



2014 MacArthur Award

Dr. Mercedes Pascual

University of Michigan

The Robert H. MacArthur Award is given biannually to an established ecologist in mid-career for meritorious contributions to ecology, in the expectation of continued outstanding ecological research.

Dr. Pascual is recognized for her contributions to the theory of food web structure; the ecology, spread, and evolution of infectious diseases; and the development and application of novel computational methods for relating climate to disease. Her research on food webs brought new network approaches to bear on fundamental issues in community ecology and focused attention on the potential for critical transitions to drive these systems. She has investigated “robust criticality” in processes as varied as forest fire dynamics and food webs in the Serengeti, and her work has advanced understanding of the dynamics of complex systems. She blends theory and empiricism and has been an ardent proponent of confronting models with data to understand ecological patterns.

Dr. Pascual has studied ecological dynamics of several of the world's most devastating diseases, including malaria, cholera, and influenza. Using advanced statistical methods, she demonstrated the importance of climate variability in driving cholera outbreaks, and the effects of temperature on the spatial spread of malaria in mosquitoes. These efforts required the creative use of theory along with in-depth ecological understanding of disease vectors, and the research has tremendous potential for improving global health; for example, her studies may help to provide advance warning of potential disease outbreaks. Throughout her career, Dr. Pascual also has devoted enormous energy to fostering diversity of ecological researchers in the US, mentoring junior researchers worldwide, and facilitating effective communication and collaboration among diverse research groups.