

Supplementary Information for

Plastic responses to novel environments are biased towards phenotype dimensions with high genetic variation

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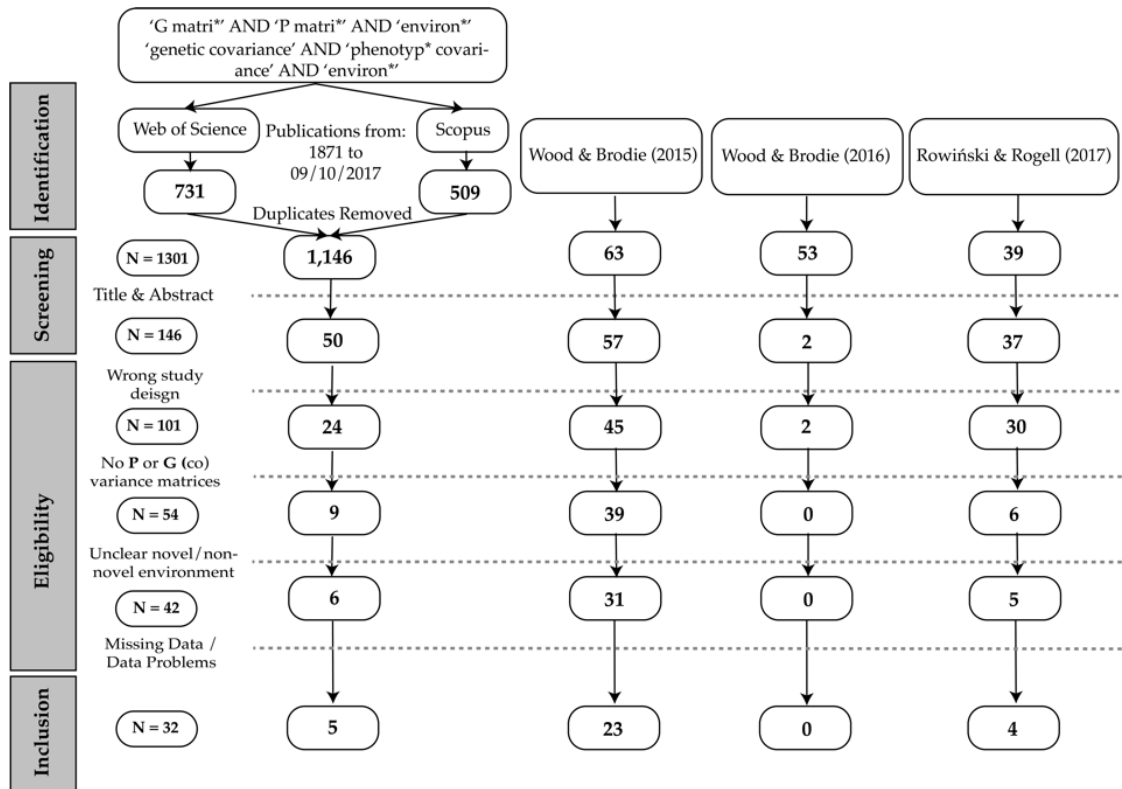


Fig. S1. PRISMA diagram for the systematic search.

