Beneath the Forest

Volume 6, Issue 2 Fall 2013

"Beneath the Forest" is a biannual newsletter published by the Forest Service of the U.S. Department of Agriculture.
Edited by Johanna L. Kovarik, Minerals and Geology Management Centralized National Operations

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Cave and Karst Calendar of Events

Karst Interest Group Meeting

Tuesday April 28 - 30 2014

Carlsbad, New Mexico

International Workshop on Ice Caves

August 17 - 22 2014

Idaho Falls, Idaho

http://www.iwic-vi.org/index.html

National Cave Rescue Operations and Management Seminar

May 17 - 24 2014

Divide, Colorado

http://www.omegaresponders.org/NCRC2014/

National Speleological Society Convention

July 14 - 18 2014

Huntsville, Alabama

http://nss2014.caves.org/

Editor's Notes:

I am pleased to present our 11th issue of Beneath the Forest, the U.S. Forest Service cave and karst newsletter, published twice a year in the spring and in the fall. We welcome contributions from stakeholders and volunteers as well as forest employees.

Our next issue will be the spring issue in May of 2014. Articles for the Spring 2014 issue are due on April 1st, 2014, in order for the issue to be out in May 2014. Please encourage resource managers, cavers, karst scientists, and other speleological enthusiasts who do work on your forest to submit articles for the next exciting issue!

Cover art: The Entrance of Snow Dragon Glacier Cave on Mt. Hood at sunset. Image: Brent MacGregor Photography

Contributors and Entities represented in this issue:

Eddy Cartaya
Oregon High Desert Grotto

Bill and Peri Franz
San Francisco Bay Chapter
National Speleological Society

Brent MacGregor
Brent MacGregor Photography

Cynthia Sandeno
Monongahela National Forest

William Tucker
High Guadalupe Restoration Project

George Veni
National Cave and Karst Research Institute

The Lower Entrance of Pure Imagination Glacier Cave. Image: Brent MacGregor Photography

Sandy Glacier Cave Project: Mt. Hood, Oregon

Eddy Cartaya
Oregon High Desert Grotto

This past summer, July 2013, members of the Oregon High Desert Grotto (OHDG) of the National Speleological Society (NSS) conducted their 2nd annual expedition on Mt. Hood, Oregon as part of the on-going Sandy Glacier Cave Project. Expedition members included numerous Forest Service personnel, NSS explorers and surveyors, technical rescue support from Portland Mountain Rescue and Deschutes County Mountain Rescue, science support from Portland State University (PSU), a private researcher for National Aeronautics and Space Administration (NASA), and the United States Geological Survey (USGS).

The project received several grants to support laboratory processing of the water and ice samples collected. In addition, this past summer's expedition was filmed by Oregon Public Broadcasting (OPB) and featured on Oregon Field Guide's 25th anniversary TV special.

The project began in July 2011, when three NSS members Brent MacGregor, myself, and Scott Linn located and surveyed a previously unmapped glacier cave under the Sandy Glacier on the west flank of Mt. Hood in the Mt. Hood National Forest. For several years, the cave was visited sporadically by summer day hikers who ventured a short way into the massive tube. There were no maps, GPS coordinates, or study records on the unnamed cave, which apparently opened up each year in the July and was reburied by snow in late November. Brent MacGregor was the instigator of the project.

(Glacier Cave continues on page 4)

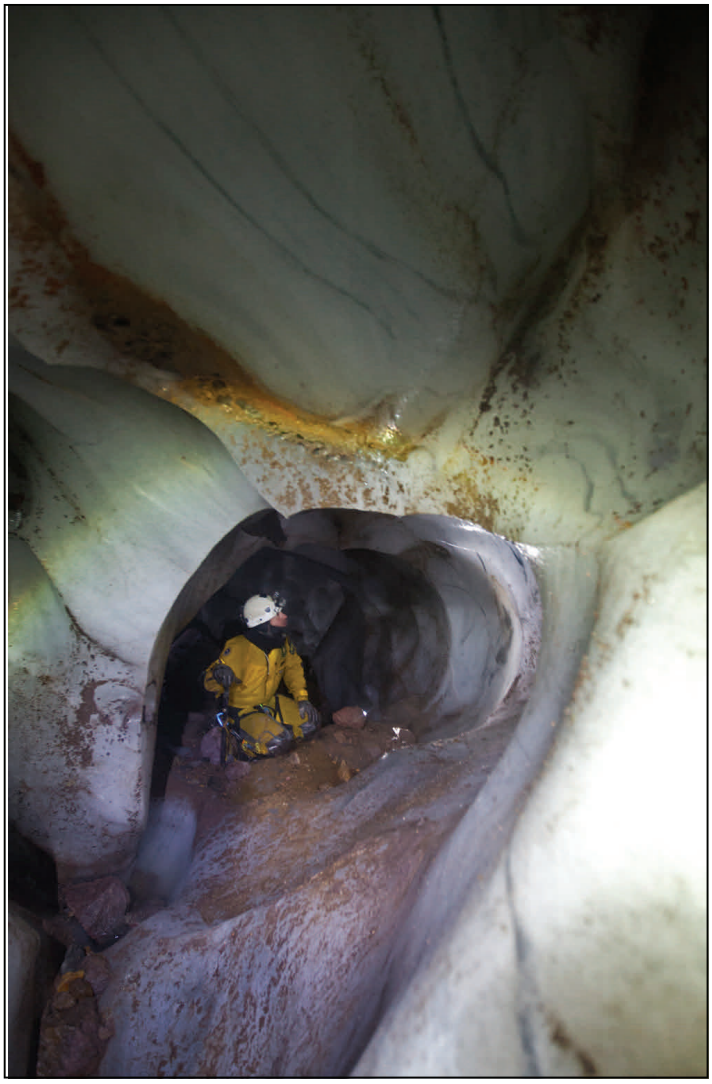
(Glacier Cave continued from page 3)

He is from Sisters, Oregon, where he works as a professional photographer and woodworker, as well as the chairman of the OHDG. Brent was the first to find snapshots of the cave on the internet in early 2011 and suggested an exploratory trip.

I joined Brent in this exploration as a long time NSS member. I am also a current Law Enforcement Officer for the Deschutes National Forest. I serve on two Mountain Rescue Association (MRA) accredited teams, Portland Mountain Rescue and Deschutes County Mountain Rescue, the latter of which has the only organized cave rescue team in the state. Scott Linn, also an NSS member, skilled cave cartographer, and member of Corvallis Mountain Rescue (another MRA team), rounded out the original group. Both Scott and myself have training and experience in cave rescue operations.

In July 2011 I, Brent, and Scott used the hikers' internet photographs to locate the elusive glacier cave at an elevation of 6400 feet. It had just opened in the form of a crevasse. After a short rappel, the we realized we had found the large cave and completed a survey of the upper section, which bored over 1800 feet up into the mountain under the hard, blue glacier ice. We named the cave Snow Dragon, after a common analogy to avalanche dangers. I returned with Brent a few weeks later with wet suits to survey the wet lower section of the cave. It travels mostly through a firn, a highly compacted form of snow that melts off in large sections during late summer. We discovered a rushing torrent of icy water entering the system from an unexplored side tube. The volume of water indicated that a significant cave was joining there.

A few weeks later, Brent discovered another previously unrecorded glacier cave just 150 meters from the opening to Snow Dragon.



