Breaking News in Tyson Spring Cave

January 25, 2014

Learning from others who have made fatal mistakes is always a wise choice. Venturing deep into Tyson Spring Cave during a rain or snow melt event could morph into a really bad day, so the last frozen Saturdays in January were perfect for forging ahead with unfinished business.

In 2008, two years after I created a safe man-made entrance into the cave, an ancient moose antler and saber tooth cat skull were discovered in Tyson's. This sent shock waves through the scientific community and made international news. In 2009, Chris Widga from the Illinois State Museum joined several of us on an expedition deep into the cave. We discovered a scapula to the same cat intermixed with other bones at the base of a 70' tall dome. A theory was formulated that the cat bones we discovered here, and those we found scattered thousands of feet downstream, had been washed down from a side passage intersecting the top of this massive dome. Dr. Jay Kennedy was called upon to scale this dome's walls in search of such a passage, and although his bolting project was successful, he could not fit into a side passage he reported seeing a few feet below the ceiling. "Explore this upper level passage, and you will probably find it littered with saber tooth cat bones," Chris said.

On January 18th, a bitterly cold day with temps hovering at zero degrees, Emily Hudson met the challenge. That name may sound familiar; her mother Kim was unequivocally one of the best cavers in the upper Midwest. And of course, everyone is familiar with Emily's grandfather, Allen Lewerer, who has been a prominent figurehead in the caving community for years.

Emily scaled the dome in a matter of minutes, assessed the situation, redirected the existing rope towards the horizontal passage, and unfortunately discovered that she needed to place three bolts to gain access to the passage - something we had not brought the equipment for. Not to worry, I used the rest of the day as an opportunity to show Emily and Brett Lucas some amazing areas in the cave!

The following Saturday, January 25th, the weather was the same: extremely cold with a wind chill of twenty below zero. Beginning at 7:30 a.m., we fought glare ice and blowing snow all the way to Fillmore County, but the highlight was smashing my all wheel drive van through road blocking drifts as we approached the vicinity of Tyson Spring Cave. The logistics of getting into wetsuits, unlocking the cave, and lowering the gear 120' down the shaft without freezing solid in gale force winds is left to the imagination.

Once we reached the dome, Emily made quick work of the bolting requirements and entered the side passage. When Brett and I saw her light shine through a crack along the top of the dome, we knew we were in for some bad news. Yes, the "side passage" was nothing more than a small crevice leading away from the dome. This begs the question again, "Where did the cat bones and moose antler enter the cave 27,000 years ago?" My guess is either far upstream where the water enters the cave, or perhaps from another tall dome.

After I pointed out that hardly any of the tight side passages in this cave have been explored, and that they could lead us to stupendous domes and other remote extensions of this cave system, Emily and Brett were eager to check a few out. Since Emily is slightly taller than a first-grader and thinner than a pencil, Brett thought she had an unfair advantage. As we approached a side tributary with water flowing out, Brett glanced in and asked if he could try to navigate it. No problem; Emily and I figured we would end up waiting two minutes for him to return with a shredded wetsuit and Emily would squeeze in, conquer it, and gloat about the incredible find she discovered.

The longer Emily and I sat there waiting in the main passage, the more we knew that Brett was lying in the constricted passage just out of view, with his light off, biding time before suddenly emerging and claiming to have found the next Holy Grail.

So when Brett returned like a victorious warrior, exclaiming that he had discovered an amazingly decorated dome, and on and on and on, we were skeptical. It took less than 4 seconds for Emily and I to enter the passage and, with Brett right behind us, we climbed up into a stupendous 25' tall dome, covered with brilliant white flowstone. Yes, it seemed as though Brett, the fearless badger, had made a major discovery! As I pointed out that the passage continued past the dome, Emily slipped back into the low, 4 1/2' wide passage and began to slosh ahead. Brett and I followed.

