

OBITUARIES



David McKenzie surveying in Actun Kaua (2003), the complex Yucatan maze cave that inspired his development of Walls software.

David McKenzie

David W. McKenzie of Austin, Texas, passed away on December 14, 2016, after a struggle with cancer. He was 73.

David is best known to cavers as the creator of **Walls**, the advanced cave mapping program, and **WallsMap**, an innovative geographic information system (GIS) program used by the Texas Speleological Survey (TSS) and the Association for Mexican Cave Studies (AMCS). Walls is used by many cave cartographers worldwide, for small or large cave systems, such as Mammoth Cave, Kentucky, the world's most extensive cave. Walls and WallsMap are the pinnacles of his life's work, and they are still available to all interested users without cost at <https://www.texasspeleologicalsurvey.org/index.php>

David was born in Bryan, Texas, and attended high school in Dallas before settling in Austin. He was NSS #6419 most of his caving life. He began exploring caves with the University of Texas Speleological Society in the early 1960s and soon became a skilled cave surveyor, usually as sketcher and draftsman. His first maps appeared in 1962. He participated in at least 135 cave surveys, 88 in Texas and 47 in Mexico. He was involved in mapping or processing data for some of the large caves of Mexico.

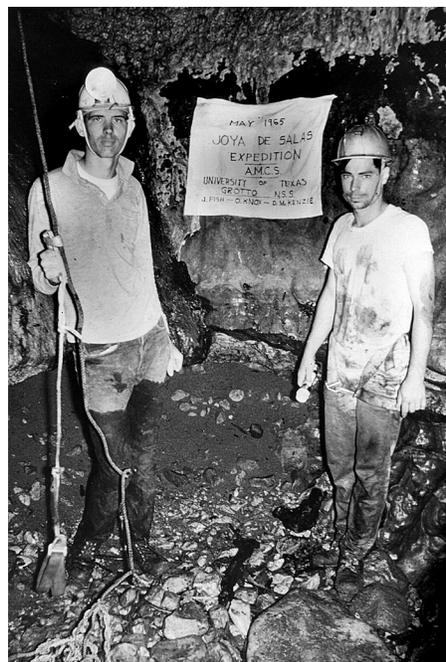
After earning a BA in zoology at the University of Texas, David became an avid collector of cave invertebrates and discovered many new species. Six species in Texas, Mexico, and California were named in his honor by taxonomists. He worked extensively with James R. Reddell, Peter Sprouse, William R. Elliott, William (Bill) Russell and many other cave biologists and cavers.

Following graduation, David achieved the rank of Captain while serving in the United States Air Force, Strategic Air Command, as Electronic Warfare Officer. Later at the University of Texas he earned

a Master's degree in Statistics. His thesis in 1977 was "The Analysis and Adjustment of Survey Networks." As David developed his thesis, he programmed **Ellipse** for cave surveying in FORTRAN.

Cavers used Ellipse on the University of Texas mainframe, and made big cave plots on a drum plotter of the largest caves in Texas and Mexico. He then programmed **NET3** in Pascal for CP/M in 1982, which featured sophisticated loop closure and blunder detection. **NET4** (MSDOS) followed in 1990 as part of John Fogarty's Caveview program. After David introduced **Walls** for Windows in 1994 it became a powerful tool for serious cave cartographers.

Caving archives contain many finely drawn maps by David from Texas and Mexico. His trips included caves in at least 14 Mexican states: Campeche, Chihuahua, Hidalgo, Michoacán, Nuevo León, Oaxaca, Puebla, Querétaro, Quintana Roo, San Luis Potosí, Tabasco, Tamaulipas, Veracruz, and Yucatán. He also explored caves in California, New Mexico, Belize and Guatemala. Among these are the many expeditions that he made with James Reddell and others to the Yucatán Peninsula starting in the early 1970s, to such places as Grutas de Balankanche and Actun Kaua (an intricate maze cave, to date over 10 kilometers long, containing clay inscriptions). David drove his Blazer across Mexico, exploring caves such as Sistema Purificación in Tamaulipas, which is currently the country's third longest cave.



David McKenzie (left) and John Fish during the Joya de Salas expedition, 1965.

Here are some of David's "firsts" in the Sierra de El Abra, particularly in studying caves with the Mexican cavefish, *Astyanax mexicanus*:

- Co-discoverer of Sotanito de Montecillos with John Risinger, 1963.
- Co-discoverer of Sótano de Pichijumo with John Risinger, 1963.
- Mapped the huge Sótano de la Tinaja with many others in 1965-1966, and drafted the large map for the AMCS.
- First cavefish collection in Bee Cave with Ed Alexander, Ross Felton, and John Fish, 1966.
- Co-discoverer of Cueva de Otates with Bill Russell, 1971.
- Mapped Sótano de Jos in 1971 with John Fish and Don Broussard.

More firsts in Texas and Mexico:

- Ardent explorer who found many new caves.
- Collected in 128 Texas caves.
- First to collect cave invertebrates in many caves in nine Mexican states.
- First caver to visit 16 Mexican cave areas.

David long had an interest in supporting the TSS, which maintains Texas cave data. He developed WallsMap to support TSS's data-gathering mission. The old TSS database was transformed into an effective GIS wherein cave data managers track cave and karst features, maps, and photos on digital topographic maps. David put enormous amounts of time into gathering and organizing data. This also developed into WallsMap project areas in Mexico for Sprouse, Elliott, and others. Ultimately these programs and knowledge contribute to the protection of aquifers and biodiversity.

Along with surveying software, David also developed computer-based inventory control systems for large commercial clients such as Whole Foods Market and Whole Earth Provision Company. In the mid-1980s he had some river kayaking adventures with buddies Frank Endres and Paul Reavley. The run down the Río Santa María, San Luis Potosí, past the high Cascada Tamul, was intended to look for caves in the high canyon walls, but it quickly became a hairy survival trip fraught with steep portages and treacherous currents.

A memorial service will be held in the Spring. In honor of David, his friends are also planning to inventory and scan his many field books and notes, and complete his maps. One old survey is being drafted by a friend now, and additional cave cartographers are sought to help finish some mapping projects.

David McKenzie was a kind and compassionate soul who loved Science and Nature in all their manifestations. He was innately attracted to limestone—the scent of it, the antiquity—and happily indulged his craving for karst adventures. He read books on astronomy and physics for the sheer joy of pondering cosmic puzzles such as parallel universes and quantum entanglement. On a daily level David was hugely generous, even to those he'd never met, in guiding them through complex software programs or in sorting out the tangles of their troubled computers. He was always willing to help anyone who wanted to advance the world's knowledge of caves. Up to the last month of life, David pursued his curiosity about the natural mysteries while also continuing to update Walls and WallsMap. We were fortunate in so many ways to have him with us, and are grateful now to keep him in our hearts and minds.

David is survived by his sister, Martha Helen McKenzie, and relatives in Texas, Colorado, and Arizona. He will also be deeply missed by countless cavers who have shared his surveying adventures and who continue to use his software to trace the shapes of Earth underground.

More information may be obtained from his sister, Martha H. McKenzie, at metagonia@austin.rr.com, William R. Elliott at speodesmus@gmail.com, or Peter Sprouse at petersprouse@yahoo.com. Many of his Mexico maps may be seen at <http://www.mexicancaves.org/>

Martha McKenzie et al.