

Dr. Martyn Matthews Caldwell

Remembering Dr. Martyn Caldwell

Martyn Caldwell was one of our first global ecosystem ecologists. His accolades were many but he always had time to visit with students about their quest for knowledge. We miss his wit and wisdom.

Chris Luecke, Dean
Quinney College of Natural Resources

Dr. Martyn Matthews Caldwell, professor emeritus of Utah State University's Quinney College of Natural Resources and previous director of the Ecology Center, passed away on January 24, 2021, after a long battle with Parkinson's and Lewy body disease. He was 80 years old.

Martyn was born on June 28, 1941, in Denver, Colorado, to Kenneth MacLaren Caldwell and Mildred Mathews Caldwell. He graduated from South High School in Denver and went on to receive a bachelor's degree from Colorado State University in 1963. He received his PhD from Duke University in 1967 and was immediately hired to a faculty position in the

Department of Range Science at Utah State University.

As difficult as it is to become a master of one field, Martyn became an expert in two. He was a brilliant scientist who contributed significantly to the fields of UV radiation on plants and arid plant physiology.

John Stark, Professor of Biology at Utah State University and Martyn's research colleague, explained, "In the '70s and '80s the ozone layer was a big deal. In South America on a cloudy day people would get bad sunburns because that is where the hole was and the UV was just coming straight on through, unfiltered. So, if

humans are getting sunburns, what is that doing to the plants?"

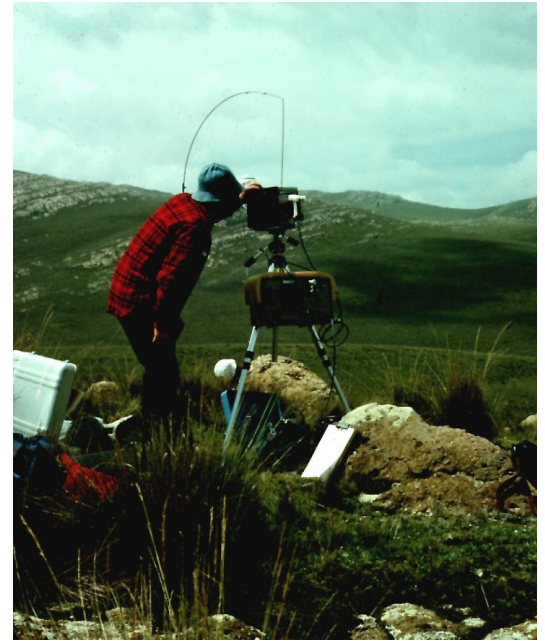
Martyn's research focused on addressing that question, and his work remains some of the most cited in that field. His expertise was even noticed by the United Nations Environment Programme, where he served on the Committee on Effects of Stratospheric Ozone Depletion.

Martyn was a pioneer researcher in the plant physiology of arid ecosystems. His studies focused heavily on nutrient uptake, root production, and gas exchange.

He was extremely innovative, and as a result, he developed many cutting-edge techniques. For example, he was the first person to study gas exchange in the field by encapsulating entire plants in plexiglass chambers known as a cuvettes. To that point, people had only used cuvettes on small parts of a plant, such as a single leaf, and always in the controlled environment of a laboratory.

At the Green Canyon Research Station, Martyn even constructed a giant rainout shelter to artificially limit precipitation. The huge device rolled back and forth on railroad tracks and was large enough to cover entire plant plots.

Martyn was also the first person to describe a phenomenon known as hydraulic lift. Hydraulic lift is the passive drawing up of water from moist subsoils and subsequent leakage of that water into dry topsoils by plant roots. Many of his most cited papers, including one paper with over 1500 citations, are about hydraulic lift.



Martyn studying UV Radiation in the Peruvian Andes.



Left - Railroad track for rainout shelter.
Top - Cuvette invented by Martyn.

During his time at Utah State University, Martyn also served as the director of the Ecology Center.

“When he came in, he brought a lot of new ideas,” said John. “The biggest changes he made were getting graduate students involved in the process of choosing seminar speakers and increasing graduate student financial support.”

These changes have had a lasting effect on the operation of the Ecology Center and are still in effect today. The robust involvement of the Ecology Center graduate students can trace its origins, in large part, back to Martyn.

Martyn was also fluent in German and had a special connection with the scientific community in Germany. In 1981, the Federal Republic of Germany awarded him the Alexander



Top - Martyn studying plant roots in the Australian Outback.



Martyn studying UV radiation in Alaska.



Martyn laughing with a student in the Australian Outback.

von Humboldt Prize, and in 1993 he was elected an honorary member of the German Ecological Society and to the German National Academy of Sciences in 1999.