As I moved along the muddy passage, partially filled with water, I couldn't help but think that I had been here before- perhaps as early as 1987. But since then, I have explored so many new caves, and so many miles of passages that all I had while rounding corner after corner in this low stream passage was a gut feeling. After following Emily for hundreds of feet, I surmised that if I had indeed discovered this passage during my original exploration of the cave, it would have been in the warmer months when the water level would have been much higher. Back then, it was almost impossible to enter this cave in the winter due to the remote location of the natural entrance. I am certain that my forward progress would have been impossible due to higher water levels, and I would have been forced to retreat after a moderate distance.

After hours of reminding each other that this passage will probably end around the next bend, we were forced to consider that it was getting late, that it would take equally as long to retreat, and that we had left our food and water in the main passage. After all, this was supposed to be a short side passage.

We had encountered one enterable side passage with about five inches of airspace above the water, several generous clusters of highly decorated formations which almost made forward progress impossible, and two ancient bones. After traveling along this passage for approximately a quarter of a mile, we were satisfied that we had discovered the longest side passage in Tyson's and made the decision to turn around in open cave, with blackness ahead.

We exited the cave at 9 p.m. , fought like warriors against the extreme cold temperature, and managed to survive the snow storm on the way back to Minneapolis. I was very optimistic that this passage would continue, perhaps even into a new cave section. Not only was the airflow good, but I also noted that after the dome, the water flow became redirected to flow away from the known cave and into the

uncharted passage we were following. This water must go somewhere - either to a resurgence along the base of a distant bluff, or perhaps into an unknown major section of the cave.

To be continued...

John Ackerman

March 8, 2014

With warming temperatures, time was running out to conduct a safe survey. Since drowning is not how I wish to die, it was imperative that we conduct our survey trip while the temps remained below freezing. The only recent thaw event occurred the day before our trip when the temperature climbed to 35 degrees. Since there was no precipitation that day, I felt we would be safe entering the passage. The high predicted on the day of our trip was 29 degrees, and so on March 8th, Brett, Emily, and I returned to the passage to begin the arduous survey task.

As it turned out, nothing went right - this is a trip report I would rather not publish.

A few moments after sliding into the passage and conducting our first survey shot, it was quite apparent that this survey excursion would be extremely difficult due to the low air space caused by the typically high water conditions and mucky environment. Lying in 48 degree water for prolonged periods of time, while attempting to read the compass, the tape measure, and record the information in a legible form was taxing, to say the least. Add mud to the mix, and you create a real bummer. Several hours into the survey, Brett began experiencing early signs of hypothermia due to an inadequate wet suit, and Emily's lips began turning blue. I kept pushing the survey forward, hoping the constant movement would be the ticket to warming those two up. It didn't work.

Someone blurted out that they thought that the water was rising, and then everything went bad after that. Our necks were submerged and our heads cocked at an angle while we slowly made our way deeper into the cave while surveying. My ability to read the compass was diminishing, and I had to call on Brett to squeeze alongside me to verify the numbers. Emily was lead tape and shouted back that the water conditions were unchanged. I honestly couldn't remember if the water had actually risen since our initial trip or not.

After 32 stations I decided to call the trip off, and instructed Emily to locate a suitable place to set the final survey station for the day. Then she cried out in pain. Severe leg cramps. We were over seven hundred feet into this passage, and there was no room for excuses, accidents, or stupid decisions. I suggested that Brett retreat a few hundred feet while Emily and I set the final station at a side in-feeder. Her cramps were getting worse, immobilizing her.

I massaged her legs, which succeeded in temporarily pulling out the knots, and every several hundred feet, it was necessary to repeat the process. Eventually, we made it back to the main passage, and I was left wondering if the water had risen at all. I felt like someone had shouted FIRE! in a theater.

February 14, 2015

Almost one full year had passed by, but we were back in the saddle again. Our Minnesota winter weather had once again resembled a Yo- Yo, with repeated sub zero temperatures interrupted by major thaws. But the week of Valentine's Day was bitterly cold and proved to be an opportune time to conduct our second survey.