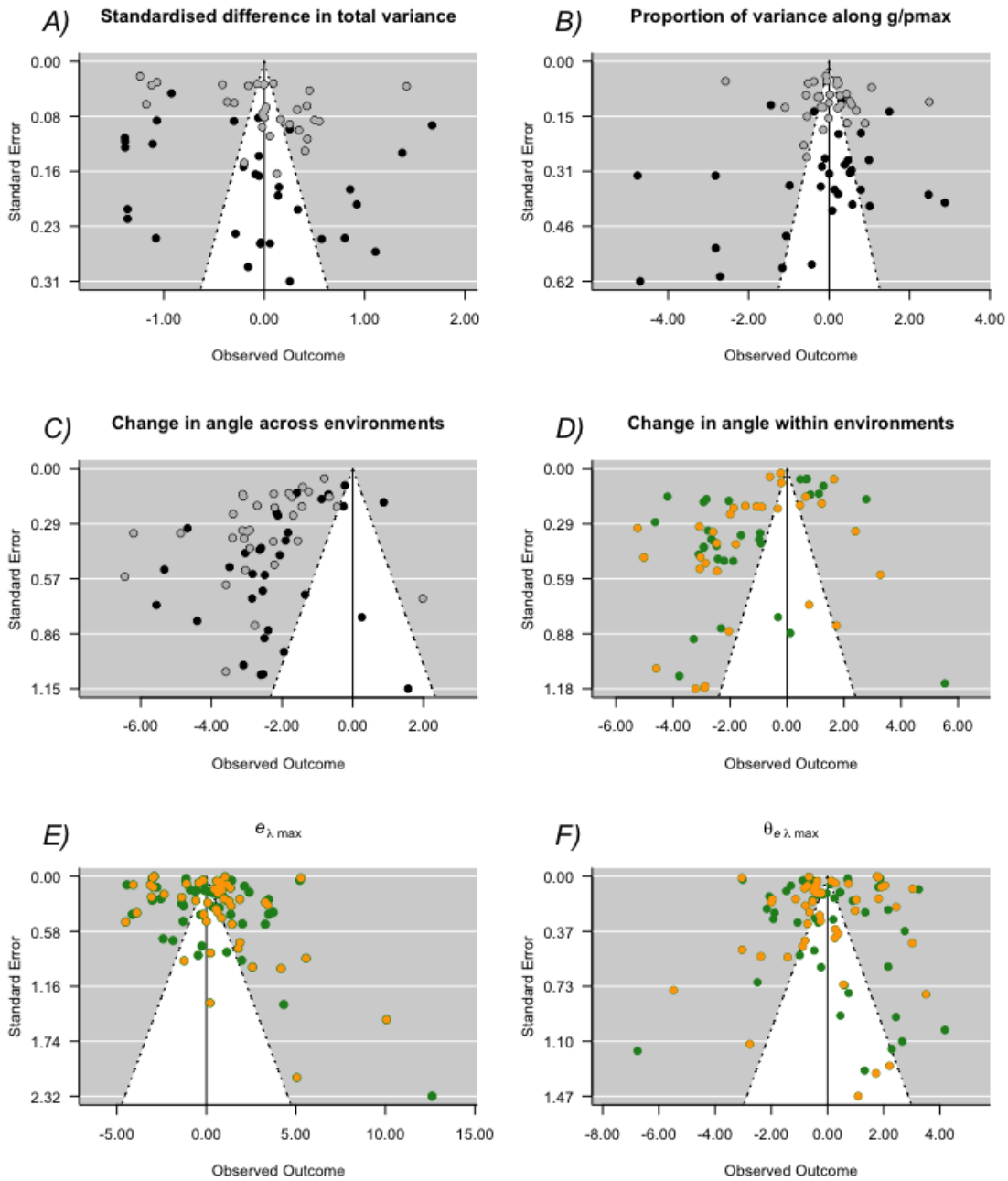


Fig. S2. Funnel plots of sampling standard error and effect size. (A-C) ‘Gray’ points represent effect sizes for P, whereas ‘black’ points represent effect sizes for G. (D–F) ‘Orange’ points are effect sizes from novel environments, whereas ‘green’ points are effect sizes from non-novel environments. Note that for C) there was a significant change in angle across environments that was impacted also by the type of environment (stress or not). See main manuscript for more details..

Table S1. Estimates testing whether the angle of **g_{max}** is aligned more than simply by chance. We are specifically interested in the intercept here and when the 95% confidence intervals exclude zero, there is evidence that alignment between plasticity vector and **g_{max}** is more than what we expect by chance alone.

	Est.	L 95 %	U 95 %
Intercept	1.108	0.394	1.822
Novel Environment	0.040	-0.242	0.321
Half-sib Breeding Design	-0.573	-1.419	0.274
Number of Traits	0.165	-0.191	0.521

Table S2. Model estimates for (1) standardized differences in total trait genetic variance (SDV) between non-novel and novel environments, (2) the change in proportion of variance along \mathbf{g}_{\max} (PV_{\max}) between non-novel and novel environments, and (3) the angle between \mathbf{g}_{\max} (θ_G) between non-novel and novel environments. 95% confidence intervals are provided. Intercept values are the average effect size for a study with an average number of traits conducting a full-sib breeding design in a benign environment. All other parameters are contrasts from this mean. Estimates in boldface indicate significant effects ($P < 0.05$).

	Est. (1)	L 95 %	U 95 %	Est. (2)	L 95 %	U 95 %	Est. (3)	L 95 %	U 95 %
Intercept	0.623	0.086	1.159	0.465	-0.501	1.431	-1.97	-3.015	-0.925
Half-sib Breeding Design	-1.092	-1.749	-0.434	-1.475	-2.676	-0.275	-1.245	-2.551	0.062
Stressful Environment	-0.012	-0.634	0.610	0.751	-0.387	1.889	1.51	0.269	2.752
Number of Traits	-0.090	-0.358	0.179	0.454	-0.044	0.952	0.89	0.353	1.427

Table S3. Estimates of the (1) the angle between **g_{max}** and **p_{max}** within environments, (2) total amount of genetic variance in the direction of plastic response vector (as a proportion of **g_{max}**), π_e , and (3) the angle between the plastic response vector and **g_{max}**, θ_e , in in both the novel and non-novel environments. 95% confidence intervals are provided. Intercept values are the average effect size for a study with an average number of traits conducting a full-sib breeding design in a non-novel environment. All other parameters are contrasts from this mean. Estimates in boldface indicate significant effects ($P < 0.05$).

	Est. (1)	L 95 %	U 95 %	Est. (2)	L 95 %	U 95 %	Est. (3)	L 95 %	U 95 %
Intercept	-2.083	-3.781	-0.385	1.274	-0.353	2.900	-0.525	-1.569	0.520
Novel Environment	0.094	-0.251	0.439	0.088	-0.420	0.597	-0.102	-0.458	0.254
Half-sib Breeding Design	1.080	-0.995	3.155	-0.756	-2.689	1.177	0.449	-0.790	1.689
Number of Traits	0.080	-1.876	2.036	-1.074	-1.875	-0.273	0.733	0.213	1.254