Oikos

**O18230**
Sandel, B. and Corbin, J. D. 2010. Scale, disturbance and productivity control the native-exotic richness relationship. – Oikos 000: 000–000.

# Appendix 1

Comparison of within-plot NERRs and two methods of calculating between-plot NERRs. To address potential differences in power of the tests used to detect within- and between-plot NERRs, we calculated between-plot NERR slopes either based on plot mean native and exotic richness, or based on the mean of 16 regression slopes, each calculated from richness values of one subplot from each of the 16 plots of a particular grain size, treatment and year. This is then directly comparable to within-plot NERRs, which are calculated based on the 16 richness values of the subplots within a plot. In general, between-plot NERRs not calculated from means had regression slopes closer to zero, but p-values closer to zero as well. However, at the smallest grain size, there did appear to be a loss of statistical power. We conclude that some within-plot NERRs which had slopes close to zero at the smallest grain size might be explained by low statistical power, but that missing NERRs at larger grain sizes are not due to low power, because the ability to detect NERRs was actually higher when slopes were not calculated based on means.

| Grain | Extent | Means | Control 2006 | Control 2007 | Control 2008 | Mow 2006 | Mow 2007 | Mow 2008 | Carbon 2006 | Carbon 2007 | Carbon 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.016 $m^2$ | Within | No | –0.012 | 0.038 | –0.093 | –0.322** | 0.098 | 0.292 | 0.538* | –0.114 | –0.388 |
| 0.016 $m^2$ | Between | No | –0.072 | –0.109 | –0.181 | –0.082 | –0.028 | 0.156 | 0.156 | 0.237 | –0.05 |
| 0.016 $m^2$ | Between | Yes | –1.627* | –1.622 | –0.98 | 0.401 | 0.1 | –0.288 | –0.331 | 2.432* | 1.942* |
| 0.063 $m^2$ | Within | No | 0.069 | –0.072 | –0.022 | –0.245 | 0.038 | –0.028 | 0.017 | 0.048 | 0.118 |
| 0.063 $m^2$ | Between | No | –0.255* | –0.435*** | –0.294* | –0.087 | 0.233 | –0.226* | –0.35** | 0.271 | 0.578*** |
| 0.063 $m^2$ | Between | Yes | –1.274* | –1.32* | –1.453* | 0.129 | 0.817 | –0.476 | –1.817** | 0.835 | 1.832** |
| 0.25 $m^2$ | Within | No | –0.018 | –0.138 | –0.031 | –0.069 | –0.044 | 0.109 | –0.016 | 0.048 | 0.045 |
| 0.25 $m^2$ | Between | No | –0.235 | –0.386 | –0.305** | 0.006 | 0.305* | 0.024 | –0.258** | 0.314** | 0.523*** |
| 0.25 $m^2$ | Between | Yes | –0.727 | –0.823 | –0.839* | 0.04 | 0.318 | –0.078 | –0.804 | 0.665 | 1.114 |

# Appendix 2

## Null model analysis

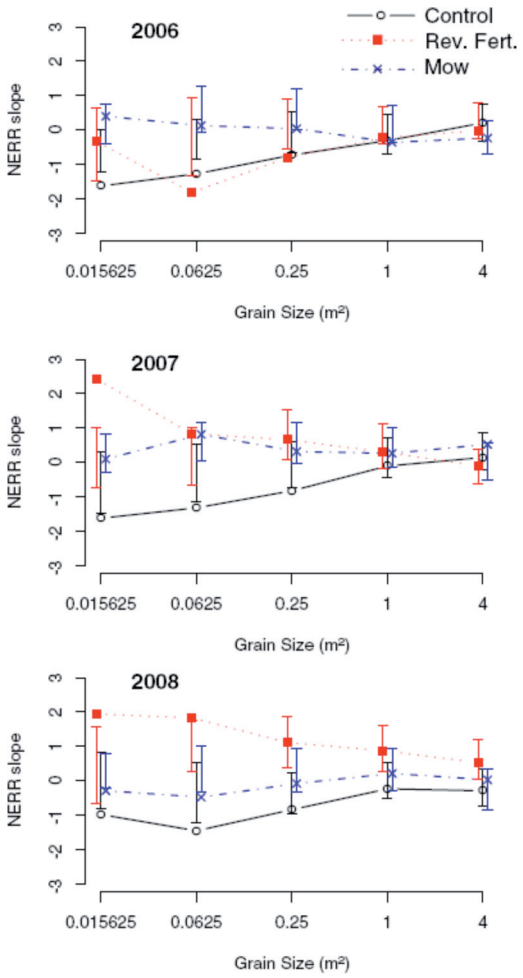


Figure 1. Real between-plot NERRs overlaid with 95% prediction intervals from 500 random reassignments of native and exotic status. The range shown with each data point shows this interval – real data points outside this range indicate that the native-exotic distinction contains significant functional information, which determines the NERR at that scale and treatment. These NERRs were also typically the same that were identified as significant using the standard linear regression analysis.

# Appendix 3

## Variation in native richness between and within plots

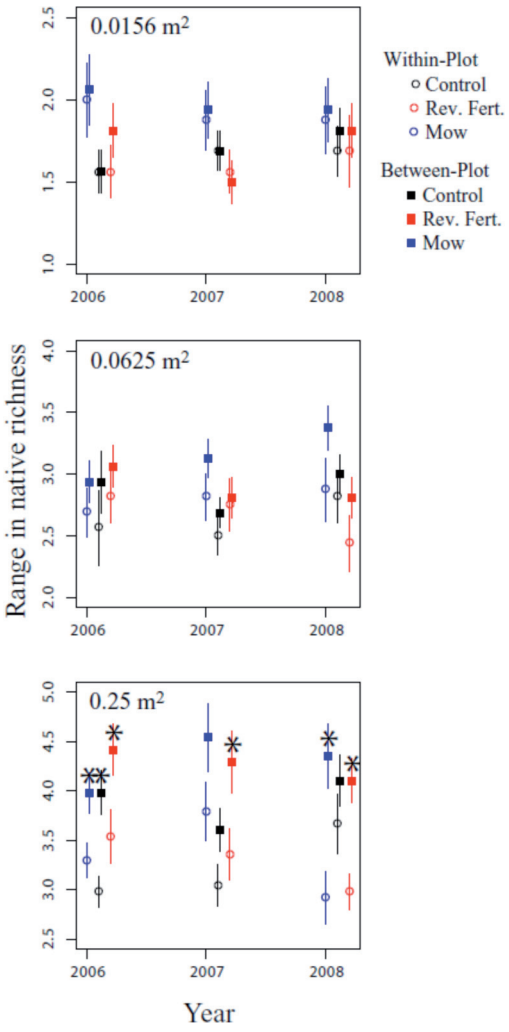


Figure 1. Differences between within- and between-plot ranges in native species richness. At the smaller two grain sizes, the mean within-plot range (open circles) of native richness (calculated from 16 subplots) did not differ significantly from the mean between-plot range (filled squares, calculated from 16 subplots, one from each of the appropriate treatment plot). At the 0.25 $m^2$ grain size, between-plot variation was significantly higher than within-plot variation in several cases (stars), but both measures revealed substantial variation in native richness. Black symbols are control plots, blue are mowed, and red are reverse fertilization.