Emily and Kirk Moorhead arrived at my house at 8 a.m., and we car pooled to the cave site in my van. It was -1 degree when we arrived, which was absolutely perfect. Things seem to go better when your brain is not dwelling on all kinds of drowning scenarios. All three of us verbally listed the contents of our cave packs. The purpose of each item was to save our lives in the remote, hostile, and unexplored environment we would soon be entering. We carried neoprene diving hoods in case our heads needed to be submerged, webbing to pull someone or something free with, a generous amount of drinking water, high energy food, assorted lights to last for weeks, a first aid kit, a few small tools, a crow bar, a trowel and an array of survey gear. We all donned 7mm wetsuits, coveralls, wetsuit gloves, neoprene socks, and insulated neoprene boots. We felt confident and upbeat because we knew we were as prepared as we could be for such an inhospitable distant journey.

Our call-out time was 3 a.m. That is when our call out person would drive 1.5 hours to the cave site, descend 120' down the entrance shaft, and proceed upstream until reaching the marked side passage. After that, all bets would be off. I am not sure what he could possibly do to save our lives, even if he were able to follow our journey through the longest and nastiest environment imaginable.

Once we arrived at the entrance shaft, I found the lock to be frozen over again. With bitterly cold wind gusts up to 40 mph, I somehow managed to light the blowtorch to unthaw the lock. Emily offered to assist, but I didn't think it prudent for her to stray too far from the van. I feared she would have been carried aloft like a balloon in the wind gusts, never to be seen again. With the lock task accomplished and our ears and cheeks suitably frozen, we made our way upstream . It was 10:30 a.m., and we were hyped.

Because of the amazing array of delicate formations, we never transport packs on our backs - they are carried. This time, we decided to secure a piece of webbing to our packs and pull them along in the main stream passage - right up to our side lead. This proved to save a lot of energy .

And so we began our journey. Emily and Kirk strapped their packs to their legs and pulled them along, but I found it easier to push my pack in front of me. After a short distance, Emily commented that it was her opinion that the water level had remained the same since our original discovery trip the year before. Kirk didn't comment, he just followed along, tilting his head to keep his face above the water. Once we reached the previous survey marker, I donned a thinner pair of wetsuit gloves so I could record the new readings in the survey notebook. During the previous survey, I had to remove my thick diving gloves to write anything down, and eventually my bare hands had became so numb that it was a struggle to even grasp the pencil.

Emily took the lead with the tape measure and set the stations. Kirk followed behind me and noted the directional readings with his new compass. I read the tape and recorded all of the readings, including passage width and height. After several hours of rounding bend after bend, the water level dropped a few feet, allowing us the luxury of crawling on our hands and knees while our necks began to slowly unthaw due after having been fully submerged for so long. We occasionally encountered a cluster of formations in the center of the passage, which we would squeeze through. After most readings, it was necessary for me to dunk the survey book in the water in an attempt to clean the pages so I could record the information. We continued in this fashion, without a lot of discussion, as we moved from survey station to survey station, deeper into the cave. Our goal was to reach our original turnaround point and survey right into the unknown.

Late in the day, we realized that we were hungry and thirsty and counted on Emily's recollection that somewhere ahead there should be a small space to sit up. Thank goodness for small miracles that we eventually encountered this little space. All three of us were able to sit up side by side, with all of our shoulders touching. As I glanced right to left, I almost burst out laughing at the spectacle before me. The only thing visible were 2 pairs of eyeballs! Every other surface was coated with mud. We all felt better after eating lunch, even though a good deal of mud and sand was ingested along with it.

As we slipped back into the frigid murky water, Emily and Kirk announced that they were finally warming up. For some reason, my right foot had been freezing cold, but it had also warmed up. As the afternoon slipped into evening, Emily and I commented that nothing looked familiar, and that we may have already passed our previous exploration limit. The passage had remained about 2.5' tall by 4' wide the entire distance but had now become greasier and blacker. The water level had also substantially diminished, giving way to puddles. I was still occasionally drawing arrows in the mud banks along the passage walls, which could give hope to any rescuer who may have to travel this obscene route, that we had indeed traveled this way.

