Figure S1 Histograms of the least squared means for phenotyped traits from the QTL mapping population. Several of these distributions are approximately normal, but other traits take on an exponential distribution. The average least squared mean for NIRILs with 100% maize and teosinte genotypes is indicated with an arrow and "M" for maize and "T" for teosinte.
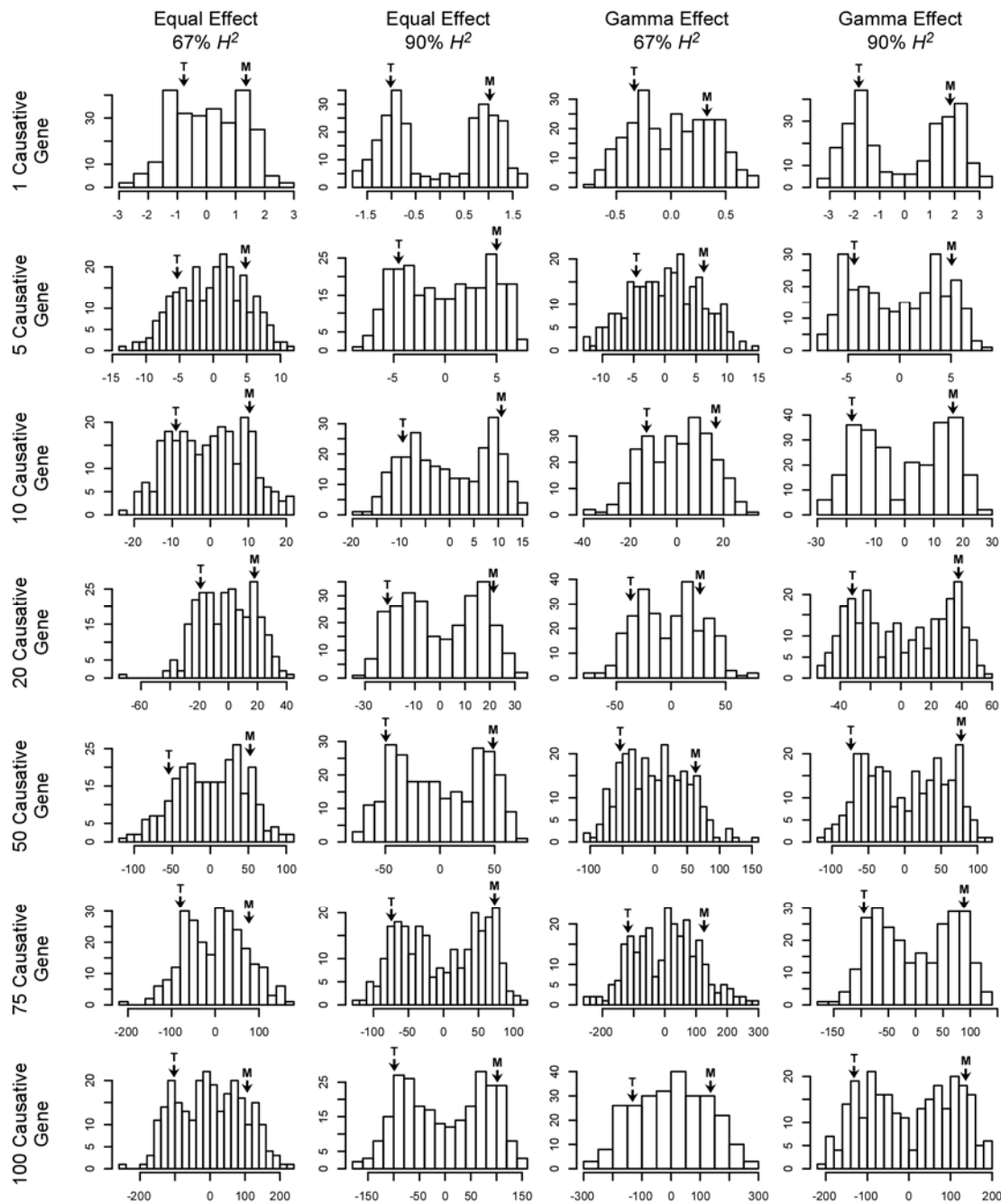
Z. H. Lemmon and J. F. Doebley

