Ecological Archives E085-109-A1

Jason D. Fridley, Rebecca L. Brown, and John F. Bruno. 2004. Null models of exotic invasion and scale-dependent patterns of native and exotic species richness. *Ecology* 85:3215–3222.

Appendix A. An explanation of simulation methods.

Ratio of native to exotic species in the species pool

Different ratios of native-to-exotic richness in the species pool change the expected slope of the native–exotic richness relationship at large scales where the relationship is not influenced by constraints of low individual density. A change in the native-to-exotic ratio does not change the qualitative pattern of a positive native–exotic richness relationship at large scales and a negative relationship at small scales. Below are two examples of simulations identical to that displayed in Fig.1 in text, but with different proportions of natives-to-exotics in the species pool (Figs. A1 and A2).

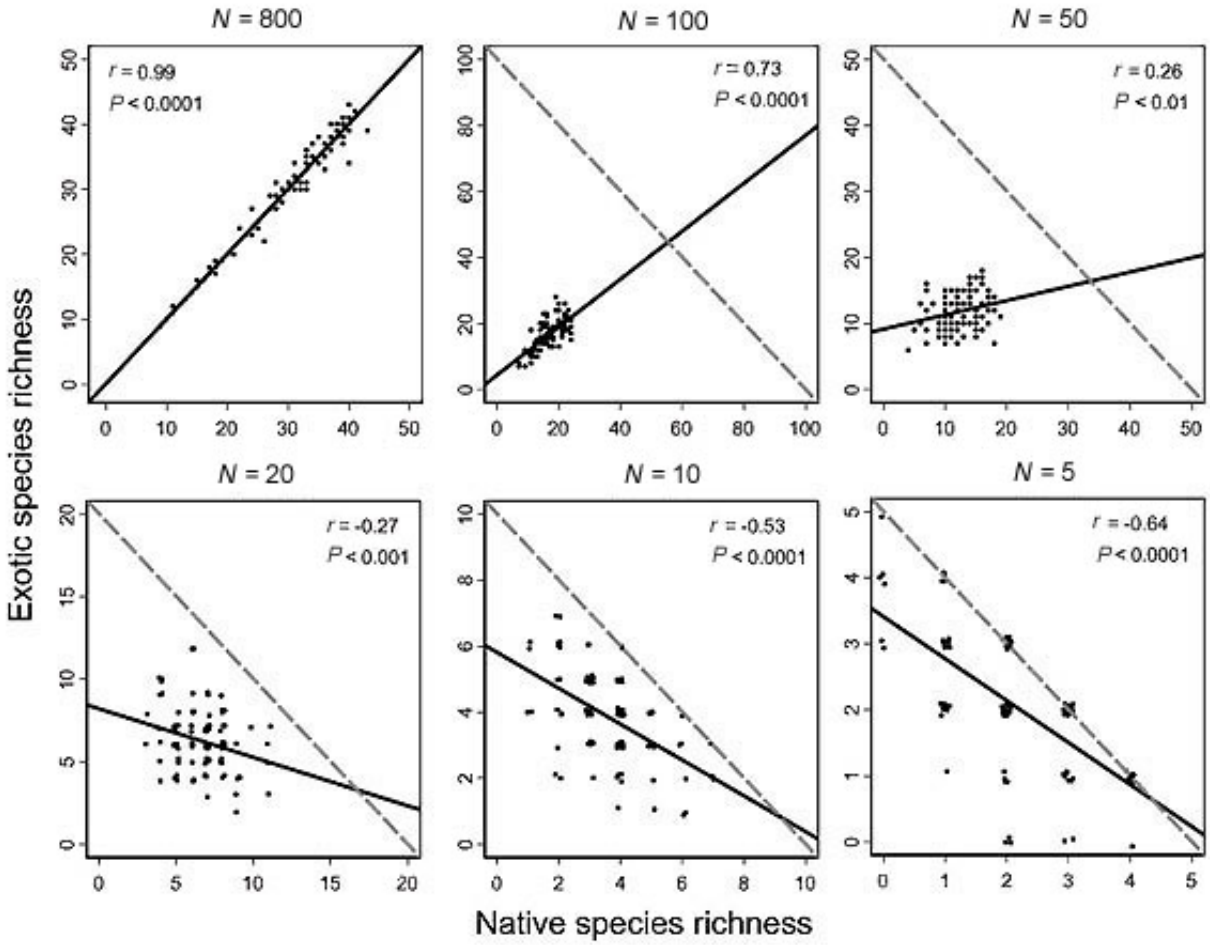

FIG. A1. Species pool native:exotic:blank proportions of 45%, 45%, and 10%. Details are listed in Fig. 1 of the article.

