

Ecography

**ECOG-03111**

White, H. J., Montgomery, W. I., Pakeman, R. J. and Lennon, J. J. 2017. Spatiotemporal scaling of plant species richness and functional diversity in a temperate semi-natural grassland. – *Ecography* doi: 10.1111/ecog.03111

**Supplementary material**

## Appendix 1

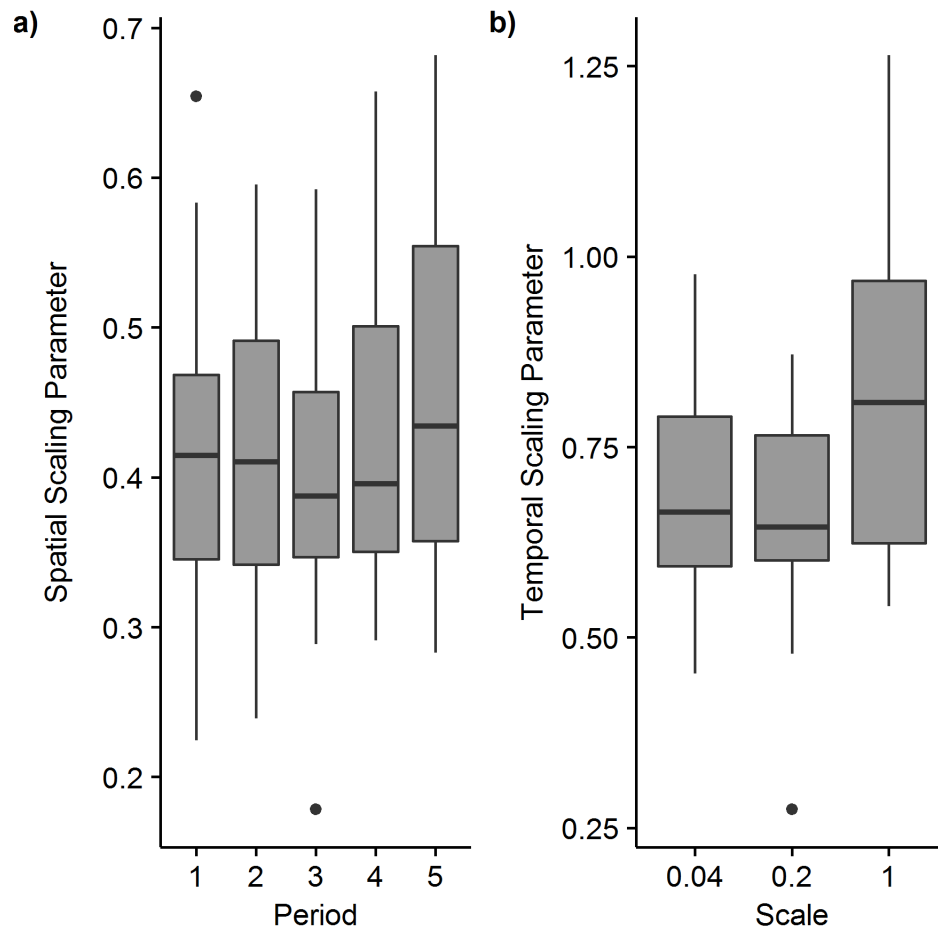


Figure A1. Boxplot of (a) the spatial scaling parameter,  $z$ , extracted from the semi-logarithmic functional diversity-area relationship for each plot from each time period and (b) temporal scaling parameter from functional diversity-time relationship for each plot at three spatial scales. The functional diversity measure shown is Petchey and Gaston's FD (2002). All contrasts in were non-significant.

