Resolution of Respect:
Michael G. Barbour (1942–2021)

Photo 1. Michael Barbour and his wife Valerie Whitworth on an International Association for Vegetation Science excursion in Estonia, 2013. Photo credit: R.K. Peet.

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Michael G. Barbour died peacefully in his home in Winters California on 7 January 2021 (Photo 1). He is survived by his wife, Valerie Whitworth of Winters, California, USA, his daughter and son-in-law, Julie A. Barbour and Don Neal of Loomis, California, his son and daughter-in-law, Alan Barbour and Helene of New York, USA, his stepson and daughter-in-law Steven Whitworth and Erin of Elk Grove, California, his brother and sister-in-law, Paul Barbour and Eleanor, and his grandchildren, Jim, Sam, Max, Grace, and Clio.

Michael was born on 24 February 1942 in Jackson, Michigan, USA. He subsequently moved to Southern California where he began his love for nature while spending time in the San Bernardino Mountains, east of Los Angeles. He returned to his home state and attended Michigan State University where he obtained a B.S. degree summa cum laude in 1963. He and his brother represented the first generation in their family to attend college. When he initiated his undergraduate education, he had no specific intellectual focus beyond his curiosity about the natural world. He was planning to be a
chemist, but he took a year-long course in introductory botany in his sophomore year and became deeply interested in plants and ecology. He also felt that two other aspects of his personality emerged during his undergraduate days that left a lasting impact on his role as a teacher and more generally on his professional career. First, to make ends meet, he worked as a salesman in a shoe store while getting his undergraduate degree. He felt that the associated commission incentive helped foster development of his ability to communicate with both customers and subsequent classes of students. Secondly, he was an active thespian in his undergraduate days and felt this experience helped him when he had to project ideas in introductory classes.

Michael considered a broad range of institutions for his graduate education, knowing from the start that he was particularly interested in plants in stressful environments. He selected Duke University, in part because its graduate students worked across a broad range of environments and because Duke had significant funding to support graduate student travel. Consistent with his interest in stressful environments, he spent 1964 as a Fulbright Fellow in Australia studying, among other topics, seedbanks associated with *Eucalyptus* forests, and then completed a doctoral dissertation focused on creosote bush of the Southwest deserts under the guidance of Professor W. Dwight Billings.

In 1967 at age 25, Michael became one of the youngest professors to be hired by the University of California, Davis (UCD), where he remained for his entire career. During his 40 years at UCD, he was a professor in a succession of departments including Botany, Plant Biology, Environmental Horticulture, and finally Plant Sciences, from which position he retired in 2008. Indeed, Michael reported that it was something of a running joke that if he joined a department it was not long for this world. After his retirement, he remained engaged in his academic pursuits, increasing his involvement in academic and conservation societies and organizations.

Within UCD, Michael was particularly known for his role as a teacher and mentor. His courses ranged from introductory botany and plant ecology to graduate-level vegetation sampling; including a course co-taught with Jack Major on the plant communities of California, typically with eight days of field trips to examine the vegetation patterns of this extremely diverse state. He also was involved in developing a new major for undergraduates called Nature and Culture that encourages students to study the relationship between human culture and the natural world. Over the course of his career, he sponsored over 50 graduate students and won an Outstanding Teaching award and a Guggenheim Fellow award. In addition, he served as a mentor for many fellow faculty members. Although several of his students went on to teach at academic institutions, Michael was particularly proud that many went on to careers in State or Federal natural resource agencies and non-government organizations where they became influential in shaping science-based programs in land management and conservation (Photo 2).

From the start of his academic career, Michael was most interested in ecological adaptations and responses of plants to harsh environments. Although California was a perfect home for him in that it provided many forms of harsh habitats, Michael also conducted or supervised research in many parts of the world, including Argentina, Australia, Israel, Mexico, Portugal, Spain, and the Canary Islands. A common thread in his career was exploring the stressors, disturbances, and tolerances that define the habitat limits of different species and vegetation communities. His desire to experience and understand vegetation patterns and processes across the world was evident in his participation in the International Association for Vegetation Science (IAVS). He and Jack Major organized a Field Conference for IAVS
focused on coastal California vegetation in 1988, and he seemed to have become hooked as he subsequently participated in many IAVS excursions including, among others, those in Brazil, Crete, Estonia, France, Hawaii, Mexico, Sicily, South Africa, Texas, and Wales (Photo 3).

