Obituary

Robert Wetsel Mitchell, 1933-2010

Dr. Robert W. Mitchell, 76, famous Texas cave biologist, invertebrate zoologist, and nature photographer, passed away at his home in San Antonio, Texas, March 18, 2010, after a long fight with cancer. His wife, Linda Mae Mitchell, family and friends met at their home on March 27 for a memorial celebration.

Bob Mitchell was born in the Texas Panhandle at Wellington, on April 25, 1933. He attended local schools, then Lubbock schools. As a high school senior he won a Bausch & Lomb award for "Most outstanding science student."

He attended Texas Tech University, obtaining his BS and MS degrees in 1954 and 1955. He also attended the Duke University Marine Laboratory in 1954, where he gained experience in marine invertebrates. His MS thesis was a study of lake invertebrates in the Panhandle.

From 1955-57 he was a Lt. in the U.S. Air Force, Medical Service Corps, at Lackland Air Force Base, San Antonio. No doubt this is where he gained experience in medical entomology.

He taught at Lamar University, Beaumont, Texas, from 1957-1961, where he added caving and biospeleology to his considerable set of skills, which included natural history, herpetology, invertebrates, and photography. He went on a scary, funny exploration of the deep pit, Sótano de Huitzmolotitla, in 1960, one of the early Mexican cave expeditions by Texans. Later he led many trips to the Sierra de El Abra and the Sierra de Guatemala in northeastern Mexico.

He did his PhD at the University of Texas, Austin, from 1961-65, under Dr. Bassett Maguire, a well-regarded ecologist who published some on caves. Bob set up a laboratory in Beck's Ranch Cave, near Round Rock, where he conducted many observations and experiments on the cave beetle, *Rhadine subterranea*, a cave cricket egg predator. These were some of the first detailed studies of the ecology of a North American cave beetle.

Dr. Mitchell returned to Texas Tech in 1965 and initiated his research program on caves. In 1969 the new biology building was completed, including a temperature and humidity-controlled cave lab, where he and his students did studies of many animals. During his tenure he had many students, whom he took on field trips in Texas and Mexico. He became a full professor in 1973. He and his first wife, Rexell, raised three children: Robert Jr., Sharon, and Scott.

Bob and his graduate student, James Reddell, started what I call the "Texas-Mexico School of Cave Biology," and they were joined by this writer and many other co-authors, who published voluminously on many subjects: arachnology (scorpions, ricinuleids, mites, schizomids, and opilionids), planarians, systematics, behavior, biogeography, ecology, and evolution. Mitchell and Reddell co-edited several important volumes of papers on Mexican cave biology. Probably his most influential paper was Mitchell, Russell, and Elliott, 1977, Mexican eyeless characin fishes, genus *Astyanax*: Environment, distribution, and evolution. He published many planarian papers with Dr. Masaharu Kawakatsu from Fuji Women's College, Sapporo, Japan. Mitchell

collaborated with or was visited by many international biologists such as Wataru Teshirogi, Oscar Francke, Horst Wilkens, Jakob Parzefell, Valerio Sbordoni, Perihan Sadoglu, Delamare-Debouteville, Christian Juberthie, Lisianne Juberthie-Jupeau, Bruce Firstman, Ted Cohn, Stewart Peck, Thomas Poulson, John Holsinger, Glenn Longley, and others. Dr. Mitchell authored and co-authored more than 100 papers on many subjects, listed on the *Biospeleology* website.

Mitchell was a strong selectionist when the subject of troglobite evolution was discussed. He and his circle discovered many new cave species in Texas and Mexico. The discovery of so many troglobites in the tropics was considered remarkable, and it predated the wave of discoveries in Hawaiian caves. Compared to glacial periods in the north, isolating mechanisms in tropical caves were considered weak until the 1970s. The discovery of tropical terrestrial troglobites in both highland and lowland areas was exciting, especially three species of blind scorpions that Mitchell described as a new family, Typhlochactidae. That family has grown to four genera and ten species. The pivotal *Astyanax* paper demonstrated that stream capture was a primary isolating mechanism in the evolution of those cavefishes, and many later authors refer to that paper.

Dr. Mitchell was the Founding Editor of The Journal of Arachnology, in which his students gained experience. He also was on the Editorial Board of the International Journal of Speleology, and the Comité de Direction et de Lecture, Annales de Spéléologie.

He supervised ten master's theses from 1967-73, including nine on cave-related subjects:

1. Relative Humidity and Temperature Responses in Two Troglobitic Millipedes. *Cambala speobia* and *Speodesmus bicornourus*, Eddie Bull, 1969.
2. Activity Rhythm in the Cave Cricket. *Ceuthophilus conicaudus* Hubbell, Glenn D. Campbell, 1974.
3. Mating Behavior and the Functional Morphology of the Male Copulatory Apparatus in *Cryptocellus pelaezi.* (Arachnida. Ricinulei), Jerry Cooke, 1971.
4. Relative Humidity and Temperature Preference Responses of the Ricinuleid *Cryptocellus pelaezi* (Arachnida). Charles Edwards, 1971.
5. Temperature Preferences of Aquatic, Cave-adapted Crustaceans from Central Texas and Mexico, William Elliott, 1971.
6. Temperature Responses of the Mexican Blind Cave-fishes of the Genus *Anoptichthys,* Kenneth Johnson, 1967.
7. Comparative External Morphology of the Life Stages of *Cryptocellus pelaezi* (Arachnida), Kay Pittard, 1970.
8. The Integument of *Cryptocellus pelaezi* (Arachnida, Ricinulei), Virginia Tipton, 1971.
9. A Comparison of Respiration and Activity in Four Species of Cavernicolous Beetles (Carabidae. *Rhadine),* Suzanne Wiley, 1973.

Completed Doctoral Dissertations Supervised:

1. Morphometrics and Evolution of *Speodesmus*, in Central Texas Caves (Diplopoda. Polydesmidae), William R. Elliott, 1976.
2. Classification. Phylogeny and Zoogeography of the American Arachnids of the Order Schizomida, J. Mark Rowland, 1975.
3. Competition among Five Species of Cave-associated Salamanders. Family Plethodontidae, D. Craig Rudolph, 1980.

Starting in the 1970s “Robert and Linda Mitchell” became well-known nature photographers, who traveled the world, shooting about 100,000 photographs, which have appeared in many magazines, journals, and books. His specialty was macrophotography and their photos were highly regarded by many editors. Linda and Bob’s family include Kimberly, Joanna, and their children.

In 1986-1988, Bob became a Senior Lecturer in Biology and Coordinator of Sciences at ITM/TIEC (Institut Teknologi MARA/Texas International Educational Consortium), Shah Alam, Selangor, Malaysia. He and Linda continued to travel and photograph the world.

I admired and respected Dr. Mitchell deeply. Besides my parents, he was the most influential person in my life. He taught me how to be a good, skeptical scientist (including self-scepticism). And he taught me photography, cave biology, invertebrates, arachnology, planarians, taxonomy, precise English, drawing, mechanics, tools, body work, auto painting, and self reliance! I emulated Mitchell’s drive to publish and not give up, even after I left academia. I always carried a bit of academia inside me, and Dr. Mitchell was part of that.

I have many great memories of Bob and all our friends and colleagues, particularly exciting trips to Mexico and meeting international scientists, like James Reddell! Bob enriched the lives of his students and colleagues. I will miss him.

I will post many photos, stories, and remembrances of Dr. Mitchell on the *Biospeleology* website: http://www.utexas.edu/tmm/sponsored_sites/biospeleology/

William R. (Bill) Elliott