

**Captions for Supplemental Figures**

Figure DR1. Locality map of sample areas in England and Wales. Numbers correspond to sites listed in Table DR1.

Figure DR2. Rock exposure:outcrop ratio of coastal and inland areas (Wilcoxon test:  $W = 472$ ,  $p = 0.002$ ).

Figure DR3. Rock exposure:outcrop ratio of Paleozoic and post-Paleozoic areas (Wilcoxon test:  $W = 439$ ,  $p = 0.01$ ).

Figure DR4. Rock exposure:outcrop ratio of sandstone-, limestone- and mudstone-dominated areas (Kruskal-Wallis test:  $H = 7.29$ ,  $p = 0.03$ ). There were significant differences between sandstone and mudstone ( $W = 254$ ,  $p = 0.03$ ) and limestone and mudstone ( $W = 166.5$ ,  $p = 0.03$ ), but no significant differences between sandstone and limestone ( $W = 87$ ,  $p = 0.28$ ).

Figure DR5. Rock exposure:outcrop ratio of urban-, managed rural- and unmanaged rural-dominated areas (Kruskal-Wallis test:  $H = 3.4$ ,  $p = 0.18$ ).

Figure DR6. Rock exposure:outcrop ratio of urban-, managed rural- and unmanaged rural-dominated inland areas (Kruskal-Wallis test:  $H = 11.1$ ,  $p = 0.004$ ). There were significant differences between urban and unmanaged rural ( $W = 4$ ,  $p = 0.004$ ) and between managed rural and unmanaged rural ( $W = 14.5$ ,  $p = 0.01$ ), but no significant difference between urban and managed rural ( $W = 30$ ,  $p = 0.36$ ).

Figure DR7. Relationship between outcrop area (m<sup>2</sup>) and exposure area (m<sup>2</sup>) when sample areas with zero rock exposure are removed (Spearman:  $r_s = 0.07$ ,  $p = 0.68$ ).

Figure DR8. Relationship between outcrop area (m<sup>2</sup>) and exposure area (m<sup>2</sup>) for inland areas (Spearman:  $r_s = -0.45$ ,  $p = 0.02$ ).

Figure DR9. Relationship between outcrop area (m<sup>2</sup>) and exposure area (m<sup>2</sup>) for inland areas when sample areas with zero exposure are removed (Spearman:  $r_s = -0.54$ ,  $p = 0.07$ ).

Figure DR10. Relationship between outcrop area (m<sup>2</sup>) and exposure area (m<sup>2</sup>) for coastal areas (Pearson:  $r = 0.09$ ,  $p = 0.67$ ).

Figure DR11. Relationship between outcrop area (m<sup>2</sup>) and exposure area (m<sup>2</sup>) for Paleozoic areas (Spearman:  $r_s = 0.02$ ,  $p = 0.91$ ).

Figure DR12. Relationship between outcrop area (m<sup>2</sup>) and exposure area (m<sup>2</sup>) for Mesozoic areas (Spearman:  $r_s = -0.53$ ,  $p = 0.01$ ).

Figure DR13. Relationship between outcrop area (m<sup>2</sup>) and exposure area (m<sup>2</sup>) for Mesozoic areas when sample areas with zero exposure are removed (Spearman:  $r_s = -0.34$ ,  $p = 0.31$ ).

Figure DR14. Relationship between outcrop area (m<sup>2</sup>) and exposure area (m<sup>2</sup>) for post-Paleozoic areas (Spearman:  $r_s = -0.45$ ,  $p = 0.02$ ).

Figure v15. Relationship between outcrop area (m<sup>2</sup>) and exposure area (m<sup>2</sup>) for post-Paleozoic areas when sample areas with zero exposure are removed (Spearman:  $r_s = -0.34$ ,  $p = 0.31$ ).

Figure DR16. Relationship between outcrop area (m<sup>2</sup>) and exposure area (m<sup>2</sup>) for sandstone-dominated areas (Spearman:  $r_s = 0.19$ ,  $p = 0.44$ ).

Figure DR17. Relationship between outcrop area (m<sup>2</sup>) and exposure area (m<sup>2</sup>) for limestone-dominated areas (Pearson:  $r = -0.03$ ,  $p = 0.92$ ).

Figure DR18. Relationship between outcrop area (m<sup>2</sup>) and exposure area (m<sup>2</sup>) for mudstone-dominated areas (Spearman:  $r_s = -0.41$ ,  $p = 0.08$ ).

Figure DR19. Relationship between outcrop area (m<sup>2</sup>) and exposure area (m<sup>2</sup>) for urban-dominated areas (Spearman:  $r_s = -0.28$ ,  $p = 0.29$ ).

Figure DR20. Relationship between outcrop area (m<sup>2</sup>) and exposure area (m<sup>2</sup>) for managed rural-dominated areas (Spearman:  $r_s = -0.15$ ,  $p = 0.49$ ).

