Appendix 7a. The effect of elevated CO2 on plant responses for both high and low nitrogen fertilization. CO2 x N fertilization interactions were tested in two ways: a chi-square test based on the QB value and a z test based on the difference in effect sizes between the two levels of nitrogen. In the text, significance of these two-way interactions is based on the QB test. Variables highlighted in green showed significant variation between the two levels of nitrogen fertilization based on the QB test. For those variables with a significant QB value, values for the z test are highlighted in yellow. Both one-tailed and two-tailed z tests are presented since many of the responses to elevated CO2 have directional hypotheses associated with them.

Variable	Cumulative effect size	df	95% CI	SE	*d*	SE(*d*)	Z	P (1-tailed)	P (2-tailed)	QB df	QB	Prob. (QB)	QW df	QW	Prob. (Qw)
Nitrogen (low nitrogen)	-0.169	174	-0.1884 to -0.1502	0.0097	-0.043	0.0161	-2.687	0.004	0.007	1	6.124	0.013	350	475.807	0.000
Nitrogen (high nitrogen)	-0.126	176	-0.1511 to -0.1008	0.0128											
Total biomass (low nitrogen)	0.186	217	0.1385 to 0.2325	0.0240	-0.130	0.0290	-4.474	0.000	0.000	1	22.687	0.000	433	375.251	0.979
Total biomass (high nitrogen)	0.315	216	0.2833 to 0.3473	0.0163											
Carbon (low nitrogen)	0.005	15	-0.0081 to 0.0177	0.0066	-0.001	0.0076	-0.092	0.463	0.927	1	0.016	0.900	30	33.726	0.292
Carbon (high nitrogen)	0.006	15	-0.0021 to 0.0131	0.0039											
Root:shoot ratio (low nitrogen)	0.058	15	-0.1270 to 0.2424	0.0942	0.145	0.1158	1.250	0.106	0.211	1	2.683	0.101	30	29.539	0.489
Root:shoot ratio (high nitrogen)	-0.087	15	-0.2188 to 0.0447	0.0672											
Carbon:nitrogen ratio (low nitrogen)	0.200	66	0.1733 to 0.2257	0.0134	0.041	0.0236	1.748	0.040	0.081	1	3.113	0.078	132	276.295	0.000
Carbon:nitrogen ratio (high nitrogen)	0.158	66	0.1200 to 0.1964	0.0195											
Water (low nitrogen)	-0.044	6	-0.0846 to -0.0036	0.0207	-0.018	0.0356	-0.497	0.309	0.619	1	0.307	0.580	12	14.197	0.288
Water (high nitrogen)	-0.026	6	-0.0832 to 0.0304	0.0290											
Total carbohydrates (low nitrogen)	0.158	115	0.0680 to 0.2477	0.0458	0.030	0.0465	0.646	0.259	0.518	1	2.472	0.116	230	248.468	0.192
Total carbohydrates (high nitrogen)	0.128	115	0.1130 to 0.1425	0.0075											
Starch (low nitrogen)	0.272	34	0.1813 to 0.3617	0.0460	-0.111	0.0756	-1.470	0.071	0.142	1	1.668	0.196	68	101.687	0.005
Starch (high nitrogen)	0.383	34	0.2651 to 0.5002	0.0600											
Soluble sugars (low nitrogen)	-0.023	49	-0.1923 to 0.1461	0.0863	-0.154	0.0952	-1.620	0.053	0.105	1	3.035	0.081	98	74.322	0.964
Soluble sugars (high nitrogen)	0.131	49	0.0524 to 0.2100	0.0402											
Total non-structural carbohydrates (low nitrogen)	0.322	17	0.2539 to 0.3902	0.0348	-0.218	0.1124	-1.936	0.026	0.053	1	2.344	0.126	34	81.512	0.000
Total non-structural carbohydrates (high nitrogen)	0.540	17	0.3301 to 0.7493	0.1069											
Total structural carbohydrates (low nitrogen)	-0.097	5	-0.3641 to 0.1709	0.1416	0.298	0.2459	1.210	0.113	0.226	1	2.678	0.102	10	11.687	0.307
Total structural carbohydrates (high nitrogen)	-0.394	5	-0.7461 to -0.0420	0.2010											
Amino acids (low nitrogen)	-0.251	9	-0.4975 to -0.0034	0.1260	-0.154	0.1722	-0.892	0.186	0.373	1	1.245	0.264	18	16.292	0.572
Amino acids (high nitrogen)	-0.097	9	-0.3269 to 0.1328	0.1173											
Protein (low nitrogen)	-0.192	12	-0.3520 to -0.0328	0.0814	-0.086	0.1141	-0.750	0.227	0.453	1	0.696	0.404	24	23.499	0.491
Protein (high nitrogen)	-0.107	12	-0.2634 to 0.0498	0.0799											
Specific leaf area (low nitrogen)	-0.036	39	-0.3379 to 0.2668	0.1543	0.045	0.1547	0.288	0.410	0.820	1	0.061	0.805	78	10.698	1.000
Specific leaf area (high nitrogen)	-0.080	39	-0.1037 to -0.0562	0.0121											
Toughness (low nitrogen)	0.233	6	-0.0225 to 0.4886	0.1304	0.198	0.1381	1.434	0.076	0.152	1	2.444	0.118	12	10.405	0.580
Toughness (high nitrogen)	0.035	6	-0.0541 to 0.1242	0.0455											
Specific leaf weight (low nitrogen)	0.180	18	0.0608 to 0.2985	0.0606	-0.003	0.1035	-0.028	0.489	0.978	1	0.014	0.905	36	27.405	0.848
Specific leaf weight (high nitrogen)	0.183	18	0.0181 to 0.3470	0.0839											
General toughness (low nitrogen)	0.199	27	0.1094 to 0.2881	0.0456	0.051	0.0769	0.662	0.254	0.508	1	0.390	0.532	54	42.227	0.877
General toughness (high nitrogen)	0.148	27	0.0266 to 0.2692	0.0619											
Total terpenes (low nitrogen)	-0.060	13	-0.1450 to 0.0251	0.0434	-0.059	0.1111	-0.528	0.299	0.597	1	0.816	0.366	26	24.746	0.533
Total terpenes (high nitrogen)	-0.001	13	-0.2016 to 0.1993	0.1023											
Total terpene emission rate (low nitrogen)	-0.622	5	-1.4761 to 0.2313	0.4356	-1.193	0.5923	-2.014	0.022	0.044	1	6.980	0.008	10	10.672	0.384
Total terpene emission rate (high nitrogen)	0.571	5	-0.2159 to 1.3573	0.4013											
Total phenolics (low nitrogen)	0.125	103	0.0738 to 0.1765	0.0262	-0.048	0.0408	-1.173	0.120	0.241	1	1.136	0.286	203	325.169	0.000
Total phenolics (high nitrogen)	0.173	100	0.1117 to 0.2345	0.0313											
Total flavonoids (low nitrogen)	0.030	6	-0.4756 to 0.5357	0.2580	-0.172	0.4023	-0.427	0.335	0.669	1	0.254	0.614	12	14.001	0.301
Total flavonoids (high nitrogen)	0.202	6	-0.4031 to 0.8071	0.3087											
Nitrogen-based secondary metabolites (low nitrogen)	-0.270	7	-0.5254 to -0.0144	0.1304	-0.191	0.1755	-1.090	0.138	0.276	1	1.879	0.171	14	13.325	0.501
Nitrogen-based secondary metabolites (high nitrogen)	-0.079	7	-0.3089 to 0.1515	0.1174											
Total glycosides (low nitrogen)	-0.150	35	-0.2452 to -0.0555	0.0484	-0.039	0.0774	-0.506	0.306	0.613	1	0.294	0.587	68	63.740	0.624
Total glycosides (high nitrogen)	-0.111	33	-0.2296 to 0.0074	0.0605											
Phenylpropanoid acid intermediates (low nitrogen)	0.504	12	0.0542 to 0.9536	0.2294	0.354	0.3416	1.036	0.150	0.300	1	1.360	0.244	22	26.470	0.232
Phenylpropanoid acid intermediates (high nitrogen)	0.150	10	-0.3463 to 0.646	0.2531											
Condensed tannins (low nitrogen)	0.167	43	0.0921 to 0.2418	0.0382	-0.076	0.0561	-1.359	0.087	0.174	1	1.943	0.163	86	102.924	0.103
Condensed tannins (high nitrogen)	0.243	43	0.1626 to 0.3239	0.0411											

Appendix 7b. The effect of elevated CO_2 on plant responses for both high and low nitrogen fertilization for different plant functional groups. Groups highlighted in green suggest a significant CO_2 x N fertilization x Plant Functional type interaction. We investigated three-way interactions by testing for significant two-way interactions between CO_2 and N-fertilization within each plant functional group. If one or more of these two-way interactions was significant and one or more was not significant, then we interpreted this as evidence of the significance of the three-way interaction. Caution should be taken in such interpretations since the non-significant result may have arisen as a type II error due to small sample sizes in these tests. We also recognize that other types of three-way interactions might be present, but to-date there are no statistical tests for detecting such interactions in meta-analyses. Since many of the responses to elevated CO_2 have directional hypotheses associated with them, we present both one-tailed and two-tailed tests. However, throughout the main paper we report only on the two-tailed tests.

