

cavers who are studying unusual cave life in North American caves, including Sulphur Cave at Steamboat Springs, Colorado, and the Shoshone Canyon Conduit Cave at Cody, Wyoming. National Medal of Science winner Carl Woese comments in the feature that Norm is "the grandfather of microbial ecology." That is high praise from an internationally-recognized microbiology leader ... Boulder biologist David Steinmann reports that strange hair-sized worms collected during a scientific expedition from the hot sulfur-rich water in Colorado's Sulphur Cave on March 9 are very unusual. The worms appear to have a seasonal life cycle, and may live on bacteria that consume elemental sulfur. Located on the ski slopes at Howelsen Hill at Steamboat Springs, Sulphur Cave is one of the few caves known in the world to have "snottites" (mucoid microbial strands) ... David Steinmann recently collected for study and identification tiny specimens of cave life in the Thieves' Canyon region of the Cave of the Winds. A variety of springtails, millipeds, centipedes, crickets, spiders, mites, beetles and flies were collected, at least some of which appear to represent new, previously unknown species. If these prove to be new species, Mr. Steinmann promises that he will see if they might receive scientific names after the cave, or some of the figures in the cave's long history ... Former Colorado caver Dr. Hazel Barton might be considered as the best-known caver in America from the media coverage she and her microbiological studies are receiving. Germany's *GEO Magazine* joins in the fun with a prominent feature in their March 2009 edition. For those cavers who can read German, *GEO Magazine's* feature "Die zweite Welt" ("The Second World") details Dr. Barton's recent studies in New Mexico's Lechuguilla Cave. The feature includes photographs by Carsten Peter, a favorite of *National Geographic Magazine* and a German caver who has extensive caving experience worldwide. Mr. Peter was *National Geographic's* photographer for their November 2008 feature on the remarkable Cave of Crystals in Mexico. Says Dr. Barton in the article: "Wer wochenlang in einem Hohlsystem unterwegs ist nimmt sich nicht mehr so wichtig." A rough translation, courtesy of the online translation software Babelfish, "Who in a hollow system on the way is lasting for weeks takes itself no longer so importantly." Perhaps something was lost in the translation. ■

What have you heard about the Cave Information System?

BY CARL BERN

Development of a statewide Cave Information System (CIS) for Colorado has been underway since October 2007. The CIS is being designed as a comprehensive database for cave location and related data in Colorado. The planning is being done by an ad-hoc committee of the Colorado Cave Survey (CCS). As the plans come into focus, efforts are being made to share them with the organized caving community through articles like this one, a talk at the recent Rocky Mountain Speleoseminar, and materials available at www.coloradocavesurvey.org. This article is not dedicated to laying out the complete structure for the CIS, as several aspects are still under consideration. However, in discussions with cavers I have seen that there are plenty of questions and misconceptions about just how the new system would work. It is my hope to clear up some of the confusion and help cavers understand what is being proposed. Cavers can decide for themselves whether they like the ideas, but everyone will be better off if opinions are based on the real plans, not misinformation.

Is the CIS is the same thing as the Cave Survey files?

No. The CIS will be a new entity which manages and archives cave data in Colorado in electronic format. The current Cave Survey files are paper documents consisting of old issues of grotto publications, ridgewalking reports, correspondence with land managers, and some copies of in-cave survey notes and cave maps. These paper files were the subject of much discussion a couple of years ago, and the focus of an amendment to the Cave Survey constitution which placed some control on the flow of information out of

them. The CIS will not have anything to do with the confidentiality agreement detailed in that amendment. The paper documents in the CCS files represent a valuable archive, but they contain little data on cave locations and have a controversial history. The CIS will be something new and separate.

The CIS organizational structure is being designed primarily to deal with cave location data which will be stored electronically, not on paper. Using computers instead of paper will take advantage of the information technology now available to manage data more efficiently. The planning process is addressing the sensitive nature of cave location data head-on by creating a means of classifying the sensitivity of cave locations and instituting a formal decision-making process for data release. A fresh start should give the CIS a better chance of success by breaking with the history of the CCS paper files. Someday the CCS should address the situation of the paper files again, but that will be a separate process.

Would every voting member of the Cave Survey have access to the CIS data?

No. None of the voting Cave Survey members (grotto chairs and grotto representatives) will automatically have access to CIS data, nor will the Chair or Vice-Chair of the CCS. It is likely that many of those cavers will be Associates of the CIS and have increased access for that reason, not because they are voting members of the CCS. The CIS is being designed as a largely autonomous sister organization to the Cave Survey. The CCS will continue to fulfill its role as a representative organization dealing with state-wide cave issues and as liaison between cavers and land managers. In contrast, the CIS will function as a data archive and a resource

to assist new exploration and possibly cave science.