Figure DR21. Relationship between outcrop area (m<sup>2</sup>) and exposure area (m<sup>2</sup>) for unmanaged rural-dominated areas (Spearman:  $r_s = -0.26$ ,  $p = 0.44$ ).

Figure DR22. Relationship between number of sedimentary rock formations and rock outcrop area (m<sup>2</sup>) when sample areas with 1 sedimentary rock formation are removed (Spearman:  $r_s = -0.19$ ,  $p = 0.79$ ).

Figure DR23. Relationship between number of sedimentary rock formations and rock exposure area ( $\text{m}^2$ ) when sample areas with 1 sedimentary rock formation are removed (Spearman:  $r_s = -0.04$ ,  $p = 0.87$ ).

Figure DR24. Relationship between number of sedimentary rock formations and rock outcrop:exposure ratio when sample areas with 1 sedimentary rock formation are removed (Spearman:  $r_s = -0.05$ ,  $p = 0.83$ ).

Figure DR25. Relationship between elevation (m) and rock exposure:outcrop ratio for all areas (Spearman:  $r_s = -0.03$ ,  $p = 0.85$ ).

Figure DR26. Relationship between elevation (m) and rock exposure:outcrop ratio inland areas when areas with large man-made exposure are removed (Spearman:  $r_s = 0.72$ ,  $p < 0.001$ ).

Figure DR27. Relationships between mean strata age (Ma) and elevation (m) for all areas (Spearman:  $r_s = 0.41$ ,  $p = 0.003$ ), inland areas only (Spearman:  $r_s = 0.63$ ,  $p < 0.001$ ) and coastal areas only (Spearman:  $r_s = 0.17$ ,  $p = 0.44$ ).