Eddy Cartaya mapping the upper end of the glacier cave Snow Dragon. Image: Brent MacGregor Photography

The interior was coated with ice, making the rock climbs inside untenable for a solo explorer. I returned with Brent two weeks later and the we climbed to the back of the cave. The crown jewel of the new cave was a towering pit entrance traveling over 130 feet straight up through the ice to the surface. This feature is called a moulin, and it is a vertical conduit through which surface melt waters of the glacier used to flow and drill down to the original lava bedrock. We named this cave Pure Imagination, and returned again on January 4 2012, braving vicious winter conditions (and frostbite) to rappel and climb the huge moulin for the first time.

(Glacier Cave continues on page 5)

The ceiling in the upper end of the glacier cave Pure Imagination shows beautiful blue green colors. Image: Brent MacGregor Photography

(Glacier Cave continued from page 4)

Later that month, I and Brent met with Mt Hood National Forest science staff to propose a study expedition. The scope of these caves was too massive to keep secret. Given the receding glacier issue on Mt Hood, the caves offered a unique and short-lived opportunity to study 130 foot cross-sections of the ice and record glacial melt changes from within the glacier, as opposed to the traditional surface studies.

The proposal was ambitious and obviously required a huge amount of equipment. While Mt. Hood National Forest declined to be the lead agency, they did grant the NSS a research permit to conduct the expedition in July 2012. Geary Schindel, Vice President of the NSS, signed the permit for the expedition and insured the mission.

In July 2012, with the assistance of a large group of sherpas, the expedition moved over 1500 pounds of caving, medical, survival, and science gear up the mountain and established a base camp near Snow Dragon, at the toe of the glacier.

Over the next nine days, teams surveyed Pure Imagination, collected geological specimens for the USGS, conducted water quality and composition tests, and took ice samples for ash deposition tests. Deschutes National Forest geologist Bart Wills managed the rock collections for the USGS. Gunnar Johnson, a PSU glaciology student, conducted the water and sediment collections. The team succeeded in accessing the third tube joining Snow Dragon and later completed a survey of this third cave in the system, naming it Frozen Minotaur, due to its maze-like layout.

(Glacier Cave continues on page 6)

(Glacier Cave continued from page 5)

Eddy Cartaya looks down into the entrance of Snow Dragon. Image: Brent MacGregor Photography

Over 7000 feet of passage was subsequently documented in three maps, including a three-dimensional, wire mesh moving image (pgs 8 and 9). Brent conducted detailed photo documentation of all studies and parts of the caves, and later produced a science DVD that was subsequently copied and published by the Forest Service (courtesy of the National Cave and Karst Program). During the 2012 expedition, they noticed that unlike limestone or lava caves these glacier caves quickly underwent massive changes in size, hydrological channel paths, and even passage and room existence. The glacier through which the caves run is moving slowly downhill.

As it moves downhill, compressive and tensile stresses cause cracks, collapses, tilt in pits, and open/close water passages. The water itself is slightly above freezing, so it constantly cuts new channels. A waterfall that rained 40 feet from the ceiling one week ago may today be a hole in the wall 60 feet away the next week.

Warm air moving up the mountain enters the caves from below and rises to the ceiling, causing further growth and expansion far beyond what water alone could do. This ceiling melt process also delivers an unexpected, but logical surprise for both geologists and biologists. Rocks, birds, seeds, and other organic matter that fell onto the surface of the glacier hundreds of years ago and that were subsequently entombed by snow and absorbed by the glacier, are now raining from the ceiling onto the cave floor. Several noble fir seedlings were located and collected inside the cave, with short sprouts already growing from energy preserved in the seed during its century-long dormancy in the ice. These seeds may by up to 150 years old. Feathers from a duck long dead, frozen and now thawed, were found one third of a mile under the ice, as were colored quartz crystals. Different colored bio-masses, still uncollected and unknown, lay in mysterious pools and patches throughout the caves.

The 2012 expedition emphasized that a simple snapshot of the cave conditions was not enough. It was far more valuable to scientists to record change in the volume of ice lost, change in the biological and geological specimens found in the cave, and changes in the water quality and chemical consistency. They needed to conduct regular and annual re-surveys and expeditions to record the rate of change in these glacio-karst marvels.

(Glacier Cave continues on page 7)

(Glacier Cave continued from page 6)

In 2013, the team again approached Mt. Hood National Forest for a research permit to conduct the July 2013 expedition. Unfortunately, the project was unable to obtain a collections permit. While this prevented the actual collection of biological and geological specimens, the project was still able to gather most of the important data. These data included ice volume lost in an annual period and water samples from all three systems. In July 2013, the Sandy Glacier Cave Project conducted another nine day expedition and resurveyed Snow Dragon and most of Pure Imagination. In the Cerebus Moulin alone, a size increase of over 400% was measured, marking a huge amount of ice lost. Once again, local MRA teams came up to assist with the complex rigging to facilitate these surveys, which sometimes involved dangling the surveyor 130 feet in the air over a pit, or belaying an ice climber up a 30 foot cave wall to access a new passage.

Special events of note during the 2013 expedition included a site visit by prominent PSU glaciologist, Dr. Andrew Foutain. Foutain inspected the Pure Imagination Moulin and the first third of Snow Dragon, concurring that these caves are extremely unique, large, and rare in the lower 48, and indicative of the dying throes of the glacier. Foutain explained the mechanical structure of the cave formations and why we are seeing such radical changes. He also suggested more snow melt studies, which were immediately established. Also of note was a film crew from Oregon Public Broadcasting (OPB), who braved arduous logistical challenges to get their crew and equipment to base camp and document the team as it conducted its studies.

Their efforts culminated in a 30-minute special that aired on Oregon Field Guide and an interactive website that provided priceless documentation of this year's conditions of the Sandy Glacier Caves. (Check out the link: http://www.opb.org/glaciercaves/.)

