



NIMBioS

National Institute for Mathematical
and Biological Synthesis



NIMBioS Interdisciplinary Seminar

3:30 p.m.*, Tuesday, August 27, 2013

Dr. Jeremy Beaulieu
NIMBioS Postdoctoral Fellow

“Identifying hidden rate changes in the evolution of a binary morphological character: Examples from campanulid angiosperms”

The growth of phylogenetic trees in scope and in size is promising from the standpoint of understanding a wide variety of evolutionary patterns and processes. With trees comprised of larger, older, and globally distributed clades, it is likely that the liability of a binary character will differ significantly among lineages, which could lead to errors in estimating transition rates and the associated inference of ancestral states. Here I develop and implement a new method for identifying different rates of evolution in a binary character along different branches of a phylogeny. I illustrate this approach by exploring the evolution of growth habit in the *Campanulidae*, a flowering plant clade containing some 35,000 species. The distribution of woody versus herbaceous species calls into question the use of traditional models of binary character evolution. The recognition and accommodation of changes in the rate of growth form evolution in different lineages demonstrates, for the first time, a robust picture of growth form evolution across a very large, very old, and very widespread flowering plant clade. I will also show how these methods can easily be extended to address other key questions in comparative biology.

New Location: Room 105 at NIMBioS, Claxton Education Bldg, 1122 Volunteer Blvd.

**Join us for refreshments at 3 p.m.*

For more information about this and other NIMBioS Seminars, visit <http://www.nimbios.org/seminars>

The National Institute for Mathematical and Biological Synthesis (NIMBioS) brings together researchers from around the world to collaborate across disciplinary boundaries to investigate solutions to basic and applied problems in the life sciences. NIMBioS is sponsored by the National Science Foundation, the U.S. Department of Homeland Security, and the U.S. Department of Agriculture with additional support from The University of Tennessee, Knoxville.