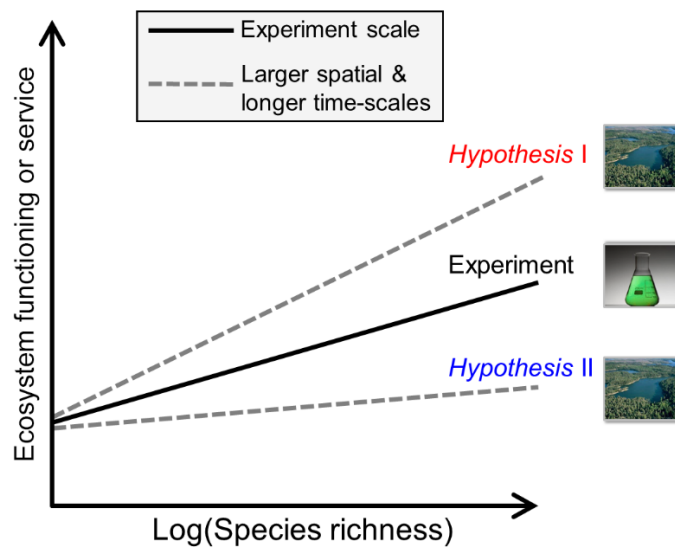


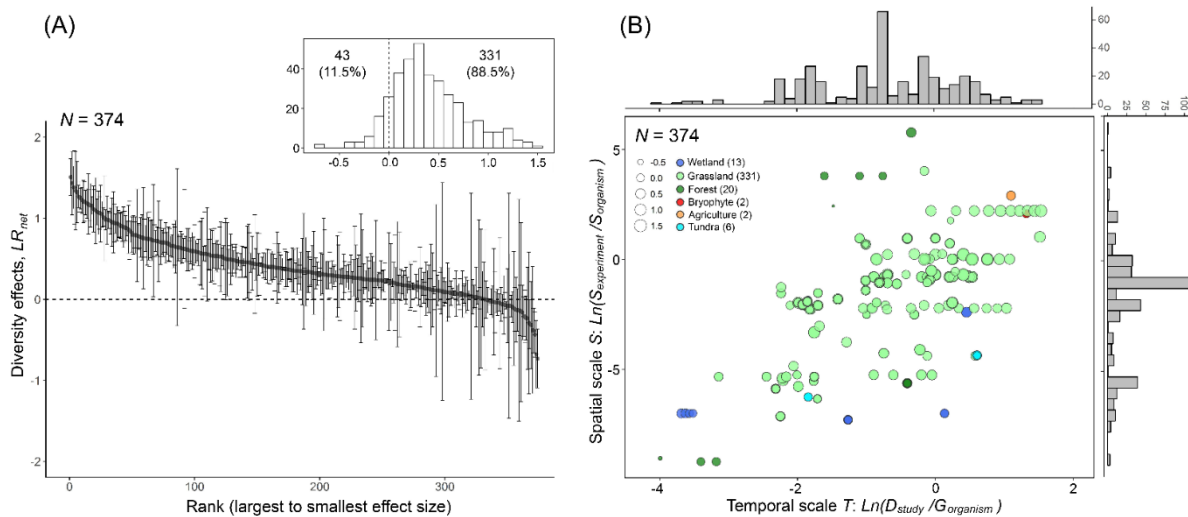
Supporting Information. Qiu, J., and B.J. Cardinale. 2020. Scaling up biodiversity–ecosystem function relationships across space and over time. *Ecology*.

Appendix S1

Appendix S1: Figure S1. Alternative hypotheses regarding biodiversity effects on ecosystem functioning in response to changing scales: **(I)** at larger spatial and longer time-scales typical of real-world ecosystems, biodiversity effects are greater than predicted by small experiments; **(II)** at larger spatial and longer time-scales, biodiversity effects become weaker than revealed in small experiments. Axes are on a logarithmic scale.



Appendix S1: Figure S2. Summary of log response ratios, LR_{net} , showing plant diversity effects on biomass production: **(A)** Rank from the largest to smallest LR_{net} . Error bars are 95% confidence intervals, and insert histogram shows LR_{net} distribution ($N=374$); **(B)** Scatterplot showing the standardized spatial and temporal scales of all data included in the analysis. Size of circle indicates the magnitude of plant diversity effects, color scheme represents ecosystem types, and number in parentheses indicates number of case studies. Spatial scale S is expressed as natural log of $S_{experiment}/S_{organism}$ where $S_{experiment}$ represents experimental unit size, and $S_{organism}$ as the organism body mass, and temporal scale T is expressed as natural log of $D_{study}/G_{organism}$ where D_{study} represents study duration and $G_{organism}$ as the organism generation time.



Appendix S1: Figure S3. Summary of the general form of plant diversity effects on biomass production: **(A)** Scatterplots showing how exponent b fitted with power function varies with standardized spatial and temporal scales ($N=227$). Histograms show distributions of exponent b and model fit R^2 from the curve-fitting. Size of circle represents the magnitude of b , color scheme represents ecosystem types, and number in parentheses indicates number of case studies; **(B)** General forms of plant diversity-biomass relationships across a range of temporal and spatial scales. In both panels, each curve corresponds to data from a single experiment fitted to the power function, where the number of plant species (shown in x-axis) is the maximum number of species included in each experiment. Y-axis is the proportional change in biomass production Y_s with increasing richness relative to the average monoculture Y_m .