Grouping/Variable	Category	Cumulative effect size	df	95% CI	SE	*d*	SE(*d*)	Z	P (1-tailed)	P (2-tailed)
N FIXATION										
Nitrogen (low nitrogen)	Non-nitrogen fixer	-0.177	156	-0.1967 to -0.1565	0.0103	-0.046	0.0168	-2.718	0.003	0.007
Nitrogen (high nitrogen)	Non-nitrogen fixer	-0.131	156	-0.1570 to -0.1046	0.0134					
Nitrogen (low nitrogen)	Nitrogen fixer	-0.112	17	-0.1723 to -0.0509	0.0310	-0.024	0.0518	-0.458	0.324	0.647
Nitrogen (high nitrogen)	Nitrogen fixer	-0.088	17	-0.1692 to -0.0066	0.0415					
Total biomass (low nitrogen)	Non-nitrogen fixer	0.187	198	0.1353 to 0.2377	0.0261	-0.135	0.0314	-4.306	0.000	0.000
Total biomass (high nitrogen)	Non-nitrogen fixer	0.322	197	0.2876 to 0.3559	0.0174					
Total biomass (low nitrogen)	Nitrogen fixer	0.205	11	-0.0120 to 0.4228	0.1109	-0.115	0.1344	-0.859	0.195	0.391
Total biomass (high nitrogen)	Nitrogen fixer	0.321	11	0.1720 to 0.4695	0.0759					
Starch (low nitrogen)	Non-nitrogen fixer	0.313	26	0.2050 to 0.4203	0.0549	-0.132	0.0889	-1.479	0.070	0.139
Starch (high nitrogen)	Non-nitrogen fixer	0.444	26	0.3071 to 0.5811	0.0699					
Starch (low nitrogen)	Nitrogen fixer	0.169	7	-0.0254 to 0.3632	0.0991	-0.036	0.1687	-0.210	0.417	0.833
Starch (high nitrogen)	Nitrogen fixer	0.204	7	-0.0633 to 0.4720	0.1366					
Soluble sugars (low nitrogen)	Non-nitrogen fixer	-0.032	41	-0.2186 to 0.1549	0.0953	-0.051	0.1018	-0.499	0.309	0.618
Soluble sugars (high nitrogen)	Non-nitrogen fixer	0.019	41	-0.0514 to 0.0891	0.0358					
Soluble sugars (low nitrogen)	Nitrogen fixer	0.019	7	-0.4605 to 0.4985	0.2446	-0.105	0.2605	-0.403	0.344	0.687
Soluble sugars (high nitrogen)	Nitrogen fixer	0.124	7	-0.0516 to 0.2994	0.0895					
Total non-structural carbohydrates (low nitrogen)	Non-nitrogen fixer	0.317	14	0.2447 to 0.3900	0.0371	-0.197	0.1218	-1.616	0.053	0.106
Total non-structural carbohydrates (high nitrogen)	Non-nitrogen fixer	0.514	14	0.2867 to 0.7415	0.1160					
Total non-structural carbohydrates (low nitrogen)	Nitrogen fixer	0.384	2	-0.1205 to 0.8880	0.2573	-0.321	0.6507	-0.494	0.311	0.621
Total non-structural carbohydrates (high nitrogen)	Nitrogen fixer	0.705	2	-0.4666 to 1.8765	0.5977					
Protein (low nitrogen)	Non-nitrogen fixer	-0.183	10	-0.3755 to 0.0099	0.0983	-0.093	0.1280	-0.725	0.234	0.469
Protein (high nitrogen)	Non-nitrogen fixer	-0.090	10	-0.2508 to 0.0708	0.0820					
Protein (low nitrogen)	Nitrogen fixer	-0.284	1	-3.2723 to 2.7044	1.5247	-0.089	1.8591	-0.048	0.481	0.962
Protein (high nitrogen)	Nitrogen fixer	-0.195	1	-2.2799 to 1.8902	1.0638					
Specific leaf area (low nitrogen)	Non-nitrogen fixer	-0.037	34	-0.3640 to 0.2895	0.1667	0.045	0.1682	0.266	0.395	0.790
Specific leaf area (high nitrogen)	Non-nitrogen fixer	-0.082	34	-0.1264 to -0.0377	0.0226					
Specific leaf area (low nitrogen)	Nitrogen fixer	-0.024	4	-1.2048 to 1.1570	0.6025	-0.023	0.6086	-0.037	0.485	0.970
Specific leaf area (high nitrogen)	Nitrogen fixer	-0.001	4	-0.1690 to 0.1668	0.0857					
General toughness (low nitrogen)	Non-nitrogen fixer	0.224	23	0.1257 to 0.3218	0.0500	0.067	0.0842	0.794	0.214	0.427
General toughness (high nitrogen)	Non-nitrogen fixer	0.157	23	0.0241 to 0.2897	0.0678					
General toughness (low nitrogen)	Nitrogen fixer	-0.003	3	-0.4270 to 0.4202	0.2161	-0.079	0.3637	-0.217	0.414	0.828
General toughness (high nitrogen)	Nitrogen fixer	0.075	3	-0.4978 to 0.6487	0.2925					
Total phenolics (low nitrogen)	Non-nitrogen fixer	0.141	99	0.0888 to 0.1934	0.0267	-0.050	0.0415	-1.195	0.116	0.232
Total phenolics (high nitrogen)	Non-nitrogen fixer	0.191	96	0.1284 to 0.2531	0.0318					
Total phenolics (low nitrogen)	Nitrogen fixer	-0.138	3	-0.4730 to 0.1965	0.1708	0.048	0.2835	0.169	0.433	0.866
Total phenolics (high nitrogen)	Nitrogen fixer	-0.186	3	-0.6297 to 0.2574	0.2263					
PHOTOSYNTHETIC PATHWAY										
Nitrogen (low nitrogen)	C3	-0.171	156	-0.1903 to -0.1513	0.0099	-0.040	0.0165	-2.415	0.008	0.016
Nitrogen (high nitrogen)	C3	-0.131	156	-0.1568 to -0.1051	0.0132					
Nitrogen (low nitrogen)	C4	-0.145	13	-0.2686 to -0.0215	0.0630	-0.133	0.0951	-1.394	0.082	0.163
Nitrogen (high nitrogen)	C4	-0.012	13	-0.1520 to 0.1271	0.0712					
Total biomass (low nitrogen)	C3	0.190	202	0.1413 to 0.2393	0.0250	-0.138	0.0302	-4.577	0.000	0.000
Total biomass (high nitrogen)	C3	0.328	201	0.2953 to 0.3615	0.0169					
Total biomass (low nitrogen)	C4	0.121	10	-0.1283 to 0.3697	0.1270	-0.025	0.1513	-0.162	0.436	0.871
Total biomass (high nitrogen)	C4	0.145	10	-0.0159 to 0.3062	0.0822					
Carbon:nitrogen ratio (low nitrogen)	C3	0.201	64	0.1738 to 0.2271	0.0136	0.037	0.0240	1.539	0.062	0.124
Carbon:nitrogen ratio (high nitrogen)	C3	0.164	64	0.1249 to 0.2023	0.0197					
Carbon:nitrogen ratio (low nitrogen)	C4	0.164	1	-0.8518 to 1.1807	0.5185	0.162	0.8492	0.190	0.424	0.849
Carbon:nitrogen ratio (high nitrogen)	C4	0.003	1	-1.3154 to 1.3208	0.6725					
Total non-structural carbohydrates (low nitrogen)	C3	0.294	13	0.2245 to 0.3644	0.0357	-0.271	0.1374	-1.969	0.024	0.049
Total non-structural carbohydrates (high nitrogen)	C3	0.565	13	0.3049 to 0.8250	0.1327					
Total non-structural carbohydrates (low nitrogen)	C4	0.345	1	-0.6937 to 1.3828	0.5297	-0.088	1.9452	-0.045	0.482	0.964
Total non-structural carbohydrates (high nitrogen)	C4	0.433	1	-3.2359 to 4.1011	1.8717					
Specific leaf area (low nitrogen)	C3	-0.031	29	-0.3813 to 0.3184	0.1785	0.050	0.1804	0.274	0.392	0.784
Specific leaf area (high nitrogen)	C3	-0.081	29	-0.1322 to -0.0296	0.0262					
Specific leaf area (low nitrogen)	C4	-0.033	8	-0.7509 to 0.6856	0.3665	0.020	0.3697	0.053	0.479	0.958
Specific leaf area (high nitrogen)	C4	-0.052	8	-0.1483 to 0.0438	0.0490					
General toughness (low nitrogen)	C3	0.200	18	0.0927 to 0.3067	0.0546	0.052	0.0954	0.542	0.294	0.588
General toughness (high nitrogen)	C3	0.148	18	-0.0054 to 0.3015	0.0783					
General toughness (low nitrogen)	C4	0.068	1	-1.6609 to 1.7964	0.8820	-0.000	1.6154	-0.000	0.500	1.000
General toughness (high nitrogen)	C4	0.068	1	-2.5846 to 2.7207	1.3534					
GROWTH RATE										
Nitrogen (low nitrogen)	Fast	-0.178	117	-0.2006 to -0.1552	0.0116	-0.045	0.0187	-2.405	0.008	0.016
Nitrogen (high nitrogen)	Fast	-0.133	117	-0.1617 to -0.1043	0.0146					
Nitrogen (low nitrogen)	Moderate	-0.163	23	-0.2246 to -0.1018	0.0313	-0.044	0.0516	-0.848	0.198	0.396
Nitrogen (high nitrogen)	Moderate	-0.119	23	-0.1998 to -0.0389	0.0410					
Nitrogen (low nitrogen)	Slow	-0.149	24	-0.2014 to -0.0970	0.0266	-0.030	0.0470	-0.639	0.261	0.523
Nitrogen (high nitrogen)	Slow	-0.119	24	-0.1950 to -0.0434	0.0387					
Total biomass (low nitrogen)	Fast	0.193	138	0.1319 to 0.2532	0.0309	-0.118	0.0370	-3.178	0.001	0.001
Total biomass (high nitrogen)	Fast	0.310	138	0.2704 to 0.3497	0.0202					
Total biomass (low nitrogen)	Moderate	0.210	34	0.0801 to 0.3392	0.0661	-0.135	0.0801	-1.688	0.046	0.091
Total biomass (high nitrogen)	Moderate	0.345	34	0.2560 to 0.4337	0.0453					
Total biomass (low nitrogen)	Slow	0.160	27	0.0238 to 0.2958	0.0694	-0.189	0.0853	-2.211	0.014	0.027
Total biomass (high nitrogen)	Slow	0.348	26	0.2512 to 0.4454	0.0495					
Carbon (low nitrogen)	Fast	0.002	12	-0.0111 to 0.0149	0.0066	-0.004	0.0078	-0.563	0.287	0.573
Carbon (high nitrogen)	Fast	0.006	12	-0.0018 to 0.0144	0.0041					
Carbon (low nitrogen)	Slow	0.036	2	-0.0466 to 0.1178	0.0419	0.044	0.0539	0.819	0.206	0.413
Carbon (high nitrogen)	Slow	-0.009	2	-0.0748 to 0.0577	0.0338					
Root:shoot ratio (low nitrogen)	Fast	0.101	10	-0.0571 to 0.2581	0.0804	0.161	0.1159	1.392	0.082	0.164
Root:shoot ratio (high nitrogen)	Fast	-0.061	10	-0.2244 to 0.1027	0.0834					
Root:shoot ratio (low nitrogen)	Moderate	-0.026	1	-2.1662 to 2.1151	1.0922	-0.043	1.6106	-0.027	0.489	0.979
Root:shoot ratio (high nitrogen)	Moderate	0.017	1	-2.3030 to 2.3374	1.1838					
Root:shoot ratio (low nitrogen)	Slow	-0.094	2	-0.6814 to 0.4936	0.2997	0.183	0.4527	0.404	0.343	0.686
Root:shoot ratio (high nitrogen)	Slow	-0.277	2	-0.9420 to 0.3880	0.3393					
Carbon:nitrogen ratio (low nitrogen)	Fast	0.194	43	0.1611 to 0.2269	0.0168	0.040	0.0278	1.440	0.075	0.150
Carbon:nitrogen ratio (high nitrogen)	Fast	0.154	43	0.1103 to 0.1974	0.0222					
Carbon:nitrogen ratio (low nitrogen)	Moderate	0.235	4	0.1054 to 0.3648	0.0662	-0.247	0.1349	-1.833	0.033	0.067
Carbon:nitrogen ratio (high nitrogen)	Moderate	0.482	4	0.2519 to 0.7127	0.1176					
Carbon:nitrogen ratio (low nitrogen)	Slow	0.157	12	0.0914 to 0.2232	0.0336	0.054	0.0627	0.866	0.193	0.386
Carbon:nitrogen ratio (high nitrogen)	Slow	0.103	12	-0.0007 to 0.2067	0.0529					
Water (low nitrogen)	Fast	-0.072	1	-0.4326 to 0.2877	0.1838	-0.046	0.3501	-0.132	0.448	0.895
Water (high nitrogen)	Fast	-0.026	1	-0.6105 to 0.5579	0.2981					
Water (low nitrogen)	Moderate	-0.065	1	-0.3348 to 0.2053	0.1378	-0.079	0.3826	-0.206	0.418	0.836
Water (high nitrogen)	Moderate	0.014	1	-0.6854 to 0.7138	0.3569					
Water (low nitrogen)	Slow	-0.011	2	-0.0902 to 0.0677	0.0403	0.027	0.0897	0.302	0.381	0.763
Water (high nitrogen)	Slow	-0.038	2	-0.1953 to 0.1188	0.0801					
Starch (low nitrogen)	Fast	0.263	13	0.1129 to 0.4127	0.0765	-0.261	0.1241	-2.103	0.018	0.035
Starch (high nitrogen)	Fast	0.524	13	0.3322 to 0.7154	0.0978					
Starch (low nitrogen)	Moderate	0.188	12	0.0607 to 0.3152	0.0649	-0.043	0.1119	-0.385	0.350	0.700
Starch (high nitrogen)	Moderate	0.231	12	0.0524 to 0.4098	0.0912					
Starch (low nitrogen)	Slow	0.195	5	-0.0583 to 0.4484	0.1293	-0.168	0.2079	-0.809	0.209	0.419
Starch (high nitrogen)	Slow	0.363	5	0.0440 to 0.6824	0.1629					
Soluble sugars (low nitrogen)	Fast	-0.012	31	-0.1990 to 0.1744	0.0953	-0.184	0.1136	-1.619	0.053	0.105
Soluble sugars (high nitrogen)	Fast	0.172	31	0.0503 to 0.2931	0.0619					
Soluble sugars (low nitrogen)	Moderate	0.024	11	-0.2892 to 0.3376	0.1599	-0.038	0.1928	-0.198	0.421	0.843
Soluble sugars (high nitrogen)	Moderate	0.062	11	-0.1488 to 0.2737	0.1078					
Soluble sugars (low nitrogen)	Slow	-0.174	5	-0.6841 to 0.3368	0.2604	-0.271	0.3140	-0.863	0.194	0.388
Soluble sugars (high nitrogen)	Slow	0.098	5	-0.2463 to 0.4413	0.1754					
Total non-structural carbohydrates (low nitrogen)	Fast	0.323	13	0.2359 to 0.4101	0.0444	-0.346	0.1434	-2.415	0.008	0.016
Total non-structural carbohydrates (high nitrogen)	Fast	0.669	13	0.4021 to 0.9366	0.1364					
Total non-structural carbohydrates (low nitrogen)	Slow	0.345	1	-0.8340 to 1.5244	0.6016	-0.088	1.9843	-0.044	0.482	0.965
Total non-structural carbohydrates (high nitrogen)	Slow	0.433	1	-3.2735 to 4.1389	1.8909					
Protein (low nitrogen)	Fast	-0.227	7	-0.4718 to 0.0184	0.1251	-0.123	0.1627	-0.755	0.225	0.450
Protein (high nitrogen)	Fast	-0.104	7	-0.3079 to 0.1002	0.1041					
Protein (low nitrogen)	Slow	-0.046	3	-0.4873 to 0.3949	0.2251	0.024	0.3003	0.079	0.468	0.937
Protein (high nitrogen)	Slow	-0.070	3	-0.4596 to 0.3196	0.1988					
Specific leaf area (low nitrogen)	Fast	0.028	12	-0.5174 to 0.5734	0.2783	0.166	0.2810	0.589	0.278	0.556
Specific leaf area (high nitrogen)	Fast	-0.138	12	-0.2143 to -0.0608	0.0392					
Specific leaf area (low nitrogen)	Moderate	-0.038	14	-0.5385 to 0.4617	0.2552	0.008	0.2577	0.031	0.488	0.976
Specific leaf area (high nitrogen)	Moderate	-0.046	14	-0.1169 to 0.0242	0.0360					
Specific leaf area (low nitrogen)	Slow	-0.092	9	-0.7401 to 0.5556	0.3305	-0.046	0.3339	-0.137	0.445	0.891
Specific leaf area (high nitrogen)	Slow	-0.046	9	-0.1388 to 0.0460	0.0471					
Total terpenes (low nitrogen)	Moderate	-0.023	5	-0.2235 to 0.1769	0.1021	0.106	0.1774	0.595	0.276	0.552
Total terpenes (high nitrogen)	Moderate	-0.129	5	-0.4132 to 0.1554	0.1451					
Total terpenes (low nitrogen)	Slow	-0.069	6	-0.1811 to 0.0423	0.0570	-0.201	0.1459	-1.378	0.084	0.168
Total terpenes (high nitrogen)	Slow	0.132	6	-0.1315 to 0.3950	0.1343					
Total phenolics (low nitrogen)	Fast	0.132	78	0.0704 to 0.1935	0.0314	-0.051	0.0472	-1.087	0.138	0.277
Total phenolics (high nitrogen)	Fast	0.183	75	0.1143 to 0.2523	0.0352					
Total phenolics (low nitrogen)	Moderate	-0.050	7	-0.2515 to 0.1524	0.1030	-0.056	0.1582	-0.355	0.361	0.723
Total phenolics (high nitrogen)	Moderate	0.007	7	-0.2287 to 0.2420	0.1201					
Total phenolics (low nitrogen)	Slow	0.192	6	-0.0545 to 0.4394	0.1260	-0.054	0.1916	-0.279	0.390	0.780
Total phenolics (high nitrogen)	Slow	0.246	6	-0.0371 to 0.5288	0.1444					
REPRODUCTION										
Nitrogen (low nitrogen)	Angiosperm	-0.174	157	-0.1940 to -0.1533	0.0104	-0.049	0.0170	-2.855	0.002	0.004
Nitrogen (high nitrogen)	Angiosperm	-0.125	157	-0.1515 to -0.0988	0.0134					
Nitrogen (low nitrogen)	Gymnosperm	-0.139	16	-0.1970 to -0.0807	0.0297	-0.005	0.0487	-0.094	0.462	0.925
Nitrogen (high nitrogen)	Gymnosperm	-0.134	16	-0.2101 to -0.0586	0.0386					
Total biomass (low nitrogen)	Angiosperm	0.157	195	0.1078 to 0.2068	0.0253	-0.144	0.0302	-4.759	0.000	0.000
Total biomass (high nitrogen)	Angiosperm	0.301	194	0.2686 to 0.3338	0.0166					
Total biomass (low nitrogen)	Gymnosperm	0.556	15	0.3725 to 0.7393	0.0936	-0.048	0.1162	-0.412	0.340	0.680
Total biomass (high nitrogen)	Gymnosperm	0.604	15	0.4687 to 0.7390	0.0690					
Carbon:nitrogen ratio (low nitrogen)	Angiosperm	0.202	62	0.1740 to 0.2291	0.0141	0.044	0.0245	1.812	0.035	0.070
Carbon:nitrogen ratio (high nitrogen)	Angiosperm	0.157	62	0.1178 to 0.1965	0.0201					
Carbon:nitrogen ratio (low nitrogen)	Gymnosperm	0.178	3	0.0366 to 0.3200	0.0723	0.003	0.1463	0.024	0.490	0.981
Carbon:nitrogen ratio (high nitrogen)	Gymnosperm	0.175	3	-0.0744 to 0.4240	0.1271					
Starch (low nitrogen)	Angiosperm	0.360	24	0.2503 to 0.4701	0.0561	-0.146	0.0867	-1.684	0.046	0.092
Starch (high nitrogen)	Angiosperm	0.506	24	0.3766 to 0.6356	0.0661					
Starch (low nitrogen)	Gymnosperm	0.098	9	-0.0673 to 0.2634	0.0844	-0.015	0.1341	-0.110	0.456	0.912
Starch (high nitrogen)	Gymnosperm	0.113	9	-0.0915 to 0.3173	0.1043					
Soluble sugars (low nitrogen)	Angiosperm	-0.036	44	-0.2165 to 0.1448	0.0922	-0.158	0.1014	-1.557	0.060	0.120
Soluble sugars (high nitrogen)	Angiosperm	0.122	44	0.0390 to 0.2051	0.0424					
Soluble sugars (low nitrogen)	Gymnosperm	0.082	4	-0.6302 to 0.7933	0.3631	-0.146	0.4089	-0.356	0.361	0.722
Soluble sugars (high nitrogen)	Gymnosperm	0.227	4	-0.1412 to 0.5957	0.1880					
Protein (low nitrogen)	Angiosperm	-0.179	9	-0.3970 to 0.0390	0.1112	-0.111	0.1403	-0.789	0.215	0.430
Protein (high nitrogen)	Angiosperm	-0.068	9	-0.2360 to 0.0995	0.0856					
Protein (low nitrogen)	Gymnosperm	-0.244	2	-0.9588 to 0.4703	0.3646	-0.023	0.4593	-0.049	0.480	0.961
Protein (high nitrogen)	Gymnosperm	-0.222	2	-0.7691 to 0.3261	0.2794					
Specific leaf area (low nitrogen)	Angiosperm	-0.024	36	-0.3395 to 0.2914	0.1609	0.054	0.1625	0.332	0.370	0.740
Specific leaf area (high nitrogen)	Angiosperm	-0.078	36	-0.1223 to -0.0338	0.0226					