Figure S2 Example histograms of simulated traits for several different conditions in terms of number of causative loci, effect size, and heritability. Histograms from traits with equal effects - 67% H2, equal effects - 90% H2, gamma distributed effect - 67% H2 and gamma distributed effect - 90% H2 are shown in different columns from left to right. Histograms from simulated traits with one, five, ten, twenty, fifty, seventy-five, and one hundred causative loci are shown from top to bottom. The average simulated phenotype value for NIRILs that are 100% maize and teosinte are indicated with arrows labeled by "M" for maize and "T" for teosinte.
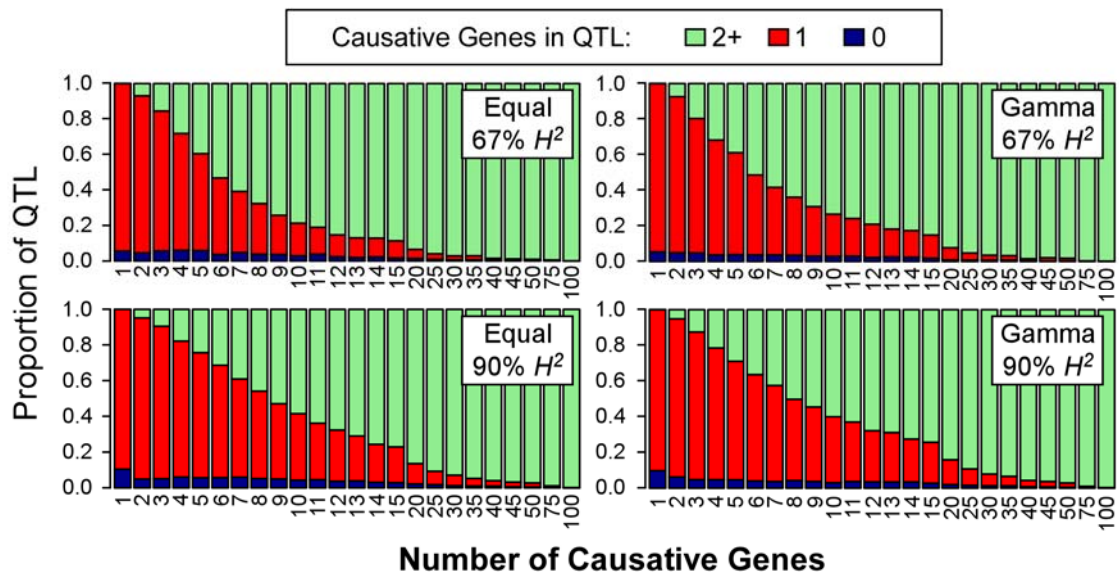
Figure S3 Proportion of detected QTL with zero, one, or multiple causative genes in the 1.5 LOD support interval. As seen in the equal effect simulations, a high number of gamma distributed causative genes leads to detected QTL with multiple causative factors. There is a relatively high percentage of detected QTL in the simulations containing a single causative gene when few (less than 4) causative genes are simulated, but as the number of simulated causative genes increases we quickly lose the power to distinguish between closely linked causative genes and they become lumped into single detected QTL.

Z. H. Lemmon and J. F. Doebley

File S1

Simulation R script and required secondary files (genotypes and gene names/positions)

Available for download as a zip archive at http://www.genetics.org/lookup/suppl/doi:10.1534/genetics.114.165845/-/DC1

Table S1 RFLP Markers used during backcrossing of QTL mapping population.