Kirk's "new and modified for slimeout conditions compass" was now overpowered with mud. He resorted to licking the glass port holes, and I resorted to spitting and blowing on my survey book and pencil so I could see what I was writing on. Emily resorted to mumbling WTF?

I was excited to be able to see the survey book after recent corrective eye surgery and to be able to move without pain after a triple hernia operation. And we were moving into unknown territory - what could be better?

Untold survey stations later, the conditions worsened, if that was at all possible, Emily had exhausted all of the drinking water after pouring it over my pencil and notebook before every recording. Kirk and I desperately had to urinate, and it was approaching 8 p.m. We really had no other option other than to retreat - the facts dictated the decision. The only thing which was clear was the fact that we had long ago surpassed our original exploration limit and had moved a great distance ahead. For this, I was grateful. But at the same time, I was actually sad and disappointed that we had followed this stream passage all day and into the night without it ever branching off, becoming taller and larger, or leading us into the spectacular cave segment which I predicted it would.

During the previous several hours, I had been hoping that all the muck and low water which we had encountered were the result of an approaching sinkhole, or perhaps an in-feeder, which would have been responsible for depositing all of this. For the first time, a small air flow could be detected, which typically indicates a major cave segment ahead. I just knew that if we could breach this low mucky zone, the passage would trend downward and finally open up.

But obviously, that would not be happening on this trip. As I wound up the 100' tape reel (with one end broken off and missing after it became bound up in the mud) I asked Emily to scout ahead for a suitable final survey station . I observed large quantities of formations all along the lower portions of the passage walls and scanned for one to tie a survey marker onto. I quickly discovered one with a hole through it, and began to tie a poker chip to it. Just then, I heard the sloshing sounds of Emily returning. She shouted ahead and said that she had located a much better location to place the final station. I told her I had already located one, but she insisted that hers was better. I could only hope.

We surveyed ahead, with me spitting on, blowing on, and cursing the survey book. Kirk was at his limits as he repeatedly attempted to clear the mud from his tongue. "Dear God, I think I am going to pee in my brand new wetsuit. If I have to reach forward one more time to slide the mud off the tape measure to see the numbers, it may happen."

Then, at the fourth additional survey station, I found the tape measure lying on a mound of flowstone. I tried to glance up over it, but I had difficulty focusing due to a mud ball in one eye. I swear the signal from my eye to my brain registered the bottom tread from a pair of neoprene boots, but it was only after I heard a voice above me did I realize that there was indeed a pair of boots above my head! As I climbed up, I could not believe what Emily had discovered. It took my eyes a minute to adjust (Yes, doctor, I agree not to swim or expose my eyes to contaminated water for at least 2 months) because I was surrounded by whiteness. Hmm, I wondered if we were dead now, and this was the light we see when we float away after disobeying the eye doctor, and pay the price by drowning?

Kirk scrambled up behind me, and we all stood in awe while looking up at an amazing 50' tall spacious dome, covered in pure, clean, white flowstone. Kirk and I congratulated Emily for finding this crown jewel in Tyson Spring Cave, and just as quickly suggested that she scout ahead along the continuation of the stream passage for a short distance to see what lay ahead. Given another minute or two, I think Kirk and I would have "wet" our wetsuits.

It was a three hour journey back the main passage, where I had placed several plastic containers of Gatorade, which we promptly consumed. Fortunately, I was only three hundred feet from the main passage when I began experiencing leg cramps.

At midnight, we reached the ladder and climbed out to greet the - 5 degree outside air. We were suddenly reminded that the final few feet of the day may actually be the most dangerous because every wet object you touch on the steel lid and casing freezes and bonds in place! We learned that the barometric pressure soared and peaked around 8 p.m., which may have explained the reason why I felt a positive wind flow along the stream passage around that time.

