

W. S. Cooper Award



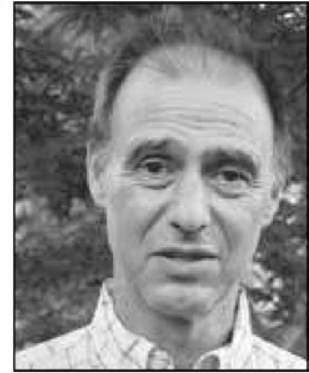
Gill



Jackson



Lininger



Robinson

The William S. Cooper Award is given by the Society in honor of one of the founders of modern plant ecology, in recognition of an outstanding contribution in geobotany, physiographic ecology, plant succession, or the distribution of organisms along environmental gradients.

The 2010 recipients are **Jacquelyn Gill, Steve Jackson, Katherine Lininger, and Guy Robinson**, for their 2009 paper published in *Science*: *Pleistocene megafaunal collapse preceded novel plant communities and enhanced fire regimes*. The paper developed from work conducted while Jacquelyn Gill was a Ph.D. student with Jack Williams at the University of Wisconsin.

The profound environmental and ecological changes accompanying the last deglaciation have provided ecologists with a critical case study for understanding the sensitivity of ecological systems to climate change. As recently as 10,000 years ago, large areas in North America were covered with what is termed "no-analog" plant communities, collections of tree species that today co-occur only rarely, such as *Fraxinus* growing together with *Picea*. Prior work on these no-analog communities has generally emphasized climatic drivers, or suggested that these communities were shaped by herbivory from the now extinct megafauna (mammoths, mastodons, and over thirty other extinct genera). This new paper by Jacquelyn Gill and her colleagues creatively uses spores from *Sporormiella*, a fungus that is obligate to animal dung, to show conclusively that the no-analog plant communities arose *after* megafaunal abundances sharply declined. Moreover, the decline in megafaunal populations and the rise of the no-analog communities coincided with a shift to a strengthened fire regime. Gill and her colleagues hypothesize that the Pleistocene megaherbivores helped suppress more-palatable hardwood trees, so that their decline allowed those taxa to increase, which in turn increased fuel loads for fire (similar to what happens when one removes elephants from African savannas). This work does not contradict prior evidence that climate change is a major driver of vegetation change, but enriches our understanding of the rich interactions within these biological systems.