Specific leaf area (low nitrogen)	Gymnosperm	-0.179	2	-2.5435 to 2.1852	1.2063	-0.168	1.2172	-0.138	0.445	0.890
Specific leaf area (high nitrogen)	Gymnosperm	-0.011	2	-0.3293 to 0.3080	0.1626					
Total terpenes (low nitrogen)	Angiosperm	-0.079	1	-0.6777 to 0.5197	0.3055	-0.114	1.1756	-0.097	0.462	0.923
Total terpenes (high nitrogen)	Angiosperm	0.035	1	-2.1904 to 2.2597	1.1352					
Total terpenes (low nitrogen)	Gymnosperm	-0.033	11	-0.1896 to 0.1238	0.0799	-0.018	0.1551	-0.116	0.454	0.908
Total terpenes (high nitrogen)	Gymnosperm	-0.015	11	-0.2753 to 0.2456	0.1329					
Condensed tannins (low nitrogen)	Angiosperm	0.204	30	0.1064 to 0.3024	0.0500	-0.134	0.0755	-1.773	0.038	0.076
Condensed tannins (high nitrogen)	Angiosperm	0.338	30	0.2274 to 0.4490	0.0565					
Condensed tannins (low nitrogen)	Gymnosperm	0.110	12	-0.0183 to 0.2391	0.0657	-0.024	0.0913	-0.263	0.396	0.793
Condensed tannins (high nitrogen)	Gymnosperm	0.134	12	0.0100 to 0.2587	0.0634					
Total phenolics (low nitrogen)	Angiosperm	0.145	74	0.0795 to 0.2109	0.0335	-0.048	0.0522	-0.920	0.179	0.358
Total phenolics (high nitrogen)	Angiosperm	0.193	72	0.1149 to 0.2716	0.0400					
Total phenolics (low nitrogen)	Gymnosperm	0.092	28	0.0041 to 0.1806	0.0450	-0.048	0.0709	-0.670	0.251	0.503
Total phenolics (high nitrogen)	Gymnosperm	0.140	27	0.0326 to 0.2472	0.0547					
PLANT GUILD										
Nitrogen (low nitrogen)	Grass	-0.150	77	-0.1813 to -0.1195	0.0158	-0.060	0.0249	-2.407	0.008	0.016
Nitrogen (high nitrogen)	Grass	-0.090	77	-0.1282 to -0.0525	0.0193					
Nitrogen (low nitrogen)	Herb/forb	-0.150	32	-0.2029 to -0.0979	0.0268	-0.020	0.0424	-0.472	0.318	0.637
Nitrogen (high nitrogen)	Herb/forb	-0.130	32	-0.1947 to -0.0660	0.0328					
Nitrogen (low nitrogen)	Shrub	-0.257	10	-0.3262 to -0.1873	0.0354	-0.022	0.0564	-0.383	0.351	0.702
Nitrogen (high nitrogen)	Shrub	-0.235	10	-0.3213 to -0.1492	0.0439					
Nitrogen (low nitrogen)	Tree	-0.174	48	-0.2061 to -0.1424	0.0163	-0.036	0.0260	-1.390	0.082	0.164
Nitrogen (high nitrogen)	Tree	-0.138	48	-0.1778 to -0.0984	0.0203					
Total biomass (low nitrogen)	Grass	0.172	57	0.0744 to 0.2691	0.0497	-0.102	0.0596	-1.712	0.043	0.087
Total biomass (high nitrogen)	Grass	0.274	57	0.2093 to 0.3382	0.0329					
Total biomass (low nitrogen)	Herb/forb	0.129	56	0.0350 to 0.2224	0.0478	-0.138	0.0576	-2.391	0.008	0.017
Total biomass (high nitrogen)	Herb/forb	0.266	56	0.2035 to 0.3291	0.0320					
Total biomass (low nitrogen)	Sedge	0.232	2	-0.6901 to 1.1531	0.4702	0.111	0.6559	0.169	0.433	0.866
Total biomass (high nitrogen)	Sedge	0.121	2	-0.7754 to 1.0172	0.4573					
Total biomass (low nitrogen)	Shrub	0.140	22	-0.0175 to 0.2973	0.0803	-0.251	0.0971	-2.581	0.005	0.010
Total biomass (high nitrogen)	Shrub	0.390	22	0.2835 to 0.4972	0.0545					
Total biomass (low nitrogen)	Tree	0.245	74	0.1625 to 0.3272	0.0420	-0.123	0.0508	-2.423	0.008	0.015
Total biomass (high nitrogen)	Tree	0.368	73	0.3120 to 0.4239	0.0285					
Carbon (low nitrogen)	Grass	0.016	3	-0.0364 to 0.0674	0.0265	0.011	0.0298	0.369	0.356	0.712
Carbon (high nitrogen)	Grass	0.005	3	-0.0223 to 0.0313	0.0137					
Carbon (low nitrogen)	Herb/forb	0.000	4	-0.0487 to 0.0487	0.0248	-0.021	0.0287	-0.717	0.237	0.473
Carbon (high nitrogen)	Herb/forb	0.021	4	-0.0076 to 0.0489	0.0144					
Carbon (low nitrogen)	Tree	0.003	6	-0.0159 to 0.0222	0.0097	0.000	0.0109	0.000	0.500	1.000
Carbon (high nitrogen)	Tree	0.003	6	-0.0064 to 0.0128	0.0049					
Root:shoot ratio (low nitrogen)	Grass	0.257	4	-0.0318 to 0.5464	0.1475	0.210	0.1720	1.222	0.111	0.222
Root:shoot ratio (high nitrogen)	Grass	0.047	4	-0.1262 to 0.2205	0.0884					
Root:shoot ratio (low nitrogen)	Herb/forb	-0.081	2	-0.4824 to 0.3199	0.2047	0.255	0.2475	1.030	0.152	0.303
Root:shoot ratio (high nitrogen)	Herb/forb	-0.336	2	-0.6089 to -0.0634	0.1392					
Root:shoot ratio (low nitrogen)	Tree	0.057	6	-0.1339 to 0.2481	0.0974	0.038	0.1217	0.316	0.376	0.752
Root:shoot ratio (high nitrogen)	Tree	0.019	6	-0.1241 to 0.1614	0.0728					
Carbon:nitrogen ratio (low nitrogen)	Grass	0.152	29	0.1133 to 0.1898	0.0195	-0.010	0.0329	-0.307	0.379	0.759
Carbon:nitrogen ratio (high nitrogen)	Grass	0.162	29	0.1097 to 0.2135	0.0265					
Carbon:nitrogen ratio (low nitrogen)	Herb/forb	0.164	8	0.0757 to 0.2525	0.0451	-0.000	0.0843	-0.002	0.499	0.998
Carbon:nitrogen ratio (high nitrogen)	Herb/forb	0.164	8	0.0247 to 0.3040	0.0713					
Carbon:nitrogen ratio (low nitrogen)	Shrub	0.253	2	0.0268 to 0.4799	0.1156	0.232	0.2029	1.145	0.126	0.252
Carbon:nitrogen ratio (high nitrogen)	Shrub	0.021	2	-0.3058 to 0.3479	0.1668					
Carbon:nitrogen ratio (low nitrogen)	Tree	0.275	24	0.2273 to 0.3226	0.0243	0.102	0.0405	2.516	0.006	0.012
Carbon:nitrogen ratio (high nitrogen)	Tree	0.173	24	0.1093 to 0.2365	0.0324					
Starch (low nitrogen)	Grass	1.104	1	-3.2424 to 5.4512	2.2178	0.834	2.9953	0.278	0.390	0.781
Starch (high nitrogen)	Grass	0.270	1	-3.6758 to 4.2164	2.0133					
Starch (low nitrogen)	Herb/forb	0.811	1	-3.7653 to 5.3873	2.3348	0.075	2.7591	0.027	0.489	0.978
Starch (high nitrogen)	Herb/forb	0.736	1	-2.1450 to 3.6177	1.4701					
Starch (low nitrogen)	Shrub	0.260	2	-0.5694 to 1.0893	0.4231	-0.638	0.6779	-0.942	0.173	0.346
Starch (high nitrogen)	Shrub	0.898	2	-0.1397 to 1.9364	0.5296					
Starch (low nitrogen)	Tree	0.248	27	0.1531 to 0.3424	0.0483	-0.079	0.0802	-0.987	0.162	0.324
Starch (high nitrogen)	Tree	0.327	27	0.2014 to 0.4526	0.0641					
Soluble sugars (low nitrogen)	Grass	-0.054	3	-0.9892 to 0.8810	0.4771	0.119	0.5425	0.220	0.413	0.826
Soluble sugars (high nitrogen)	Grass	-0.174	3	-0.6797 to 0.3326	0.2582					
Soluble sugars (low nitrogen)	Herb/forb	-0.042	11	-0.4514 to 0.3668	0.2087	-0.530	0.2275	-2.331	0.010	0.020
Soluble sugars (high nitrogen)	Herb/forb	0.488	11	0.3106 to 0.6656	0.0906					
Soluble sugars (low nitrogen)	Shrub	-0.062	2	-1.5590 to 1.4343	0.7636	-0.213	0.8544	-0.249	0.402	0.803
Soluble sugars (high nitrogen)	Shrub	0.151	2	-0.6006 to 0.9021	0.3833					
Soluble sugars (low nitrogen)	Tree	-0.010	30	-0.2204 to 0.2004	0.1073	-0.029	0.1198	-0.243	0.404	0.808
Soluble sugars (high nitrogen)	Tree	0.019	30	-0.0852 to 0.1235	0.0532					
Total non-structural carbohydrates (low nitrogen)	Grass	0.683	1	-1.2255 to 2.5914	0.9737	0.150	1.9386	0.077	0.469	0.938
Total non-structural carbohydrates (high nitrogen)	Grass	0.533	1	-2.7522 to 3.8188	1.6763					
Total non-structural carbohydrates (low nitrogen)	Herb/forb	0.358	4	0.1701 to 0.5464	0.0960	-0.192	0.2338	-0.819	0.206	0.413
Total non-structural carbohydrates (high nitrogen)	Herb/forb	0.550	4	0.1320 to 0.9677	0.2132					
Total non-structural carbohydrates (low nitrogen)	Shrub	0.310	3	0.1176 to 0.5027	0.0982	-1.201	0.3169	-3.789	0.000	0.000
Total non-structural carbohydrates (high nitrogen)	Shrub	1.511	3	0.9205 to 2.1017	0.3013					
Total non-structural carbohydrates (low nitrogen)	Tree	0.277	6	0.1708 to 0.3823	0.0540	0.144	0.1493	0.964	0.167	0.335
Total non-structural carbohydrates (high nitrogen)	Tree	0.133	6	-0.1403 to 0.4055	0.1392					
Total structural carbohydrates (low nitrogen)	Shrub	-0.180	1	-2.2028 to 1.8437	1.0323	0.044	1.2169	0.036	0.486	0.971
Total structural carbohydrates (high nitrogen)	Shrub	-0.224	1	-1.4866 to 1.0392	0.6443					
Total structural carbohydrates (low nitrogen)	Tree	-0.190	2	-0.8290 to 0.4497	0.3262	0.544	0.4094	1.328	0.092	0.184
Total structural carbohydrates (high nitrogen)	Tree	-0.734	2	-1.2185 to -0.2485	0.2474					
Protein (low nitrogen)	Herb/Forbe	-0.266	5	-0.5897 to 0.0587	0.1654	-0.203	0.2042	-0.993	0.160	0.321
Protein (high nitrogen)	Herb/Forbe	-0.063	5	-0.2974 to 0.1719	0.1197					
Protein (low nitrogen)	Tree	-0.143	6	-0.4079 to 0.1212	0.1350	0.006	0.1749	0.034	0.486	0.973
Protein (high nitrogen)	Tree	-0.149	6	-0.3674 to 0.0687	0.1113					
Specific leaf area (low nitrogen)	Grass	0.055	17	-0.3734 to 0.4840	0.2187	0.095	0.2211	0.431	0.333	0.667
Specific leaf area (high nitrogen)	Grass	-0.040	17	-0.1031 to 0.0232	0.0322					
Specific leaf area (low nitrogen)	Herb/forb	-0.074	11	-0.6235 to 0.4750	0.2802	0.003	0.2838	0.009	0.496	0.993
Specific leaf area (high nitrogen)	Herb/forb	-0.077	11	-0.1644 to 0.0106	0.0446					
Specific leaf area (low nitrogen)	Tree	-0.167	8	-0.8306 to 0.4970	0.3387	-0.049	0.3418	-0.144	0.443	0.886
Specific leaf area (high nitrogen)	Tree	-0.118	8	-0.2085 to -0.0266	0.0464					
General toughness (low nitrogen)	Grass	0.403	1	-1.7265 to 2.5319	1.0863	0.057	1.8291	0.031	0.488	0.975
General toughness (high nitrogen)	Grass	0.346	1	-2.5384 to 3.2300	1.4715					
General toughness (low nitrogen)	Herb/forb	0.082	13	-0.0743 to 0.2385	0.0798	-0.034	0.1261	-0.270	0.394	0.787
General toughness (high nitrogen)	Herb/forb	0.116	13	-0.0753 to 0.3076	0.0977					
General toughness (low nitrogen)	Shrub	0.290	2	-0.1767 to 0.7565	0.2381	-0.084	0.4119	-0.204	0.419	0.838
General toughness (high nitrogen)	Shrub	0.374	2	-0.2849 to 1.0326	0.3361					
General toughness (low nitrogen)	Tree	0.233	8	0.0744 to 0.3908	0.0807	0.168	0.1370	1.225	0.110	0.221
General toughness (high nitrogen)	Tree	0.065	8	-0.1520 to 0.2817	0.1106					
Total glycosides (low nitrogen)	Herb/forb	-0.283	17	-0.3895 to -0.1759	0.0545	-0.281	0.0938	-2.992	0.001	0.003
Total glycosides (high nitrogen)	Herb/forb	-0.002	17	-0.1517 to 0.1478	0.0764					
Total glycosides (low nitrogen)	Shrub	0.057	2	-0.4507 to 0.5648	0.2591	0.432	0.3922	1.102	0.135	0.271
Total glycosides (high nitrogen)	Shrub	-0.375	2	-0.9521 to 0.2021	0.2944					
Total glycosides (low nitrogen)	Tree	0.012	14	-0.1287 to 0.1528	0.0718	0.169	0.1186	1.423	0.077	0.155
Total glycosides (high nitrogen)	Tree	-0.157	12	-0.3416 to 0.0282	0.0943					
Condensed tannins (low nitrogen)	Shrub	0.161	5	-0.1054 to 0.4267	0.1357	-0.275	0.2028	-1.355	0.088	0.176
Condensed tannins (high nitrogen)	Shrub	0.435	5	0.1399 to 0.7308	0.1507					
Condensed tannins (low nitrogen)	Tree	0.168	37	0.0869 to 0.2492	0.0414	-0.047	0.0598	-0.793	0.214	0.428
Condensed tannins (high nitrogen)	Tree	0.216	37	0.1309 to 0.3001	0.0432					
Total phenolics (low nitrogen)	Grass	-0.119	1	-2.3256 to 2.0869	1.1256	0.070	1.6594	0.042	0.483	0.966
Total phenolics (high nitrogen)	Grass	-0.190	1	-2.5795 to 2.2001	1.2193					
Total phenolics (low nitrogen)	Shrub	0.120	10	-0.0460 to 0.2857	0.0846	-0.280	0.1361	-2.055	0.020	0.040
Total phenolics (high nitrogen)	Shrub	0.400	10	0.1907 to 0.6084	0.1066					
Total phenolics (low nitrogen)	Tree	0.099	82	0.0465 to 0.1524	0.0270	-0.032	0.0434	-0.741	0.229	0.458
Total phenolics (high nitrogen)	Tree	0.132	79	0.0650 to 0.1983	0.0340					
Total phenolics (low nitrogen)	Herb/Forbe	1.040	7	0.6883 to 1.3918	0.1795	0.425	0.2525	1.685	0.046	0.092
Total phenolics (high nitrogen)	Herb/Forbe	0.615	7	0.2667 to 0.9627	0.1776					
TISSUE TYPE										
Nitrogen (low nitrogen)	Above-ground	-0.185	131	-0.2068 to -0.1633	0.0111	-0.043	0.0179	-2.415	0.008	0.016
Nitrogen (high nitrogen)	Above-ground	-0.142	131	-0.1693 to -0.1143	0.0140					
Nitrogen (low nitrogen)	Below-ground	-0.082	33	-0.1289 to -0.0355	0.0238	-0.037	0.0389	-0.952	0.171	0.341
Nitrogen (high nitrogen)	Below-ground	-0.045	33	-0.1054 to 0.0150	0.0307					
Nitrogen (low nitrogen)	Whole plant	-0.206	8	-0.2795 to -0.1325	0.0375	-0.045	0.0671	-0.676	0.249	0.499
Nitrogen (high nitrogen)	Whole plant	-0.161	8	-0.2697 to -0.0515	0.0557					
Total biomass (low nitrogen)	Above-ground	0.151	110	0.0811 to 0.2218	0.0359	-0.153	0.0427	-3.577	0.000	0.000
Total biomass (high nitrogen)	Above-ground	0.304	109	0.2588 to 0.3494	0.0231					
Total biomass (low nitrogen)	Below-ground	0.235	83	0.1560 to 0.3139	0.0403	-0.117	0.0489	-2.386	0.009	0.017
Total biomass (high nitrogen)	Below-ground	0.352	83	0.2973 to 0.4057	0.0277					
Total biomass (low nitrogen)	Whole plant	0.164	22	0.0104 to 0.3165	0.0781	-0.091	0.0933	-0.973	0.165	0.331
Total biomass (high nitrogen)	Whole plant	0.254	22	0.1541 to 0.3544	0.0511					
OTHER CATEGORIES										
Soluble sugars (low nitrogen)	Fructose	0.167	4	-0.3282 to 0.6617	0.2525	-0.156	0.3341	-0.468	0.320	0.640
Soluble sugars (high nitrogen)	Fructose	0.323	4	-0.1059 to 0.7519	0.2188					
Soluble sugars (low nitrogen)	Glucose	-0.144	4	-0.5972 to 0.3097	0.2314	-0.696	0.3132	-2.224	0.013	0.026
Soluble sugars (high nitrogen)	Glucose	0.553	4	0.1389 to 0.9663	0.2111					
Soluble sugars (low nitrogen)	Hexose	-0.472	2	-1.1446 to 0.1998	0.3430	-0.233	0.5004	-0.466	0.320	0.641
Soluble sugars (high nitrogen)	Hexose	-0.239	2	-0.9532 to 0.4752	0.3644					
Soluble sugars (low nitrogen)	Raffinose	-0.242	1	-2.9371 to 2.4535	1.3752	-0.167	2.0610	-0.081	0.468	0.936
Soluble sugars (high nitrogen)	Raffinose	-0.075	1	-3.0841 to 2.9339	1.5352					
Soluble sugars (low nitrogen)	Sucrose	0.013	22	-0.1140 to 0.1394	0.0646	-0.086	0.0904	-0.950	0.171	0.342
Soluble sugars (high nitrogen)	Sucrose	0.099	22	-0.0253 to 0.2222	0.0631					
Soluble sugars (low nitrogen)	Total soluble sugars	0.034	11	-0.1450 to 0.2133	0.0914	-0.100	0.1332	-0.754	0.225	0.451
Soluble sugars (high nitrogen)	Total soluble sugars	0.135	11	-0.0552 to 0.3244	0.0968					
Total structural carbohydrates (low nitrogen)	Lignin	-0.154	2	-0.8674 to 0.5599	0.3641	0.175	0.6087	0.288	0.387	0.774
Total structural carbohydrates (high nitrogen)	Lignin	-0.329	2	-1.2849 to 0.6271	0.4878					
Total structural carbohydrates (low nitrogen)	Other	-0.039	2	-0.7249 to 0.6461	0.3497	0.446	0.6291	0.709	0.239	0.478
Total structural carbohydrates (high nitrogen)	Other	-0.485	2	-1.5102 to 0.5397	0.5229					
Total phenolics (low nitrogen)	Coumarins	1.615	2	-0.3762 to 3.6062	1.0159	-0.098	1.4825	-0.066	0.474	0.948
Total phenolics (high nitrogen)	Coumarins	1.713	2	-0.4035 to 3.8287	1.0796					
Total phenolics (low nitrogen)	Condensed tannins	0.167	43	0.0928 to 0.2406	0.0377	-0.091	0.0602	-1.515	0.065	0.130
Total phenolics (high nitrogen)	Condensed tannins	0.258	43	0.1659 to 0.3499	0.0469					
Total phenolics (low nitrogen)	Total flavonoids	0.000	6	-0.2912 to 0.2914	0.1486	-0.131	0.2267	-0.577	0.282	0.564
Total phenolics (high nitrogen)	Total flavonoids	0.131	6	-0.2047 to 0.4665	0.1712					
Total phenolics (low nitrogen)	Hydrolysable tannins	0.377	3	-0.1318 to 0.8862	0.2597	-0.006	0.3867	-0.014	0.494	0.989
Total phenolics (high nitrogen)	Hydrolysable tannins	0.383	3	-0.1788 to 0.9443	0.2865					
Total phenolics (low nitrogen)	Phenylpropanoid acid inte	0.493	12	0.2742 to 0.7120	0.1117	0.349	0.1720	2.031	0.021	0.042
Total phenolics (high nitrogen)	Phenylpropanoid acid inte	0.144	10	-0.1128 to 0.4002	0.1309					
Total phenolics (low nitrogen)	Total phenolics	0.015	32	-0.0605 to 0.0908	0.0386	-0.040	0.0635	-0.625	0.266	0.532
Total phenolics (high nitrogen)	Total phenolics	0.055	31	-0.0440 to 0.1539	0.0505					