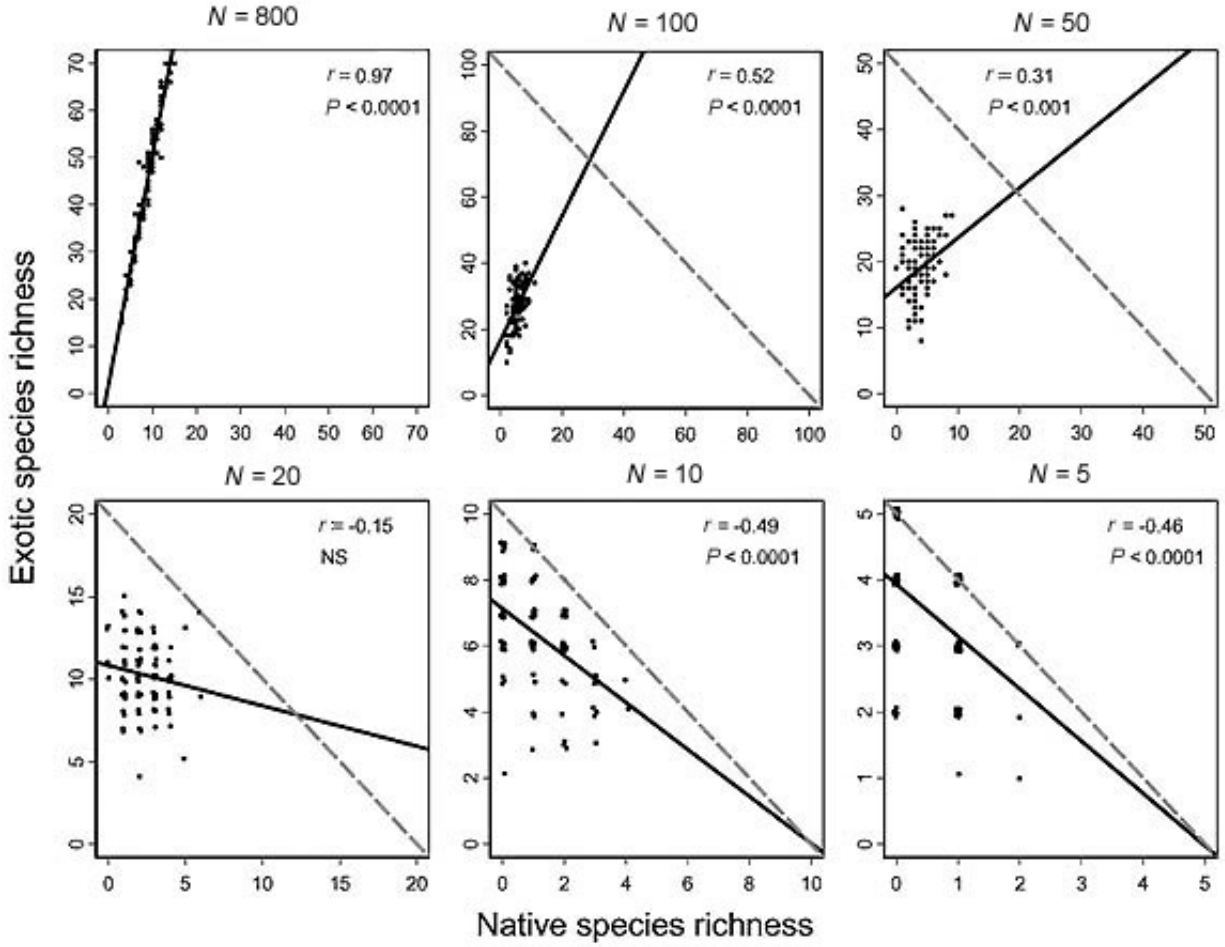

FIG. A2. Species pool native:exotic:blank proportions of 15%, 75%, and 10%. Details are listed in Fig. 1of the article.

