THE PRECINCT 11 SUMP RESCUE

By Michael Raymond

In April 1983, eight cavers were trapped by floodwaters in Precinct 11 Cave, Kentucky. They emerged three days later after a multipronged rescue effort. Their story teaches lessons about caves and rain, caving equipment and sump rescue techniques. We can take another look at the rescue thanks to the patient explanations of the many who were there.

The cave drains a major valley in southeastern Kentucky. It travels along the east side of the valley with several levels and a total length of over five miles. The bottom level has a river that exits from a spring too small to enter.

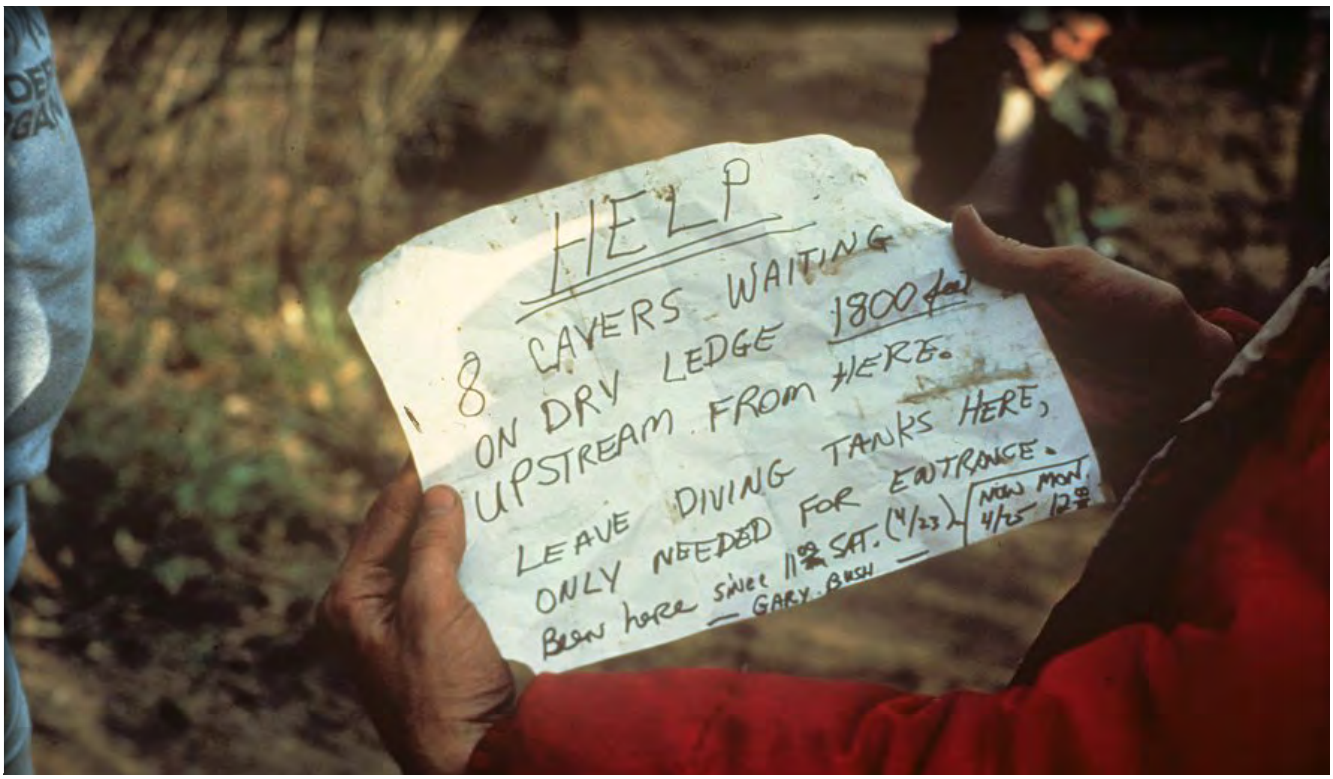
Upriver from the spring, is a karst window where the cave river exits during floods. Entering the cave at the window, cavers cross an entrance pool that normally has two to three inches of air above the water. The cave then splits. The right fork goes 75 feet, is 20 inches high and has 5 inches of air. The left fork connects to the river upstream of the right. It is 100 feet long and 4 feet high, but has even less air space. Cavers would travel through the right fork and then use a cut around passage to travel upriver, connecting near the main intersection of the river and the left fork. Water in this part of the cave is kept high by a downstream rock feature that acts as a dam. Travel upstream and downstream from the intersection goes through more low air passages.