TABLE DR1. SUMMARY OF SAMPLE AREA DATA

ID	Locality name	BGS map sheet	Exposure area (m2)	Outcrop area (m2)	Exposure:outcrop ratio	No. of formations	Elevation (m)	Lithology	Period	Eon	Age class	Min. strata age (Ma)	Max. strata age (Ma)	Coastal	Land use
1	Aberyswyth	163	73254	958920	0.07639	1	6	Sandstone	Silurian	Paleozoic	Paleozoic	428	443	coastal	urban
2	Ainsdale	83	0	1183870	0	1	6	Mudstone	Triassic	Mesozoic	post-Paleozoic	220.7	244.8	coastal	rural unmanaged
3	Alum Rock	168	861	977251	0.00088	1	112	Mudstone	Triassic	Mesozoic	post-Paleozoic	205.7	248.2	inland	urban
4	Anelog	133	90770	936442	0.09693	1	69	Sandstone	Cambrian	Paleozoic	Paleozoic	518	650	coastal	rural managed
5	Blidworth	113	0	831371	0	1	94	Sandstone	Triassic	Mesozoic	post-Paleozoic	241.7	248.2	inland	rural managed
6	Bude	307;308;322;323	147119	975151	0.15087	1	23	Sandstone	Carboniferous	Paleozoic	Paleozoic	308.5	316	coastal	rural managed
7	Calver	111	57061	671529	0.08497	4	268	Limestone	Carboniferous	Paleozoic	Paleozoic	316	333.8	inland	rural managed
8	Capel Y Ffid	214	173921	354183	0.49105	1	569	Sandstone	Devonian	Paleozoic	Paleozoic	391	412	inland	rural unmanaged
9	Colwyn Bay	95	222019	988592	0.22458	2	56	Limestone	Carboniferous	Paleozoic	Paleozoic	327	344	coastal	urban
10	Dawlish	339	32501	690458	0.04707	1	33	Sandstone	Permian	Paleozoic	Paleozoic	248.2	290	coastal	urban
11	Derwent Water	29	13634	770079	0.0177	1	180	Mudstone	Ordovician	Paleozoic	Paleozoic	470	495	inland	rural unmanaged
12	Dover	305;306	84344	729165	0.11567	5	35	Limestone	Cretaceous	Mesozoic	post-Paleozoic	83.5	98.9	coastal	rural managed
13	Durham	26;27	0	882498	0	1	58	Mudstone	Carboniferous	Paleozoic	Paleozoic	308.5	313.5	inland	urban
14	Fairford	235	0	743526	0	1	99	Limestone	Jurassic	Mesozoic	post-Paleozoic	159.4	169.2	inland	rural managed
15	Felixstowe	208;225	0	836000	0	1	2	Sandstone	Palaeogene	Cenozoic	post-Paleozoic	54.8	65	coastal	urban
16	Flamborough Head	55;65	123567	699269	0.17671	3	28	Limestone	Cretaceous	Mesozoic	post-Paleozoic	71.3	98.9	coastal	rural managed
17	Greenfield Reservoir	86	14393	766946	0.01877	1	341	Sandstone	Carboniferous	Paleozoic	Paleozoic	316	327	inland	rural unmanaged
18	Hastings	320;321	105407	759319	0.13882	2	52	Sandstone	Cretaceous	Mesozoic	post-Paleozoic	132	142	coastal	rural unmanaged
19	Holy Island	4	167238	874746	0.19118	1	9	Limestone	Carboniferous	Paleozoic	Paleozoic	325.4	354	coastal	rural unmanaged
20	Horncastle	115	0	1102095	0	1	43	Mudstone	Jurassic	Mesozoic	post-Paleozoic	145.6	154.1	inland	rural managed
21	Hunstanton	129	15890	821232	0.01935	5	23	Limestone	Cretaceous	Mesozoic	post-Paleozoic	89	127	coastal	urban
22	Ilkley	69	29733	797289	0.03729	1	272	Sandstone	Carboniferous	Paleozoic	Paleozoic	316	327	inland	rural unmanaged
23	Landcombe	350;355;356	15419	526483	0.02929	1	31	Sandstone	Devonian	Paleozoic	Paleozoic	400	417	coastal	rural managed
24	Leeds	70	0	1037594	0	1	53	Mudstone	Carboniferous	Paleozoic	Paleozoic	313.5	316	inland	urban
25	Linshiels	5;8	167303	736428	0.22718	2	231	Limestone	Carboniferous	Paleozoic	Paleozoic	333.8	354	inland	rural unmanaged
26	Llandyfriog	194	251	925455	0.00027	2	94	Mudstone	Ordovician	Paleozoic	Paleozoic	443	449	inland	rural managed
27	London	270	0	903869	0	1	15	Mudstone	Palaeogene	Cenozoic	post-Paleozoic	33.7	54.8	inland	urban
28	Lulworth Cove	341;342;343	106973	840702	0.12724	12	28	Limestone	Cretaceous	Mesozoic	post-Paleozoic	49	145.6	coastal	rural managed
29	Manorbier Bay	244;245	108396	560107	0.19353	2	19	Sandstone	Devonian	Paleozoic	Paleozoic	364	423	coastal	rural managed
30	Mappleton	73	0	928015	0	1	15	Limestone	Cretaceous	Mesozoic	post-Paleozoic	65	83.5	coastal	rural managed
31	Mevagissey	353	51597	712854	0.07238	1	46	Sandstone	Devonian	Paleozoic	Paleozoic	364	380	coastal	rural managed
32	Much Wenlock	152	87906	1400282	0.06278	2	164	Mudstone	Silurian	Paleozoic	Paleozoic	421	428	inland	rural managed
33	Nettlestone	331	60854	942467	0.06457	3	31	Mudstone	Palaeogene	Cenozoic	post-Paleozoic	23.8	41.3	coastal	rural managed
34	North York Moors	43	0	555053	0	3	310	Sandstone	Jurassic	Mesozoic	post-Paleozoic	169.2	176.5	inland	rural unmanaged
35	Northampton	185	0	994801	0	2	59	Mudstone	Jurassic	Mesozoic	post-Paleozoic	176.5	189.6	inland	urban
36	Oakmere	109	0	1059396	0	1	79	Mudstone	Triassic	Mesozoic	post-Paleozoic	234.3	241.7	inland	rural managed
37	Oxford	236	0	1128304	0	1	60	Mudstone	Jurassic	Mesozoic	post-Paleozoic	154.1	164.4	inland	urban
38	Pennant Melangell	136	111480	589948	0.18897	2	443	Mudstone	Ordovician	Paleozoic	Paleozoic	428	449	inland	rural unmanaged
39	Quarnford	111	0	478973	0	1	431	Sandstone	Carboniferous	Paleozoic	Paleozoic	316	327	inland	rural managed
40	Sandwith	28	117407	947951	0.12385	1	83	Sandstone	Triassic	Mesozoic	post-Paleozoic	241.7	248.2	coastal	rural managed
41	Scarborough	44;54	24385	731351	0.03334	7	37	Sandstone	Jurassic	Mesozoic	post-Paleozoic	154.1	176.5	coastal	urban
42	Sheffield	100	0	918603	0	1	117	Mudstone	Carboniferous	Paleozoic	Paleozoic	313.5	316	inland	urban
43	Snaizeholme	50	19321	251189	0.07692	2	633	Sandstone	Carboniferous	Paleozoic	Paleozoic	316	327	inland	rural unmanaged
44	Southburgh	161	0	1074228	0	1	48	Limestone	Cretaceous	Mesozoic	post-Paleozoic	71.3	93.5	inland	rural managed
45	Southend	258;259	0	771600	0	1	14	Mudstone	Palaeogene	Cenozoic	post-Paleozoic	33.7	54.8	coastal	urban
46	St Donats	261;262	120204	809054	0.14857	1	24	Mudstone	Jurassic	Mesozoic	post-Paleozoic	201.9	205.7	coastal	rural managed
47	Stamford Bridge	63	0	1171920	0	1	23	Mudstone	Triassic	Mesozoic	post-Paleozoic	205.7	248.2	inland	rural managed
48	Warminster	297	579	830314	0.0007	2	162	Sandstone	Cretaceous	Mesozoic	post-Paleozoic	98.9	112.2	inland	rural managed
49	Watchet	278;279;294;295	212791	778736	0.27325	4	7	Mudstone	Triassic	Mesozoic	post-Paleozoic	189.6	248.2	coastal	urban
50	Whitburn	21	141494	837300	0.16899	1	16	Limestone	Permian	Paleozoic	Paleozoic	248.2	256	coastal	urban