One week later

After thoroughly reviewing each and every compass recording, it was thought that there actually may have been a problem with the compass. Some of the survey stations did not make sense. Sure enough, it was discovered that the metal in Kirk's headlamp, which was almost touching the compass itself during the readings, was causing the needle to spin erratically. I gulped hard, and knew that each and every compass reading that had been taken with Kirk's compass was inaccurate. A subsequent test revealed my worst fears. This passage was too important to have totally inaccurate survey information. I notified Kirk and Emily that as much as we would dread going back in there, it was the responsible thing to do.

Jan 23, 2016

Finally the weather cooperated, nice and cold, with no chance of a thaw. And just in time, because Emily would be moving to Oregon in a few days to begin college. Since the original compass readings I had taken last March were accurate, it would mean we would travel to station 32 and resurvey everything from there on.

With Emily in the lead, and Kirk and I following, we made good progress to station 32. But Emily was very cold, and despite her best efforts, could not warm back up. As she was beginning to slip into the first stages of hypothermia I asked her to return to the spacious main passage, warm up, and wait for Kirk and I.

Despite the fact that we were short one person, and that my finger tips were actually numb due to the cold water, we managed to reach the 70th station, here I planted a survey marker in the mud bank. Try recording information with a tiny pencil while laying on your side engulfed in freezing water, with no feeling in your finger tips!)

We eventually regrouped with Emily, who was warm and in good spirits.

After Dave Gerboth entered the new data into the map program it was revealed that the original survey using Kirk's compass was indeed inaccurate.

FEB 6, 2016

Thank God this would be our final mop up survey trip. These journeys have not been for the faint of heart.

Aaron Hill, Kirk, Martin Larsen (his first trip in this cave!) and myself made the trek to the side passage and began the long crawl back to station 70. After just a short distance Aaron announced that his camera had slid out of his top pocket and was lost somewhere in the mud. Not only that, but he was very cold, and could not regain his warmth. We shouted back to him and advised him to make his way back to the main passage and wait patiently for us to return.

This would be Martin's first trip into the cave and his first journey down this long crawl. Everyone was well equipped for the trip, and I even brought along a spray bottle to avoid problems with mud on the survey book.

Without incident we picked up on the survey and eventually made it to the tall dome. Martin said he was suitably impressed, and commented that this was the most amazing dome he has ever seen. As all three of us seized the opportunity to urinate, we noted a strong air flow wafting down from the dome. Actually, Martin's attention was focused on his wetsuit top, which he had removed and carefully laid on the floor of the dome. Martin alerted Kirk to the fact that he may be pissing on his wetsuit top, but Kirk reassured him that he had missed it.

After that crisis was resolved we all slipped through the gap along the far wall with survey gear in hand. We followed Emily's journey that she had taken on our previous trip while Kirk and I were busy relieving ourselves. At once I was elated to see that the passage had become somewhat narrower, but taller, as though it was beginning to break out into a larger segment. But soon it hunkered back down again and became muddy. Martin was in the lead, and after 250' he pronounced that the passage ahead may be impassable, and that our survey may have come to a halt. I squeezed past him, swept away the sand and mud with my arms and slipped under a small cluster of formations. Just up ahead I discovered a narrow enterable side passage on my right, which Kirk pushed. After about 50' he arrived at a huge slab blocking the way. He could peer through a gap and see open blackness above him, but was unable to pass through it. Obviously he had encountered a dome. Proof of this was the fact that there were numerous formations flowing downward into the passage he was laying in. Reluctantly he retreated.

I scouted ahead down the main passage for about 40' and found that the ceiling was lower than typical, and that the passage contained a lot more muck what we had been encountering. Exploring ahead looked grim, but possible. I did not note any air movement from the side passage or from the continuation of the main passage. I tied a survey poker chip onto a small ceiling stalactite at the intersection and began the long journey out. Martin commented that he would rather not return to this passage again, ever.

When we finally made it back to the main passage that evening we found Aaron waiting for us, Warm and in good spirits. We exited the cave at ten thirty.

After all the survey shots were complied into the mapping program it was revealed that we had recorded 123 survey stations for a total distance of 2,693 feet. That is slightly over one half mile, one way!

Future task: Dye trace this passage to see where all the water goes, then decide if it is worth it to continue onward with this arduous project!