Michael’s early work on desert scrub in the southwestern deserts of North America investigated the role of competition for resources in the spatial patterning of species as well as the biogeographic and genetic relationships between *Larrea* populations in North and South America (Barbour 1969). This also expanded later into research in Argentina where he compared the convergence, or lack thereof, between deserts there and in California (Barbour and Diaz 1973).

Shortly after joining UCD, Michael sought out local ecosystems to investigate, given the significant distance between Davis and the true southwestern deserts. This led him to the coastal ecosystems surrounding the Bodega Bay Biological Station. He first wrote a flora of the region, to better acquaint himself with the species there, and then dived into the local vegetation with a special focus on the salt tolerant vegetation of the coastal fringe. His subsequent work on salt tolerance of Californian coastal...
dune and salt marsh plants underscored the interaction of physiology and tolerance in the zonal distribution of species and communities (e.g., Barbour 1978). His interest in coastal fringe, and especially sand dune vegetation, eventually expanded into work across North America and into the Mediterranean (e.g., Barbour et al. 1981).

Near the mid-point of Michael’s career, his UCD colleague Daniel Axelrod asked why he was focusing on herbaceous vegetation and not the dramatic transition between vegetation types in the woody vegetation of the Sierra Nevada Mountains. Michael responded with a study of the red and white fir forests (Abies magnifica, A. lowiana) of California where he investigated the means by which dominant species in cold and snowy environments displace each other along a major Sierran ecotone (~2000 m elevation) (e.g., Barbour et al. 1990, Minnich et al. 1995). Later, working in the Canary Islands, he studied the age structure, stand dynamics, and fire regimes of old-growth Canary Island pine (Pinus canariensis) forests, a species with a unique set of attributes for a serotinous conifer (Barbour et al. 2012). More recently, he completed a study of mixed evergreen forests in central Spain and northern California, teasing out the environmental factors that seemed to explain varying dominance by conifers versus hardwoods and by particular species such as Quercus pyrenaica and Q. garryana (Barbour et al. 2007).
Relatively late in his career, Michael initiated an in-depth study of the vernal pool vegetation of California with implications for both understanding vegetation composition and developing conservation strategies and practices. Because this vegetation typically occupies small depressional wetlands with great seasonal and interannual variation, it had previously been described as consisting of a few highly variable types primarily associated with uncultivated areas of California’s Great Central Valley. He magnanimously brought together an international team of ecologists to assist him in this complex study. After extensive surveys, he and his colleagues found that there is a wide variety of vernal pool communities supporting a great diversity of species and varying widely across the State. He showed that it is not sufficient simply to preserve a few vernal pool habitats, but that it is necessary to understand the range of compositional variation as it maps onto site and geography (Barbour et al. 2003). Consequently, thanks to Michael and his colleagues, there are now over 25 vernal pool habitats (plant associations) recognized in California. This diversity is now regionalized and has resulted in the current architecture of Federal and State policies guiding protection of California’s vernal pool diversity.

Michael was a prolific and highly collaborative book author and editor with more than 25 books to his credit. These provided the primary texts for introductory botany courses for three decades and included, among others, the 4th, 5th, and 6th editions (1970, 1974, 1982) of Botany: An Introduction to Plant Biology senior authored by T.E. Weiler, the associated Laboratory Manual (4th and 5th editions, 1971, 1975), the first and second editions of Botany, a Brief Introduction to Plant Biology senior authored by Tom Rost (1978, 1984), and two editions of Plant Biology, also senior authored by Rost (1998, 2005). Many ecologists will be familiar with one or more editions of Terrestrial Plant Ecology (1980, 1987, 1999) which he senior authored and which was for many years the only available English-language textbook for this field. Michael’s passion for vegetation and field ecology also can be seen in several books of which he was senior editor including North American Terrestrial Vegetation (1988, 2000) which he compiled with his mentor Dwight Billings, and Terrestrial Vegetation of California (1977, 1988, 2007) which he published with his friend Jack Major. Other books he senior authored provided more focused or more popular perspectives including Coastal Ecology: Bodega Head (1973), California’s Changing Landscapes: Diversity and Conservation of California Vegetation (1993), Coast Redwood: A Natural and Cultural History (2003), and California’s Botanical Landscapes: A Pictorial View of the State’s Vegetation (2016).

