

U.S. Exploration Session Schedule

Session Chair: Pat Kambesis

Tuesday, June 14, 2022 8:40am-5:00pm

Location: Soule Center

The U.S. exploration session is where cavers working in U.S. cave and karst lands report on their activities and accomplishments. This day-long session features new explorations and reconnaissance as well as ongoing projects.

U.S. Exploration Session Schedule

Time	Presenter	Topic
8:40-9:00am	Niles Lathrop, Heather Veerkamp, Joel Despain	Caving in the McCloud Limestone, Shasta County, California 2019-2022
9:00-9:20am	Dan Lamping	Continuing Exploration in Carroll Cave, Missouri
9:20-9:40am	Hazel Barton	Revenge Fantasy: Extensions off the west edge of Wind Cave, Wind Cave National Park, South Dakota
9:40-10:25	Philip Schuchardt, Robin Thomas & Pete Johnson	Discovery and Exploration of the 6th Deepest Cave in America
10:25-10:35	Break	
10:35-10:55	Derek Bristol	The Resurvey and Continued Exploration of Great Expectations Cave in Wyoming
10:55-11:20	John Lyles	Fort Stanton Cave in 2020-22
11:20-11:40	Bill Steele	Exploration and mapping of Texas' Honey Creek Cave Has Resumed
11:40-12:10	Dan Austin	Continuing Exploration in Jewel Cave, South Dakota
12:10-2:00pm	Lunch Break	
2:00-2:20	Lee Florea	Caves of the Tsala Apopka, Florida
2:20-2:40	Jason & Christina Richards	Exploring Limestone Caves in Hawaii
2:40-3:00	Peter Bosted	The Delissea System in Hawaii
3:00-3:20	Garry Petrie	Caves of the Big Lava Bed, Washington
3:20-3:30	Break	
3:30-3:50	Greg Springer	Dry Cave, West Virginia: Anything but dry and crawling toward 10 miles long
3:50-4:10	Nicki Fox	West Virginia Makes History with Two 50-Mile Caves!
4:10-4:30	Dave Socky	McClung Cave, WV – 20 miles in 3 years
4:30-4:50	Nick Socky	The 18th Mile of Windy Mouth – A Survey Milestone and Update
4:50-5:10	Paul Walko	Newberry's Connection Exploration

US Exploration Abstracts

(alphabetical by presenter)

Continuing Exploration in Jewel Cave, South Dakota

Daniel C. Austin

Jewel Cave National Monument

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Exploration has continued at a steady pace beyond the Southwest Splinter in Jewel Cave. Since July of 2018, volunteer cavers have added several more miles to the Splinter section and have made major new discoveries. Several new lakes have been found, including one over 50 feet deep called Lake Inferior. While the cave dips

below the water table in this location, the vertical extent of the passages and signs of airflow indicate that the air-filled portion of the cave extends far beyond the known lakes. In fact, cavers are routinely traveling more than an hour from the lakes to arrive in the further reaches of the cave, with no sign of an end. Further discoveries in the western branch of the cave have yielded promising leads beyond the Brr Hole on the western edge of the cave. Strong air and continuing passages suggest either a connection to the south in the Splinter Section or virgin cave further west. Additionally, a major discovery was made in the southeast branch of the cave, near the end of the Mind Blower where 80-foot tall passages continue off the edge of the map. As of July 2018, more than 30 miles of passages have been discovered in the Splinter Section, and over 15 miles have been added to the total length of the cave. Jewel Cave is now 210.8 miles in length, and each successive exploration trip adds more questions to be answered on future trips.

