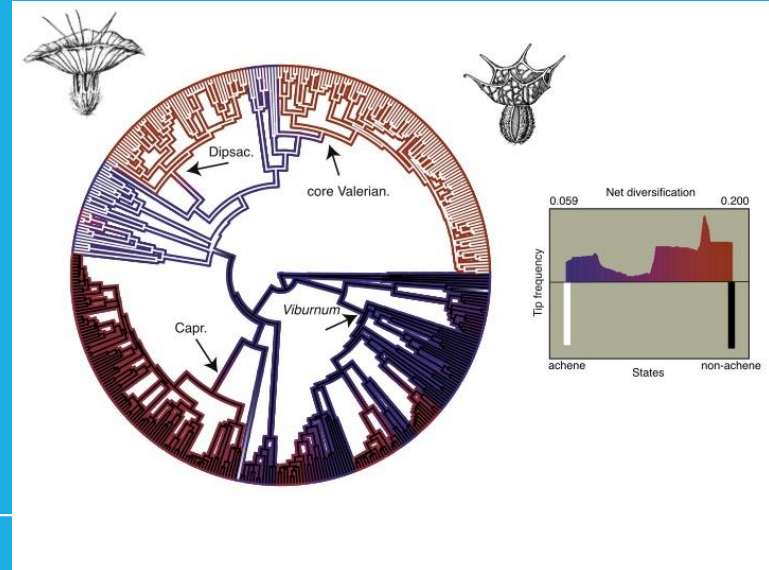


Dr. Jeremy Beaulieu – University of Tennessee

Linking biological processes to evolutionary patterns across flowering plants



In flowering plants, only quite recently have the phylogenetic relationships within larger, older, and globally distributed clades been resolved in sufficient detail to begin to address important botanical questions. My research is motivated by actively pursuing such questions through compiling collections-based morphological and geographic data and designing novel comparative approaches to understand historical biogeography, the timing of the origin and subsequent evolution of key functional and reproductive traits, and how combinations of these factors impact diversity patterns and evolutionary trajectories. My talk will provide a synthesis of two facets of my research. The first part will detail how growth-form dependent (i.e., woody vs. herbaceous) processes repeatedly observed at the molecular and phenotypic level may provide a key to understanding the stubbornly persistent gap between the fossil record and the molecular age estimates for flowering plants. The second part will focus on the evolution of fruit type in campanulid angiosperms, where I will discuss the inherent difficulties in determining whether the preponderance of campanulid lineages bearing achenes (i.e., dry, single-seeded, indehiscent fruits) is a result of increased speciation rates and/or decreased their extinction rates. In other words, it remains unclear whether achenes are an important driver of diversification, or whether the observed patterns are pointing to more complex patterns involving many unmeasured and co-distributed factors. I will describe a new way forward, which may ultimately lead to a more refined understanding of why certain clades become extraordinarily diverse.

RESEARCH TALK

Thursday January 21; Room 27, Alumni Memorial Bldg; 3:20 – 4:20PM.