William S. Cooper Award
Jack Williams, Bryan Shuman, Thomas Webb III
Brown University

Jack Williams

The **William S. Cooper Award** is given by the Society in honor of one of the founders of modern plant ecology. The Cooper Award is made annually for an outstanding contribution in geobotany, physiographic ecology, plant succession, or the distribution of organisms along environmental gradients. The 2004 recipients are Drs. John W. Williams, Bryan N. Shuman, and Thompson Webb III for their 2001 paper, "Dissimilarity analyses of Late-Quaternary vegetation and climate in eastern North America", published in *Ecology* 82:3346-3362.

The fossil record of the Late Quaternary has yielded an important, yet enigmatic, ecological observation: plant and animal communities have existed in the recent past that have no modern counterparts in terms of composition. The underlying causes of these peculiar biotic assemblages have stimulated debate in the ecological and paleoecological communities for the past four decades. In their paper, Williams, Shuman, and Webb address the problem using an elegant combination of numerical analyses, mapping techniques, paleoclimate simulations, and the extensive North American Pollen Database. They used the spatial and temporal patterns of vegetation dissimilarity during the period to evaluate alternative hypotheses concerning the underlying causes of the peculiar vegetation. Hypothesis-testing of this kind is difficult, but the authors developed and applied an ingenious approach, comparing maps of vegetation dissimilarities with maps of climate dissimilarity from present (using simulated paleoclimates, which are the only existing non-circular means for doing this). The spatial and temporal patterns are revealing and provocative, indicating that vegetation composition is contingent on climate, and that unique biotic assemblages will arise when unique climatic combinations occur. The study represents an important step forward in our understanding of vegetational responses to environmental change at broad spatial and temporal scales, and sets a new standard for paleoecological syntheses in other regions and time periods. It is highly relevant to global change concerns, because climatic gradients of the future may be very different from those of the past few thousand years, and so we may expect many existing biotic assemblages to disappear as new assemblages emerge under new climates.

Bryan Schuman

Thomas Webb, III

The paper developed from research done while Williams and Shuman were graduate students in Webb's lab at Brown University, where Webb is Professor of Geological Sciences. Williams is currently an Assistant Professor of Geography at the University of Wisconsin, and Shuman is an Assistant Professor of Geography at the University of Minnesota.

W.S. Cooper Award Subcommittee: Judie Bronstein (chair), Laura Hyatt, Sara Hotchkiss, Miles Silman, Scott Collins, and David Peterson