Cavers began mapping Precinct 11 in 1980. They did twenty survey trips over the next three years. In 1980 and 1981, their first trip of the year was in June. 1982 saw their first trip in May. In 1983, they traveled even earlier, in April.

The soon-to-be trapped cavers entered Precinct 11 at 10 am on Saturday, April 23rd, with two wearing wetsuits. Most wore minimal clothing and brought dry cave clothes in dry bags to be put on after they passed through the low air space passages. It was sprinkling and there was high water at the entrance, but the forecast was for the scattered showers to end that evening.

In his book, Flood Hazard, A Caver's Worst Nightmare, Dave Baines notes that the amount of ground saturation has a major impact on the manner and speed that cave streams react to rainstorms. One of the cavers who was trapped noted that the area surrounding the cave usually had thick undergrowth. But when they entered in April, the snow had just departed, leaving relatively bare ground and no foliage to absorb or slow the flow of surface drainage.

The cavers headed upriver to their survey objective. They kept watch for signs of flooding, but none were observed. About 5 pm, they returned to the main river passage. Here they found the water had risen 2 inches, and the showers coming in a major dome had quadrupled in size. They hurried to the entrance, hoping to beat the sumping of the entrance pool.



The note left by the stranded cavers in Precinct 11 Cave, Kentucky. photo by Rose McCrossen

Unidentified diver and cavers discussing the rescue at Precinct 11 Cave in 1983. photo by Rose McCrossen

Cavers, reporters and members of the public at the entrance to Precinct 11 Cave with one of the large diesel mining pumps used to lower the water level underground during the rescue. photo by Rose McCrossen

Cold and wet conditions on the surface during the Precinct 11 cave rescue in 1983, photo by Rose McCrossen

Kentucky Highway Patrol officers, firefighters and caves outside the entrance to Precinct 11 Cave during the rescue in 1983, photo by Rose McCrossen

They arrived too late. As they retreated 1,800 feet back upriver, pools that were knee-deep a few minutes prior were now waist-deep.

They climbed twenty feet up to the Mezzanine, which overlooks the river. Floods hadn't reached the soft dirt there in millennia, and emergency supplies had been cached there. Settling down, they wrung the water out of their clothes. Those wearing cotton twill overalls hung them up to dry, which never happened. Their body heat finished drying the rest of their clothes over the next day. Two of the cavers stayed in their wet wetsuits the entire time. Most of the others left on their wet boots. This led to trench foot in the wet body parts and a burning sensation that lasted for months afterward.

Before climbing up to the Mezzanine, the cavers left a cairn by the river so they could measure its change in level. They checked it every hour and marked the new height. From their experience with floods in summer, they expected the drizzle outside to stop soon and the water to recede within twenty-four hours. They knew that friends, serving as their callout, would let others know where they were. They opened the emergency cache, inventoried it, and decided how to use its contents. They waited.

The first night, they used garbage bags and candles to ward off the 55 degree chill. But as they dozed, the candles burned holes in the bags. They kept wearing the bags but stopped using the candles. They spooned together to keep warm. The soft dirt was packed down hard enough that they collectively rolled over every half-hour. They took turns being on the two ends of the spoon. If anyone got too cold, six of them had warm carbide lights, and there was a large upper trunk nearby where they could walk around. They made an exploratory trip to an adjacent upper-level breakdown area looking for an alternate exit, but did not detect moving air. No one reached the point of moderate hypothermia. Outside, the storm front stalled, and it continued to rain.

In the late evening, their callout personnel noticed that the team hadn't exited. They notified emergency services on Sunday morning, and the state police received word at 5 pm. Diver George Veni entered the cave early on Monday the 25th to try to find the trapped team. His normal cave diving gear, including his prescription mask, was staged in Roppel Cave for a trip, so he was using borrowed equipment. Veni swam through the entrance pool, which was sumped, went through the left fork, and came up near the main intersection. He knew he needed to pass through several passages to reach the cavers. Unfortunately, with his poor vision, he made a wrong turn and went downstream. George spent six hours searching that portion of the cave, trying to find a place where he could get out of the water. At the end of his trip, he left a water-resistant box of food on a dry bank near the intersection.