Appendix 7c. The effect of elevated CO2 on plant responses for both well-watered and drought conditions. CO2 x water availability interactions were tested in two ways: a chi-square test based on the QB value and a z test based on the difference in effect sizes between the two levels of water availability. In the text, significance of these two-way interactions is based on the QB test. Variables highlighted in green showed significant variation between the two levels of water availability based on the QB test. For those variables with a significant QB value, values for the z test are highlighted in yellow. Both one-tailed and two-tailed z tests are presented since many of the responses to elevated CO2 have directional hypotheses associated with them.

Variable	Cumulative effect size	df	95% CI	SE	*d*	SE(*d*)	Z	P (1-tailed)	P (2-tailed)	Q_B df	Q_B	Prob. (QB)	Q_W df	Q_W	Prob. (Qw)
Nitrogen (well-watered)	-0.214	16	-0.2596 to -0.1676	0.0235	-0.055	0.0362	-1.514	0.065	0.130	1	2.316	0.128	32	44.047	0.076
Nitrogen (drought)	-0.159	16	-0.2128 to -0.1048	0.0276											
Total biomass (well-watered)	0.291	84	0.2157 to 0.3663	0.0384	-0.017	0.0474	-0.354	0.362	0.723	1	0.245	0.621	168	146.858	0.879
Total biomass (drought)	0.308	84	0.2533 to 0.3624	0.0278											
Root:shoot ratio (well-watered)	-0.084	10	-0.2010 to 0.0334	0.0598	-0.058	0.1228	-0.474	0.318	0.636	1	0.459	0.498	20	18.751	0.538
Root:shoot ratio (drought)	-0.026	10	-0.2358 to 0.1846	0.1072											
Water (well-watered)	0.007	7	-0.0117 to 0.0247	0.0093	0.014	0.0182	0.749	0.227	0.454	1	0.416	0.519	14	15.567	0.341
Water (drought)	-0.007	7	-0.0377 to 0.0235	0.0156											
Total carbohydrates (well-watered)	0.164	80	0.0435 to 0.2846	0.0615	-0.125	0.0868	-1.443	0.075	0.149	1	2.174	0.140	159	131.246	0.947
Total carbohydrates (drought)	0.289	79	0.1692 to 0.4091	0.0612											
Starch (well-watered)	0.399	25	0.0625 to 0.7348	0.1715	-0.106	0.2257	-0.470	0.319	0.639	1	0.235	0.628	50	34.410	0.955
Starch (drought)	0.505	25	0.2171 to 0.7920	0.1467											
Soluble sugars (well-watered)	0.049	51	-0.0343 to 0.1314	0.0423	-0.107	0.0619	-1.721	0.043	0.085	1	3.106	0.078	101	138.931	0.007
Soluble sugars (drought)	0.155	50	0.0664 to 0.2436	0.0452											
Protein (well-watered)	-0.058	14	-0.1704 to 0.0535	0.0571	0.005	0.0808	0.067	0.473	0.947	1	0.005	0.942	28	23.616	0.702
Protein (drought)	-0.064	14	-0.1758 to 0.0482	0.0571											
Specific leaf area (well-watered)	-0.090	4	-0.2100 to 0.0303	0.0613	0.053	0.1358	0.387	0.349	0.699	1	0.443	0.506	8	4.446	0.815
Specific leaf area (drought)	-0.142	4	-0.3800 to 0.0951	0.1212											
Total phenolics (well-watered)	0.363	35	0.2614 to 0.4643	0.0518	0.056	0.0811	0.684	0.247	0.494	1	0.442	0.506	71	51.896	0.957
Total phenolics (drought)	0.307	36	0.1850 to 0.4299	0.0625											
Total terpenes (well-watered)	0.289	3	-0.0427 to 0.6207	0.1692	0.113	0.2231	0.507	0.306	0.612	1	0.928	0.335	6	5.863	0.439
Total terpenes (drought)	0.176	3	-0.1088 to 0.4609	0.1453											
Total terpene emission rate (well-watered)	-0.343	4	-0.8142 to 0.1273	0.2402	-0.320	0.2838	-1.126	0.130	0.260	1	5.366	0.021	8	7.794	0.454
Total terpene emission rate (drought)	-0.024	4	-0.3203 to 0.2727	0.1513											
Condensed tannins (well-watered)	0.253	9	0.0757 to 0.4310	0.0906	-0.033	0.1508	-0.217	0.414	0.828	1	0.107	0.744	18	10.107	0.928
Condensed tannins (drought)	0.286	9	0.0497 to 0.5222	0.1205											
Total flavonoids (well-watered)	0.392	20	0.2607 to 0.5228	0.0669	0.092	0.0946	0.970	0.166	0.332	1	1.065	0.302	40	38.723	0.528
Total flavonoids (drought)	0.300	20	0.1686 to 0.4312	0.0670											

Appendix 7d. The effect of elevated CO2 on plant responses under both well-watered and drought conditions for different plant functional groups. Groups highlighted in green suggest a significant CO2 x water availability x Plant Functional type interaction. We investigated three-way interactions by testing for significant two-way interactions between CO2 and water availability within each plant functional group. If one or more of these two-way interactions was significant and one or more was not significant, then we interpreted this as evidence of the significance of the three-way interaction. Caution should be taken in such interpretations since the non-significant result may have arisen as a type II error due to small sample sizes in these tests. We also recognize that other types of three-way interactions might be present, but to-date there are no statistical tests for detecting such interactions in meta-analyses. Since many of the responses to elevated CO2 have directional hypotheses associated with them, we present both one-tailed and two-tailed tests. However, throughout the main paper we report only on the two-tailed tests.