The entrance of Snow Dragon Cave on Mt. Hood. Image: Brent MacGregor Photography

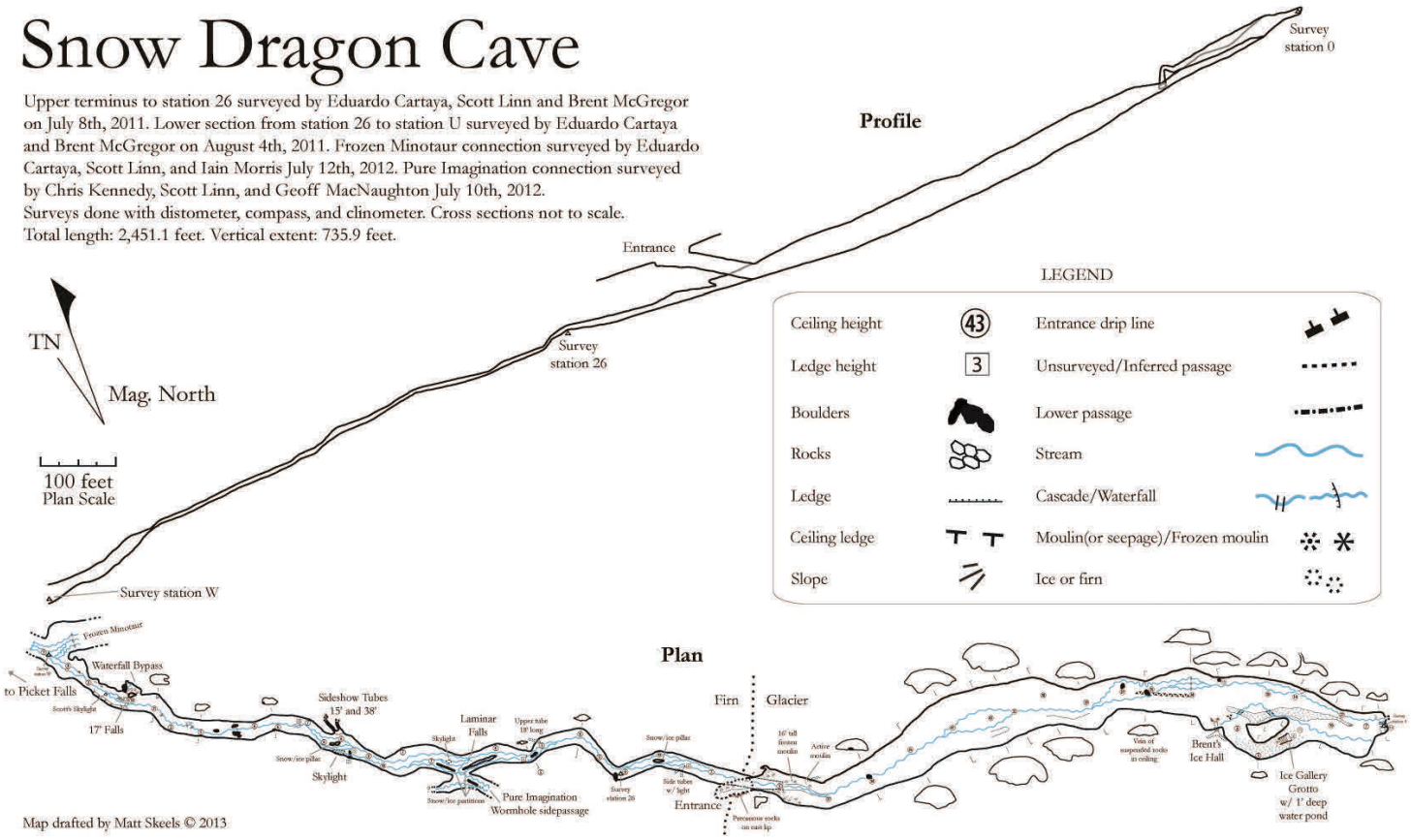
The Sandy Glacier Cave Project will continue to make annual observations and measurements of these unique caves. Each cave will be re-surveyed during the summer of 2014.

Recording the change each year from inside the caves is the most valuable record the project can provide to the science community. This information will be an enormous contribution to the study of glacial recession and the caves themselves.

(Glacier Cave continues on page 11)

Snow Dragon Cave

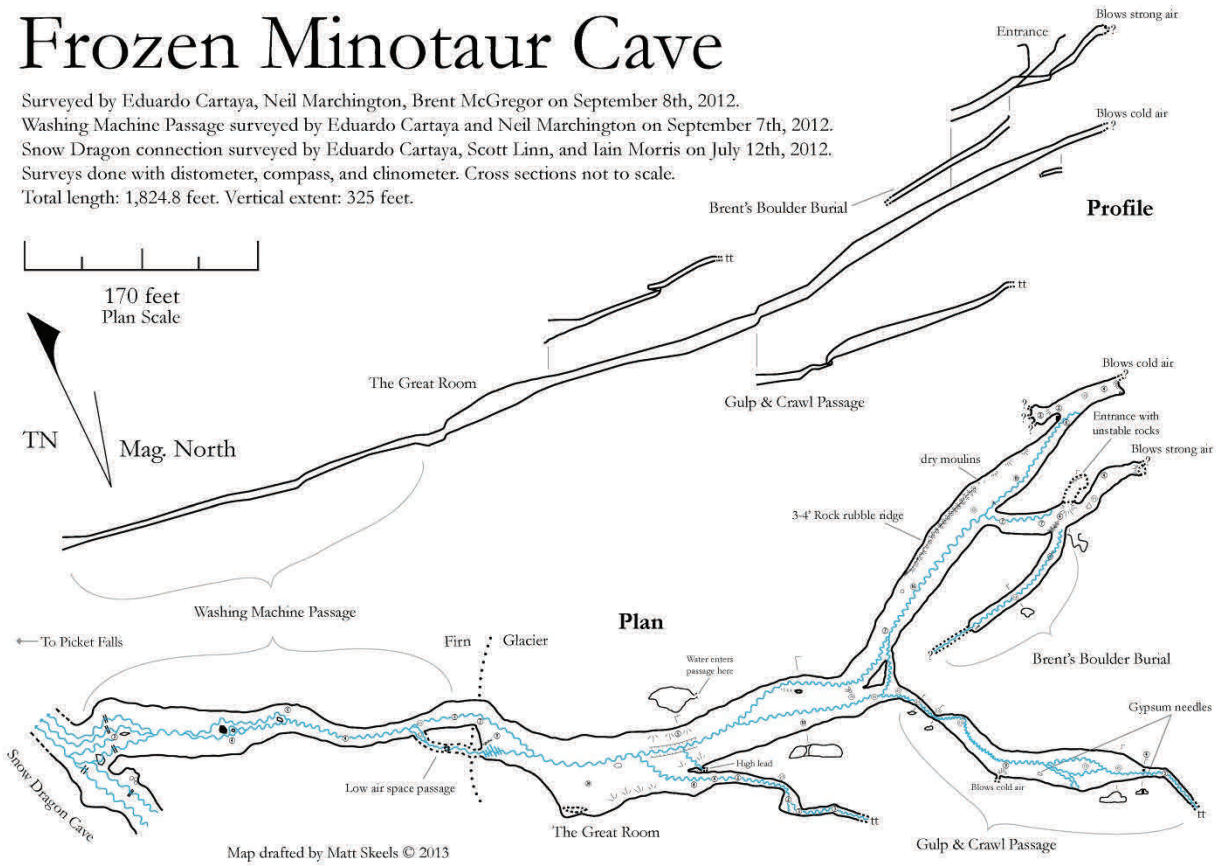
Upper terminus to station 26 surveyed by Eduardo Cartaya, Scott Linn and Brent McGregor on July 8th, 2011. Lower section from station 26 to station U surveyed by Eduardo Cartaya and Brent McGregor on August 4th, 2011. Frozen Minotaur connection surveyed by Eduardo Cartaya, Scott Linn, and Iain Morris July 12th, 2012. Pure Imagination connection surveyed by Chris Kennedy, Scott Linn, and Geoff MacNaughton July 10th, 2012.
Surveys done with distometer, compass, and clinometer. Cross sections not to scale.
Total length: 2,451.1 feet. Vertical extent: 735.9 feet.



Map drafted by Matt Skeels © 2013

Frozen Minotaur Cave

Surveyed by Eduardo Cartaya, Neil Marchington, Brent McGregor on September 8th, 2012.
Washing Machine Passage surveyed by Eduardo Cartaya and Neil Marchington on September 7th, 2012.
Snow Dragon connection surveyed by Eduardo Cartaya, Scott Linn, and Iain Morris on July 12th, 2012.
Surveys done with distometer, compass, and clinometer. Cross sections not to scale.
Total length: 1,824.8 feet. Vertical extent: 325 feet.



