Proposed biodiversity metrics

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Magnitude | | Variability | |
| Data type | Total | Pairwise | Total | Pairwise |
| Phylogeny | M(P) | MPD | qE(P) | VPD |
| Function | M(T) | M(T) | qE(T\*) | qE(T) |

M(P) = Mean proportional divergence

qE(P) = Phylogenetic Hill evenness

(for both of the above, see Table 2 in Scheiner et al. 2017 – phylogenetic diversity)

MPD = Mean pairwise phylogenetic distance

VPD = Variance of pairwise phylogenetic distance

(for formulas of above, see supplementary material of Tucker et al., 2017, A guide to phylogenetic metrics for conservation, community ecology and macroecology. Biological Reviews, 92, 698–715)

M(T) = Mean trait dispersion (Notated simply as “M” in Scheiner et al.)

qE(T) = Functional-trait pairwise evenness

(for both of above, see Table S1 in Scheiner et al. 2017 – functional diversity; there is an R script for calculating both at: https://github.com/ShanKothari/DecomposingFD)

qE(T\*) = Functional-trait mean evenness

(see eq. 4 in Presley et al, which give formula for D, where E = D/S)

If we want to add in abundance, there are some interesting issues about which approaches and metrics to use. We can hold off on that conversation until we get through these analyses.