“He loved his interactions with the Germans,” stated close personal friend Patty MacMahon.

When asked what Martyn would be most proud of professionally, Patty explained, “I don’t know if he would ever tout his professional accomplishments to be really honest with you. He was too modest to ever tell you.”

In his personal life, Martyn had diverse interests. There wasn't a museum in his home of Washington DC that he hadn't visited. He also enjoyed good food, music, opera, and art.

"He grew up pretty humbly, but he loved art," explained Patty. "He turned an area of his home into an art gallery. The pieces were beautiful and tastefully exhibited. You could see that he had it up for the love of the art."

Martyn also loved traveling and visiting new places. He often did so with his good friends the MacMahons.

Jim MacMahon, professor emeritus of Utah State University's College of Science and also a previous director of the Ecology Center, was Martyn's best friend. He stated simply, "We spent so much time together. We went around the world."



Jim MacMahon (left) and Martyn (right) at a social event.



Martyn and three Thai women in traditional clothing during a trip to Thailand with the MacMahons.



Martyn posing for a photograph during his travels.

During one trip to Ranomafana National Park in Madagascar, Martyn and the MacMahons arrived in the middle of the night to a full facility with no available beds, so they decided to sleep in the van.

Patty laughingly recounted, "Martyn claimed the back bench seat and takes this newspaper and spreads it out over the top of himself. We didn't know he'd done that so in the morning when we were all waking up we suddenly hear this rustling in the backseat. Martyn emerged from under the newspapers like a bum on a park bench. And that was just Martyn. He didn't complain."



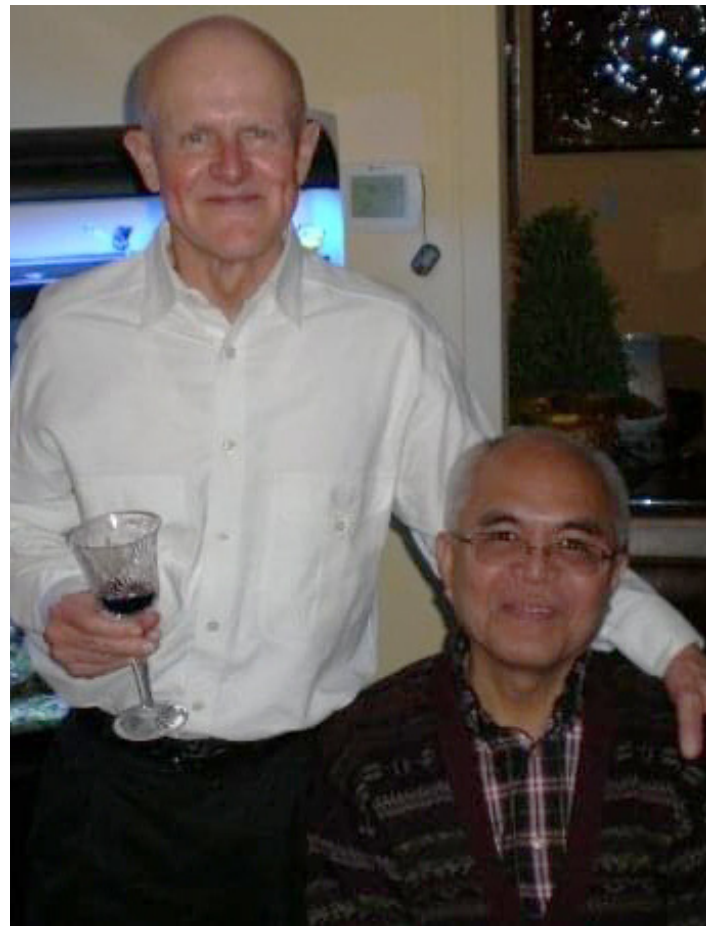
Martyn and his partner, Mario, posing together for their holiday card.

When asked if there was anything people ought to know about Martyn, Patty responded, "When Martyn met Mario he became such a settled person. Their bond was beautiful. I think Mario grounded Martyn."

A tribute to Martyn's life would be incomplete without acknowledging the steady support of his loving partner Mario. Mario stayed steadfastly by Martyn's side throughout their relationship and the course of Martyn's illness. Thank you, Mario. You have the love and gratitude of all who knew and loved Martyn.

Martyn's good-natured personality and big smile were well known. He had an innately kind heart, was unassumingly humble and congenial, and was beloved by all who knew him.

Said Chris Luecke, Dean of the College of Natural Resources, "Martyn Caldwell was one of our first global ecosystem ecologists. His accolades were many but he always had time



Martyn and Mario enjoying a glass of wine together. to visit with his students about their quest for knowledge. We miss his wit and wisdom."