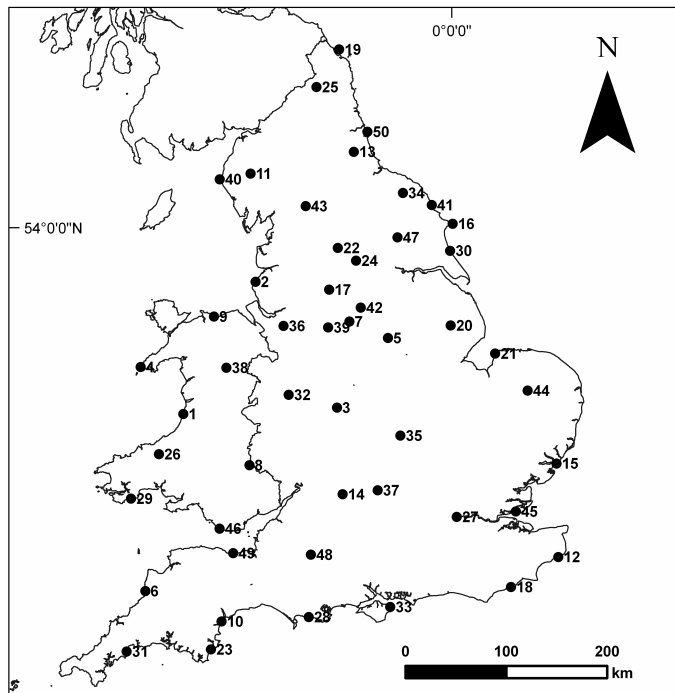


Figure S1

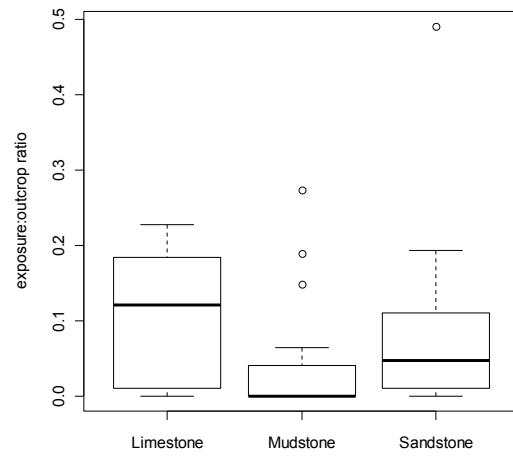


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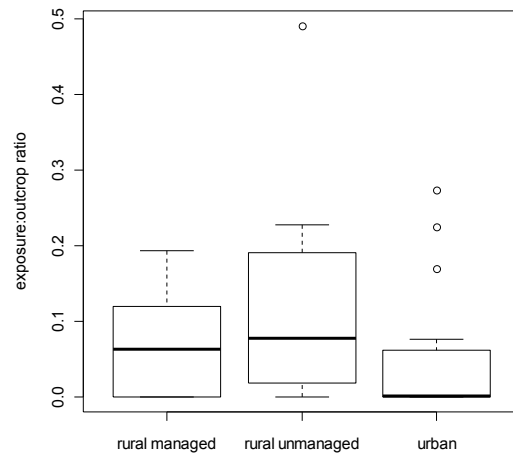


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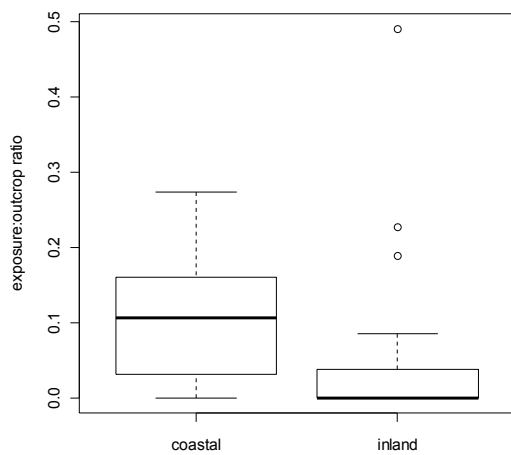


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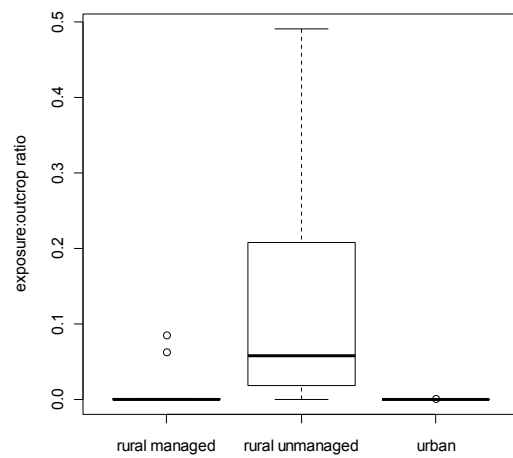