Map drafted by Matt Skeels © 2013

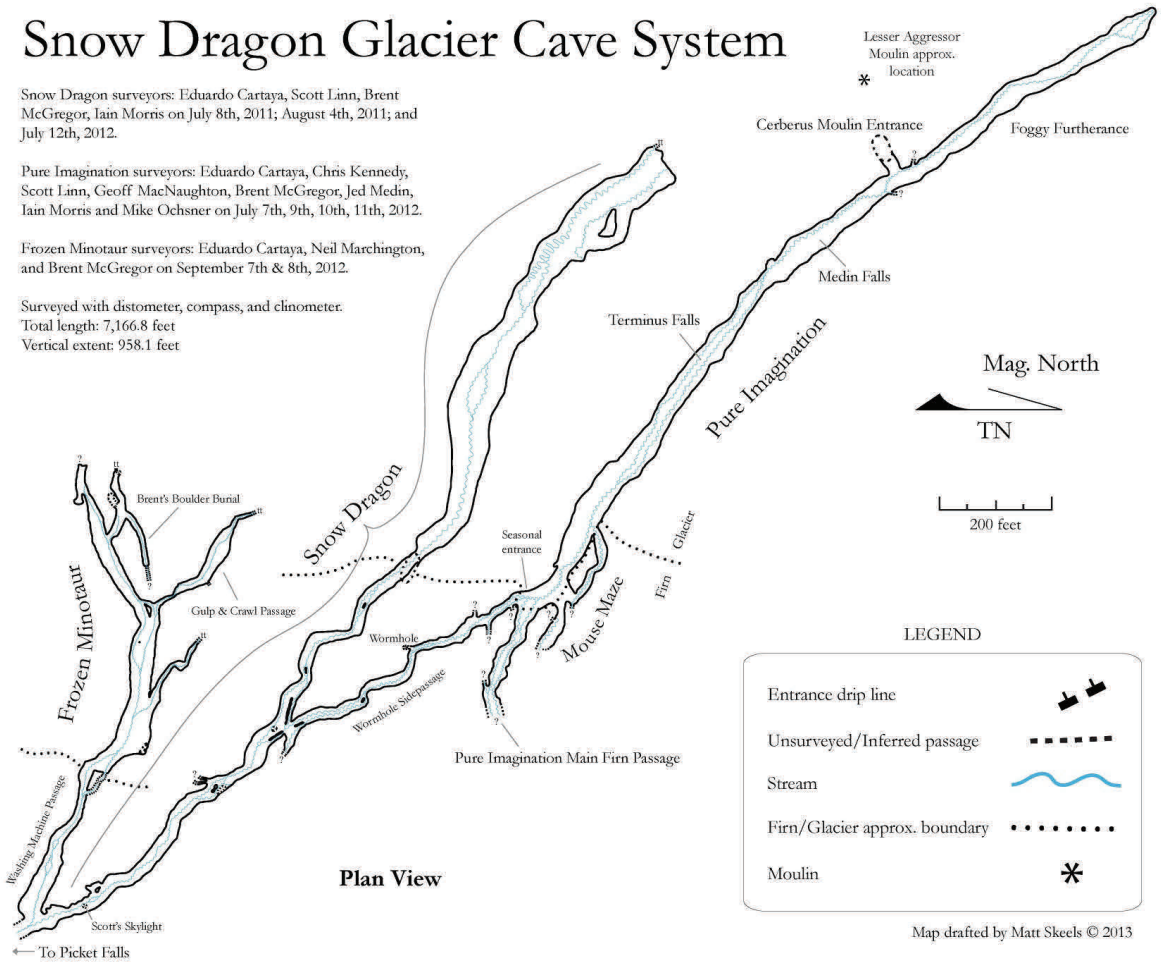
Snow Dragon Glacier Cave System

Snow Dragon surveyors: Eduardo Cartaya, Scott Linn, Brent McGregor, Iain Morris on July 8th, 2011; August 4th, 2011; and July 12th, 2012.

Pure Imagination surveyors: Eduardo Cartaya, Chris Kennedy, Scott Linn, Geoff MacNaughton, Brent McGregor, Jed Medin, Iain Morris and Mike Ochsner on July 7th, 9th, 10th, 11th, 2012.

Frozen Minotaur surveyors: Eduardo Cartaya, Neil Marchington, and Brent McGregor on September 7th & 8th, 2012.

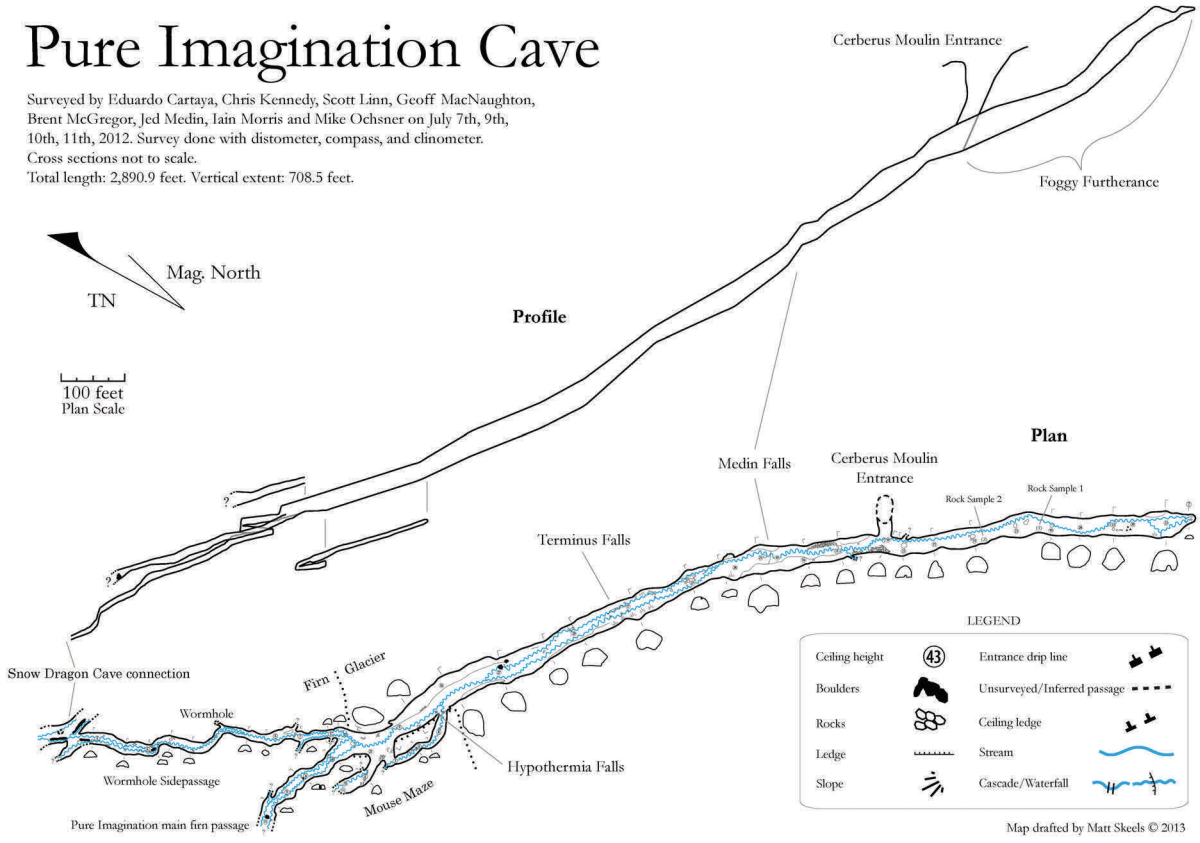
Surveyed with distometer, compass, and clinometer.
Total length: 7,166.8 feet
Vertical extent: 958.1 feet



Map drafted by Matt Skeels © 2013

Pure Imagination Cave

Surveyed by Eduardo Cartaya, Chris Kennedy, Scott Linn, Geoff MacNaughton, Brent McGregor, Jed Medin, Iain Morris and Mike Ochsner on July 7th, 9th, 10th, 11th, 2012. Survey done with distometer, compass, and clinometer.
Cross sections not to scale.
Total length: 2,890.9 feet. Vertical extent: 708.5 feet.



