

Bob Scholes: Multifaceted scientist with a genius for synthesis

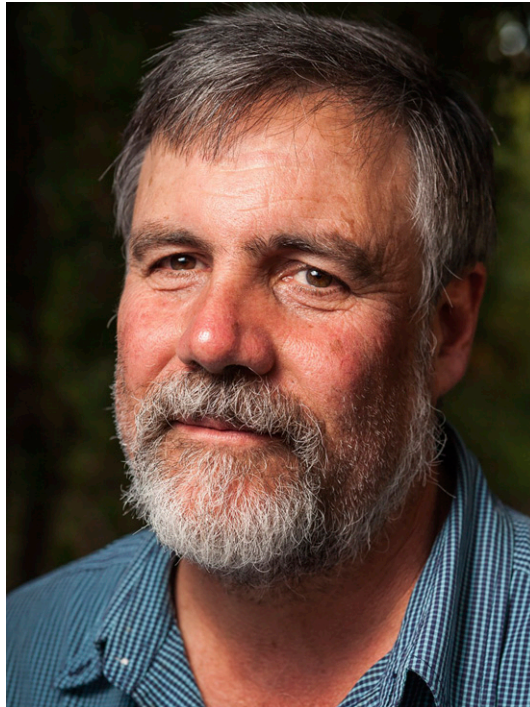
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Prof. Robert (Bob) Scholes passed away unexpectedly on April 28, 2021, while on an 11-day, 160-km hike along the Kunene River in northern Namibia. Energetic, enthusiastic, and larger than life to the very end, his sudden passing was a huge shock and loss to his colleagues and loved ones. But as one of his colleagues pointed out, “just like Bob—to go out in style, not while crouched over his computer like the rest of us.” The Kalahari and Miombo woodlands of northern Namibia were special to Bob. They were central to many of his formative scientific experiences. In a way, his career might be said to have come full circle.

He was an International Member with a primary affiliation in Section 64 (Human Environmental Science) and a secondary affiliation in Section 63 (Environmental Sciences and Ecology) of the National Academy of Sciences, a Fellow of the South African Council for Scientific and Industrial Research (CSIR), a Fellow of the Royal Society of South Africa, Member of the South African Academy, a Research Associate of the CSIR, a National Research Foundation A-rated scientist, and a winner of the National Science and Technology Forum Lifetime Contribution to Science Award.

Bob called himself a “systems ecologist.” He was interested in “big-picture ecology” and used systems thinking to help address major national and international problems, notably climate change, biodiversity loss, and land degradation. A distinguished professor at the University of the Witwatersrand and director of the Global Change Institute, Bob was also a leading citizen of the global scientific community. He brought a distinctly African perspective and his uniquely powerful intellect to a wide range of high-profile international activities over the last 30 years. He also brought a deep well of understanding based on decades of fieldwork.

Bob grew up on his family farm in the Magaliesberg, north of Johannesburg, where he developed his own personal engagement with environmental science. He always said he went to university wanting to be a game ranger, because that was the only career in environmental science that he knew at the time. Soon, under



Bob Scholes. Image credit: Benjamin Drummond (photographer).

the guidance of the esteemed systems ecologists Brian Walker at the University of the Witwatersrand and Pedro Sanchez at North Carolina State University, Bob discovered a scientific approach to environmental science that suited him and fit the breadth of his curiosity and vision. He became a global leader in that approach, centering systems ecology in the quest for solutions to our most pressing environmental challenges.

A natural leader who always set examples by working harder and thinking deeper than everyone around him, Bob led many high-profile field campaigns, including SAFARI 2000. Early in his career, Bob led the Nylsvley study, a pioneering project to predict changes

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Author contributions: S.A. and C.B.F. wrote the paper.

The authors declare no competing interest.

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Published September 2, 2021.



Bob, Mary, and Stirling Scholes. Image credit: Stirling Scholes (photographer).

in savanna ecosystem stability in response to stress. Key insights from this work, specifically on tree–grass interactions in savanna ecosystems and the role of top–down versus bottom–up processes driving their coexistence, have now become core reading for generations of emerging ecologists who have built upon Bob’s ideas to address global change issues on the dynamics and future of tropical savannas.

Bob’s leadership extended to many regional and global activities. In Africa, he led assessments on topics ranging from elephant management to shale gas development, and he served on the boards of South African National Parks and the South African Space Agency. At the global scale, Bob was active on the steering committees devoted to global-scale observations of climate, ecosystems, and biodiversity. He was especially prominent in the global assessment activities of the Millennium Ecosystem Assessment, the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES). In the IPCC, he was an author on the 2001, 2007, and 2014 assessments. Likewise, his talents captured the imagination and approval of the social, environmental, and integrated sciences in the National Academy of Sciences.

Cementing his status as a leading figure at the interface of ecology and climate change, Bob’s last major international accomplishment was co-chairing the Scientific Steering Committee of the December 2020 IPCC-IPBES workshop on climate change and biodiversity.

Bob was most notable for his clarity of mind. He had a gift and a passion for helping scientists reach consensus and helping policy makers understand the

consequences of their decisions. With Bob in the room, a disarrayed muddle of voices could be simplified and focused. Journalists loved him for his ability to steer their questions toward the most useful and honest messages.

He was equally at home discussing the intricacies of the Multiangle Imaging SpectroRadiometer sensor, identifying trees in the bush, developing analytical models of ecosystem dynamics, creating delicious food in the kitchen, and messing about with wires and data loggers. The first thing he taught his students was to have a well-stocked toolbox. With his wife Mary and his son Stirling, they designed and built their own carbon-neutral, off-the-grid home, calculating and monitoring the electricity supply and water heating systems with a research-quality data logger in the entrance hall.

Bob was unwavering in his belief that scientists in Africa had novel and important insights to share with this global community. He poured energy into developing undergraduate curricula and made training students a priority. Famously, Bob would launch into detailed explanations of any concept at the slightest encouragement. He always managed to treat everyone as an equal in the delightful prospect of scientific discovery.

In the units he led, Bob developed a reputation for gathering a range of misfits and unique characters under his wide umbrella, enabling their growth and guiding their talents. He strove to create interdisciplinary teams where climate scientists and artists were equally welcomed and valued. He definitely understood the value of a verbal barb and used them strategically, but underlying this was kindness and a lack of judgement. He expected rigor and honesty but was open to a range of perspectives on exactly how to do good science or what a good life should be.

Like many truly brilliant people, Bob had more ideas than he could ever bring to completion: he initiated the first elevated CO₂ experiments in South Africa and installed a long-term eddy-covariance system that is one of the longest operating on the African continent. These ambitious projects were often stymied by the minimal financial and human resources available in South Africa, but this never dampened Bob’s enthusiasm. His solution: bring in international partners and train Africans at every opportunity. The result is a rich and growing network of systems thinkers and ecologists leading projects that are becoming even more ambitious, flourishing, and developing lives of their own.

Although he spent his life grappling with some of the most challenging and difficult problems facing humanity, Bob retained a sense of optimism, a joy for life, and a deep confidence in the potential that comes from working hard on a shared vision.