coevolution

molecular phylogenetics

mutualism

plant-insect interactions

plant polyploidy

population genetics

KARI SEGRAVES

Associate Professor
Department of Biology, Syracuse University

438 Life Sciences Complex
Phone: 315-443-4899
E-mail: ksegrave@syr.edu
Website: http://biology.syr.edu/faculty/segraves/segraves.htm

Dr. Segraves is an expert in evolutionary ecology. She seeks to understand the role that interspecific interactions play in creating diversity. Dr. Segraves directs a research group that applies a broad combination of approaches including experimental ecology, field observations, molecular phylogenetics, and population genetics. Dr. Segraves' work has important implications for species diversification, and development and parameterization of theoretical models of mutualism. In 2008, the Ecological Society of America recognized the work of Dr. Segraves on evolutionary ecology and featured her study on flower feeding beetles in the Bulletin of the Ecological Society of America. Dr. Segraves serves on the editorial board of The Online Evolution, The Scientific World Journal, and Systematic Biology.

Education:

2003 Ph.D. Biology, Vanderbilt University

1998 M.S. Botany, Washington State University

1995 B.S. Biology, Washington State University

Recent Research Projects:

Direct and Indirect Effects of Antagonists on Mutualism. National Science Foundation. PI: Segraves, K. Co-PI: Althoff, D.

This project empirically tests theoretical predictions concerning how plant community members affect the costs and benefits received by mutualists. The well-known pollination mutualism between yuccas and their pollinating moths will be used to test these predictions. The study has important implications in understanding how mutualisms persist when mutualists simultaneously interact with a variety of species.

Coevolution as a Diversifying Force: The Role of Local Adaptation in Reproductive Isolation. National Science Foundation. PI: Segraves, K.

This project aims to elucidate defensive and counter-defensive processes in plants as a means of increase in speciation. In particular the study will determine whether moth populations are diverging from one another via adaptation to different yucca species, and whether these populations have evolved differences in preference and performance for different yuccas. The outcomes of this study will help understand the process by which new species are formed and will provide a general explanation for why some groups of organisms are so incredibly diverse.

Recent Scholarship:

Althoff D.M., K.A. Segraves, C.I. Smith, J. Leebens-Mack, and O. Pellmyr, **"Geographic isolation trumps coevolution as a driver of yucca and yucca moth diversification,"** *Molecular Phylogenetics and Evolution*, vol. 62, pp. 898-906, Mar. 2012.

Higginson D.M., K.B. Miller, K.A. Segraves, and S. Pitnick, **"Female reproductive tract form drives the evolution of complex sperm morphology,"** *Proceedings of the National Academy of Sciences*, vol. 109, pp. 4538-4543, Feb. 2012.

SUADVANCE

Syracuse University is driven by its vision, Scholarship in Action—a commitment to forging bold, imaginative, reciprocal, and sustained engagements with partners from all sectors of the economy: public, private, and non-profit. These profiles have been developed to facilitate cross-sector connections and are supported by the SU ADVANCE project with funding from the National Science Foundation under NSF Grant No. HRD-1008643.