Relative abundance distributions

Relative abundance distributions in the simulation of randomly assembled communities have a small influence on the correlation coefficient relating native-to-exotic species richness. As dominance increases, the effective total richness of any random sub-sample of the larger community is reduced. The expected values of native and exotic richness in the smaller sub-sample are unchanged, and hence the slope is unchanged, but the variance about the mean increases. A change in species relative abundances does not change the qualitative pattern of a positive native–exotic richness relationship at large scales and a negative relationship at small scales. For comparison with the simulation of communities of lognormal relative abundance (Fig. 1), Fig. A3 shows an example of the same simulation but with communities of perfect equitability, where all species are represented by 5000 individuals. See Fig. 1 in the article for details.

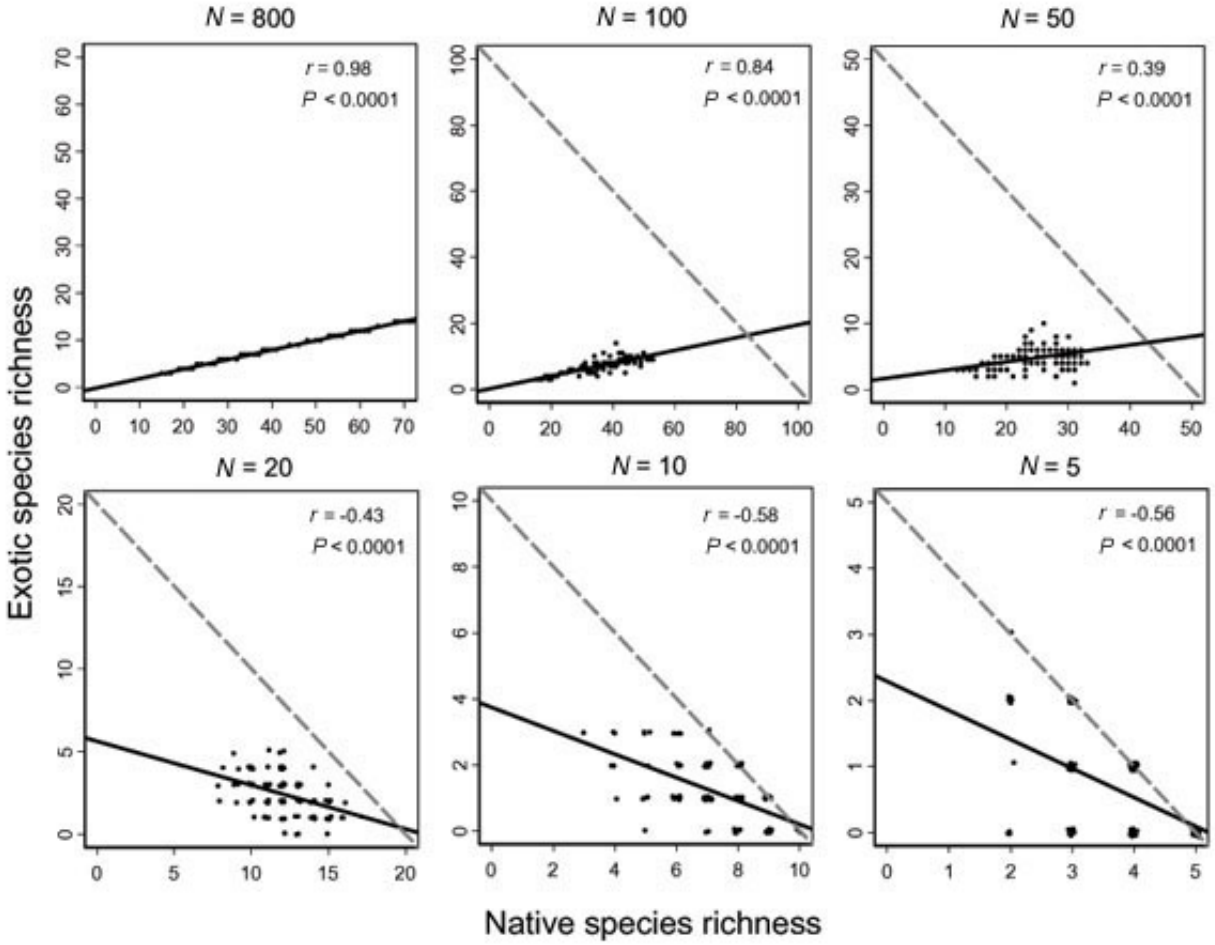

FIG. A3. An example of the same simulation as in Fig. 1 in text, but with communities of perfect equitability where all species are represented by 5000 individuals. See Fig. 1 for details.

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