Map drafted by Matt Skeels © 2013

Coming to an Agreement: U.S. Forest Service and the National Cave and Karst Research Institute

George Veni, Ph.D.
Executive Director
National Cave and Karst Research Institute

The original idea for the creation of the National Cave and Karst Research Institute (NCKRI) came about in the early 1980s. At the time, the national coordinators for caves for the Bureau of Land Management, National Park Service, and US Forest Service, respectively Jim Goodbar, Ronal Kerbo, and Jerry Trout, were all located in Carlsbad, New Mexico. They had the idea that an organization was needed to serve the bureaus as a clearinghouse and research center for caves and karst. While the vision of NCKRI expanded beyond that early brainstorming, the connection between NCKRI and the bureaus never faded.

When Congress created NCKRI in 1998, it made us a federal agency within the National Park Service. Oversight was provided by a federal working group comprised by staff from those original three bureaus and others as well. In 2006, they reorganized NCKRI into a non-profit for greater administrative efficiency and flexibility. But NCKRI retained its federal partnership through the Park Service, as well as its partnership with the State of New Mexico and the City of Carlsbad where its headquarters was built.
When I came to NCKRI in 2007, our focus was to get our administrative and physical foundations established. Our headquarters is now built and our programs are being developed. We've run several conferences and projects of national and international interest and have more in the pipeline.

But when I think of NCKRI having a national impact, I refocus on its original concept to support the federal bureaus. The federal government owns the most caves and karst in the country. Many of its caves are among the most significant in the world. As NCKRI strives to work on projects that have a national impact, there is no person or organization better situated to partner with than the federal government.

In June 2012, Cindy Sandeno arranged for me to meet with the Forest Service's Joseph Burns, National Transportation Ecology Program Leader, and, Jonathan Stephens, Trails and CDA Program Manager, at US Forest Service headquarters in Washington, D.C.

They felt a Memorandum of Understand (MOU) between the Forest Service and NCKRI would be an excellent and important first step toward developing an effect collaborative relationship between our organizations. Cindy facilitated the processes as only a few drafts needed to go back and forth before the MOU was signed in March 2013.

The major elements of the MOU are:

Both parties believe that increased cooperation will promote better management of cave and karst resources, and that these joint efforts will have long-term benefits.

(NCKRI continues on page 11)

(NCKRI continued from page 10)

NCKRI will assist in collecting data to help manage caves and karst and participate in conservation and restoration activities, promote awareness of and responsible attitudes toward cave and karst resources and their management needs to the public, conduct and support approved research in caves and karst on Forest Service lands, encourage the dissemination of scientific information about that research, assist with related information storage and dissemination, discuss and identify opportunities for cooperative work on mutually beneficial projects or activities for the promotion of cave and karst conservation, research and education.

Follow all appropriate protocols and considerations for White-nose Syndrome.

Support the Forest Service's guidelines for maintaining the confidentiality of cave locations, and any archeological and paleontological resources they may contain.

These elements will be acted on whenever feasible, as well as general inter-organizational communication and mutual support. Both the Forest Service and NCKRI recognize that some projects and activities are only possible if there is financial support. This MOU now serves as a framework to make all projects, especially those needing contracts or agreements, far easier to develop so we can put more of our energies into actual cave and karst research, education, and management. We've already started talking about some possible projects!

On behalf of NCKRI's Board of Directors and staff, we look forward to working with the US Forest Service for years to come.

To contact NCKRI or learn more about us, please visit our website: www.nckri.org. ▪

(Glacier Cave continued from page 7)

Like the Paradise Ice Caves of Mt. Rainer, these caves will one day be completely gone, along with the context of the time capsule treasures the ice currently entombs. The Mt Hood National Forest has advised the OHDG chairman that next year they will accept the project's proposal for an ongoing research permit. This will allow the team to take advantage of these short-lived study opportunities. Samples that are raining down from the ice can be collected before being swept away in the torrents of water. The project team also hopes to leave time-lapse photography cameras at certain locations to monitor glacial recession during the summer.

This is an exciting and time-sensitive project that delves into a very unique and seldom studied type of cave exploration. These caves dwell in a moving and changing medium. The challenges and dangers of this study are significant, but with the skill and talent of some of the best cavers, mountaineers, and scientists in the country, those risks are satisfactorily managed. The rewards of the study are priceless and, at some point in the not-too-distant future, will be historical in nature as the caves die, hand–in-hand with the beautiful glaciers through which they run. ▪

Forest Service Statement of Nondiscrimination:

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A highly decorated pool displays its beauty in C-23. Image: William Tucker

C-23: New Discoveries in an Old Cave

William Tucker
Caver and Volunteer
High Guads Restoration Project

"It's like swiss cheese under your feet." That is a quote from my wife, Tammy, when describing just how many caves there are in the Guadalupe Mountains of Southeastern New Mexico.

It is an appropriate analogy in that most of the suspected voids have no known surface connection due to the way they formed. The trick in the Guadalupe Mountains, or "Guads" has always been trying to find a way in. Most of the caves in the Guads formed from sulfuric acid dissolution. There are large sulfate deposits nearby which give off hydrogen sulfide gas. This gas reacted with oxygen near the top of the ancient water table forming sulfuric acid which dissolved the limestone from the bottom up. Sulfuric acid is much more aggressive than the weak carbonic acid that dissolves most limestone caves from the top down. The result is large underground passages and chambers with few or no surface connections. The surface connections usually come from collapses or erosion exposing an opening.

Prior to July, 2012, C-23 was known only as a deep crevice cave of little significance. Only one rough and questionable sketch existed showing the profile with a scale of 60 feet to the inch (page 12). It fit on one 8.5 inch by x 11 inch page. The actual location was in question, too. Several "dots on a map" existed as did one set of GPS coordinates. These locations did not agree with each other.

Lincoln National Forest Cave Specialist Jason Walz decided to assign C-23 to the High Guads Restoration Project (HGRP). HGRP is a group of volunteers who regularly perform various activities to help the Guadalupe Ranger District of Lincoln National Forest, manage, study, document, restore, protect and maintain its caves. These activities include: restoration, survey, inventory, trail maintenance, repair, cleanup, gating and locks, and scientific data collection. Basically, as long as it is cave related, we will do it. We were asked to locate, survey, and inventory this lost cave. That is, if we could find it.