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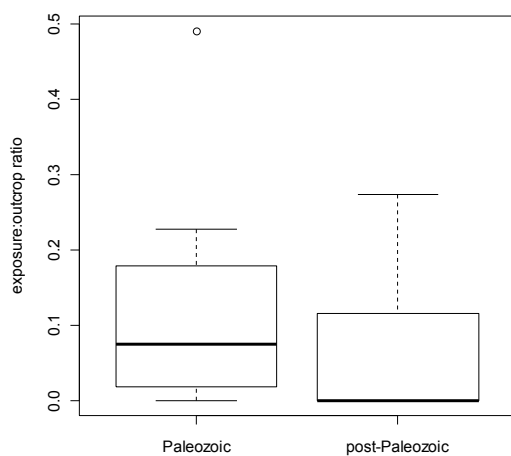


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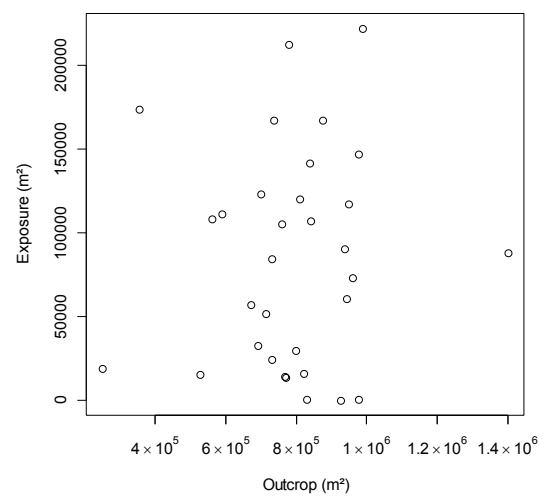


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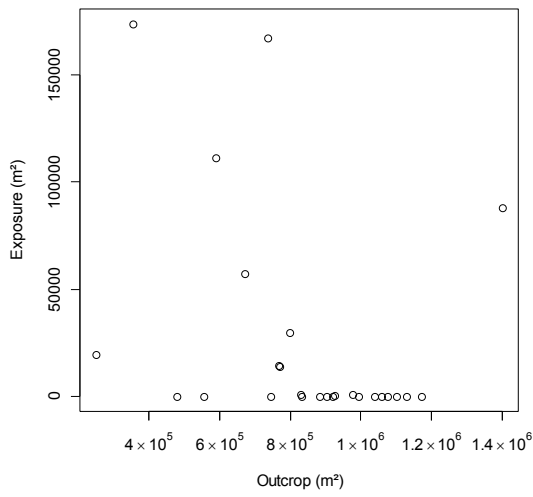


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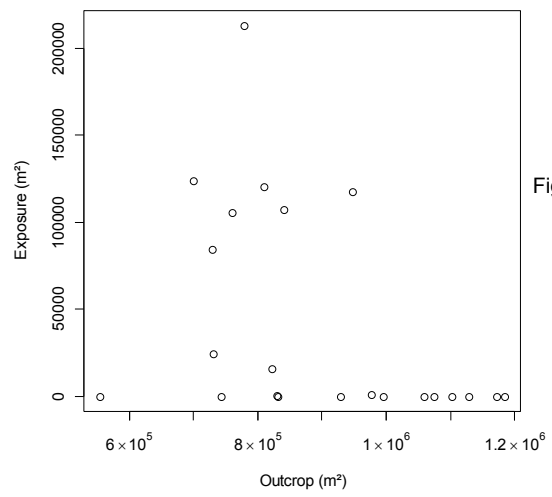


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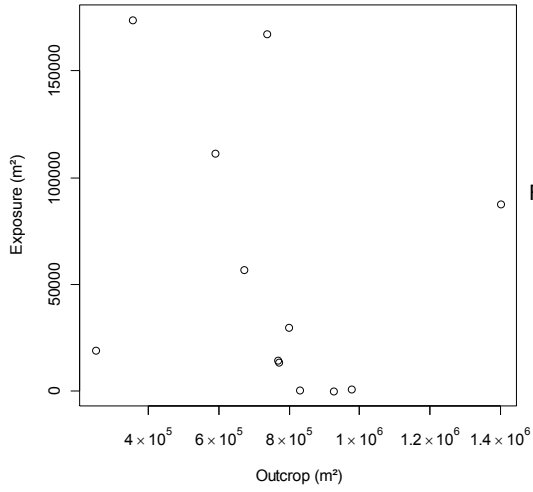


