enough heat to generate enough water vapor to create a foggy atmosphere. This area contains some of the largest volume in the cave system. Frustratingly, the hundred-foot ceiling descends into a mere 5–6 ft at the sandy shore of Dream Lake and then continues to plunge below the lake surface. The large passage continues under water beyond Dream Lake

### 10.2.20 Lower Culverson Trunk: Dream Lake to Double Siphon (Map 10.12)

The furthest point downstream on the underground course of Culverson Creek that exploration has penetrated is Dream Lake. It is, of course, the lowest point in the cave system, 165 ft below the main Culverson Creek entrance. It is at the north east end of the Dragon's breath room where ceiling heights of 100 ft descend to a mere 7 ft at the Sandy Beach of Dream Lake with a passage width of 40 ft. The sump "lake" extends about 50 ft to a point where the ceiling gradually descends to the water.




**Map 10.12** Lower Culverson

Ronald Simmons attempted to dive the sump in circa 1992 without success. Although the creek was at near normal levels, the water was a bit murky due to recent rains. Ronald's first attempt was to go deep and follow the main channel. He reached a depth of about 30 ft but found himself in a huge passage with no discernible channel to follow. He also had no points to attach his diving tagline. His second dive attempt was to follow along the flat ceiling of the submerged passage which was only a few feet lower than the surface of Dream Lake. He attempted to swim in a straight direction, but being unable to see his compass clearly, he ended up swimming in a large circle, and it reappeared at the far end of Dream Lake. Although frustrated by the murky water, he did establish that the passage continued in very large dimensions.

The description of the lower Culverson trunk will start at the Dragons Breath Room and describes features in the upstream direction to the upstream sump of Double Siphon and the breakdown collapse at the end of Alien Way.

The Dragon's Breath Room is one of the larger spaces in the cave system. Its floor is mostly huge blocks of breakdown most of which are covered in large mud banks reaching some 60–80 ft above the stream level. The stream finds its way through the breakdown and, although difficult, it is possible to follow the stream the entire length beneath the Dragon's Breath breakdown mountain. During the summer the Dragon's Breath Room is filled with a hazy atmosphere. This is because Culverson Creek still retains a lot of heat, causing water vapor, even though it has been underground for 2 miles. Heading upstream from the western end of the Dragon's Breath Room, the Lower Culverson Creek Trunk varies from 40 to 100 ft wide and from 12 to 80 ft high. Wading upstream, the deeper pools can be avoided by following one side of the passage or other. Sloping mud banks predominate. Here and there are scattered breakdown blocks.

After 1200 ft, a roar announces that the stream is rushing through massive breakdown along the right wall. Following the stream through the breakdown looks to be difficult—in fact, it has not been attempted. However, a huge sloping mud "mountain" along the left wall provides an alternate route. This area of the trunk passage has become very spacious.

The mud mountain is called Mud Everest. Its sides are steep. The top of the mountain is nearly 100 ft above the stream, and the opposite wall at this point is almost 150 ft away. The ceiling is nearly flat. During the summer, the warm waters of Culverson Creek create a misty atmosphere that makes it impossible to see the opposite wall and floor. The volume of this passage seems immense (Fig. 10.61).

Near the top of Mud Everest is a small flat area where the Sleeper Passage begins. The entrance to this passage is not obvious from the stream below. Strong air currents blow from this lead.

**Fig. 10.61** Taken by the photographer near the summit of Mud Everest, this image shows the large passage looking downstream toward Dream Lake. Ceiling heights here are approximately 100 ft. Photograph by William Jones

To continue upstream from Mud Everest, it is necessary to descend the upstream slope. Continuing to wade upstream, the passage averages 30–70 ft wide. There are large mud banks and scattered breakdown. At a point about 500 ft upstream of Mud Everest, the ceiling height abruptly changes from 30 to 8 ft and then 5 ft. Deep pools make it necessary to nearly swim in several places. Several trips have found thick patches of yellow foam on the surface of these pools. On some occasions, it has been necessary for the lead caver to sweep and blow the foam aside to make an open route through this unusual obstacle.