Grouping/Variable	Category	Cumulative effect size	df	95% CI	SE	*d*	SE(*d*)	Z	P (1-tailed)	P (2-tailed)
N FIXATION										
Nitrogen (well-watered)	Non-nitrogen fixer	-0.232	11	-0.3012 to -0.1635	0.0351	-0.021	0.0462	-0.450	0.326	0.653
Nitrogen (drought)	Non-nitrogen fixer	-0.212	11	-0.2705 to -0.1527	0.0301					
Nitrogen (well-watered)	Nitrogen fixer	-0.162	4	-0.2942 to -0.0291	0.0676	-0.107	0.0873	-1.222	0.111	0.222
Nitrogen (drought)	Nitrogen fixer	-0.055	4	-0.1630 to 0.0533	0.0552					
Total biomass (well-watered)	Non-nitrogen fixer	0.278	79	0.2010 to 0.3552	0.0393	-0.043	0.0479	-0.897	0.185	0.370
Total biomass (drought)	Non-nitrogen fixer	0.321	79	0.2674 to 0.3748	0.0274					
Total biomass (well-watered)	Nitrogen fixer	0.463	4	0.0684 to 0.8573	0.2013	0.336	0.2398	1.400	0.081	0.161
Total biomass (drought)	Nitrogen fixer	0.127	4	-0.1284 to 0.3827	0.1304					
Root:shoot ratio (well-watered)	Non-nitrogen fixer	-0.082	7	-0.2440 to 0.0808	0.0829	-0.051	0.1424	-0.355	0.361	0.722
Root:shoot ratio (drought)	Non-nitrogen fixer	-0.031	7	-0.2579 to 0.1959	0.1158					
Root:shoot ratio (well-watered)	Nitrogen fixer	-0.104	2	-0.5665 to 0.3582	0.2359	-0.098	0.4201	-0.234	0.408	0.815
Root:shoot ratio (drought)	Nitrogen fixer	-0.006	2	-0.6873 to 0.6752	0.3476					
Water (well-watered)	Non-nitrogen fixer	0.008	5	-0.0204 to 0.0365	0.0145	0.018	0.0281	0.654	0.256	0.513
Water (drought)	Non-nitrogen fixer	-0.010	5	-0.0576 to 0.0368	0.0241					
Water (well-watered)	Nitrogen fixer	0.004	1	-0.1769 to 0.1841	0.0921	0.010	0.2032	0.050	0.480	0.960
Water (drought)	Nitrogen fixer	-0.007	1	-0.3617 to 0.3485	0.1812					
Starch (well-watered)	Non-nitrogen fixer	0.299	11	-0.1878 to 0.7864	0.2485	-0.092	0.3533	-0.260	0.397	0.795
Starch (drought)	Non-nitrogen fixer	0.391	11	-0.1011 to 0.8834	0.2511					
Starch (well-watered)	Nitrogen fixer	0.498	13	0.0202 to 0.9755	0.2437	-0.098	0.3292	-0.297	0.383	0.767
Starch (drought)	Nitrogen fixer	0.596	13	0.1618 to 1.0292	0.2213					
Soluble sugars (well-watered)	Non-nitrogen fixer	0.059	31	-0.0319 to 0.1492	0.0462	-0.158	0.0869	-1.818	0.035	0.069
Soluble sugars (drought)	Non-nitrogen fixer	0.217	31	0.0724 to 0.3609	0.0736					
Soluble sugars (well-watered)	Nitrogen fixer	0.024	19	-0.0940 to 0.1413	0.0600	-0.079	0.1173	-0.671	0.251	0.502
Soluble sugars (drought)	Nitrogen fixer	0.102	18	-0.0953 to 0.2999	0.1008					
Protein (well-watered)	Non-nitrogen fixer	-0.051	7	-0.1588 to 0.0579	0.0553	-0.133	0.0778	-1.703	0.044	0.089
Protein (drought)	Non-nitrogen fixer	0.082	7	-0.0253 to 0.1894	0.0548					
Protein (well-watered)	Nitrogen fixer	-0.081	6	-0.2114 to 0.0494	0.0665	0.163	0.0922	1.766	0.039	0.077
Protein (drought)	Nitrogen fixer	-0.244	6	-0.3691 to -0.1187	0.0639					
Total phenolics (well-watered)	Non-nitrogen fixer	0.272	20	0.1579 to 0.3861	0.0582	0.088	0.0860	1.021	0.154	0.307
Total phenolics (drought)	Non-nitrogen fixer	0.184	21	0.0601 to 0.3083	0.0633					
Total phenolics (well-watered)	Nitrogen fixer	0.496	14	0.3606 to 0.6311	0.0690	0.010	0.1020	0.101	0.460	0.920
Total phenolics (drought)	Nitrogen fixer	0.486	14	0.3384 to 0.6328	0.0751					
PHOTOSYNTHETIC PATHWAY										
Total biomass (well-watered)	C3	0.290	67	0.2051 to 0.3756	0.0435	-0.025	0.0531	-0.467	0.320	0.640
Total biomass (drought)	C3	0.315	67	0.2555 to 0.3746	0.0304					
Total biomass (well-watered)	C4	0.009	2	-0.8022 to 0.8204	0.4139	-0.065	0.5147	-0.127	0.450	0.899
Total biomass (drought)	C4	0.074	2	-0.5253 to 0.6739	0.3059					
Starch (well-watered)	C3	0.450	21	0.0615 to 0.8391	0.1984	-0.150	0.2565	-0.586	0.279	0.558
Starch (drought)	C3	0.601	21	0.2818 to 0.9195	0.1627					
Starch (well-watered)	C4	-0.065	1	-7.1079 to 6.9778	3.5933	0.137	4.5913	0.030	0.488	0.976
Starch (drought)	C4	-0.202	1	-5.8036 to 5.3998	2.8580					
Soluble sugars (well-watered)	C3	0.066	39	-0.0123 to 0.1433	0.0397	-0.149	0.0797	-1.869	0.031	0.062
Soluble sugars (drought)	C3	0.215	38	0.0790 to 0.3501	0.0692					
Soluble sugars (well-watered)	C4	-0.143	5	-0.3496 to 0.0633	0.1053	-0.149	0.2209	-0.673	0.250	0.501
Soluble sugars (drought)	C4	0.006	5	-0.3752 to 0.3861	0.1942					
GROWTH RATE										
Nitrogen (well-watered)	Fast	-0.226	14	-0.2731 to -0.1786	0.0241	-0.063	0.0508	-1.232	0.109	0.218
Nitrogen (drought)	Fast	-0.163	14	-0.2510 to -0.0756	0.0447					
Nitrogen (well-watered)	Slow	-0.065	1	-1.0507 to 0.9214	0.5031	0.071	0.8406	0.084	0.466	0.933
Nitrogen (drought)	Slow	-0.136	1	-1.4558 to 1.1843	0.6735					
Total biomass (well-watered)	Fast	0.260	47	0.1627 to 0.3572	0.0496	-0.054	0.0613	-0.877	0.190	0.381
Total biomass (drought)	Fast	0.314	47	0.2432 to 0.3840	0.0359					
Total biomass (well-watered)	Moderate	0.290	19	0.1319 to 0.4480	0.0806	-0.054	0.0991	-0.542	0.294	0.588
Total biomass (drought)	Moderate	0.344	19	0.2307 to 0.4567	0.0577					
Total biomass (well-watered)	Slow	0.463	7	0.1537 to 0.7717	0.1577	0.091	0.2069	0.437	0.331	0.662
Total biomass (drought)	Slow	0.372	7	0.1096 to 0.6349	0.1340					
Starch (well-watered)	Fast	0.363	16	-0.0322 to 0.7575	0.2015	-0.192	0.2647	-0.726	0.234	0.468
Starch (drought)	Fast	0.555	16	0.2183 to 0.8916	0.1718					
Starch (well-watered)	Moderate	0.620	7	-0.2596 to 1.4987	0.4485	0.207	0.5967	0.347	0.364	0.729
Starch (drought)	Moderate	0.413	7	-0.3588 to 1.1838	0.3935					
Soluble sugars (well-watered)	Fast	0.054	31	-0.0317 to 0.1402	0.0439	-0.160	0.0860	-1.859	0.031	0.063
Soluble sugars (drought)	Fast	0.214	31	0.0692 to 0.3592	0.0740					
Soluble sugars (well-watered)	Moderate	0.041	17	-0.0901 to 0.1727	0.0670	-0.124	0.1235	-1.002	0.158	0.316
Soluble sugars (drought)	Moderate	0.165	17	-0.0382 to 0.3684	0.1037					
Soluble sugars (well-watered)	Slow	-0.190	1	-3.1814 to 2.8012	1.5262	0.270	2.5047	0.108	0.457	0.914
Soluble sugars (drought)	Slow	-0.460	1	-4.3526 to 3.4327	1.9860					
Specific leaf area (well-watered)	Fast	-0.169	1	-0.5323 to 0.1942	0.1853	0.076	0.4836	0.158	0.437	0.875
Specific leaf area (drought)	Fast	-0.245	1	-1.1209 to 0.6300	0.4467					
Specific leaf area (well-watered)	Slow	-0.019	1	-0.4571 to 0.4197	0.2237	0.027	0.5521	0.050	0.480	0.960
Specific leaf area (drought)	Slow	-0.046	1	-1.0354 to 0.9433	0.5048					
Total phenolics (well-watered)	Fast	0.362	25	0.2456 to 0.4774	0.0591	0.104	0.0591	1.766	0.039	0.077
Total phenolics (drought)	Fast	0.257	26	0.1133 to 0.4009						
Total phenolics (well-watered)	Moderate	0.251	6	-0.0693 to 0.5713	0.1634	-0.039	0.1634	-0.238	0.406	0.812
Total phenolics (drought)	Moderate	0.290	6	-0.0755 to 0.6553						
Total phenolics (well-watered)	Slow	0.612	2	-0.2015 to 1.4247	0.4148	-0.233	0.4148	-0.562	0.287	0.574
Total phenolics (drought)	Slow	0.845	2	-0.1049 to 1.7942						
REPRODUCTION										
Nitrogen (well-watered)	Angiosperm	-0.216	13	-0.2684 to -0.1628	0.0269	-0.056	0.0527	-1.061	0.144	0.289
Nitrogen (drought)	Angiosperm	-0.160	13	-0.2484 to -0.0710	0.0453					
Nitrogen (well-watered)	Gymnosperm	-0.200	2	-0.4466 to 0.0463	0.1257	-0.040	0.2174	-0.186	0.426	0.853
Nitrogen (drought)	Gymnosperm	-0.160	2	-0.5074 to 0.1879	0.1774					
Total biomass (well-watered)	Angiosperm	0.280	73	0.2008 to 0.3595	0.0405	-0.025	0.0504	-0.486	0.313	0.627
Total biomass (drought)	Angiosperm	0.305	73	0.2459 to 0.3634	0.0300					
Total biomass (well-watered)	Gymnosperm	0.399	8	0.1270 to 0.6712	0.1388	0.049	0.1734	0.280	0.390	0.779
Total biomass (drought)	Gymnosperm	0.351	8	0.1468 to 0.5541	0.1039					
Soluble sugars (well-watered)	Angiosperm	0.022	47	-0.0461 to 0.0905	0.0348	-0.077	0.0649	-1.185	0.118	0.236
Soluble sugars (drought)	Angiosperm	0.099	46	-0.0082 to 0.2065	0.0548					
Soluble sugars (well-watered)	Gymnosperm	0.489	3	0.0034 to 0.9754	0.2480	-1.016	0.4536	-2.239	0.013	0.025
Soluble sugars (drought)	Gymnosperm	1.505	3	0.7606 to 2.2496	0.3798					
Total phenolics (well-watered)	Angiosperm	0.372	32	0.2669 to 0.4779	0.0538	0.041	0.0846	0.480	0.316	0.631
Total phenolics (drought)	Angiosperm	0.332	32	0.2039 to 0.4596	0.0652					
Total phenolics (well-watered)	Gymnosperm	0.246	2	-0.5371 to 1.0286	0.3994	0.174	0.5107	0.341	0.367	0.733
Total phenolics (drought)	Gymnosperm	0.072	3	-0.5519 to 0.6955	0.3182					
PLANT GUILD										
Nitrogen (well-watered)	Grass	-0.334	2	-0.6055 to -0.0626	0.1385	-0.153	0.2369	-0.647	0.259	0.518
Nitrogen (drought)	Grass	-0.181	2	-0.5575 to 0.1960	0.1922					
Nitrogen (well-watered)	Herb/forb	-0.162	4	-0.2913 to -0.0330	0.0659	-0.080	0.1137	-0.705	0.240	0.481
Nitrogen (drought)	Herb/forb	-0.082	4	-0.2636 to 0.0996	0.0927					
Nitrogen (well-watered)	Tree	-0.202	8	-0.2824 to -0.1208	0.0412	-0.012	0.0657	-0.189	0.425	0.850
Nitrogen (drought)	Tree	-0.189	8	-0.2893 to -0.0890	0.0511					
Total biomass (well-watered)	Grass	0.137	24	0.0183 to 0.2564	0.0607	-0.102	0.0775	-1.319	0.094	0.187
Total biomass (drought)	Grass	0.240	24	0.1451 to 0.3341	0.0482					
Total biomass (well-watered)	Herb/forb	0.428	16	0.2754 to 0.5804	0.0778	0.099	0.1000	0.988	0.162	0.323
Total biomass (drought)	Herb/forb	0.329	16	0.2060 to 0.4522	0.0628					
Total biomass (well-watered)	Shrub	0.170	11	-0.0512 to 0.3902	0.1126	0.000	0.1395	0.003	0.499	0.998
Total biomass (drought)	Shrub	0.169	11	0.0075 to 0.3306	0.0824					
Total biomass (well-watered)	Tree	0.403	29	0.2838 to 0.5229	0.0610	-0.045	0.0813	-0.551	0.291	0.582
Total biomass (drought)	Tree	0.448	29	0.3428 to 0.5536	0.0538					
Root:shoot ratio (well-watered)	Grass	-0.066	2	-0.5800 to 0.4472	0.2620	0.115	0.4072	0.281	0.389	0.779
Root:shoot ratio (drought)	Grass	-0.181	2	-0.7918 to 0.4299	0.3117					
Root:shoot ratio (well-watered)	Herb/forb	-0.105	2	-0.6093 to 0.4000	0.2575	-0.102	0.4224	-0.241	0.405	0.810
Root:shoot ratio (drought)	Herb/forb	-0.003	2	-0.6591 to 0.6513	0.3348					
Root:shoot ratio (well-watered)	Tree	-0.202	3	-0.5539 to 0.1504	0.1797	-0.218	0.2873	-0.758	0.224	0.448
Root:shoot ratio (drought)	Tree	0.016	3	-0.4234 to 0.4556	0.2242					
Water (well-watered)	Grass	0.022	1	-0.0977 to 0.1424	0.0613	-0.004	0.1304	-0.028	0.489	0.977
Water (drought)	Grass	0.026	1	-0.1995 to 0.2517	0.1151					
Water (well-watered)	Herb/forb	0.000	1	-0.0854 to 0.0858	0.0437	0.004	0.1238	0.032	0.487	0.974
Water (drought)	Herb/forb	-0.004	1	-0.2309 to 0.2233	0.1159					
Water (well-watered)	Tree	-0.015	3	-0.0650 to 0.0343	0.0253	0.023	0.0401	0.571	0.284	0.568
Water (drought)	Tree	-0.038	3	-0.0991 to 0.0228	0.0311					
Starch (well-watered)	Grass	0.168	4	-0.7840 to 1.119	0.4855	-0.412	0.6824	-0.604	0.273	0.546
Starch (drought)	Grass	0.580	4	-0.3600 to 1.5198	0.4795					
Starch (well-watered)	Herb/forb	0.497	13	0.0035 to 0.9898	0.2516	-0.097	0.3409	-0.283	0.389	0.777
Starch (drought)	Herb/forb	0.593	13	0.1423 to 1.0439	0.2300					
Starch (well-watered)	Tree	0.407	6	-0.3459 to 1.1593	0.3840	0.179	0.5537	0.323	0.373	0.747
Starch (drought)	Tree	0.228	6	-0.5539 to 1.0099	0.3989					
Soluble sugars (well-watered)	Grass	-0.058	8	-0.2250 to 0.1093	0.0853	-0.080	0.1691	-0.473	0.318	0.636
Soluble sugars (drought)	Grass	0.022	8	-0.2639 to 0.3084	0.1460					
Soluble sugars (well-watered)	Herb/forb	0.024	19	-0.0932 to 0.1407	0.0597	-0.080	0.1187	-0.670	0.252	0.503
Soluble sugars (drought)	Herb/forb	0.103	18	-0.0980 to 0.3043	0.1026					
Soluble sugars (well-watered)	Tree	0.127	22	0.0115 to 0.2423	0.0589	-0.192	0.1106	-1.732	0.042	0.083
Soluble sugars (drought)	Tree	0.319	22	0.1349 to 0.5021	0.0937					
Protein (well-watered)	Herb/forb	-0.080	6	-0.2135 to 0.0531	0.0680	0.164	0.0931	1.761	0.039	0.078
Protein (drought)	Herb/forb	-0.244	6	-0.3688 to -0.1195	0.0636					
Protein (well-watered)	Grass	-0.046	5	-0.1801 to 0.0888	0.0686	-0.143	0.0964	-1.479	0.070	0.139
Protein (drought)	Grass	0.097	5	-0.0359 to 0.2297	0.0678					
Protein (well-watered)	Tree	-0.071	1	-1.4181 to 1.2770	0.6875	-0.105	0.9156	-0.115	0.454	0.909
Protein (drought)	Tree	0.035	1	-1.1507 to 1.2198	0.6047					
Total phenolics (well-watered)	Tree	0.416	6	0.1661 to 0.6659	0.1275	-0.013	0.1805	-0.073	0.471	0.942
Total phenolics (drought)	Tree	0.429	7	0.1787 to 0.6795	0.1278					
Total phenolics (well-watered)	Herb/forb	0.497	14	0.3628 to 0.6305	0.0683	0.009	0.0998	0.090	0.464	0.928
Total phenolics (drought)	Herb/forb	0.488	14	0.3450 to 0.6303	0.0728					
Total phenolics (well-watered)	Grass	0.215	13	0.0768 to 0.3533	0.0705	0.138	0.1041	1.322	0.093	0.186
Total phenolics (drought)	Grass	0.078	13	-0.0725 to 0.2274	0.0765					
TISSUE TYPE										
Nitrogen (well-watered)	Above-ground	-0.217	12	-0.2704 to -0.1628	0.0274	-0.068	0.0395	-1.713	0.043	0.087
Nitrogen (drought)	Above-ground	-0.149	12	-0.2046 to -0.0934	0.0284					
Nitrogen (well-watered)	Below-ground	-0.197	3	-0.3703 to -0.0226	0.0887	-0.004	0.1235	-0.035	0.486	0.972
Nitrogen (drought)	Below-ground	-0.192	3	-0.3607 to -0.0237	0.0860					
Total biomass (well-watered)	Above-ground	0.308	50	0.2131 to 0.4032	0.0485	-0.008	0.0602	-0.139	0.445	0.889
Total biomass (drought)	Above-ground	0.317	50	0.2465 to 0.3865	0.0357					
Total biomass (well-watered)	Below-ground	0.242	26	0.0924 to 0.3913	0.0763	-0.029	0.0942	-0.308	0.379	0.758
Total biomass (drought)	Below-ground	0.271	26	0.1623 to 0.3792	0.0553					
Total biomass (well-watered)	Whole plant	0.322	6	-0.0116 to 0.6550	0.1701	-0.064	0.2149	-0.299	0.382	0.765
Total biomass (drought)	Whole plant	0.386	6	0.1285 to 0.6435	0.1314					
OTHER CATEGORIES										
Soluble sugars (well-watered)	Fructose	0.148	4	-0.1566 to 0.4533	0.1556	-0.362	0.2833	-1.279	0.100	0.201
Soluble sugars (drought)	Fructose	0.511	4	0.0467 to 0.9749	0.2368					
Soluble sugars (well-watered)	Glucose	0.086	4	-0.2238 to 0.3948	0.1578	-0.174	0.2946	-0.589	0.278	0.556
Soluble sugars (drought)	Glucose	0.259	4	-0.2285 to 0.7465	0.2487					
Soluble sugars (well-watered)	Hexose	-0.013	3	-0.5395 to 0.5141	0.2688	-0.299	0.4412	-0.677	0.249	0.498
Soluble sugars (drought)	Hexose	0.286	3	-0.3998 to 0.9717	0.3499					
Soluble sugars (well-watered)	Sorbitol	0.033	1	-1.9144 to 1.9797	0.9934	-0.054	1.9319	-0.028	0.489	0.978
Soluble sugars (drought)	Sorbitol	0.087	1	-3.1607 to 3.3344	1.6569					
Soluble sugars (well-watered)	Sucrose	-0.031	16	-0.1616 to 0.1000	0.0667	-0.004	0.1178	-0.031	0.488	0.976
Soluble sugars (drought)	Sucrose	-0.027	16	-0.2173 to 0.1630	0.0970					
Soluble sugars (well-watered)	Total soluble sugars	0.081	18	-0.0392 to 0.2018	0.0615	-0.163	0.1171	-1.391	0.082	0.164
Soluble sugars (drought)	Total soluble sugars	0.244	17	0.0488 to 0.4395	0.0997					
Total carbohydrates (well-watered)	Soluble sugars	0.057	51	-0.0804 to 0.1940	0.0700	-0.138	0.1026	-1.348	0.089	0.178
Total carbohydrates (drought)	Soluble sugars	0.195	51	0.0481 to 0.3422	0.0750					
Total carbohydrates (well-watered)	Starch	0.398	25	0.1773 to 0.6194	0.1128	-0.105	0.1627	-0.644	0.260	0.519
Total carbohydrates (drought)	Starch	0.503	25	0.2734 to 0.7329	0.1172					
Total carbohydrates (well-watered)	Total non-structural carbohy	0.314	1	-3.8775 to 4.5060	2.1386	-0.047	3.0828	-0.015	0.494	0.988
Total carbohydrates (drought)	Total non-structural carbohy	0.362	1	-3.9901 to 4.7134	2.2203					
Total phenolics (well-watered)	Condensed tannins	0.258	10	0.0535 to 0.4630	0.1045	-0.028	0.1626	-0.174	0.431	0.862
Total phenolics (drought)	Condensed tannins	0.287	10	0.0422 to 0.5309	0.1247					
Total phenolics (well-watered)	Total flavonoids	0.392	21	0.2787 to 0.5062	0.0580	0.096	0.0941	1.023	0.153	0.306
Total phenolics (drought)	Total flavonoids	0.296	21	0.1509 to 0.4413	0.0741					
Total phenolics (well-watered)	Hydrolysable tannins	0.581	1	-1.9403 to 3.1023	1.2864	-0.228	1.9962	-0.114	0.455	0.909
Total phenolics (drought)	Hydrolysable tannins	0.809	1	-2.1829 to 3.8006	1.5264					

