Brian Maurer (1954–2018)

Ecologist who co-founded the discipline of macroecology.

When Brian Maurer passed away suddenly on 29 July 2018, ecology lost one of its most creative and transformative scientists. In 1989, based on work begun while he was still a graduate student, Brian co-authored the seminal paper that introduced the discipline of macroecology and advanced a bold new research programme to "provide evidence of the processes that couple ecological phenomena that occur on disparate spatial and temporal scales — from the activities of individual organisms within local populations to the dynamics of continent-wide speciation, colonization and extinction events" (J. H. Brown & B. A. Maurer, *Science* **243**, 1145–1150; 1989).

This paper has had an enormous impact on basic research at the interface of ecology and biogeography as well as on more applied work in conservation biology and wildlife management. The timing was propitious. It coincided with increasing attention of basic scientists to the correlates and causes of global biodiversity, and of applied scientists to conservation of endangered species and habitats — and also with widespread adoption of computer-based technologies, such as large electronic databases, geographic information systems and statistical software packages. In just 30 years, macroecology has grown to become a major sub-discipline of ecology as evidenced by the exponential increase in the number of publications: from about 700 in 1999, to 5,500 in 2009, to 16,000 today.

Brian Alan Maurer was born in Albuquerque, New Mexico, in 1954. He received degrees from Brigham Young University (BSc, 1977), West Virginia University (MSc, 1980) and the University of Arizona (MSc, 1982; PhD, 1984). He subsequently held faculty positions at Brigham Young University (1986–1999) and Michigan State University (1999–2017). He began to suffer from chronic kidney disease in 2015, and began a permanent disability leave from Michigan State in early 2017. Brian is survived by four siblings, his wife Cathy, three children and one grandchild.

While Brian was a PhD student and postdoc with me (Jim, J.H.B.) at Arizona, we collaborated on a series of papers that laid both theoretical and empirical foundations for what we called macroecology. Brian brought to this collaboration a diverse background in ornithology and wildlife management as well as powerful mathematical and statistical expertise. In macroecology, Brian and I developed a kind of statistical ecology, analogous to modern statistical physics. Under the macroecological framework, the individual organisms within populations, and the species within ecological communities or geographic biotas, could be viewed as particles, analogous to gas molecules. As in physics, these particles are equivalent, but not identical. Macroecology focuses on the causes and consequences of variation in the biological traits of the 'particles' (for example body size, population density or area of geographic range) and the geometric and physical features of the 'container' (such as environmental temperature, area of island or habitat features). The statistical approach of macroecology attempted to characterize ecological and biogeographic patterns and processes that are very general — like gas laws for ecology.

Credit: Michigan State University AgBioResearch's *Futures* magazine

Brian went on to enjoy a successful and influential career. He developed his own statistical approach to basic and applied ecology in two sole-authored books and 69 peer-reviewed papers. He held visiting appointments at the University of Arizona, Lanzhou University, the University of Kansas and Montana State University, and served on many editorial boards and other professional committees. Brian was also a dedicated teacher, most recently focusing on preparing the next generation of ecologists with training in applied multivariate statistics. He mentored numerous undergraduates, graduate students and postdocs who have gone on to influential positions in academia, government agencies and non-governmental organizations. In addition to his research and mentoring as a professor, Brian also served as the director of the Center for Statistical Training and Consulting at Michigan State during 2012–2017. In this capacity, he advised numerous clients across multiple disciplines on the use of statistics in their research.

The two of us cherish memories of Brian at opposite ends of his career. Jim knew him as a fearless, creative and highly motivated young scientist, but still unformed. He was already exhibiting the impressive breadth, depth and taste for big important science that became hallmarks of his entire career. Jim remembers the sheer joy and intellectual excitement of working together. We were so wrapped up in the science that we hardly realized or cared that we were grappling with ideas that would transform ecology and biogeography in the years to come. Andrew (A.J.D.) knew Brian as a senior scientist and PhD mentor who encouraged and promoted his students' professional development, was a precise and gifted communicator, had a great sense of humour, had an inspiring attention to detail, and had an awesome intellect. Andrew also knew Brian as a very talented singer, songwriter and musician, and fondly remembers his original songs, spanning smooth rock, jazz and blues genres, rendered soulfully on the electric guitar in Brian's Michigan home.

The scientific community will sorely miss Brian's professional contributions, especially as an innovator, collaborator and mentor. Those of us who knew him personally will also miss Brian's friendship: his creative insights, gentleness, sense of humour, encouraging personality, love for music, and his unabashed love of science and discovery. Paraphrasing friend and colleague S. K. Morgan Ernest when she learned of Brian's passing: Brian, we hope all of the mysteries of the universe are now laid bare for you to marvel at. ❐

James H. Brown[1]* and Andrew J. Dennhardt[2]

[1]*The University of New Mexico, Albuquerque, NM, USA.* [2]*Michigan State University, East Lansing, MI, USA.*

**e-mail: jhbrown@unm.edu*

Published online: 8 October 2018
https://doi.org/10.1038/s41559-018-0700-6