About 1200 ft upstream from Mud Everest, the passage makes an abrupt right turn and the ceiling heights again raise to 30 and 40 ft. There are possible high leads at this bend and at the next bend in the passage, but no attempt has been made to climb them. After another 100 ft, the passage makes

a 90° left-hand turn to the southwest. A canyon enters along the left-south wall about 100 ft further.

This canyon is known as the Muddy Madness Passage. It is guarded by a deep pool that appears to be over 6 ft deep. To enter the Muddy Madness, stay on the right side of the pool, where the water is only about chest deep. The Muddy Madness Passage leads to the connection with the Culverson Creek, Wildcat, and McLaughlin sections of the cave system.

Just upstream from this intersection, the main stream flows down a scree slope in a series of rapids. In another 200 ft, Alien Alley enters from the left and southwest wall in a Y-type intersection. Continuing to the right (west) at the Y, the stream passage becomes somewhat smaller, averaging 50–20 ft wide and has several deep pools that must be negotiated. Breakdown becomes more apparent about 500 ft upstream from the Y and eventually blocks further progress. A deep pool, known as the Double Siphon, guards this final massive collapse. A passage appears to go in two directions beyond the deep pool.

Alien Alley begins as a broad, 70–80-foot-wide passage with a breakdown-covered floor. Continuing in the passage, the breakdown becomes more massive. The ceiling also begins to lower, and further progress becomes very difficult after 250 ft. A small stream flows out of Alien Alley, although it is usually hidden beneath the breakdown floor. This stream has been dye traced from the Log Jam.

### 10.2.21 The Sleeper Passage (Map 10.12)

One end of the Sleeper Passage opens at the top of Mud Everest in the Lower Culverson Trunk. The other end enters the upstream end of the Dragon's Breath Room.

The Sleeper Passage was first entered from the Mud Everest side by early explorers who traversed about 300 ft to a deep pool of water. The survey of the Sleeper Passage was started in 1995 by climbing a steep mud slope at the west end of the Dragon's Breath Room. Over 100 ft of elevation is gained going up this slope. At the top of the slope is a 15-foot-wide passage trending west–southwest. This passage quickly narrows into a 4-foot-wide by 3-foot-high canyon that continues for several hundred feet. At several points, holes in the floor and mud bridges interrupt the passage.

After 400 ft, the canyon widens into a room 15 ft wide and 70 ft long. At the far end of the room is a pool which requires wading. Beyond, the passage continues for 200 ft and is 10 ft wide with sloping banks on the left wall. Another large deep pool, about 60 ft long, must be waded carefully in order to avoid complete immersion. Beyond this pool, the passage continues as a 15-by-15-foot walking passage which leads to yet another deep pool. Much of this pool can be avoided by chimneying along a ledge. The next 300 ft of walking passage continues west–southwest over mud and breakdown before making an abrupt right-hand turn to spill out onto the top of Mud Everest.

## 10.3 Floods in Culverson Creek Cave

### 10.3.1 Flood at the Balcony Passage

After a big flood event, a group of cavers entered the Wildcat Entrance and traveled down the balcony passage in order to witness the magnitude of flooding in the normally dry abandoned trunk passage that eventually leads to the log jam. Halfway down the balcony passage, low vibrations and booming sounds as from a not so distant thunderstorm could be heard and felt. At the lip of the balcony overlook, the frothing brown water of the Culverson stream could be seen racing by. The creek at this point was 20 ft deep and 50 ft wide. From the downstream direction, there were long deep tuba like notes that morphed into a series of weird rumblings. The vibrations from this were similar to those vehicles with an amped-up sound system that vibrates the windows of nearby vehicles. Suddenly, there would be loud booming sounds as if a huge gong were struck. Occasionally, there would be trumpet like sounds. As this was happening, the creek was steadily rising. There were a few explanations as to what might be causing the strange sounds and none seemed to be adequate.