Appendix 7e. The effect of elevated CO2 on plant responses for both light and shade conditions. CO2 x light availability interactions were tested in two ways: a chi-square test based on the QB value and a z test based on the difference in effect sizes between the two levels of light availability. In the text, significance of these two-way interactions is based on the QB test. Variables highlighted in green showed significant variation between the two levels of light availability based on the QB test. For those variables with a significant QB value, values for the z test are highlighted in yellow. Both one-tailed and two-tailed z tests are presented since many of the responses to elevated CO2 have directional hypotheses associated with them.

Variable	**Cumulative effect size**	**df**	**95% CI**	**SE**	***d***	**SE(*d*)**	**Z**	**P (1-tailed)**	**P (2-tailed)**	**Q_B df**	**Q_B**	**Prob. (QB)**	**Q_W df**	**Q_W**	**Prob. (Qw)**
Nitrogen (light)	-0.170	7	-0.4345 to 0.0951	0.1351	0.004	0.1398	0.029	0.488	0.977	1	0.045	0.832	14	10.068	0.757
Nitrogen (shade)	-0.174	7	-0.2444 to -0.1032	0.0360											
Total biomass (light)	0.198	11	0.0482 to 0.3475	0.0764	-0.229	0.1396	-1.641	0.050	0.101	1	3.081	0.079	22	20.114	0.576
Total biomass (shade)	0.427	11	0.1978 to 0.6559	0.1169											
Root:shoot ratio (light)	0.025	15	-0.0303 to 0.0804	0.0282	0.019	0.0445	0.431	0.333	0.666	1	0.201	0.654	29	59.336	0.001
Root:shoot ratio (shade)	0.006	14	-0.0616 to 0.0732	0.0344											
Water (light)	-0.060	3	-0.1391 to 0.0184	0.0402	-0.020	0.0490	-0.408	0.342	0.683	1	0.295	0.587	6	6.647	0.355
Water (shade)	-0.040	3	-0.0954 to 0.0146	0.0281											
Total carbohydrates (light)	0.259	6	-0.1920 to 0.7096	0.2300	0.092	0.2740	0.334	0.369	0.738	1	0.006	0.939	12	20.880	0.052
Total carbohydrates (shade)	0.167	6	-0.1247 to 0.4593	0.1490											
Total phenolics (light)	0.482	6	0.0854 to 0.8778	0.2021	0.187	0.2190	0.855	0.196	0.392	1	0.838	0.360	12	10.215	0.597
Total phenolics (shade)	0.294	6	0.1294 to 0.4592	0.0841											

Appendix 7f. The effect of elevated CO2 on plant responses under both light and shade conditions for different plant functional groups. Groups highlighted in green suggest a significant CO2 x light availability x Plant Functional type interaction. We investigated three-way interactions by testing for significant two-way interactions between CO2 and light availability within each plant functional group. If one or more of these two-way interactions was significant and one or more was not significant, then we interpreted this as evidence of the significance of the three-way interaction. Caution should be taken in such interpretations since the non-significant result may have arisen as a type II error due to small sample sizes in these tests. We also recognize that other types of three-way interactions might be present, but to-date there are no statistical tests for detecting such interactions in meta-analyses. Since many of the responses to elevated CO2 have directional hypotheses associated with them, we present both one-tailed and two-tailed tests. However, throughout the main paper we report only on the two-tailed tests.