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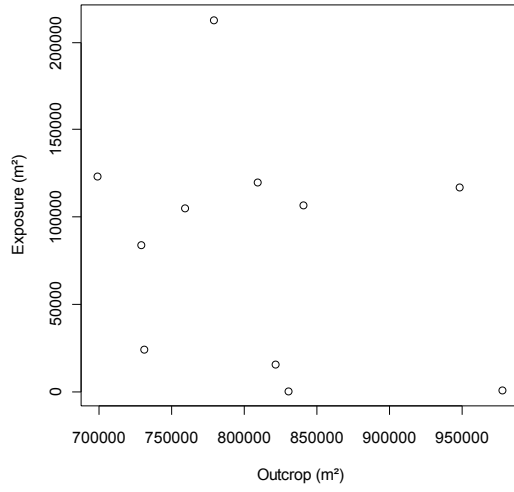


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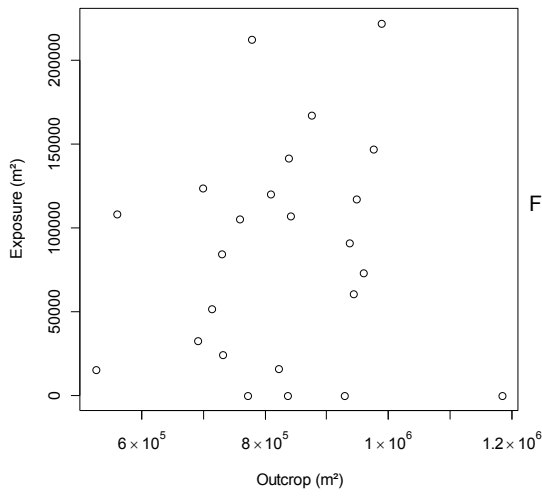


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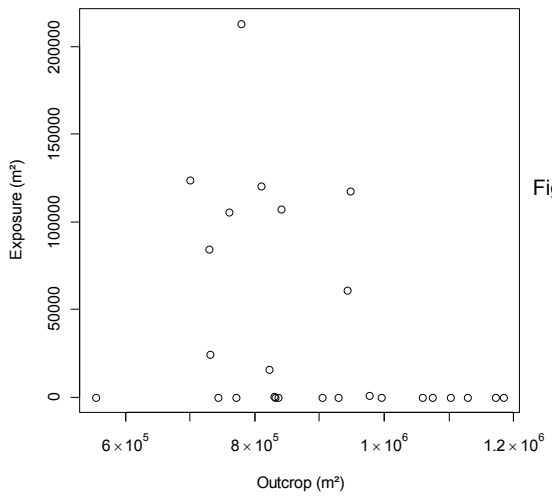


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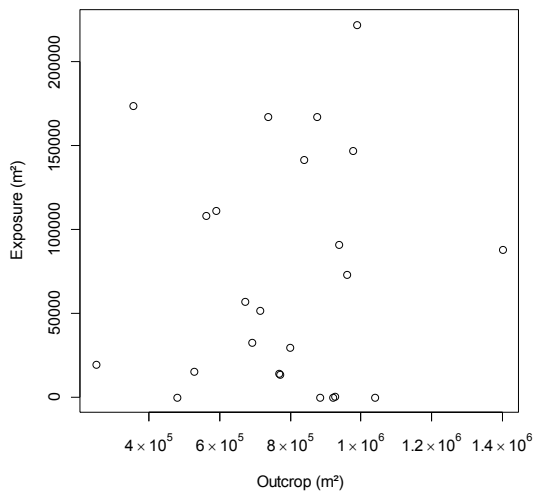