### 10.3.2 Flooding of the Cave System

An unusual aspect when the cave system begins to fill during flooding is the number of overflow tubes that carry flood waters and the sequence in which these overflow tubes are utilized as the various metering points are exceeded. Figure 10.62 shows what is known about some of these overflow routes. Figure 10.63 show the extent of the flooding in the cave when the Culverson Creek Cave entrance becomes completely flooded. This figure does not show how much of the cave become flooded when the flood level is such that a temporary lake backs up from the cave entrance, extending more than a mile up the blind valley.

Some of the metering points within the case system are known. However, some metering points can only be speculated. One speculation is that there is a metering point beyond Dream Lake that causes the entire system to be eventually flooded during big flood events. Since it is more than 2 ¼ miles to the resurgences along Spring Creek, there is ample opportunity for such metering points to exist. Perhaps the metering point beyond dream Lake is where Culverson Creek cuts down through the Taggard Shale.

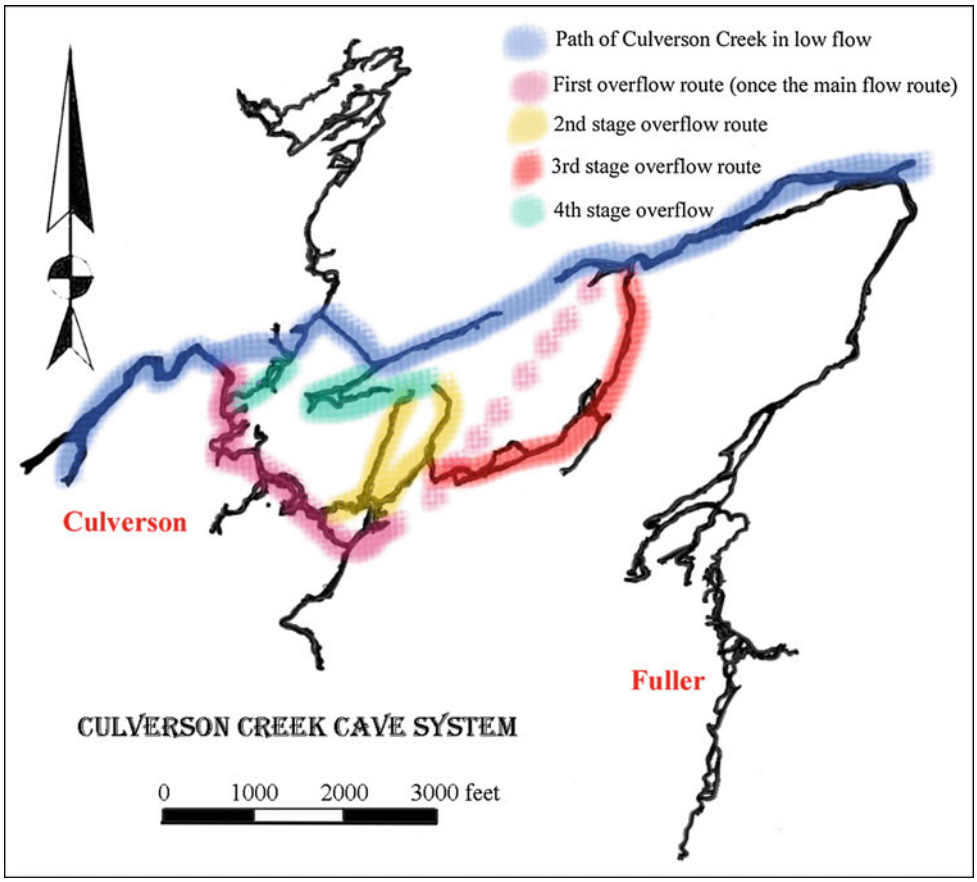



**Fig. 10.62** During major flood events, there is a complex series of metering points and overflow routes that dictate how all the cave floods. This illustration shows what is presently known about some of this. More is known about the overflow routes than is known about where the metering points might be located. For instance, we know that the new piracy just upstream from the Balcony Passage, is a metering point because we have seen it "in action". However, it is unknown WHETHER the log jam is actually a metering point. It would be extremely risky, or perhaps deadly to get a visual confirmation of that