Revenge Fantasy: Extensions off the west edge of Wind Cave, Wind Cave National Park, South Dakota

Hazel A. Barton, Nick Anderson, Derek Bristol and Adam Weaver

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In 1993, a small breakthrough was made via a 60 foot pit off of the western edge of Wind Cave that appeared to push past a fault that had prevented westward progress. The area was called the Lunatic Fringe and over a mile of cave was discovered, characterized by a profusion of spectacular aragonite. Given the delicate nature of the area and need to carry vertical gear, interest in the area had waned by 1995. In 2019, a team returned to push a remaining lead with strong air, that disappointingly tied back into known cave, although it did negate the need for vertical gear. A small, aragonite-lined lead was also found that opened into a passage heading northwest, off the edge of the known cave. The COVID pandemic stopped exploration in March 2020 after 1.5 miles of cave had been discovered and resumed in August 2021, when another mile of cave was found. By December, day trips were becoming quite demanding, with five hours of travel time to reach the leads. With NSS and private sponsorship, the team bought the equipment needed to establish a new, permanent camp in Revenge Fantasy. Subsequent trips carried out the camping gear and built a drip-collector for drinking water, and the first camp trip took place in February 2022. This camp allowed the team to be more rested for pushing the small and miserable leads that characterize Wind Cave, allowing almost half-a-mile of new cave to be added in three days. The Revenge Fantasy extension continues to make the first significant changes to the shape of Wind Cave in over 30 years, and given the strong airflow, perfusion of animal skeletons, and general trend towards Persistence Cave, it is hoped that this area may add another entrance to the world's seventh longest cave.

The Delissea System in Hawaii

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We have continued to explore, map, and photograph the volcanic caves on the north slope of Hualalai Volcano, on the Big Island of Hawaii. The most interesting find in recent years is an up-slope continuation of Shangri-la cave. Due to the unusually steep terrain, splattering lava has created many speleothems, including stalactites, helictites, fine hairs, and multi-colored flowstone-like features. We have continued to find bones of now-extinct flightless birds. The total length of the system is now over 74 miles, with the longest contiguous segment about 30 miles long, with several long segments very close to connecting in. The vertical extent of the system is about 1500 m for the full system and 1100 m for the contiguous section. Hundreds of leads remain to be checked.

The Resurvey and Continued Exploration of Great Expectations Cave in Wyoming

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Great Expectations Cave (Great-X) is one of the longest and deepest caves in Wyoming and one of the few western NSS Cave Preserves. It was originally discovered by cavers in the 1970's and survey work ended in the mid-1980's. The Great Entrance was acquired by the NSS in 2003 to protect both the cave and access for cavers. Since that time recreational trips happen just a few times a year, and infrequently (about once every five years) a through-trip is conducted that is widely considered one of the most difficult and dangerous cave trips in the US. This through-trip involves a more than 1400-foot elevation loss, traversing roughly five miles of cave passages, many vertical rope pitches, negotiating miles of waterfalls and plunge pools in 38-degree water, and a 1000-foot long belly crawl in arctic water to survive the "Grim Crawl of Death". It is a serious trip that requires fitness, very specific gear, knowledge of the logistics required, and familiarity with the route. In 2018 an effort to resurvey the cave was undertaken by western cavers with the goals of generating a more detailed map with a profile view, and to restore tie-in stations that would be the foundation for additional exploration. This talk will discuss the scope of the project, give a status on recent trips and expeditions, review the strategies being employed to explore such a wet and cold cave, and layout plans for future trips.

Caves of the Tsala Apopka, Florida

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The Withlacoochee River Lowlands of Citrus County, Florida are composed of a chain of open lakes, cypress swamps and grass marshes that average 11 m above mean sea level (amsl) interspersed with islands and ridges of hardwood hammock and live oak scrub that reach 25 m amsl. Called the Tsala Apopka, "bass eating place", by the Seminole, these expansive wetlands spread over 250 km², are rich in wildlife, and host important archaeology and paleontology. Interactions between the nutrient-rich surface waters and the Upper Floridan aquifer are punctuated by esteveselles, alternating seasonally between groundwater springs during the dry season and sinking streams when water levels are high. More numerous are extensive caves developed in the Eocene-age Ocala Limestone, which is exposed in the low ridges and islands of this region. In this presentation, detailed surveys of four of the larger known caves in this region are shown, comprising 750 m of surveyed passage. Collectively, the maps, scientific study, and resource documentation have revealed important details on their origin and development: To summarize, these caves 1) have a position and scale facilitated by the lateral penetration of organic-rich surface waters and respiration of those organics at the water table; 2) have a morphology that alternates between tabular and enlarged fractures; 3) are biogeochemically active and host rich macro- and micro-biologic communities; 4) are mutigenerational features with enlargement during multiple phases of the Pleistocene; and 5) host sites for important paleontological reserves aggregated during their development. Access for the exploration, study, and conservation of these caves is tenuous, with most on private land and the remainder requiring specific permits.

