

**Table S5 Estimates of genetic and residual covariances and correlations (in the lower diagonal) based on individual NAM populations 21-25**

PopId	Envi	LL								LW							
		Genetic covariance				Residual covariance				Genetic covariance				Residual covariance			
		E1	E2	E3	E4	E1	E2	E3	E4	E1	E2	E3	E4	E1	E2	E3	E4
21	E1	1153.0	1104.6	913.2	905.8	2485.8	1047.1	1313.0	965.1	32.4	16.3	18.8	17.0	69.6	4.7	15.0	11.0
	E2	0.81	1603.0	1203.6	1269.5	0.44	2329.9	1258.4	943.2	0.68	17.6	9.5	9.2	0.07	69.84	7.07	12.5
	E3	0.79	0.88	1167.9	1097.4	0.43	0.43	3690.1	1186.7	0.65	0.45	25.8	13.9	0.18	0.09	98.2	6.8
	E4	0.72	0.85	0.86	1391.6	0.41	0.42	0.42	2212.9	0.82	0.60	0.75	13.4	0.16	0.19	0.09	64.7
22	E1	1000.1	1000.2	477.3	375.1	4400.6	1041.3	1010.4	996.9	30.4	25.9	18.9	20.9	243.8	17.8	28.6	15.5
	E2	0.71	1972.3	625.6	694.1	0.29	2934.1	831.3	839.4	0.84	31.5	16.6	25.0	0.15	56.6	15.2	13.3
	E3	0.57	0.53	707.1	552.6	0.29	0.29	2788.5	808.0	0.95	0.82	13.0	14.4	0.19	0.21	92.2	11.8
	E4	0.42	0.56	0.74	786.1	0.29	0.29	0.29	2780.3	0.83	0.98	0.87	21.0	0.14	0.24	0.17	52.1
23	E1	1329.2	842.1	765.1	831.6	3094.9	776.0	778.0	872.5	17.0	13.4	18.3	19.9	102.6	27.2	21.4	20.8
	E2	0.70	1097.0	633.3	703.5	0.24	3333.9	800.1	905.6	0.69	22.3	14.0	18.0	0.27	96.7	21.1	19.7
	E3	0.85	0.78	603.7	622.1	0.24	0.24	3317.6	905.5	0.98	0.65	20.5	14.3	0.27	0.27	62.0	15.0
	E4	0.72	0.67	0.80	995.9	0.24	0.24	0.24	4239.4	0.99	0.78	0.65	23.5	0.27	0.27	0.25	56.6
24	E1	1495.4	541.3	724.0	537.2	3241.0	1437.8	1738.8	1528.7	39.5	22.4	24.7	27.0	72.2	12.9	19.4	19.1
	E2	0.78	318.5	427.3	306.8	0.43	3479.4	1815.5	1611.7	0.78	20.8	18.2	17.6	0.19	66.6	18.2	18.5
	E3	0.53	0.68	1242.5	610.6	0.42	0.43	5179.5	1917.9	0.93	0.94	18.1	17.1	0.25	0.24	83.8	13.8
	E4	0.54	0.67	0.67	664.0	0.42	0.43	0.42	4031.1	0.95	0.85	0.88	20.6	0.31	0.31	0.21	52.6
25	E1	1607.2	918.9	1127.7	697.3	2857.2	1072.6	1288.7	1393.5	29.9	18.1	16.0	20.1	85.2	28.3	26.8	22.6
	E2	0.73	978.6	727.8	766.6	0.41	2432.8	1174.9	1302.6	0.59	31.8	9.3	30.3	0.44	47.6	26.7	26.9
	E3	0.77	0.63	1348.0	666.3	0.40	0.39	3725.9	1592.9	0.85	0.48	12.0	11.8	0.28	0.37	110.2	29.9
	E4	0.59	0.82	0.61	883.6	0.40	0.40	0.40	4337.6	0.61	0.89	0.56	36.5	0.32	0.51	0.37	59.4

Envi: environment