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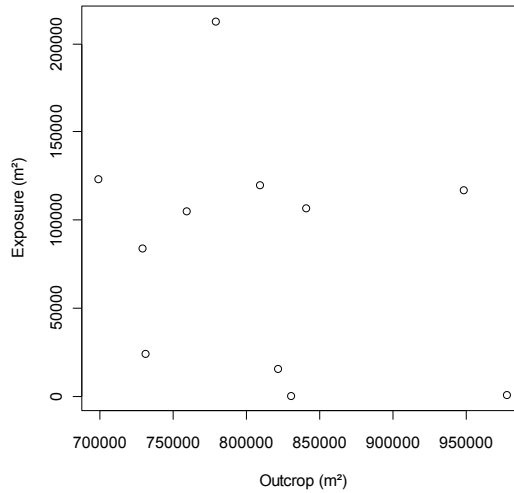
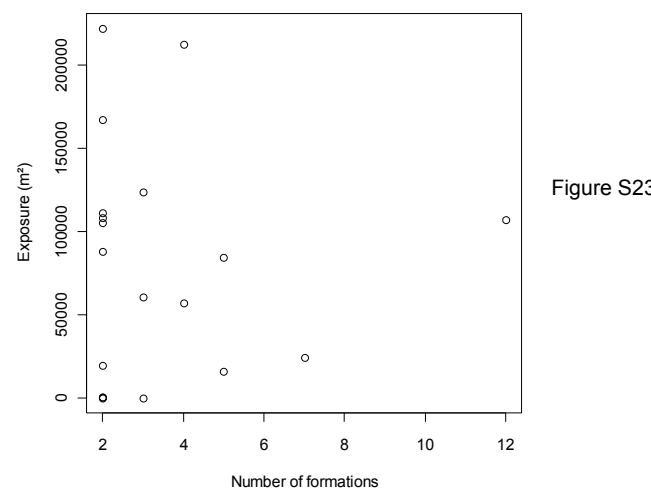
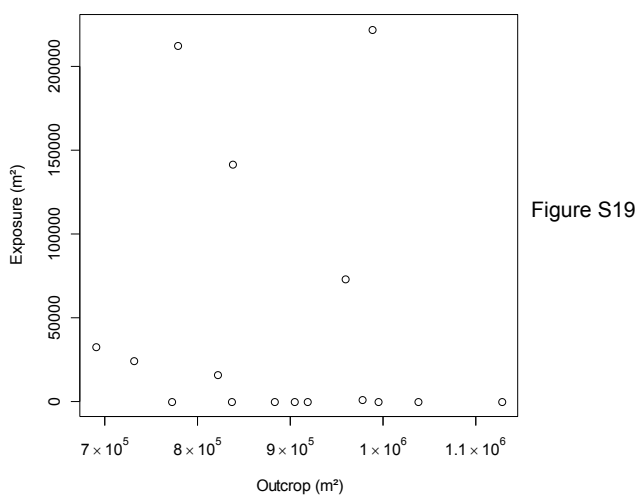
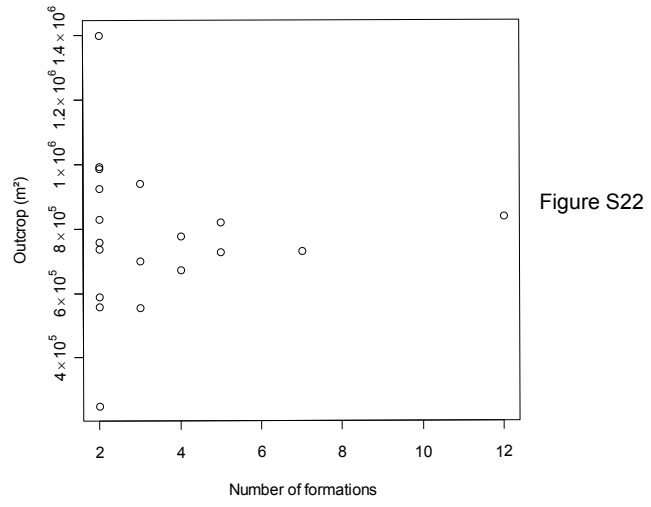
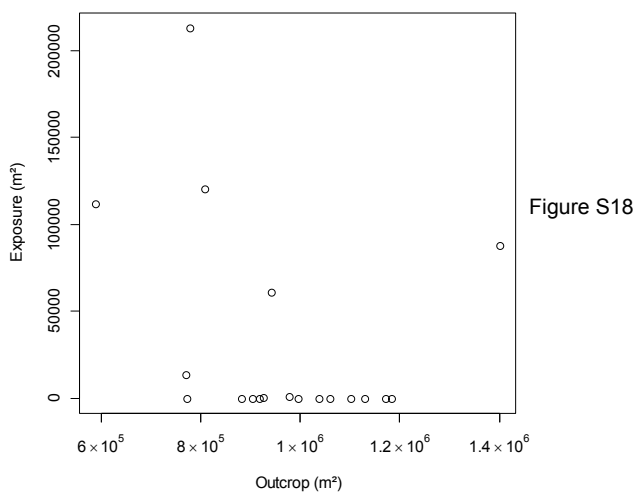
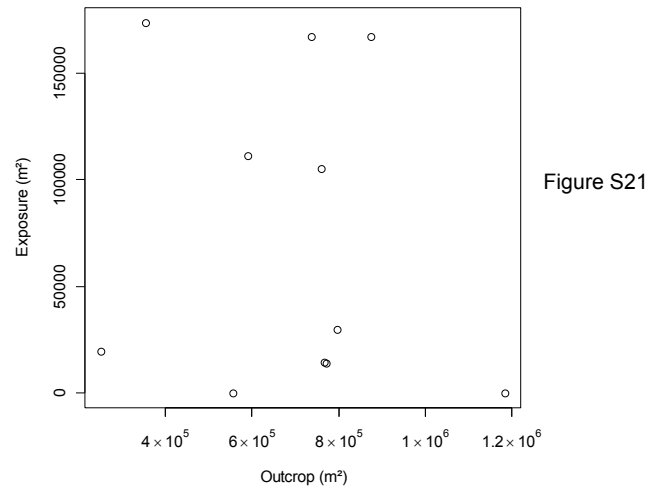
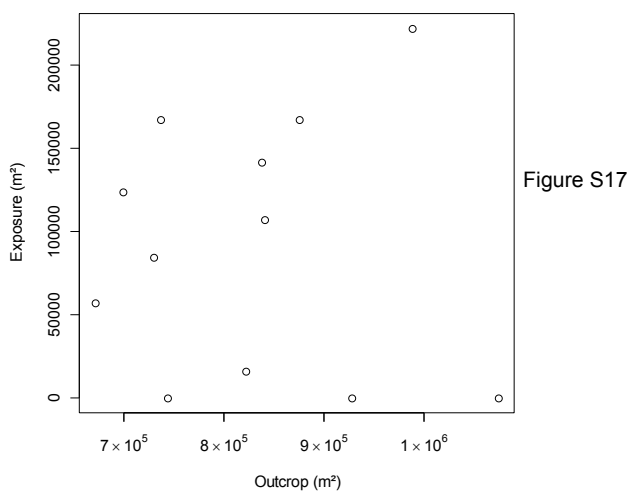
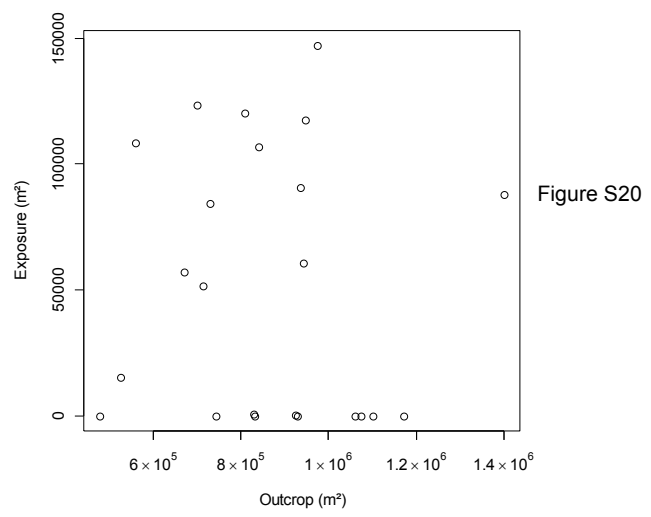
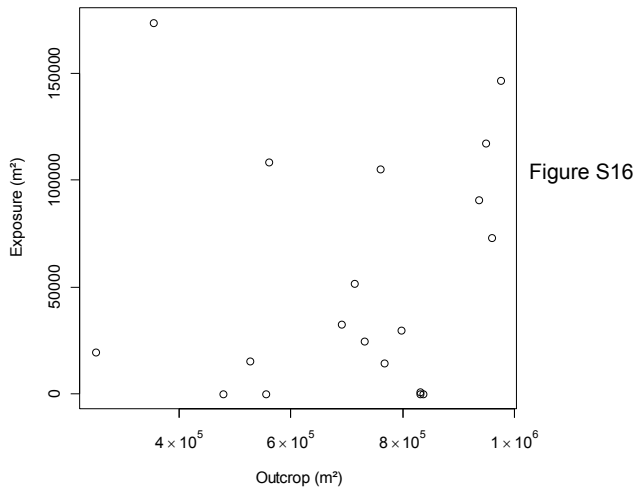


