

Interspecific patterns of selection in relation to sample size variation do not predict intraspecific patterns

Assessing the strength of selection in natural populations is a central question for evolutionary biologists. Estimates of linear (β) and nonlinear (γ) selection gradients compiled across species yield two patterns that have significantly influenced prevailing views of selection in natural populations: the average magnitude of β and γ and the variance among estimated β and γ have decreased with increasing sample size. Along with colleague S. P. Egan (University of Notre Dame) we have estimated β and γ characterizing host plant-mediated selection on the trait, leaf gall size, in each of 22 *B. treatae* populations. Treating the among-species patterns as predictions, we are investigating the relationship between sample size and both the magnitude of, and the variance among, selection gradients. For neither β nor γ do we find support for the interspecific-based predictions. Our results question the predictive value of patterns of selection that have emerged from among-species comparisons at the level at which understanding sources of variation in selection are perhaps most important: among populations within species. It seems likely that when selection is heterogeneous among populations, variation in the biological basis for selection is more important in influencing estimates of selection than variation in study size.