Marker	Chromosome	Marker	Chromosome	Marker	Chromosome
bnl5.62	1	umc121	3	bnl7.71	5
umc157	1	php20042	3	npi412	5
umc37b	1	umc42b	3	umc54	5
npi255	1	umc161	3	umc127b	5
BZ2	1	umc18	3	umc104a	5
bnl8.10	1	TE1	3	bnl6.29	6
npi615	1	bnl5.37	3	umc65	6
umc107	1	bnl8.01	3	umc21	6
npi225	1	umc60	3	umc46	6
bnl8.45	2	bnl12.97	3	umc132	6
umc53	2	php10080	3	umc62	6
npi320	2	npi425	3	npi114	8
npi421	2	umc2a	3	bnl9.11	8
umc6	2	php20725	4	umc117	8
umc34	2	umc19	4	umc7	8
umc134	2	umc127a	4	npi253	9
umc131	2	bnl10.17b	4	umc113	9
umc2b	2	umc15	4	umc81	9
umc5a	2	bnl8.23	4	umc95	9
php20005	2	bnl8.33	5	bnl3.04	10
umc122	2	bnl6.25	5	umc130	10
umc49a	2	umc90	5	umc49b	10
umc36	2	umc27	5	umc117b	10
umc32	3	umc166	5	bnl7.49	10

Table S2   Marker information including physical position, genetic position, percent maize, teosinte, heterozygous, and missing.

Marker	Physical Start	Physical End	Genetic Position	Percent Maize	Percent Teosinte	Percent Heterozygous	Percent Missing
umc2036	6985542	6985695	0.00	49.2%	48.1%	2.3%	0.4%
bnlg565	8492860	8492883	6.54	48.5%	47.3%	3.8%	0.0%
bnlg105	13812577	13812596	20.90	36.9%	51.2%	0.4%	11.2%
phi008	14072711	14072799	21.54	46.9%	51.2%	1.5%	0.0%
umc2293	15110042	15110066	25.26	48.1%	49.6%	1.9%	0.0%
umc2060	16462679	16462822	27.79	48.1%	49.2%	1.9%	0.4%
bnlg1046	18701271	18701478	31.75	46.2%	49.6%	3.1%	0.8%
umc2035	23891636	23891586	42.17	51.5%	45.8%	2.3%	0.0%
umc1705	28196232	28196255	45.36	51.2%	45.8%	2.7%	0.0%
umc1056	32035997	32036018	48.10	51.2%	45.0%	3.5%	0.0%
umc2294	33783040	33783128	48.43	51.9%	44.6%	3.1%	0.0%
umc1935	51438478	51438621	53.24	49.2%	46.2%	4.2%	0.0%
umc1850	54416864	54416984	54.79	49.2%	45.8%	3.8%	0.8%
mmp58	74916757	74916904	61.98	48.1%	46.9%	4.2%	0.4%
GRM116761	82236265	82236067	63.55	48.1%	45.8%	5.0%	0.8%
umc2298	84800673	84800762	65.07	47.7%	47.3%	4.6%	0.0%
umc1110	84825350	84825468	65.39	47.3%	46.9%	5.4%	0.0%
umc1224	92368559	92368676	66.70	46.2%	48.5%	5.0%	0.0%
umc1283	111997810	111997925	67.52	46.9%	47.7%	5.0%	0.0%
bnlg1287	121583928	121584076	67.69	47.7%	47.7%	4.2%	0.0%
dupssr10	142483339	142483503	68.70	47.3%	48.5%	3.8%	0.0%
bnlg2323	151717740	151717922	74.26	47.7%	49.2%	1.5%	1.2%
ZHL0301	159447674	159447786	77.01	48.1%	49.2%	2.3%	0.0%
umc1348	166576570	166576708	81.83	46.5%	43.8%	5.8%	3.5%
umc1966	169230959	169231115	86.64	48.1%	46.2%	5.4%	0.0%