West Virginia Makes History with Two 50-Mile Caves!

Nikki Fox

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Two groups of cavers, which are members of the West Virginia Association for Cave Studies, made history in extending two known classic Greenbrier County, West Virginia, caves past the 50-mile mark. Technically, the cavers involved in this friendly, and undertoned playful rivalry, crusade were not entirely separate groups as several people have contributed years to brutal trips into the depths of each cave system. What are these

caves? I'd thought you'd never ask. They are the Friars Hole Cave System and the Great Savannah Cave System (GSCS). Friars boasts 11 entrances, about half of which are not usable for various reasons, spans two counties, contains one of the largest rooms in West Virginia, and the caves resurges are in the Spring Creek basin, which drains 59 square miles, of Greenbrier County. The GSCS has three entrances that are separated by a sump between Historic Maxwelton and Historic McClung caves that was dove in September 2019 to create the system, boasts a staggering number of 13 known sumps, and resurges 12 miles away at Davis Spring, which is West Virginia's largest spring. The two caves vary vastly in the basic features and development, such as in hydrology, structure, and stratigraphy. Both systems share a rich history in the local lore and among cavers who became obsessed with each cave's unknown and exploration.

Continuing Exploration in Carroll Cave, Missouri

By Dan Lamping

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Carroll Cave is a nearly 21 mile long cave system developed in Ordovician dolomite near south central Missouri. Carroll Cave is the 3rd longest cave in the state and the longest known cave in the cave dense Salem Plateau. The cave is rich in biodiversity. The history of Carroll Cave is intertwined with the history of organized caving in Missouri as the initial efforts to map the cave began with the first meeting of the Missouri Speleological Survey in 1956. In 1998 the Carroll Cave Conservancy (CCC) was established to regain access to the cave via an artificial entrance after multiple decades of cave closure. In 2002 the Backdoor Entrance was created via a 120 ft shaft, with a resurvey project that followed. This talk will review the resurvey project over the past 20 years and will highlight recent explorations and discoveries.

Caving in the McCloud Limestone, Shasta County, California 2019-2022

Niles Lathrop, Heather Veerkamp, Joel Despain

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In the last three years, renewed efforts at ridgewalking and cave surveying have paid off in the McCloud Limestone of Shasta County, California. On the eastern edge of the Klamath Mountains, this early Permian and fossil rich limestone is found between McCloud and Redding California. It is well known for forming large gray cliffs above the McCloud Arm of Shasta Reservoir, home to the show cave, Lake Shasta Caverns. The region has seen extensive use of caves by Native Americans and some ridgewalking by cavers, so in many cases we are not discovering caves, just merely re-finding them. To date, we have re-found about 25 undocumented caves and have a half dozen blowing digs. Accomplishments include the survey and mapping of Tardis, Lost Pot, Maiden Hair Fern, Kings, Dawson, February Pit and other smaller caves. Most of these maps have been drafted. Other finds include Pipevine Cave, which contains a pit 144 feet deep. Rileys Cave was extended to more than a thousand feet in length due to digs and climbs. The biggest find so far, however, is the very scenic October Caves, a multi level canyon complex with very nice speleothems and outrageous popcorn. Some of this work will be included in the CRF Klamath Mountains Project Report due out this summer.