Michael’s approach to the advancement of science was collaborative rather than assertive. When confronted with alternative approaches, he consistently tried to find common ground. This led him to convene two AAAS Sessions (1992, 1994) on different views of California Vegetation Classification and ultimately to invite to California Spanish colleagues who had widely employed the Braun-Blanquet phytosociological approach to European vegetation classification. Michael’s goal was to learn how they would characterize the local California vegetation and how their approach and resultant synthesis might advance the synthetic work on California vegetation that he and his colleagues were developing. The result was a series of publications senior authored by Daniel Sánchez-Mata, which to this day represent one of the most comprehensive and detailed applications of the Braun-Blanquet system to vegetation of the conterminous 48 US states and which influenced the subsequent development of the US National Vegetation Classification (e.g., Rodríguez-Rojo et al. 2001).

Michael had a long and fruitful interaction with the California Native Plant Society (CNPS). In 1990 CNPS recruited him to be the first chair of what was to become known as the CNPS Vegetation
Committee. Michael’s role was to assemble and guide a committed group of California scientists and plant conservationists in the development of defensible definitions for all vegetation types native to the State. This would serve as a contextual framework for future plant conservation work in the State. During the first few meetings of the Committee, Michael had to orchestrate consensus among divergent individual perspectives and unify their ideas into a single classification concept that would develop into an inductive hierarchical classification system. Michael remembered those first few meetings as some of the most challenging he ever experienced as a group leader.

What resulted from Michael’s leadership of this CNPS Committee was the first systematic classification and definition of California’s immense diversity of vegetation types: *A Manual of California Vegetation* (co-authored by John O. Sawyer and Todd Keeler-Wolf in 1995). The developing classification, or “MCV” as it became known, was adopted by California state agencies and conservation groups alike. As envisioned by Michael and the members of the Committee, it initiated a rapid expansion of data collection, analysis, description, and detailed vegetation mapping. In the years that followed, it proceeded through a vastly expanded second edition (Sawyer, Keeler-Wolf, and Evens, 2009) and is currently a web publication (https://vegetation.cnps.org/) maintained and updated by a consortium of professional ecologists representing both non-government and government programs (e.g., CNPS and the State Fish and Wildlife Department). Befitting Michael’s history of involvement, it has become the “California node” of the US National Vegetation Classification.

In parallel fashion, in 1993, representatives of the Vegetation Section of the Ecological Society of American (ESA), The Nature Conservancy, the US Fish and Wildlife Service, and the US National Park Service organized a symposium and workshop at the annual meeting of ESA to discuss and try to reconcile the diverse and divergent approaches to vegetation classification then employed within the United States and across the world. What emerged was a recommendation for ESA to organize a special committee on vegetation classification to address this issue and work toward a common system. The proposal was forwarded to ESA President Jerry Franklin with the suggestion that Michael Barbour, then Chair of the Vegetation Section of ESA, chair this Committee. Michael accepted Jerry’s invitation and organized a committee meeting for the 1994 ESA annual conference. What emerged was a series of recommendations that led to the formation in 1995 of the ESA Panel on Vegetation Classification with Michael as the first Chair. This Panel has continued to actively promote a coherent and consistent system for vegetation classification and documentation for United States, has proposed standards for development of a national vegetation classification system that were subsequently adopted by the US Federal Geographic Data Committee, and has contributed fundamentally and continuously to what is now an ongoing process of population, documentation, and review of the National Vegetation Classification content. The Panel remains highly active and celebrated its 25th anniversary in 2020. Michael continued to serve on the Panel through 2009 and clearly deserves singular credit for the success of this critical enterprise.

Beyond his days in academia and as a respected leader, Michael continued as a thespian and late in his life spent over 20 years performing with the Winters Theatre Company. He also ventured into retail with his wife, owning and running for 10 years Classic Video, a video/bookstore in Winters California. He sang with The Raggedy Ramblers, an informal singing group in Winters. He loved dancing and spent his last three years in Pamela Trokanski’s Parkinson Dance Class. One of his memorable “crossover” performances was one he gave to a Chapter Council Meeting of the California Native Plant Society.
where he and his friend, co-conspirator, and Pulitzer Prize-winning poet, Gary Snyder gave a Haiku-style reading of selected plant names and succinct habitat descriptions.

By those of us who knew him, he is remembered as a kind and honorable citizen. One who calmly listened, soothed our concerns, and gently, often with humor and laughter, would reflect and replace frustration and confusion with sensibility and broader perspective. He was open to many ideas and interested in exploring new experiences. He was always a gentleman, expressing genuine interest, empathy, and concern. Michael led by example, never by force, and as a result engendered great respect and love.

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