## Appendix 2

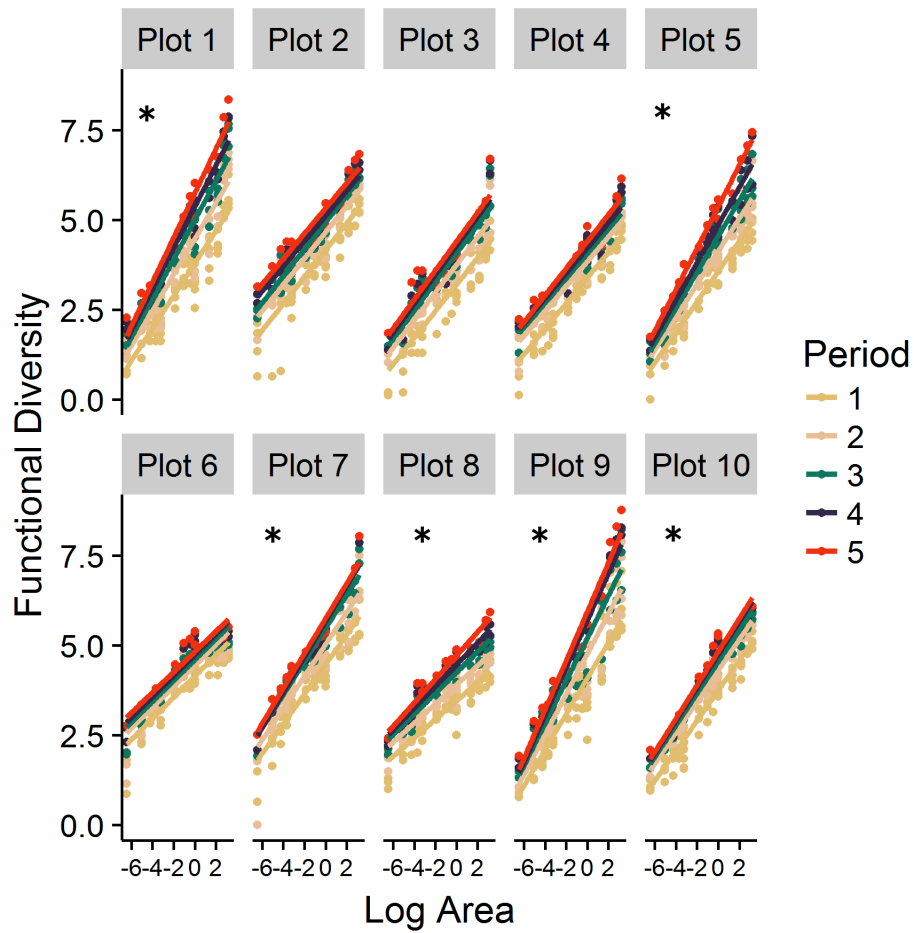


Figure A2. Area relationships of Petchey and Gaston's FD (2002) for increasing periods of time,  $T$ , for each of the ten which were continuously sampled across the five year period. Plots where the interaction in the semi-logarithmic model between log area and log time was significant at the  $p < 0.05$  level are indicated by \*.