The CCS will be consulted before data on any of the most sensitive caves (e.g. significant archaeological sites) is released to anyone. Because the release of data on such caves would potentially impact CCS relationships with landowners or land managing agencies, the CCS would be asked to vote to approve the data release. Fortunately, very few caves require such double protection. In addition, the CCS members deciding whether to release the data would not necessarily have access to the data they were approving for release in such a situation.

Would data from the CIS ever get handed over to the Forest Service?

The CIS will not change how individual cavers or the CCS ultimately choose to share (or not share) data about caves with land managers. Land managing agencies and their employees will not be permitted to become Associates of the CIS and thereby gain increased data access. Rather, the CIS would be set up so that sensitive data is only released to individual cavers. An individual caver could then share that data with a land manager, but he or she would be taking personal responsibility for the data transfer.

For example, if the Forest Service were faced with the issue of a quarry being proposed in a karst area, they would contact the CCS to ask if any caves were known in the area. The CCS might be able to respond without even consulting the CIS. However, an individual caver who is an Associate of the CIS (perhaps the CCS Chair or Vice-Chair) could make a data request to the CIS. Assuming the request was approved and the caver received the data, he or she could then consult with the rest of the CCS and decide how much and what data to pass along to the land manager. This is not much different than the CCS Chair asking "Has anyone heard of caves near the proposed quarry? If so, we might want to tell the Forest Service." The difference is that now the question can be directed to the CIS and the answer might come faster and be more complete.

Won't storing the data electronically make theft or accidental release inevitable?

We frequently hear about data theft on the news. Frequently the story is about a hacker stealing social security or credit card numbers from government or business databases. Obviously, it would be a potential disaster if part or all of a big cave location database was stolen. However, that does not mean it is a mistake to build such a database in the first place. The absence of news stories about the thousands of databases which are successfully kept secure just makes them all seem risky.

There are several reasons why the electronic database of the CIS is unlikely to be compromised by data thieves or accidental release. First, only two people will have access to, and responsibility for, the whole database: a Statewide Coordinator, and a Statewide Administrator (IT manager). The Local Area Coordinators will manage data for only their geographic region. Minimizing complete copies of the database reduces the risks, but having two people with complete copies provides redundancy.

Second, there is no need to have the CIS database connected to the Internet regularly or set up for remote access. By avoiding those scenarios, most of the risk of theft or accidental release is removed. Finally, we have several cavers involved in the planning who are IT savvy. They can set up security sufficient to encrypt and protect the database in case a computer is stolen from someone's home, or a file gets forwarded to a wrong email address.

Will cavers be pressured or forced to contribute data to the CIS?

No. All data entering the CIS will be contributed voluntarily. The hope is to create a good system to which cavers will want to contribute data. Some cavers might disagree with any effort to collect cave data other than in personal databases like their own. Other cavers may want to wait and see how the new CIS works out before they contribute anything. However, there is no way to force any caver to contribute data, nor should there be. Data contributions may be small at first, but eventually the archive of the CIS will grow to be a significant resource for cavers in Colorado.

Why bother with this whole project?

Cavers have invested lifetimes of effort to discovering and exploring caves in Colorado, resulting in an impressive body of knowledge. Unfortunately that knowledge is scattered and vulnerable. Only a fraction ever gets published and that fraction is usually self-censored. When a caver quits caving, moves away from Colorado, or passes away, his or her knowledge of caves in this state is often lost. The point of this project is to create a living archive for some of that knowledge and a resource to spur more exploration and discoveries. The CIS can grow and evolve over the years and become a torch that is passed from generation to generation of Colorado cavers. The knowledge added to the CIS will not fade from view like trip reports from last year's grotto meeting, or articles published decades ago in a newsletter. Rather, the knowledge in the CIS will remain at the fingertips of the Local Coordinators and the cavers who choose to become CIS Associates. With a better understanding of the caves that are known, Colorado cavers can focus their attention on discovering what is truly unknown, and isn't that where we want to be?

Is this whole thing being planned in secret?

Just the opposite is true. As stated in the introduction, great efforts are being made to make cavers aware of the planning process and solicit their input. Good suggestions and valid criticisms from cavers outside the planning committee have already been used to improve plans for the CIS. Visit www.coloradocavesurvey.org to learn how the plans have progressed from the very start to the latest ideas. If you have suggestions or want to get more involved, you can find out whom to talk to at the same Web address. The CIS will be a big step forward for the Colorado caving community. Take this opportunity to get informed and maybe even get involved. ■

Cave Softly.