Fort Stanton Cave in 2020-22

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Fort Stanton Cave in Lincoln County is the second longest cave in New Mexico. Over the past decade, 26.7 additional miles have been discovered and mapped. New discoveries slowed as wetter years brought flooding along the miles-long calcite-floored Snowy River borehole. In recent years, lengthy paleo passages have been discovered with climbs above Snowy River, closer to the entrance to avoid the flooded southern half. In 2018

Bliss Borehole was 2.84 miles long with going passage remaining. The upper Capitan Caverns complex had added 6.36 miles by 2019. Flooding resumed for months but cavers finally returned to survey in September, 2020. 5121 feet was added to Bliss, ending in a rappel back down to a flooded Snowy River near Rough Country. Bliss created the longest loop in the cave, with 3.81 miles of upper trunk. A bypass route was discovered off Snowy River in a lead that had been walked by for 17 years. This 0.6 mile route gets around the dreaded Mud Lizard crawl that sumps when the cave floods. Black Rock Bypass has reduced the risk of entrapment camping in the two southern camps. In October of 2020 mop up added 0.51 miles in Rough Country and The Letdown. Mop up in 2021 added a modest 726 feet in Capitan Caverns. In the historic portion of the cave, a small discovery was mapped during restoration, and resurvey was accomplished. A short passage was mapped near Black Rock Bypass in May, before flooding returned. The cave length is 42.3 miles. The winter of 2021 is drier than recent years and has us incentive to return to the leads at the south end. A radiolocation is planned for May, at the MJ camp, which hasn't been seen in eight years. Expeditions are planned to return to walking leads.

Caves of the Big Lava Bed, Washington

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The Big Lava Bed in Washington is the, "most primitive, untracked, least explored and least known areas remaining in the South Cascades," Marge and Ted Mueller, Guide to Washington's South Cascade Volcanic Landscapes. The Big Lava Bed is about 20 square miles of broken lava from an eruption about 8000 years ago. It is a smaller part of the Indian Heaven volcanic field that produced the large caves around Trout Lake, WA. The consensus was the Big Lava Bed could not support lava tubes. People were warned compasses were offset by localized magnetic fields and risked getting lost venturing on to the field. The enigma remained, with only two caves, Downdraft and the Dog Caves, found in the past fifty years, until technology enabled another approach. In 2018 the State of Washington published the lidar data for the Big Lava Bed. The images revealed a complex landscape of boulder fields, deep fissures and acre sized lava rafts. Even without any trails, it became possible to walk the field and return safely. In addition, individual cave entrances as small as a meter could be identified. The advent of paperless cave survey, exemplified by Topodroid, enhanced productivity. During the next three years, members of the Oregon Grotto walked over fifty cross country treks, totaling over 200 miles and found over 220 caves with 4.5 miles of passages. Caves worthy of mention include, Big Huckleberry, Westside, Eastside, Pans Labyrinth, Big Lava Bed, Level Up, Rainy Day, Chamber Maid and Wits End.

Exploring Limestone Caves in Hawaii

Jason and Christina Richards

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The volcanic origin of the Hawaiian Islands leads to the belief that the only caving in Hawaii consists of miles and miles of lava tubing. Though there are definitely amazing and beautiful lava tubes on most of the Hawaiian Islands, there are also limestone caves. We spent three years in Hawaii mapping, photographing, and exploring the limestone caves of Oahu, Kauai'i, Maui, and lava tubes on the big island of Hawai'i. The unique development of limestone in Hawaii produced cumulative miles of limestone caving along the shores of the islands, mostly underwater. Though many of these caves are known locally as "swim throughs" by local divers, they frequently have extensions too small for divers in normal gear to enter that led to extensive cave systems. Some of the caves serve as grim reminders of how dangerous caves in ocean surf can be.