(C-23 continued on page 13)

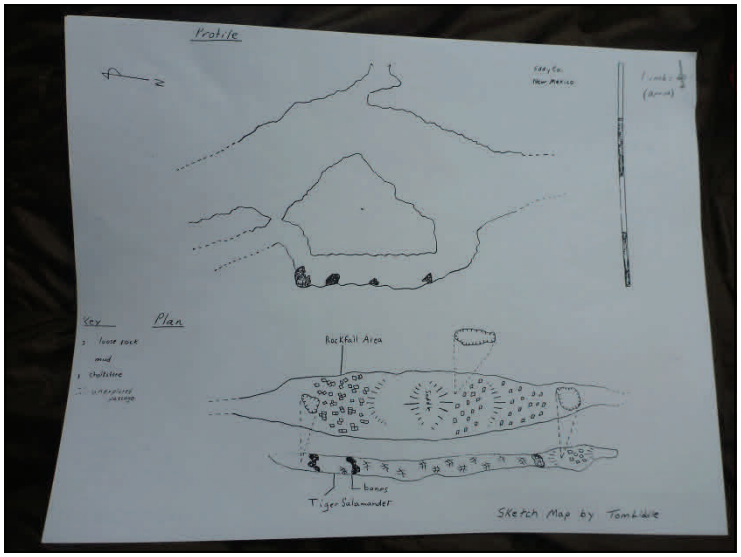
(C-23 continued from page 12)

Locating

In July 2012 Jennifer Foote, Mark Bulman, Tammy Tucker and I drove as far as we could over extremely rough four wheel drive roads, then hiked many miles and climbed down into the canyons checking out each of the possible locations. Late in the day, when we were about ready to give up, and after all of us were showing scrapes, scratches, rips, and punctures from the rough terrain and prickly flora, Jennifer decided to check out a small rock outcropping. This location looked similar to some of the others we had already checked, just on a different cliff. A small, elongated sinkhole entrance into a crevice was found. The cave had been located. As it was late and we were still facing a difficult hike of multiple hours followed by a difficult drive back to camp, we could do little more than take good GPS readings and plan for future trips. A couple of us chimneyed down to a small shelf to get a better look as to what we were facing: a deep crevice. We also noted that there was not a good place to anchor a rope. We jokingly eyeing a large yucca as a possible anchor although we would never do that, the thought demonstrates the sparseness of anchors.

Accessing

Our first survey trip was in September 2012. In order to reduce the difficulty of the hike, I had studied the topographical maps and found a new route that used a four wheel drive road, a good campsite and a hike along the arroyo bottoms of several drainages to cut our travel time by many hours. Derek Smith, Mark Bulman, Tammy Tucker, and I made our way to the cave armed with everything we would need to access, survey, and inventory it. The old sketch seemed to indicate that there was a place to get off rope at 90 feet down. We took a 160 foot rope and tri-cams. I used the cams in cracks in the cliff above the entrance to make an anchor for our rope.



The historic sketch of C-23. Image: Jennifer Foote
Original Sketch: Tom Liddle

We started the survey, as is usual, at the entrance. After struggling to set a couple of stations in the awkward crevice and while on rope, Derek finally yelled back up from the depths, “Hey, guys, the rope doesn’t reach!” The crevice was deeper than the original sketch indicated. The next day, we took a 250 foot rope and decided to start at the bottom. Derek was the first to go down and after a few minutes, we heard him yell, faintly, and off in the distance, “The rope still doesn’t reach!” Just getting into this cave was proving to be difficult. But, he was able to use a small piece of rope from his pack, tie it on to the original rope, and continue. We were all then able to safely get off rope at the bottom. We succeeded in resurveying and inventorying all that was known of the cave from the original sketch. I made note of two “wings” where the fissure seemed to continue in both directions. These were going to be difficult to access as they were high leads and would require climbing and chimneying over large, deep pits.

Discovery

In July 2013 we returned to the cave. This time, we were armed with a 350 foot rope.

(C-23 continued on page 14)

Highly decorated areas of the cave are very distinctive of caves in the Guadalupe Mountains.
Image: William Tucker

(C-23 continued from page 13)

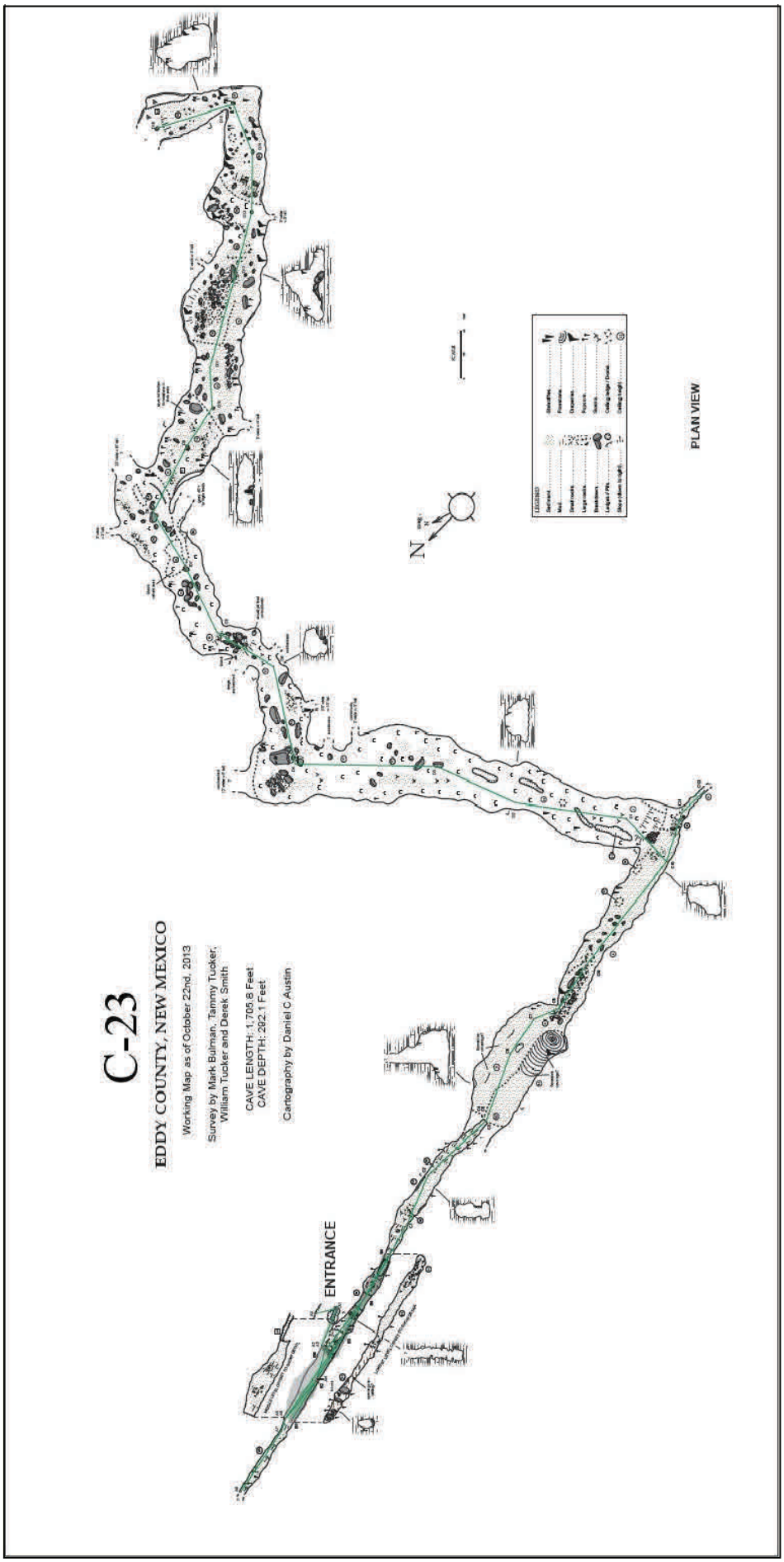
Our goal was to access at least one of the wings to see where it went. We used the main rope from the entrance as a safety, and chimneyed across the pit, high in the fissure, to a small shelf. The technique was to wedge your body into the fissure with your feet on one wall and your shoulders on the other and to scoot across, inches at a time. It was obvious after landing that no one had been there before. We surveyed for several stations and found another pit at the back. The laser distance meter (disto) said that this pit was 90 feet deep. Our rope was too short, yet, again.