Grouping/Variable	Category	Cumulative effect size	df	95% CI	SE	*d*	SE(*d*)	Z	P (1-tailed)	P (2-tailed)
GROWTH RATE										
Total biomass (light)	Fast	0.194	5	-0.0696 to 0.4567	0.1343	-0.044	0.2223	-0.198	0.422	0.843
Total biomass (shade)	Fast	0.237	5	-0.1097 to 0.5846	0.1771					
Total biomass (light)	Moderate	0.121	3	-0.3024 to 0.5451	0.2162	-0.473	0.3519	-1.343	0.090	0.179
Total biomass (shade)	Moderate	0.594	3	0.0497 to 1.1383	0.2777					
Total biomass (light)	Slow	0.358	1	-1.9349 to 2.6508	1.1698	-0.315	1.9050	-0.165	0.434	0.869
Total biomass (shade)	Slow	0.673	1	-2.2742 to 3.6195	1.5035					
Root:shoot ratio (light)	Fast	0.000	8	-0.0794 to 0.0801	0.0407	0.056	0.0672	0.830	0.203	0.406
Root:shoot ratio (shade)	Fast	-0.055	7	-0.1603 to 0.0494	0.0535					
Root:shoot ratio (light)	Moderate	-0.025	3	-0.1895 to 0.1389	0.0838	-0.122	0.1408	-0.866	0.193	0.387
Root:shoot ratio (shade)	Moderate	0.097	3	-0.1252 to 0.3184	0.1132					
Root:shoot ratio (light)	Slow	0.178	2	-0.0898 to 0.4457	0.1366	0.116	0.2018	0.575	0.283	0.566
Root:shoot ratio (shade)	Slow	0.062	2	-0.2286 to 0.3539	0.1486					
Total phenolics (light)	Fast	0.449	3	-0.2225 to 1.1207	0.3427	0.168	0.3671	0.458	0.324	0.647
Total phenolics (shade)	Fast	0.281	3	0.0229 to 0.5391	0.1317					
Total phenolics (light)	Slow	0.571	2	-0.7501 to 1.8924	0.6741	0.221	0.7747	0.285	0.388	0.775
Total phenolics (shade)	Slow	0.350	2	-0.3979 to 1.0983	0.3817					
OTHER CATEGORIES										
Total carbohydrates (light)	Total structural carbohydrates	-0.167	2	-0.9525 to 0.6190	0.4009	-0.103	0.4190	-0.246	0.403	0.806
Total carbohydrates (shade)	Total structural carbohydrates	-0.064	2	-0.3023 to 0.1750	0.1218					
Total carbohydrates (light)	Starch	1.130	2	-0.2343 to 2.4941	0.6960	0.449	0.7885	0.569	0.285	0.569
Total carbohydrates (shade)	Starch	0.681	2	-0.0451 to 1.4075	0.3706					
Total phenolics (light)	Condensed tannins	0.293	3	-0.5683 to 1.1540	0.4394	0.084	0.4610	0.182	0.428	0.855
Total phenolics (shade)	Condensed tannins	0.209	3	-0.0644 to 0.4821	0.1394					
Total phenolics (light)	Hydrolysable tannins	0.560	1	-6.1637 to 7.2838	3.4305	0.274	3.6502	0.075	0.470	0.940
Total phenolics (shade)	Hydrolysable tannins	0.286	1	-2.1586 to 2.7310	1.2473					

Appendix 7g. The effect of elevated CO2 on plant responses for both ambient and elevated temperatures. CO2 x temperature interactions were tested in two ways: a chi-square test based on the QB value and a z test based on the difference in effect sizes between the two levels of temperature. In the text, significance of these two-way interactions is based on the QB test. Variables highlighted in green showed significant variation between the two levels of temperature based on the QB test. For those variables with a significant QB value, values for the z test are highlighted in yellow. Both one-tailed and two-tailed z tests are presented since many of the responses to elevated CO2 have directional hypotheses associated with them.

Variable	Cumulative effect size	df	95% CI	SE	*d*	SE(*d*)	Z	P (1-tailed)	P (2-tailed)	Q_B df	Q_B	Prob. (QB)	Q_W df	Q_W	Prob. (Qw)
Nitrogen (ambient temperature)	-0.145	58	-0.2009 to -0.0884	0.0287	0.070	0.0518	1.348	0.089	0.178	1	1.913	0.167	115	89.109	0.965
Nitrogen (elevated temperature)	-0.214	57	-0.2988 to -0.1299	0.0431											
Total biomass (ambient temperature)	0.268	64	0.2046 to 0.3314	0.0323	-0.037	0.0440	-0.838	0.201	0.402	1	0.881	0.348	128	146.769	0.123
Total biomass (elevated temperature)	0.305	64	0.2463 to 0.3634	0.0299											
Carbon:nitrogen ratio (ambient temperature)	0.276	5	0.0218 to 0.5307	0.1298	-0.015	0.1796	-0.086	0.466	0.932	1	0.012	0.912	10	6.576	0.765
Carbon:nitrogen ratio (elevated temperature)	0.292	5	0.0485 to 0.5350	0.1241											
Carbon (ambient temperature)	0.007	11	-0.0049 to 0.0198	0.0063	0.011	0.0089	1.203	0.114	0.229	1	1.809	0.179	22	24.783	0.308
Carbon (elevated temperature)	-0.003	11	-0.0156 to 0.0090	0.0063											
Water (ambient temperature)	-0.016	6	-0.0372 to 0.0059	0.0110	-0.005	0.0181	-0.298	0.383	0.766	1	0.487	0.485	12	10.238	0.595
Water (elevated temperature)	-0.010	6	-0.0385 to 0.0180	0.0144											
Total carbohydrates (ambient temperature)	0.234	72	0.0848 to 0.3825	0.0759	-0.001	0.0959	-0.007	0.497	0.994	1	0.013	0.909	144	134.617	0.701
Total carbohydrates (elevated temperature)	0.234	72	0.1197 to 0.3492	0.0585											
Starch (ambient temperature)	0.682	23	0.2729 to 1.0900	0.2084	-0.020	0.2565	-0.077	0.469	0.939	1	0.004	0.948	46	35.024	0.881
Starch (elevated temperature)	0.701	23	0.4081 to 0.9943	0.1495											
Soluble sugars (ambient temperature)	0.042	47	-0.0183 to 0.1029	0.0309	0.016	0.0577	0.282	0.389	0.778	1	0.138	0.710	94	89.243	0.619
Soluble sugars (elevated temperature)	0.026	47	-0.0695 to 0.1215	0.0487											
Amino acids (ambient temperature)	-0.181	5	-1.0734 to 0.7113	0.4553	0.195	0.5203	0.375	0.354	0.708	1	0.242	0.623	10	0.652	1.000
Amino acids (elevated temperature)	-0.376	5	-0.8699 to 0.1176	0.2519											
Protein (ambient temperature)	-0.083	15	-0.1719 to 0.0062	0.0454	0.083	0.0632	1.312	0.095	0.189	1	2.037	0.153	30	26.787	0.634
Protein (elevated temperature)	-0.166	15	-0.2518 to -0.0798	0.0439											
Specific leaf area (ambient temperature)	-0.216	9	-0.3984 to -0.0336	0.0931	0.001	0.1122	0.008	0.497	0.994	1	0.000	0.989	18	15.009	0.661
Specific leaf area (elevated temperature)	-0.217	9	-0.3396 to -0.0942	0.0626											
General toughness (ambient temperature)	0.065	6	0.0012 to 0.1288	0.0326	-0.009	0.0459	-0.207	0.418	0.836	1	0.067	0.796	12	15.232	0.229
General toughness (elevated temperature)	0.075	6	0.0110 to 0.1381	0.0324											
Total terpenes (ambient temperature)	-0.427	13	-0.5786 to -0.2763	0.0771	-0.040	0.0882	-0.456	0.324	0.649	1	0.038	0.846	27	29.692	0.328
Total terpenes (elevated temperature)	-0.387	14	-0.4711 to -0.3032	0.0428											
Total phenolics (ambient temperature)	0.121	97	0.0337 to 0.2079	0.0444	-0.049	0.0639	-0.760	0.224	0.447	1	0.594	0.441	194	147.547	0.995
Total phenolics (elevated temperature)	0.169	97	0.0793 to 0.2595	0.0460											
Total glycosides (ambient temperature)	-0.122	18	-0.3407 to 0.0972	0.1117	-0.293	0.1266	-2.312	0.010	0.021	1	7.765	0.005	36	36.496	0.446
Total glycosides (elevated temperature)	0.171	18	0.0543 to 0.2878	0.0596											
Total flavonoids (ambient temperature)	0.480	17	0.3392 to 0.6215	0.0720	0.146	0.0989	1.481	0.069	0.139	1	2.954	0.086	34	85.499	0.000
Total flavonoids (elevated temperature)	0.334	17	0.2011 to 0.4666	0.0677											
Condensed tannins (ambient temperature)	0.210	23	0.1008 to 0.3186	0.0556	-0.002	0.0765	-0.020	0.492	0.984	1	0.052	0.820	46	40.096	0.717
Condensed tannins (elevated temperature)	0.211	23	0.1081 to 0.3144	0.0526											

Appendix 7h. The effect of elevated CO2 on plant responses for ambient and elevated temperatures for different plant functional groups. Groups highlighted in green suggest a significant CO2 x temperature x Plant Functional type interaction. We investigated three-way interactions by testing for significant two-way interactions between CO2 and temperature within each plant functional group. If one or more of these two-way interactions was significant and one or more was not significant, then we interpreted this as evidence of the significance of the three-way interaction. Caution should be taken in such interpretations since the non-significant result may have arisen as a type II error due to small sample sizes in these tests. We also recognize that other types of three-way interactions might be present, but to-date there are no statistical tests for detecting such interactions in meta-analyses. Since many of the responses to elevated CO2 have directional hypotheses associated with them, we present both one-tailed and two-tailed tests. However, throughout the main paper we report only on the two-tailed tests.