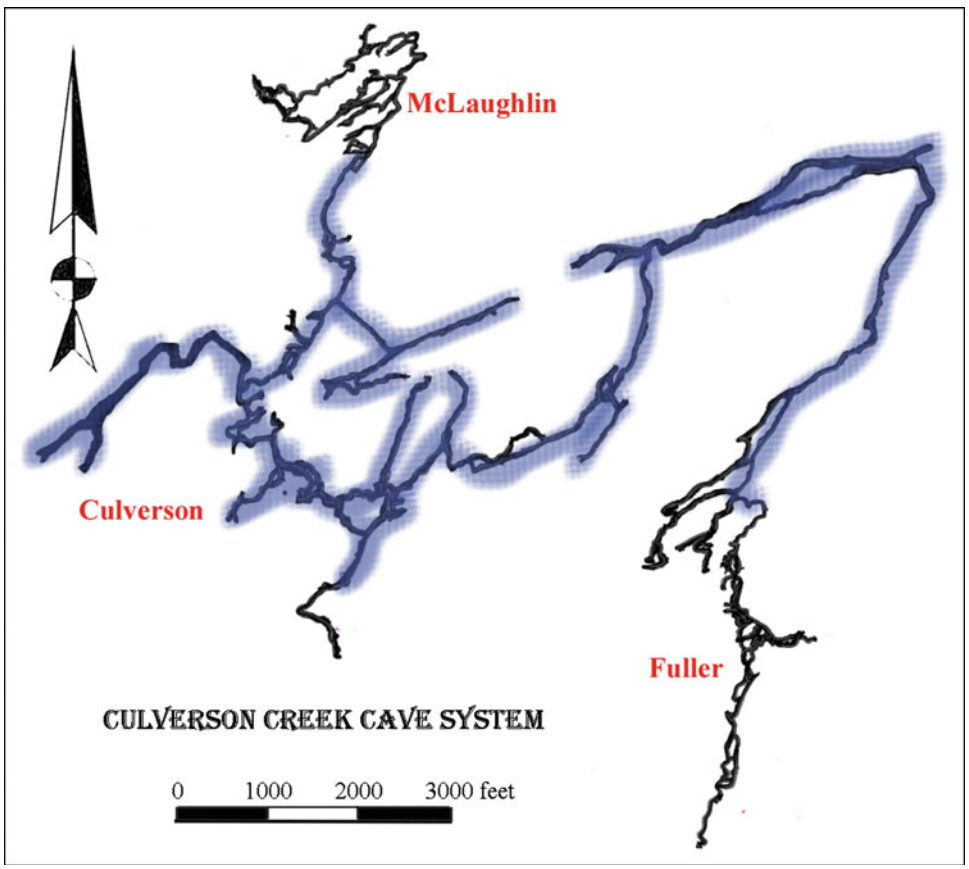



**Fig. 10.63** This illustration shows how much of the cave's passages becomes flooded during a flooding event when the main Culverson Creek entrance goes underwater. Of course, the cave becomes even more flooded when the temporary lake becomes deeper extending further and further up the blind valley

Since the cave is so prone to flooding, caving parties should be keenly aware of the weather forecast before they enter the cave. Because the drainage basin is so large, there can be heavy rains in the upper basin creating a flood pulse while there is no rain at the cave. Should a party enter the cave system, they should be aware of rising water levels or a change in the sound of running water while in the cave.

## 10.4 Conclusion

In conclusion, the Culverson Creek System is a beautiful but difficult and sometimes dangerous cave to enter. It has both beauties not only with spectacular flowstone in the upper levels but those wonderful sculpted shapes of the vadose stream passage. It is truly a Greenbrier County marvel.

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