



Figure1: The relationship between the log number of species in a subtree and the proportion of variance explained by the 1st, 2nd, or 10th largest eigenvalues (panels a–c), as well as the standard deviation of the variance explained by first 10 eigenvalues. Each point is a tree constructed by randomly trimming tips from a larger complete tree. Point color corresponds to the complete tree a given subtree is constructed from; all 1190 known sharks(Stein2018), a group of 72 sawflies within subtribe Euurina (Kopelke), and a tree of 15 peat mosses in the genus *Spaghnum* (Piatkowski & Shaw, 2019)