

Methods for prioritizing protected areas using individual and aggregate rankings

Environmental Conservation

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Appendix S3. Variability among the species diversity rankings and pairwise associations between aggregate rankings with Kendall's tau

The use of the unweighted- or the PCA-derived values did not seem to make a significant difference in the species diversity ranks (top panels of Fig. S3). However, the bottom panels (Fig. S3) confirmed that the two measures of species diversity (absolute and relative) produced distinct ranks (i.e., taking state of knowledge into account mattered for the measure of species diversity). Kendall's tau showed the ranks were significantly correlated ($\tau = 0.433$; $p < 0.001$; two-sided test). The bootstrap-generated 95% confidence interval of Kendall's tau (bootstrap mean = 0.436; lower limit = 0.329; upper limit = 0.538) was far from one (when ranks would be perfectly correlated), confirming that accounting for state of knowledge (i.e., research effort) when generating ranks of species diversity makes a significant difference.

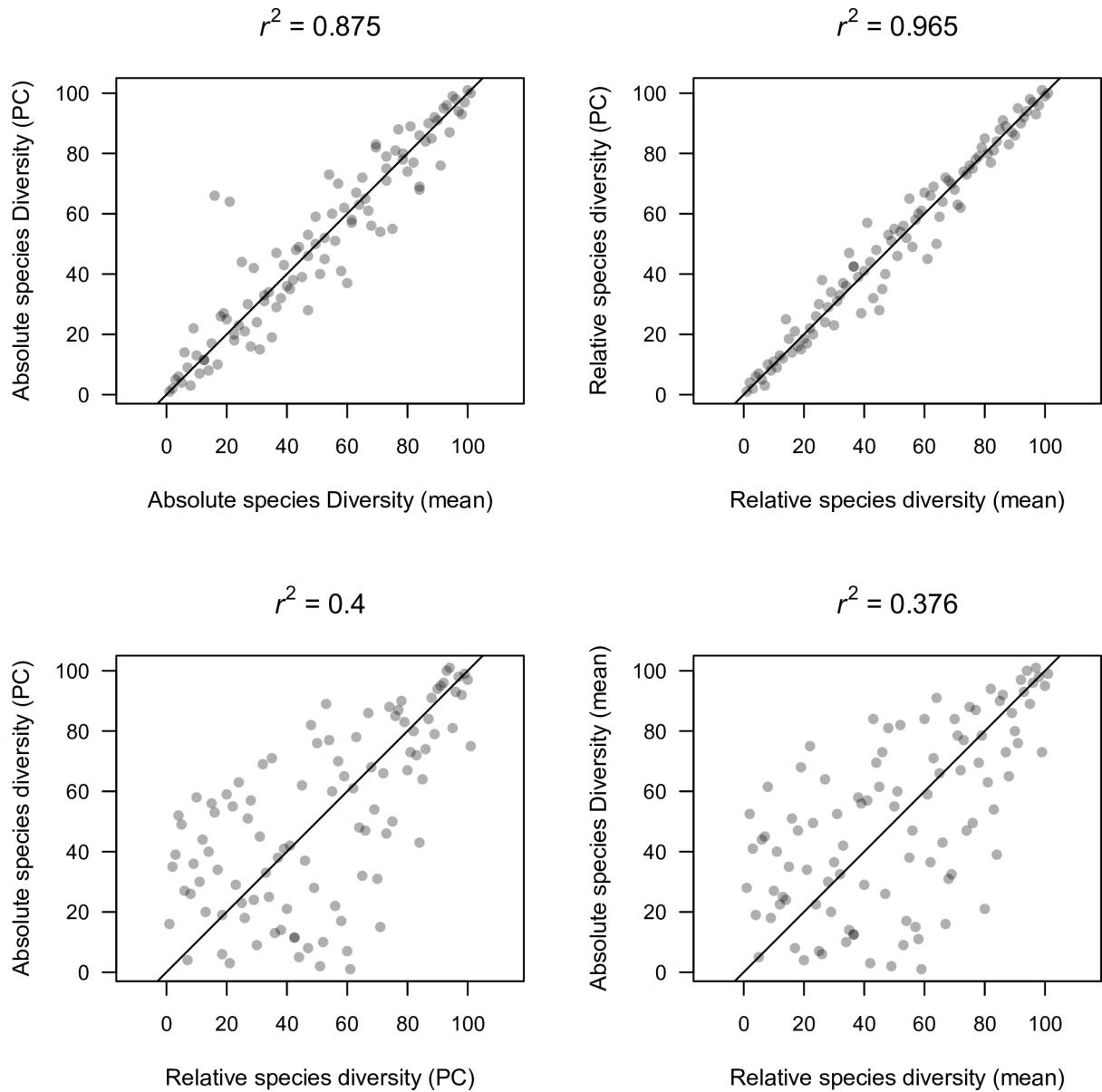


Fig. S3 Pair-wise relationships between both species diversity ranks (absolute and relative) for the unweighted and the PCA approaches.

We examined the associations between all pairwise combinations of priority aggregate ranks (unweighted, PCA, MC and PageRank) with Kendall's tau (Table S3). All aggregate rankings were significantly correlated with each other, but the strength of the correlations changed depending on what pairwise combination was analyzed. The unweighted and the PCA ranks were strongly correlated, as were the MC and PageRank ranks. However, the former two were only moderately correlated with the latter two. The unweighted and the PCA ranks were

statistically indistinguishable from perfectly correlated ranks, the correlation between the MC and the PageRank ranks was very strong, and the correlations between either of the former ranks with either of the latter ranks were relatively weak.

Table S3 Pairwise comparisons between aggregate rankings (unweighted, PCA, MC and PageRank) showing Kendall's tau and the upper and lower limits of bootstrapped 95% confidence intervals. All tau statistics were significant at $p < 0.001$. PCA = principal components analysis; MC = Markov Chain

	Kendall's tau	95% confidence intervals	
		Lower limit	Upper limit
Unweighted vs. PCA	0.999	0.998	1.000
Unweighted vs. MC	0.540	0.428	0.630
Unweighted vs. PageRank	0.543	0.434	0.641
PCA vs. MC	0.540	0.432	0.634
PCA vs. PageRank	0.544	0.439	0.639
MC vs. PageRank	0.908	0.874	0.933