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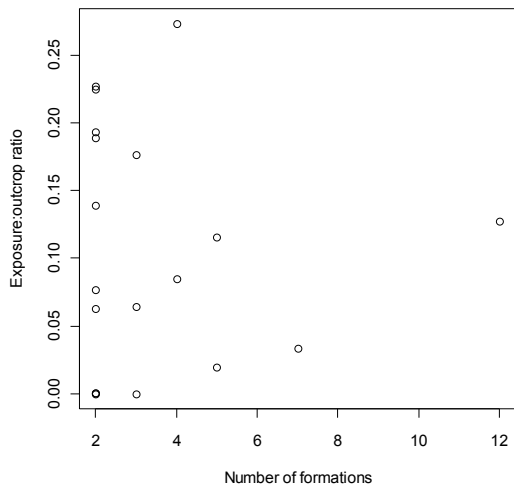


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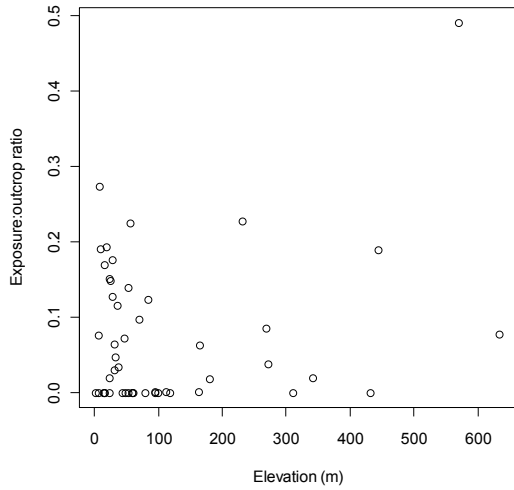


Figure S25