Discovery and Exploration of the 6th Deepest Cave in America (2 parts)

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This talk will cover five years of work by the Bridger Teton Caving Project in Western Wyoming, including the discovery and exploration of Loaded Dice, the 6th deepest cave in the United States, as well as Jackpot Drop, a 547' pit within Loaded Dice. Over the last 50 years, the Teton area has attracted many cavers searching for one thing: finding the next big deep alpine cave. They went there with good reason. With over a hundred miles of karst terrain, the Bridger Teton National Forest has significant cave potential. But limitations in technology, the remote nature of the area, and the sheer size of the potential karst presented significant obstacles to realizing that potential. In 2017 the USFS and the Northern Rocky Mountain Grotto partnered to form the Bridger-Teton Caving Project. By combining a new approach to ridge-walking, modern technology, and the public-private partnership, the BTCP was able to inventory 61 caves. In addition to Loaded Dice, this talk will also discuss significant and still going alpine caves in Tosi Basin, a 10km², karst plateau at 10,000ft of elevation. Both of these highly vertical caves, known as Solo Glory and Don Quixote Gros Ventre, have over 2200 feet of depth potential. Topics to be covered include history of the area, geology, data-centric ridge-walking, rigging in wilderness, and of course the future potential of both pushing known caves but finding new ones as well.

McClung Cave, WV – 20 miles in 3 years

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In February of 2019 we knew the connection between Maxwellton Sink Cave and McClung Cave in Greenbrier County, WV was imminent via a sump dive (The combination of the two caves is called the Great Savannah Cave System). It was decided that to have an accurate and up to date length for McClung Cave a resurvey was necessary. This was important because the combination of the two caves could very well result in the longest cave in West Virginia. So, in February of 2019, the resurvey of McClung Cave was started. Fast forward to April 2022, only 3+ years later – the resurvey is now at 20 miles and the known length of McClung is 23.34 miles.

This program will highlight some of the best photos from recent survey trips, document some of the new passage that's been found, and show some of the very nice borehole passage of McClungs. The cave is not really known for nice formations, but plenty of pretties have been found during the resurvey. Some comparisons between the old map and new map will be shown plus statistics on trips, surveys, and participants will be presented, giving some idea on how to survey a large multi mile system in just 3 to 4 years.

The 18th Mile of Windy Mouth – A Survey Milestone and Update

Nick Socky

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Scene - It's a cool morning and the fog is rolling off the upper valley plateau of Southern Greenbrier County down into the Greenbrier River. A pleasant hike downstream starting at the mouth of Second Creek brings you to a dipping red shale that dives into the river as a large limestone head-wall rises above. Nestled halfway up this head-wall is the entrance to Windy Mouth Cave, the 9th longest cave in West Virginia and a treasure to all cavers. The original survey took place from the early 1950's until the late 1980's, with a few additional "push" trips to find a connection to Scott Hollow Cave in the 1990's. With missing data, lost notes, low detailed sketches, and exceptional optimism Windy Mouth was estimated to be 18 miles in length. Unfortunately, final map was never produced. On April 11th, 2015 prompted by rising interest, the resurvey of Windy Mouth began.

Well known for its famous “900 Foot Entrance Crawl”, Windy Mouth offers not only more crawling, but also large trunk borehole, sporting vadose canyons, and amazing formations shaped by the wind in the cave. Over the past 7 years, 100 survey trips have been completed with many hours and miles spent crawling to bring the actual length of Windy Mouth over 18 miles. With the resurvey complete, there are still over 100 leads left with hopefully more crawling passages to be discovered. So come crawl with us, and see some of the recent survey highlights of Windy Mouth Cave.

Dry Cave, West Virginia: Anything but dry and crawling toward 10 miles long

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Ohio University, Department of Geological Sciences, West Virginia Association for Cave Studies

