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 Inferring temporal shifts in land-use intensity from
 functional response traits and functional diversity
 patterns: a study of Scotland's machair grassland. –
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Appendix A1

Site	Site name	Easting	Northing	Region	Island	No. plots	No. machair plots
3	Laggan	132491	652964	INNER HEBRIDES	ISLAY	34	5
4	Machir Bay	120645	662361	INNER HEBRIDES	ISLAY	50	38
5	Saligo bay	121998	667165	INNER HEBRIDES	ISLAY	23	11
6	Gruinart	129235	674787	INNER HEBRIDES	ISLAY	27	15
7	Oronsay	134768	686835	INNER HEBRIDES	COLONSAY	57	45
8	Garvard	136412	690561	INNER HEBRIDES	COLONSAY	27	3
9	Kiloran	141176	697812	INNER HEBRIDES	COLONSAY	20	14
12	West Tiree	95444	740782	INNER HEBRIDES	TIREE	25	9
13	North Tiree	97910	748275	INNER HEBRIDES	TIREE	26	18
14	Crossapoll	98414	741887	INNER HEBRIDES	TIREE	22	12
15	West Coll	115040	753333	INNER HEBRIDES	COLL	48	28
16	Clabhach	117087	757524	INNER HEBRIDES	COLL	23	9
17	Gallawach	124540	763533	INNER HEBRIDES	COLL	23	12
18	Vatersay	61784	797046	WESTERN ISLES	BARRA	26	14
19	West Barra	65742	804285	WESTERN ISLES	BARRA	24	13
20	N Barra	69134	805513	WESTERN ISLES	BARRA	24	11
21	Daliburgh	72636	827485	WESTERN ISLES	S.UIST	32	22
22	Ormiclate	73664	833219	WESTERN ISLES	S.UIST	19	4
23	Howbeg	74315	835315	WESTERN ISLES	S.UIST	53	14
24	Stiligarry North	75557	839844	WESTERN ISLES	S.UIST	27	20
25	Loch Bee	76594	842248	WESTERN ISLES	S.UIST	22	14
26	Borve	78345	849205	WESTERN ISLES	BENBECULA	16	9
27	Stilligarry	75595	839748	WESTERN ISLES	S.UIST	18	3
28	Baleshare	79356	858112	WESTERN ISLES	BALESHARE	13	7
29	Kirkibost	76841	865167	WESTERN ISLES	KIRKIBOST	30	26
30	Monach Isles	60316	862217	WESTERN ISLES	MONACH ISLES	46	20
31	Paible	72230	869002	WESTERN ISLES	N.UIST	27	13
32	Hosta	71021	872728	WESTERN ISLES	N.UIST	29	9
33	Vallay	79478	876973	WESTERN ISLES	N.UIST	18	6
34	Leathann	79887	875464	WESTERN ISLES	N.UIST	37	35
35	Balranald	69137	871005	WESTERN ISLES	N.UIST	27	24
36	Robach	85529	875935	WESTERN ISLES	N.UIST	27	21
37	Berneray	88738	880511	WESTERN ISLES	BERNERAY	31	10
39	Northton	101039	893834	WESTERN ISLES	HARRIS	27	17
40	Luskintyre	106738	900090	WESTERN ISLES	HARRIS	31	13
41	Uig	100907	930827	WESTERN ISLES	LEWIS	33	3
42	Valtos	108060	936185	WESTERN ISLES	LEWIS	28	27

43	Barvas	134009	950574	WESTERN ISLES	LEWIS	11	8
44	Europie	153232	963876	WESTERN ISLES	LEWIS	30	9
45	Tolsta	153290	948834	WESTERN ISLES	LEWIS	22	7
47	Quendale	438170	1113013	SHETLAND	SHETLAND	26	20
48	Scousburgh	437686	1117741	SHETLAND	SHETLAND	25	10
49	Breckon	453650	1204978	SHETLAND	SHETLAND	20	3
51	Holland	362594	1037280	SANDAY	SANDAY	25	16
53	Oldshore More	219883	959293	MAINLAND	NORTH WEST	24	4
54	Sheigra	218098	960034	MAINLAND	NORTH WEST	23	10
55	Durness	237646	966321	MAINLAND	NORTH WEST	29	14
56	Faraid Head	239092	971738	MAINLAND	NORTH WEST	20	7
57	Bettyhill	268452	961136	MAINLAND	NORTH WEST	25	16
58	Farr Bay	271561	962775	MAINLAND	NORTH	24	22
59	Strathy	283690	965171	MAINLAND	NORTH	27	18
60	Melvich	288152	965310	MAINLAND	NORTH	19	13
61	Reay	295935	965348	MAINLAND	NORTH	20	17
62	Dunnet	323926	971940	MAINLAND	NORTH EAST	9	6
64	Sandwood	221246	964785	MAINLAND	NORTH WEST	61	28
73	Overbister	371626	1041924	SANDAY	SANDAY	54	51

Table A1. Vegetation classification of Machair habitats, as defined by Angus (2006).

NVC	Vegetation description
SD8a	<i>Festuca rubra</i> - <i>Galium verum</i> fixed dune grassland
SD8c	<i>Festuca rubra</i> - <i>Galium verum</i> fixed dune grassland
SD8d	<i>Festuca rubra</i> - <i>Galium verum</i> fixed dune grassland
SD8e	<i>Festuca rubra</i> - <i>Galium verum</i> fixed dune grassland
MG11	Inundation grassland – <i>Festuca rubra</i>
SD17	<i>Potentilla anserina</i> - <i>Carex nigra</i> dune slack

Table A2. Results of regression analysis assessing the correlations between the temporal shifts in principal component (PC) axis 1 and axis 2 of a PC analysis of cover weighted mean traits, against national scale temporal shifts in the 2 measures of functional diversity. FRic = functional richness; FDiv = functional divergence.

PC1~	Variance explained				
	Intercept	Coef	Regional	Land-owner	p-value
FRic	0.18	0.44	0.02	0.05	<0.001
FDiv	0.06	0.98	0.02	0.07	<0.001
PC2~					
FRic	0.16	-0.02	0.03	0.05	0.84
FDiv	0.06	-0.47	0.02	0.07	<0.001

Figure A1–A2. Histograms showing the distribution of rankings of the measured functional diversity (FD) for each 5×5 m plot ($n = 859$) across the whole study area ('National') and 14 individual regions, as compared with the 1000 calculated ranks. Results of functional richness (FRic) are presented in Fig. A1 and functional divergence (FDiv) in Fig. A2. Red bars represent the original survey (1976) and grey bars the re-survey (2010). Values ranked lower than or equal to the 25th values from the simulated communities represent statistically significant convergence, whereas values ranked higher than 975th in the ranked values from the simulated communities represent statistically significant divergences.