Veni exited, around 11 am, local rescue personnel started using pumps to try to lower the water. They had looked for places to drill into the cave, but decided pumping was their best option. Their effort began with four three-inch pumps which could each move 250 gallons per minute. When these were found to be insufficient, they added two six-inch diesel mine pumps. The pumps were almost too powerful for the shallow water at the entrance, and workers had to take steps to maintain the flow from farther in. Now the water level was dropping two-three inches per hour.

Midday on Monday, the cavers noted that the level of the river appeared to be going down. Three cavers traveled towards the cave entrance to see if they could escape. When they reached the intersection, both forks were still sumped. They could hear the pumps, and they found Veni's box of food. They had brought a note to let rescuers know their status and location and left it by the box. The note read, "HELP Eight cavers waiting 1,800 feet upstream from here. Leave diving tanks here. Only needed for the entrance. Been here since 11 A.M. Sat 4-23. Now Mon 4-25 12 noon." The cavers thought the rescuers might need the box, so they removed the food and returned to the group.

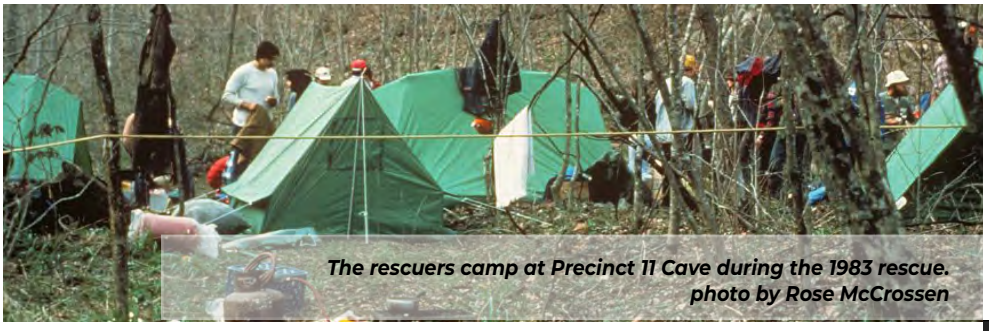
Later on Monday, cave divers Steve Hudson and Forrest Wilson entered the cave to try their luck at finding the cavers. When they reached the intersection, they found the cavers' note, which was their first evidence that the cavers were still alive. They exited with the note to share with the incident management team. On their second dive into the cave later that evening, Hudson and Wilson went upstream at the intersection. After they came out of the low areas and walked another 500 feet, they spotted a cyalume glow stick the cavers had left to mark the route to their location. They shouted and made contact. The divers let the cavers know there were three hundred people and six helicopters outside. That made the cavers feel terrible. Steve and Forest left dry bags with canteens of hot chocolate, cans of beef stew, chemical heat packs, military C-rations and space blankets. They told the cavers to stay in place, and dove out of the cave.

Once the pumps dropped the water enough to re-establish an air connection, the cave started to breath in the toxic exhaust fumes. These traveled back to the trapped cavers, nauseating two of them and causing the group to relocate away from the air flow. Outside, workers hung a plastic sheet to divert the fumes, which prevented conditions in the cave from worsening.

The next morning, members of the cavers' grotto arrived at the Mezzanine. They told them they had to leave immediately. The rescuers had decided to bring out the cavers in two groups of four. They were concerned the cavers would need help, so they sent one rescuer for each caver. The cavers felt they didn't need the help but went along with the plan.

Meanwhile, the sump had re-closed when one of the pumps had a seal failure. A local farmer happened to have the needed part, and the workers were able to get the pump going. When the first group of cavers reached the ear dip, there was only 1.25" of air space. They swam out with their noses to the ceiling.

A second group of rescuers entered the cave after the first exited. They reached the remaining cavers about an hour after the first set had departed. When this group reached the ear dip, the pumps had lowered the water enough for them to swim with 3 inches of air. Everyone was out of the caveon Tuesday. After the pumps were shut off, the water rose back up and the cave stayed sumped for another three weeks.



The rescuers camp at Precinct 11 Cave during the 1983 rescue. photo by Rose McCrossen