Greenbrier County, WV is home to many long caves, but Dry Cave is by any measure unique with spectacular formations, unusual geology, and strike-oriented stream passages extending over 2.5 miles from the entrance. Two generations of cavers led by Phil Lucas surveyed a combined 3 miles of mostly stream passages from the 1960s to 1980s in the steeply-dipping and otherwise cave-poor Tonoloway Limestone, but Greg Springer and the West Virginia Association for Cave Studies took renewed interest in 2011 and have brought the cave's length to 8.76 miles. The cave is anything but dry and WVACS has resurveyed most of the known passages and discovered extensive upper levels and new sections. The stream level is overloaded with stalactites, stalagmites, and columns, but the upper levels have spectacular displays of aragonite, triangular calcite crystals, massive popcorn speleothems, and the only known square soda straws in the world. However, while upper-level leads exist throughout the cave, their sizes and apparent potentials had steadily declined until 2019 when Nick Socky checked an obscure hole and discovered The Better End, which has proven to be a major upstream continuation of the cave that abounds with leads and potential. The most intriguing lead is about 2.5 miles upstream of the cave entrance and consists of waterfall sounds emitted by a small crawl needing pushed. Unfortunately, the mainstream was found in 2021 to end in an upstream sump, but overpasses are being sought. The ultimate length of the cave is unpredictable because the sources of the cave's water are entirely unknown with no known sinking streams or potential upstream entrances. Nonetheless, a final length in excess of 10 miles is expected based on known leads alone.

Exploration and mapping of Texas' Honey Creek Cave Has Resumed

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Texas' longest cave is 21 miles long and has 170 remaining leads. Cavers started swimming in its deep water, exploring and mapping, in the early 1980s. Most of its length was reached and mapped in the 1980s and early 1990s. By the mid-1980s the cave had been explored far beyond the four-hour swim with fins through the first three miles of it. Leg cramps were a challenge when doing the swim both in and out again, so a shaft entrance was constructed three miles into it, 30" in diameter and 145' deep. It's been used safely for 37 years, with one exception, when a caver was stranded at the bottom of the shaft until the next morning, a story worth hearing. Starting around 2005, tank hauls were organized in support of cave divers pushing the main upstream sump. This series of upstream sumps continue on. A few years ago, the pristine nature of the cave was threatened by a developer who applied for a permit to build 1600 small lot homes in the upstream drainage basin of the cave and flush 500,000 gallon daily of treated sewage into Honey Creek. Cavers rose to the occasion, spoke passionately at public hearings, the Texas Cave Management Association entered a MOU with the ranch owners, and cavers mobilized the Texas Nature Conservancy which entered a conservation easement with the cave owners. The cave is now protected. Exploration and mapping of the cave has resumed to address the remaining leads. The four grottos based in Austin, Dallas, Houston and San Antonio are asked to field two fully wetsuited and properly equipped survey teams each, as well as capable dome climbers. This is

functioning smoothly with four weekends planned annually into the future. The longest cave in Texas is getting even longer.

Newberry's Connection Exploration

Paul Walko

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Newberry's Cave System is located in Skydusky Hollow, Bland County, VA and is part of a collection of several caves in the area. This talk focuses on the connection of 2 of these caves: Newberry-Banes and Buddy Penley's. Survey originated in Skydusky Hollow in the 1950s and has been ongoing ever since, including a resurvey of Newberry-Banes and Buddy's starting in the 1980s. The Newberry's and Banes Cave connection was discovered in 1954, with a thru-trip completed in 1964. Fast-forward to 2018, Reilly Blackwell and Philip Moneyhun completed a dome climb that led to a large breakout, including the Gold pit (130 ft), heading directly towards Buddy Penley's Cave. It wasn't until 2020 that the connection was discovered after several survey trips to the back of Newberry's and Buddy Penley's. I didn't get involved until summer 2020 and was still fairly new to project caving, when we did a 14 hour trip to the Newberry's connection area. Following this trip we were *much* more motivated to explore the Buddy's side where the theoretical connection was closer to the entrance. Myself, Eric C. Landgraf, and Jason Delafield completed a recon trip into Buddy's to check out some leads and one in particular stood out as having fantastic air and a promising high lead. We went back the next week and broke out to a completely blank spot on the map! It took a few more trips until Jason found muddy boot prints and several more after that to survey the connection. Finally, in 2021, a crossover/thru-trip was completed taking 4 hours including several vertical obstacles. Survey is still ongoing, with the eventual goal to connect all the caves in the Hollow!