### Appendix 3

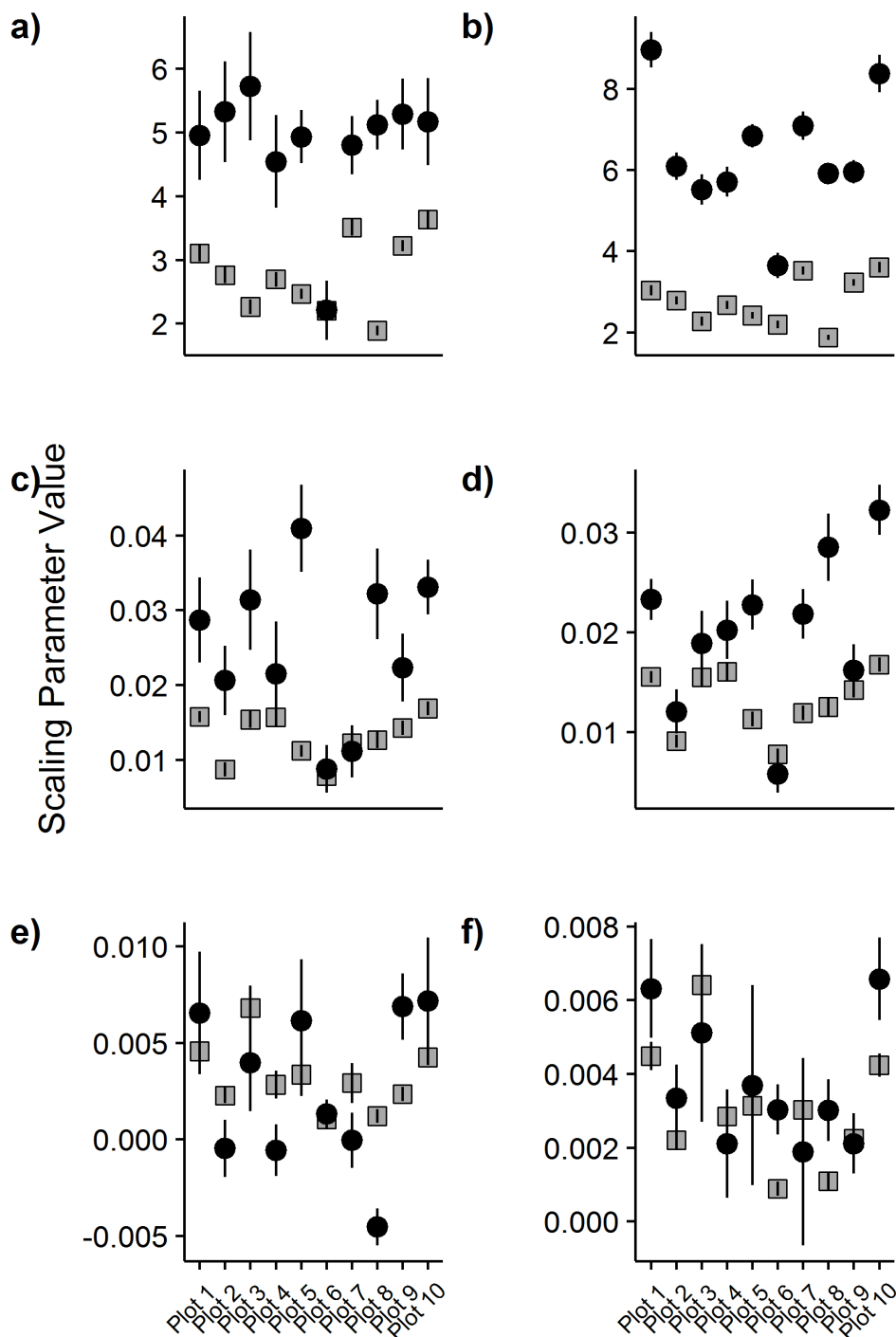


Figure A3. Spatial and temporal scaling parameter estimates from the semi-logarithmic function for each curve type with standard error for species richness (top row), FRic (middle row) and FDis (bottom row) extracted from separate area relationships over a 1 year period and time relationships at the 0.2 m x 0.2 m quadrates scale (first column) and time area relationships (second column). The spatial scaling parameter is indicated by grey squares and the temporal scaling parameter is indicated by black circles.

## Appendix 4

Table A1. Table of plot details. The 10 plots sampled continuously from 2004-2008 and therefore used for temporal relationships are shown in bold. Plot locations are given from the GB National Grid at 1 m resolution.

Name	Plot label	East	North	Island	Land use at 1st recording	Summer grazing	Ploughing
<b>803</b>	<b>Plot 1</b>	<b>072869</b>	<b>819561</b>	<b>South Uist</b>	<b>Machair plain</b>	<b>0</b>	<b>0</b>
<b>805A</b>	<b>Plot 2</b>	<b>071610</b>	<b>829897</b>	<b>South Uist</b>	<b>Machair plain</b>	<b>1</b>	<b>0</b>
<b>805R</b>	<b>Plot 3</b>	<b>070977</b>	<b>829910</b>	<b>South Uist</b>	<b>Dune grassland</b>	<b>1</b>	<b>0</b>
<b>820</b>	<b>Plot 4</b>	<b>071480</b>	<b>868634</b>	<b>North Uist</b>	<b>Dune grassland</b>	<b>0</b>	<b>0</b>
<b>821A</b>	<b>Plot 5</b>	<b>075159</b>	<b>836485</b>	<b>South Uist</b>	<b>Dune grassland</b>	<b>0</b>	<b>0</b>
821AF		075224	836778	South Uist	Fallow (> yr 1)	0	1
821F		074994	836015	South Uist	Fallow (yr 1)	0	1
<b>823</b>	<b>Plot 6</b>	<b>088729</b>	<b>880564</b>	<b>Berneray</b>	<b>Dune grassland</b>	<b>1</b>	<b>0</b>
823AF		089613	880513	Berneray	Fallow (> yr 1)	0	1
<b>829</b>	<b>Plot 7</b>	<b>072779</b>	<b>824721</b>	<b>South Uist</b>	<b>Dune grassland</b>	<b>0</b>	<b>0</b>
<b>833</b>	<b>Plot 8</b>	<b>072941</b>	<b>833415</b>	<b>South Uist</b>	<b>Dune grassland</b>	<b>0</b>	<b>0</b>
833A		073125	833260	South Uist	Machair plain	0	0
833F		073406	833151	South Uist	Fallow (> yr 1)	0	1
842		075356	838780	South Uist	Machair plain	0	0
<b>852</b>	<b>Plot 9</b>	<b>070567</b>	<b>808210</b>	<b>Barra</b>	<b>Dune grassland</b>	<b>1</b>	<b>0</b>
<b>852A</b>	<b>Plot 10</b>	<b>071233</b>	<b>808089</b>	<b>Barra</b>	<b>Dune grassland</b>	<b>1</b>	<b>0</b>
810		088029	877419	North Uist	Dune grassland	0	0
830AF		082733	877581	North Uist	Fallow (yr 1)	0	1
821new		075300	836506	South Uist	Fallow (yr 1)	0	1
842F		075450	838693	South Uist	Fallow (yr 1)	0	1
842G		075402	838572	South Uist	Fallow (?> yr 1)	0	1
821G		075346	836517	South Uist	Fallow (yr 1)	0	1
830BF		082561	877599	North Uist	Fallow (yr 2)	0	1
803A		072901	819593	South Uist	Fallow (yr 1)	0	1
842P		075478	838752	South Uist	Fallow (yr 1)	0	1
842Z		089484	838725	South Uist	Fallow (yr 1)	0	1
821H		075346	836552	South Uist	Fallow (yr 1)	0	1
826		069812	806111	Barra	Dune grassland	0	0
823A		089484	880914	Berneray	Dune grassland	1	0
803B		072866	819531	South Uist	Fallow (yr 1)	0	1