Grouping/Variable	Category	Cumulative effect size	df	95% CI	SE	*d*	SE(*d*)	Z	P (1-tailed)	P (2-tailed)
N FIXATION										
Nitrogen (ambient temperature)	Non-nitrogen fixer	-0.146	52	-0.2074 to -0.0845	0.0314	0.083	0.0559	1.484	0.069	0.138
Nitrogen (elevated temperature)	Non-nitrogen fixer	-0.229	52	-0.3194 to -0.1381	0.0463					
Nitrogen (ambient temperature)	Nitrogen fixer	-0.134	5	-0.3570 to 0.0897	0.1140	-0.038	0.2048	-0.186	0.426	0.852
Nitrogen (elevated temperature)	Nitrogen fixer	-0.096	5	-0.4291 to 0.2381	0.1702					
Total biomass (ambient temperature)	Non-nitrogen fixer	0.272	57	0.2028 to 0.3409	0.0352	-0.047	0.0473	-0.999	0.159	0.318
Total biomass (elevated temperature)	Non-nitrogen fixer	0.319	57	0.2574 to 0.3809	0.0315					
Total biomass (ambient temperature)	Nitrogen fixer	0.245	6	0.0250 to 0.4651	0.1123	0.049	0.1530	0.317	0.376	0.751
Total biomass (elevated temperature)	Nitrogen fixer	0.197	6	-0.0072 to 0.4005	0.1040					
Starch (ambient temperature)	Non-nitrogen fixer	0.224	5	-0.6610 to 1.1091	0.4516	-0.395	0.5777	-0.683	0.247	0.494
Starch (elevated temperature)	Non-nitrogen fixer	0.619	5	-0.0874 to 1.3249	0.3603					
Starch (ambient temperature)	Nitrogen fixer	0.858	17	0.4084 to 1.3067	0.2292	0.124	0.2937	0.423	0.336	0.672
Starch (elevated temperature)	Nitrogen fixer	0.733	17	0.3729 to 1.0933	0.1838					
Soluble sugars (ambient temperature)	Non-nitrogen fixer	0.066	23	-0.0229 to 0.1542	0.0452	0.088	0.0766	1.151	0.125	0.250
Soluble sugars (elevated temperature)	Non-nitrogen fixer	-0.023	23	-0.1438 to 0.0987	0.0619					
Soluble sugars (ambient temperature)	Nitrogen fixer	0.014	23	-0.0817 to 0.1099	0.0489	-0.065	0.0841	-0.768	0.221	0.442
Soluble sugars (elevated temperature)	Nitrogen fixer	0.079	23	-0.0554 to 0.2129	0.0684					
Protein (ambient temperature)	Non-nitrogen fixer	-0.095	9	-0.2161 to 0.0258	0.0617	-0.025	0.0741	-0.331	0.370	0.741
Protein (elevated temperature)	Non-nitrogen fixer	-0.071	9	-0.1509 to 0.0098	0.0410					
Protein (ambient temperature)	Nitrogen fixer	-0.070	5	-0.2181 to 0.0781	0.0756	0.228	0.0896	2.543	0.005	0.011
Protein (elevated temperature)	Nitrogen fixer	-0.298	5	-0.3923 to -0.2035	0.0482					
Total phenolics (ambient temperature)	Non-nitrogen fixer	0.016	83	-0.0505 to 0.0821	0.0338	-0.070	0.0477	-1.468	0.071	0.142
Total phenolics (elevated temperature)	Non-nitrogen fixer	0.086	83	0.0198 to 0.1519	0.0337					
Total phenolics (ambient temperature)	Nitrogen fixer	0.597	13	0.4661 to 0.7273	0.0666	0.161	0.0893	1.798	0.036	0.072
Total phenolics (elevated temperature)	Nitrogen fixer	0.436	13	0.3198 to 0.5526	0.0594					
PHOTOSYNTHETIC PATHWAY										
Nitrogen (ambient temperature)	C3	-0.168	49	-0.2158 to -0.1204	0.0243	0.016	0.0428	0.377	0.353	0.706
Nitrogen (elevated temperature)	C3	-0.184	48	-0.2531 to -0.1153	0.0352					
Nitrogen (ambient temperature)	C4	0.208	4	0.0102 to 0.4057	0.1009	0.331	0.1914	1.729	0.042	0.084
Nitrogen (elevated temperature)	C4	-0.123	4	-0.4418 to 0.1958	0.1627					
GROWTH RATE										
Nitrogen (ambient temperature)	Fast	-0.149	34	-0.2073 to -0.0907	0.0297	0.137	0.0642	2.132	0.017	0.033
Nitrogen (elevated temperature)	Fast	-0.286	34	-0.3975 to -0.1744	0.0569					
Nitrogen (ambient temperature)	Moderate	0.043	8	-0.0756 to 0.1621	0.0606	0.172	0.1430	1.205	0.114	0.228
Nitrogen (elevated temperature)	Moderate	-0.129	8	-0.3827 to 0.1248	0.1295					
Nitrogen (ambient temperature)	Slow	-0.210	12	-0.3037 to -0.1163	0.0478	-0.169	0.1137	-1.487	0.069	0.137
Nitrogen (elevated temperature)	Slow	-0.041	11	-0.2432 to 0.1613	0.1032					
Total biomass (ambient temperature)	Fast	0.288	47	0.2184 to 0.3574	0.0355	-0.001	0.0481	-0.017	0.493	0.987
Total biomass (elevated temperature)	Fast	0.289	47	0.2251 to 0.3523	0.0324					
Total biomass (ambient temperature)	Moderate	0.751	3	0.2681 to 1.2341	0.2464	0.076	0.3316	0.228	0.410	0.819
Total biomass (elevated temperature)	Moderate	0.675	3	0.2406 to 1.1103	0.2219					
Total biomass (ambient temperature)	Slow	-0.010	5	-0.2479 to 0.2277	0.1213	-0.125	0.1865	-0.672	0.251	0.501
Total biomass (elevated temperature)	Slow	0.115	5	-0.1624 to 0.3930	0.1417					
Carbon (ambient temperature)	Fast	-0.013	6	-0.0295 to 0.0044	0.0086	0.001	0.0104	0.058	0.477	0.954
Carbon (elevated temperature)	Fast	-0.013	6	-0.0246 to -0.0018	0.0058					
Carbon (ambient temperature)	Moderate	0.033	1	-0.4857 to 0.5507	0.2644	0.002	0.2735	0.006	0.498	0.995
Carbon (elevated temperature)	Moderate	0.031	1	-0.1063 to 0.1681	0.0700					
Starch (ambient temperature)	Fast	0.809	15	0.3281 to 1.2889	0.2451	-0.013	0.3026	-0.041	0.484	0.967
Starch (elevated temperature)	Fast	0.821	15	0.4731 to 1.1689	0.1775					
Starch (ambient temperature)	Moderate	0.352	7	-0.5087 to 1.2120	0.4390	0.047	0.5666	0.082	0.467	0.934
Starch (elevated temperature)	Moderate	0.305	7	-0.3973 to 1.0070	0.3582					
Soluble sugars (ambient temperature)	Fast	0.033	32	-0.0416 to 0.1074	0.0380	0.027	0.0683	0.395	0.346	0.693
Soluble sugars (elevated temperature)	Fast	0.006	32	-0.1054 to 0.1172	0.0568					
Soluble sugars (ambient temperature)	Moderate	0.062	13	-0.0775 to 0.2009	0.0710	-0.002	0.1221	-0.020	0.492	0.984
Soluble sugars (elevated temperature)	Moderate	0.064	13	-0.1305 to 0.2587	0.0993					
Protein (ambient temperature)	Fast	-0.070	5	-0.2181 to 0.0781	0.0756	0.228	0.0896	2.543	0.005	0.011
Protein (elevated temperature)	Fast	-0.298	5	-0.3923 to -0.2035	0.0482					
Protein (ambient temperature)	Slow	-0.095	9	-0.2161 to 0.0258	0.0617	-0.025	0.0741	-0.331	0.370	0.741
Protein (elevated temperature)	Slow	-0.071	9	-0.1509 to 0.0098	0.0410					
Total phenolics (ambient temperature)	Fast	0.152	56	0.0523 to 0.2517	0.0509	-0.041	0.0673	-0.605	0.273	0.545
Total phenolics (elevated temperature)	Fast	0.193	56	0.1064 to 0.2789	0.0440					
Total phenolics (ambient temperature)	Moderate	0.182	9	-0.0529 to 0.4167	0.1198	-0.100	0.1551	-0.642	0.261	0.521
Total phenolics (elevated temperature)	Moderate	0.281	9	0.0884 to 0.4743	0.0984					
Total phenolics (ambient temperature)	Slow	0.069	30	-0.0666 to 0.2040	0.0690	-0.020	0.0926	-0.219	0.413	0.827
Total phenolics (elevated temperature)	Slow	0.089	30	-0.0321 to 0.2101	0.0618					
REPRODUCTION										
Nitrogen (ambient temperature)	Angiosperm	-0.132	41	-0.2000 to -0.0638	0.0347	0.127	0.0616	2.059	0.020	0.039
Nitrogen (elevated temperature)	Angiosperm	-0.259	41	-0.3585 to -0.1590	0.0509					
Nitrogen (ambient temperature)	Gymnosperm	-0.176	16	-0.2867 to -0.0642	0.0568	-0.078	0.1040	-0.748	0.227	0.454
Nitrogen (elevated temperature)	Gymnosperm	-0.098	15	-0.2684 to 0.0730	0.0871					
Total biomass (ambient temperature)	Angiosperm	0.263	50	0.1916 to 0.3334	0.0362	-0.008	0.0483	-0.161	0.436	0.872
Total biomass (elevated temperature)	Angiosperm	0.270	50	0.2075 to 0.3331	0.0320					
Total biomass (ambient temperature)	Gymnosperm	0.291	13	0.1355 to 0.4459	0.0792	-0.205	0.1139	-1.800	0.036	0.072
Total biomass (elevated temperature)	Gymnosperm	0.496	13	0.3353 to 0.6561	0.0818					
Carbon (ambient temperature)	Angiosperm	-0.012	6	-0.0286 to 0.0057	0.0088	-0.012	0.0136	-0.854	0.196	0.393
Carbon (elevated temperature)	Angiosperm	0.000	6	-0.0202 to 0.0205	0.0104					
Carbon (ambient temperature)	Gymnosperm	-0.008	4	-0.0617 to 0.0453	0.0273	-0.003	0.0307	-0.085	0.466	0.933
Carbon (elevated temperature)	Gymnosperm	-0.006	4	-0.0332 to 0.0219	0.0141					
Specific leaf area (ambient temperature)	Angiosperm	-0.359	4	-0.5675 to -0.1507	0.1063	-0.125	0.1558	-0.802	0.211	0.422
Specific leaf area (elevated temperature)	Angiosperm	-0.234	4	-0.4574 to -0.0109	0.1139					
Specific leaf area (ambient temperature)	Gymnosperm	-0.068	4	-0.2923 to 0.1568	0.1146	0.132	0.1665	0.794	0.214	0.427
Specific leaf area (elevated temperature)	Gymnosperm	-0.200	4	-0.4368 to 0.0369	0.1208					
Protein (ambient temperature)	Angiosperm	-0.070	5	-0.2181 to 0.0781	0.0756	0.228	0.0896	2.543	0.005	0.011
Protein (elevated temperature)	Angiosperm	-0.298	5	-0.3923 to -0.2035	0.0482					
Protein (ambient temperature)	Gymnosperm	-0.095	9	-0.2161 to 0.0258	0.0617	-0.025	0.0741	-0.331	0.370	0.741
Protein (elevated temperature)	Gymnosperm	-0.071	9	-0.1509 to 0.0098	0.0410					
Total phenolics (ambient temperature)	Angiosperm	0.155	67	0.0598 to 0.2506	0.0487	-0.054	0.0625	-0.863	0.194	0.388
Total phenolics (elevated temperature)	Angiosperm	0.209	67	0.1324 to 0.2858	0.0391					
Total phenolics (ambient temperature)	Gymnosperm	0.056	29	-0.0927 to 0.2048	0.0759	-0.031	0.0990	-0.311	0.378	0.756
Total phenolics (elevated temperature)	Gymnosperm	0.087	29	-0.0379 to 0.2116	0.0636					
PLANT GUILD										
Nitrogen (ambient temperature)	Grass	-0.064	3	-0.3495 to 0.2221	0.1458	0.571	0.2496	2.287	0.011	0.022
Nitrogen (elevated temperature)	Grass	-0.635	3	-1.0319 to -0.2376	0.2026					
Nitrogen (ambient temperature)	Herb/forb	-0.038	18	-0.1220 to 0.0459	0.0428	0.149	0.0699	2.127	0.017	0.033
Nitrogen (elevated temperature)	Herb/forb	-0.187	18	-0.2950 to -0.0784	0.0553					
Nitrogen (ambient temperature)	Shrub	-0.445	1	-1.8855 to 0.9948	0.7348	-0.044	1.2098	-0.036	0.485	0.971
Nitrogen (elevated temperature)	Shrub	-0.401	1	-2.2853 to 1.4824	0.9611					
Nitrogen (ambient temperature)	Tree	-0.194	33	-0.2557 to -0.1329	0.0313	-0.019	0.0516	-0.372	0.355	0.710
Nitrogen (elevated temperature)	Tree	-0.175	32	-0.2553 to -0.0948	0.0409					
Total biomass (ambient temperature)	Grass	0.259	11	0.0872 to 0.4298	0.0874	0.000	0.1115	0.000	0.500	1.000
Total biomass (elevated temperature)	Grass	0.259	11	0.1227 to 0.3943	0.0693					
Total biomass (ambient temperature)	Herb/forb	0.274	28	0.1808 to 0.3671	0.0475	0.038	0.0618	0.620	0.268	0.536
Total biomass (elevated temperature)	Herb/forb	0.236	28	0.1582 to 0.3132	0.0395					
Total biomass (ambient temperature)	Shrub	0.257	2	-0.3532 to 0.8669	0.3113	-0.273	0.4124	-0.663	0.254	0.507
Total biomass (elevated temperature)	Shrub	0.530	2	-0.0001 to 1.0607	0.2706					
Total biomass (ambient temperature)	Tree	0.267	20	0.1395 to 0.3935	0.0648	-0.178	0.0891	-1.995	0.023	0.046
Total biomass (elevated temperature)	Tree	0.444	20	0.3243 to 0.5642	0.0612					
Carbon (ambient temperature)	Herb/forb	0.014	2	-0.1847 to 0.2132	0.1015	0.018	0.1039	0.173	0.431	0.862
Carbon (elevated temperature)	Herb/forb	-0.004	2	-0.0470 to 0.0396	0.0221					
Carbon (ambient temperature)	Tree	-0.012	7	-0.0274 to 0.0041	0.0080	-0.008	0.0134	-0.614	0.270	0.539
Carbon (elevated temperature)	Tree	-0.003	7	-0.0243 to 0.0175	0.0107					
Soluble sugars (ambient temperature)	Grass	-0.129	2	-0.7342 to 0.4769	0.3090	-0.037	0.5657	-0.065	0.474	0.948
Soluble sugars (elevated temperature)	Grass	-0.092	2	-1.0206 to 0.8372	0.4739					
Soluble sugars (ambient temperature)	Herb/forb	0.039	35	-0.0298 to 0.1086	0.0353	0.044	0.0641	0.686	0.246	0.493
Soluble sugars (elevated temperature)	Herb/forb	-0.005	35	-0.1095 to 0.1004	0.0535					
Soluble sugars (ambient temperature)	Tree	0.105	8	-0.0689 to 0.2793	0.0888	-0.073	0.1542	-0.475	0.317	0.635
Soluble sugars (elevated temperature)	Tree	0.179	8	-0.0685 to 0.4256	0.1260					
Protein (ambient temperature)	Herb/forb	-0.070	5	-0.2181 to 0.0781	0.0756	0.228	0.0896	2.543	0.005	0.011
Protein (elevated temperature)	Herb/forb	-0.298	5	-0.3923 to -0.2035	0.0482					
Protein (ambient temperature)	Tree	-0.095	9	-0.2161 to 0.0258	0.0617	-0.025	0.0741	-0.331	0.370	0.741
Protein (elevated temperature)	Tree	-0.071	9	-0.1509 to 0.0098	0.0410					
Total phenolics (ambient temperature)	Herb/Forbe	0.597	13	0.4655 to 0.7274	0.0668	0.158	0.0874	1.812	0.035	0.070
Total phenolics (elevated temperature)	Herb/Forbe	0.438	13	0.3278 to 0.5485	0.0563					
Total phenolics (ambient temperature)	Tree	0.022	75	-0.0482 to 0.0923	0.0358	-0.109	0.0500	-2.174	0.015	0.030
Total phenolics (elevated temperature)	Tree	0.131	75	0.0625 to 0.1991	0.0348					
Total phenolics (ambient temperature)	Shrub	-0.039	7	-0.2863 to 0.2082	0.1261	0.220	0.1694	1.298	0.097	0.194
Total phenolics (elevated temperature)	Shrub	-0.259	7	-0.4804 to -0.0374	0.1130					
TISSUE TYPE										
Nitrogen (ambient temperature)	Above-ground	-0.174	48	-0.2329 to -0.1157	0.0299	0.049	0.0564	0.865	0.194	0.387
Nitrogen (elevated temperature)	Above-ground	-0.223	47	-0.3169 to -0.1293	0.0479					
Nitrogen (ambient temperature)	Below-ground	-0.060	7	-0.2488 to 0.1297	0.0966	0.059	0.1733	0.343	0.366	0.732
Nitrogen (elevated temperature)	Below-ground	-0.119	7	-0.4009 to 0.1631	0.1439					
Nitrogen (ambient temperature)	Whole plant	0.261	1	-1.4855 to 2.0078	0.8911	0.610	1.6988	0.359	0.360	0.720
Nitrogen (elevated temperature)	Whole plant	-0.349	1	-3.1834 to 2.4861	1.4463					
Total biomass (ambient temperature)	Above-ground	0.211	40	0.1333 to 0.2878	0.0394	-0.033	0.0523	-0.628	0.265	0.530
Total biomass (elevated temperature)	Above-ground	0.243	40	0.1761 to 0.3106	0.0343					
Total biomass (ambient temperature)	Below-ground	0.390	21	0.2710 to 0.5096	0.0609	-0.007	0.0805	-0.082	0.467	0.935
Total biomass (elevated temperature)	Below-ground	0.397	21	0.2935 to 0.5003	0.0528					
Total biomass (ambient temperature)	Whole plant	0.318	1	-1.8159 to 2.4510	1.0885	-0.313	1.4634	-0.214	0.415	0.831
Total biomass (elevated temperature)	Whole plant	0.631	1	-1.2864 to 2.5476	0.9781					
OTHER CATEGORIES										
Soluble sugars (ambient temperature)	Sucrose	0.052	14	-0.0647 to 0.1694	0.0597	0.014	0.0754	0.179	0.429	0.858
Soluble sugars (elevated temperature)	Sucrose	0.039	14	-0.0513 to 0.1290	0.0460					
Soluble sugars (ambient temperature)	Total soluble sugars	0.061	26	-0.0308 to 0.1527	0.0468	-0.083	0.0630	-1.309	0.095	0.191
Soluble sugars (elevated temperature)	Total soluble sugars	0.144	26	0.0608 to 0.2262	0.0422					
Total phenolics (ambient temperature)	Condensed tannins	0.212	23	0.0919 to 0.3314	0.0611	0.029	0.0897	0.318	0.375	0.751
Total phenolics (elevated temperature)	Condensed tannins	0.183	23	0.0544 to 0.3119	0.0657					
Total phenolics (ambient temperature)	Total flavonoids	0.496	17	0.3621 to 0.6291	0.0681	0.150	0.0926	1.623	0.052	0.105
Total phenolics (elevated temperature)	Total flavonoids	0.345	17	0.2226 to 0.4683	0.0627					
Total phenolics (ambient temperature)	Phenylpropanoid acid int	-0.084	11	-0.3305 to 0.1622	0.1257	-0.528	0.1798	-2.937	0.002	0.003
Total phenolics (elevated temperature)	Phenylpropanoid acid int	0.444	11	0.1919 to 0.6959	0.1286					
Total phenolics (ambient temperature)	Total phenolics	-0.028	42	-0.1184 to 0.0630	0.0463	-0.071	0.0645	-1.103	0.135	0.270
Total phenolics (elevated temperature)	Total phenolics	0.043	42	-0.0445 to 0.1314	0.0449					