The next day, we took two ropes: the 350 foot rope from the day before and another 160 foot rope that we planned to tie onto the end of the main line. This worked and after dropping the new pit, we found ourselves in large, virgin, walking, solution passage; heavily decorated and inline with the fissure for as far as we could see. We surveyed and inventoried our way down this passage noting numerous side leads. At the end, a very large lead was found headed directly into the hill. Until this lead was found, everything had been in-line with the fissure and parallel to the creek outside. Now, the cave was headed directly into the hill and in grand style.

Survey

There have been a number of survey trips, about one each month since July, each adding hundreds of feet to the length of the known cave with no end in sight. We have passed up numerous, large, side passages which we will eventually document. We are now several hours of travel time in the cave from the entrance with numerous vertical ropes and horizontal traverses required to get there. We have set trail markers as we progress to minimize damage to the cave.

(C-23 continued on page 16)


C-23
EDDY COUNTY, NEW MEXICO
Working Map as of October 22nd, 2013
Survey by Mark Bulman, Tammy Tucker, William Tucker and Derek Smith
CAVE LENGTH: 1,705.8 Feet
CAVE DEPTH: 282.1 Feet
Cartography by Daniel C Austin
ENTRANCE
N
PLAN VIEW

Flowstone in a beautiful pool in C-23 in the Guadalupe Mountains of New Mexico.
Image: William Tucker

(C-23 continued from page 14)

We are surveying as we go so we have little idea of where the cave is headed except that it is going deep into the hill. We are now over halfway through the hill; though, that doesn't matter much as we are hundreds of feet below the level of the creeks on either side. What is known of this cave is expected to grow significantly in the future as our surveys progress (map, pg 15).

Rattlesnakes

Numerous rattlesnakes have been encountered near the entrance on our survey trips. The first was a large rock rattler. It was coiled tightly in a seemingly apathetic state and appeared to be shedding. This shed probably obscured its vision and allowed us to pass, on rope, just a few feet away without disturbing it. It only caused consternation upon exit when it was discovered that it had moved and we had to look for it before proceeding. The second encounter was a large western diamond-back which had taken up residence under the rope while we were in the cave. This one forced us to get off rope and chimney out the last few meters of the crevice. The next encounter was two black-tailed rattlesnakes which were easily agitated and very near the rope. They buzzed at Derek each time he went toward the rope; but, we were able to pass them by as a yucca acted as a natural shield. Exiting required looking around to find them again before proceeding. How many species of rattlesnake are there in the Guads, anyway? If this pattern continues, we may soon know.

Inventory

We have documented all of the usual cave formations such as: flowstone, popcorn, stalactites, and stalagmites as well as a number of unusual ones. The unusual ones include: large rimstone dams; bell canopies;

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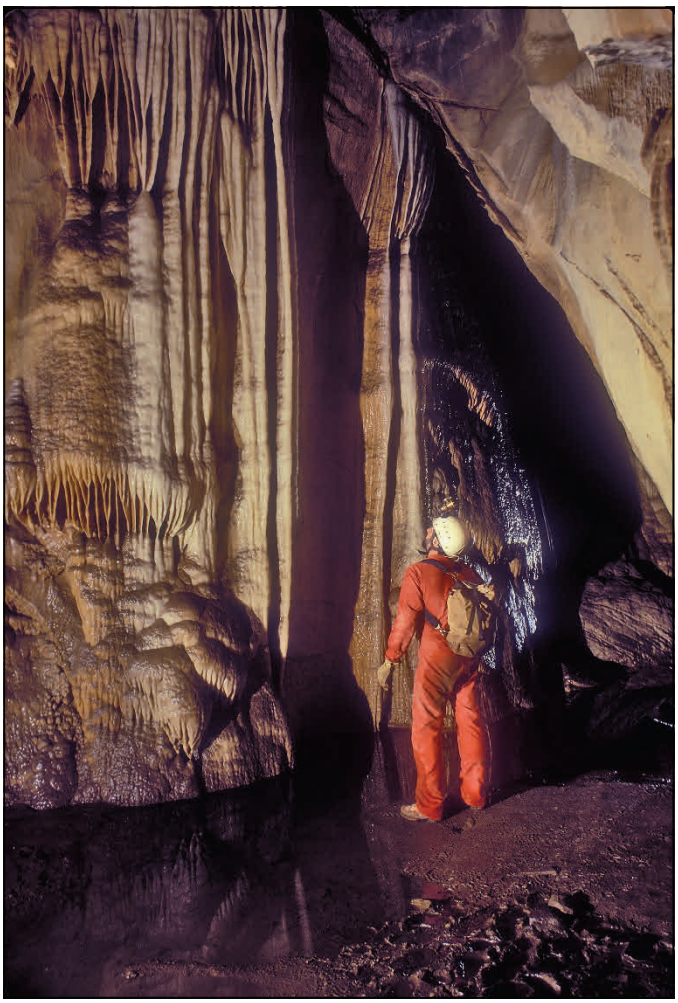
Boy Meets Girl in a Forest Service Cave

Bill and Peri Franz
San Francisco Bay Chapter,
National Speleological Society

Peri: Bill and I are cavers, and aging hippies, so our friends always look at us strangely when we tell them we met in church. But we really did - we met in Church Cave in Sequoia National Forest.
Bill: Joe didn't have a car so he invited me to take him caving, telling me "You'll love it!". So for my first wild cave trip, I drove across California's Central Valley. After winding our way up into the Sierra, and down into King's Canyon, we camped for the night, and in the morning rendezvoused with a bunch of cavers. One of them, named Peri, was a very attractive woman.

Peri: I was hanging out with other cavers, waiting for late arrivals, when a green Volvo skidded into our wide spot on the road bearing Joe and an unknown driver who was soon introduced as Bill. Bill had shoulder length hair and a beard, which immediately attracted my attention. Church Cave has five or so entrances, clustered in a relatively small area in Windy Gulch. Three of these entrances are vertical. Two others are deemed horizontal. Although they're only 60 feet apart on the surface, for a fast moving party it is a four to six hour trip between them.

Bill: We hiked up Windy Gulch to Church Cave and commenced the circuit route via the Creek Entrance. As we passed the narrow place by the gate I had a brief spasm of claustrophobia. As I felt the walls closing in around me, I told myself, "If you're afraid of the tight passages you're going to be miserable for the next ten hours." The cave passages got larger and the feeling passed.



Bernie Szukalski in the Pearl Palace of Church Cave, May 1987. Image: Dave Bunnell

We worked our way down past the Cathedral Room, through the Torture Chamber, and across the River Room to the Bridge Room. The trip leader suggested that we could find the way to the Malabolge, an area in the cave, so we slid down a sandy floored chute at the bottom of the Bridge Room. We fought our way down the passage, checking the tight places. Nothing seemed to go. So we turned around and worked our way back to the bottom of the chute. The chute was about 18 inches high and sloped at about 45 degrees. We had to brace our feet on the ceiling and inch our bodies up the slope. About 3/4 of the way up, Joe slipped and slid to the bottom. On the way down, he yelled, "Oh Fudge!" Peri's spontaneous response was, "Here?"

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INFRA Cave Module Update

Cynthia Sandeno
Ecologist
Monongahela National Forest

In August of 2012, the Forest Service lunched the updated Infa Cave Module, a secure national database for collecting and storing cave data. Protected through role-based security, this is the place where those with approved cave manager roles can enter data for their district, forest, or region. After just one year, 804 new cave records have been entered into the database and an additional 88 records have been updated! David Herron on the Ashley, Kelly Whitsett and Lauren Todd on the Mark Twain, and Mitch Wainwright on the Gifford Pinchot are the folks who have worked the most extensively in the database. Thanks to each of you for your time and dedication. ▪

(Boy continued from page 17)

By the time everyone stopped laughing, we had all lost our grip and slid to the bottom in a heap of legs, arms and laughter. For the rest of the trip all someone had to say was, "Here?" and everyone would break up laughing. I was in love.

Peri: From the "Here? Room", as we now dubbed it, we crossed the passage pit and squeezed through the jail-break. We took the side trip into the formation passage to admire the lion's tail, and then fought our way through the Tight "S", up the pancakes, and out the root entrance. Only later did we learn that we had done the circuit in reverse, adding to its difficulty.

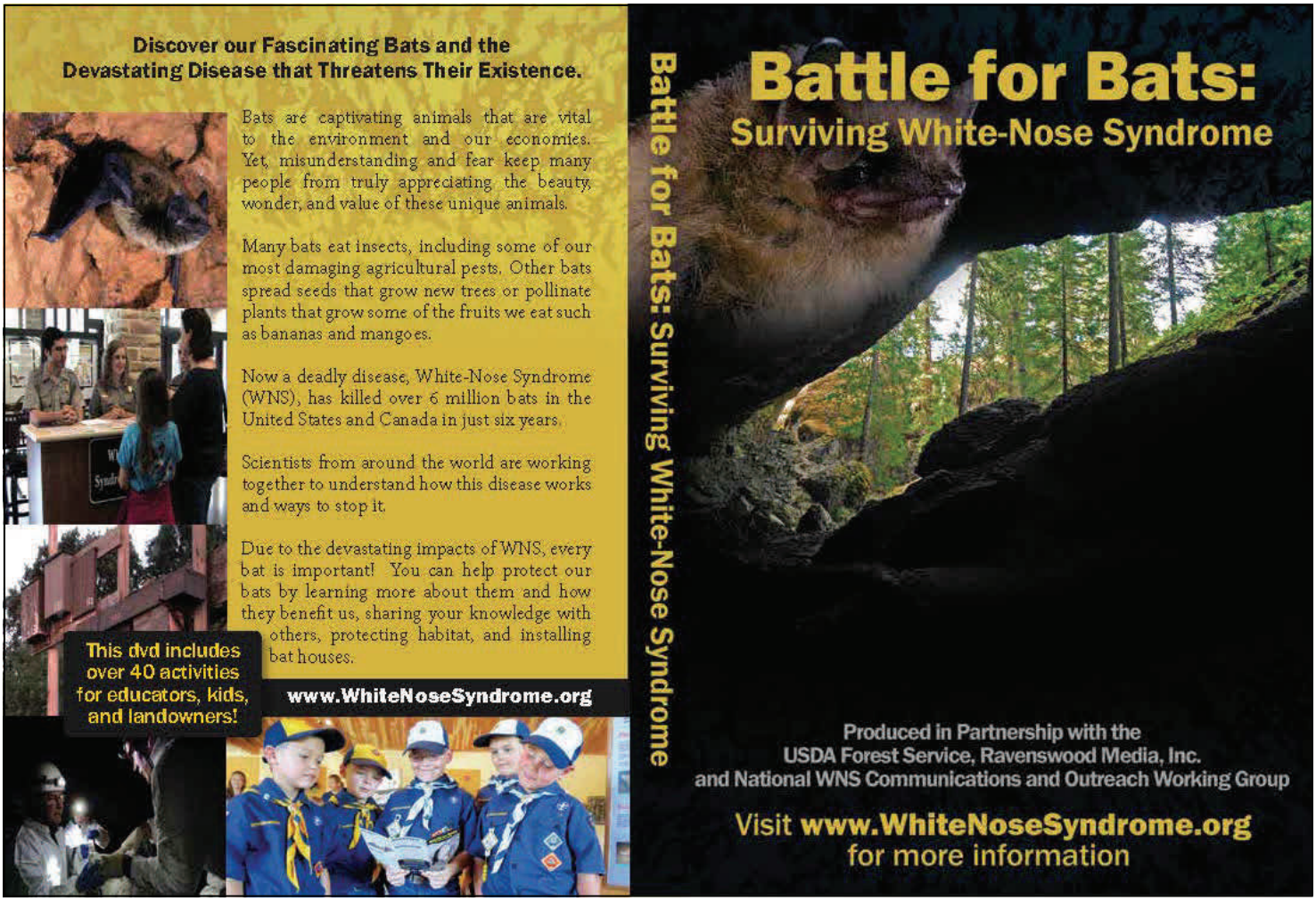
Bill: Peri and I caved together on and off for the next 2 years, got married, raised a family and kept caving. We're all NSS Life Members, now. Forty-five years later, we're still caving together. Church Cave is now in the Giant Sequoia National Monument, still administered by the Sequoia National Forest. Anyone time anyone says, "Here?" we both smile. ▪

(C-23 continued from page 16)

numerous large pools; calcite rafts; cave pearls; large soda straws in clusters; tangled masses of antler helictites; manganese crusts; and corrosion residues. The backreef minerals have colored these speleothems in an array of vivid and beautiful colors from white to black and from lemon to caramel to maroon. We have also inventoried several biological resources including: tiger salamander, crickets, *rhadine*, *embaphion* and *eleodeus* beetle. A very few bats have been seen with scattered guano deposits at some of the side passages. I have attempted to record calls on a bat monitor while in the cave but with no luck so far. What we have not found is obvious sign of sulfuric acid dissolution such as massive gypsum or endellite. Actually, no gypsum of any kind has been found, so far, and I am uncertain as to the meaning of the lack of gypsum in terms of speleogenesis. It could be that this is a carbonic acid cave unlike most others in the Guads. It could also be that fresh water has carried the gypsum away leaving little sign of the early speleogenesis. Hopefully, our continued exploration and documentation can help to explain this.

Plans are to continue to survey this cave as often as is practicable and to produce a quality, finished map in the process along with detailed inventory and survey data. All data generated from our efforts are being meticulously maintained and given to the Lincoln National Forest Cave Specialist for their files. This has been an exciting discovery and is proving to be even more exciting as we continue to explore and document this beautiful cave.

Volunteers, who have contributed their time, equipment, money, effort, and literal blood, sweat, and tears to this project include: Jennifer Foote, Mark Bulman, Derek Smith, Tammy Tucker and myself. Daniel C. Austin has been doing cartography though having never visited the cave. ▪



The new DVD jacket for the Battle for Bats video, produced in partnership with the USDA Forest Service, Ravenswood Media, Inc., and the National WNS Communications and Outreach Working Group.

Battle for Bats: Surviving White-Nose Syndrome

Cynthia Sandeno
Ecologist
Monongahela National Forest

A new film about fighting White-Nose Syndrome (WNS) has just been released by the U.S. Forest Service, in partnership with several state and federal agencies and non-profit organizations. The overall goal of this film is to increase citizen awareness. The film focuses on bats as fascinating animals that are vital to our environment and the reality that we are rapidly losing millions of our bats to WNS.

The film also addresses how state and federal agencies and NGOs are working together to combat the disease, and to inspire the public to become involved in bat conservation and the fight against WNS.

The final DVDs for this film have just arrived. In addition to the Battle for Bats film, the DVD includes two short Public Service Announcements and over 40 activities for kids, educators, and landowners. If you are actively engaged in environmental education and would like a copy of the DVD, please send a request and your mailing address to Cindy Sandeno at cmsandeno@fs.fed.us . Quantities are limited, but we will do our best to make these available. The video is also available online, and within one month, the film already has 4,000 views and has been seen around the world in over 138 countries. Check it out at: http://vimeo.com/76705033. ▪