

Table S1: Genetic basis to willow-gall and gall-parasitoid interaction networks.

Response	df	F or χ^2	P
Gall size ¹			
Leaf gall	23,57	2.17	0.009
Bud gall	21,44	0.98	0.504
apical-Stem gall	16,12	0.29	0.988
Gall abundance ²	25,119	202.40	0.001
Leaf gall		74.60	0.001
Bud gall		55.02	0.006
apical-Stem gall		44.47	0.042
mid-Stem gall		28.27	0.295
Gall composition ³	22,89	1.96	0.001
Gall-parasitoid link abundance ²	25,119	357.10	0.001
Leaf gall			
<i>Platygaster</i> sp.		79.51	0.001
<i>Mesopolobus</i> sp.		50.00	0.009
<i>Torymus</i> sp.		60.11	0.001
Eulophid		32.96	0.105
Mymarid		6.37	0.448
Bud gall			
<i>Platygaster</i> sp.		18.04	0.276
<i>Mesopolobus</i> sp.		6.37	0.497
<i>Torymus</i> sp.		39.81	0.079
Eulophid		18.09	0.492
<i>Lestodiplosis</i> sp.		16.05	0.552
apical-Stem gall			
<i>Torymus</i> sp.		23.13	0.048
mid-Stem gall			
<i>Platygaster</i> sp.		6.64	0.452
Gall-parasitoid composition ³	12,45	1.57	0.007
Gall parasitism ⁴			
Leaf gall	23,58	75.79	<0.001
<i>Platygaster</i> sp.		93.47	<0.001
<i>Mesopolobus</i> sp.		42.56	0.008
<i>Torymus</i> sp.		42.92	0.007
Eulophid		29.55	0.163
Mymarid		3.97	0.999
Bud gall	21,46	49.84	0.072
apical-Stem gall	18,12	15.69	0.614
Plant-insect food web composition ³	22,89	1.90	0.001

Notes: ¹GLM (error distribution = Gaussian, link function = identity), log-transformed; ²multivariate GLM (error distribution = negative binomial, link function = log); ³PERMANOVA on Bray-Curtis dissimilarities (999 permutations);

⁴GLM (error distribution = binomial, link function = logit). P-values in bold ($P < 0.05$), italics ($P < 0.10$), and normal font ($P > 0.10$) denote degree of statistical significance.

Table S2: Pearson correlations (r) of gall sizes and abundances that varied among willow genotypes.

	LG size	LG abundance	BG abundance	ASG abundance
Leaf gall size	1	0.03	-0.11	-0.04
Leaf gall abundance	<i>0.02</i>	1	0.19	0.03
Bud gall abundance	<i>0.08</i>	0.44	1	0.13
Apical-Stem gall abundance	<i>0.02</i>	<i>0.31</i>	<i>0.30</i>	1

Notes: Italicized values below the diagonal represent genetic correlations ($n = 24$ between leaf gall size and gall abundances, $n = 26$ between gall abundances), while values above the diagonal represent phenotypic correlations ($n = 81$ between leaf gall size and gall abundances, $n = 145$ between gall abundances). Statistically significant correlations ($P < 0.05$) are indicated in boldface type.

Table S2: Models explaining insect food web responses to genetic variation in coastal willow (*Salix hookeriana*). Final models were determined using AIC and likelihood-ratio tests.

Response	Predictors			
Gall size ¹	Salicylates/ Tannins PC1	Flavones/ Flavonols PC1		
Leaf gall	-0.20	-0.26		
Gall abundance ²	C:N	Flavanones/ Flavanonols PC1	Plant size	
Leaf gall	<i>0.04</i>	-0.03	-0.36	
Bud gall	<i>0.08</i>	-0.07	-1.01	
apical-Stem gall	0.01	0.46	0.26	
mid-Stem gall	0.02	-1.81	-4.77	
Gall-parasitoid link abundance ²	Leaf gall size	Leaf gall abundance	Bud gall abundance	apical-Stem gall abundance
Leaf gall				
<i>Platygaster</i> sp.	-0.22	1.22	0.20	-0.15
<i>Mesopolobus</i> sp.	-0.27	0.90	-0.26	0.44
<i>Torymus</i> sp.	<i>0.19</i>	0.76	-0.30	0.72
Eulophid	-0.24	0.71	0.45	-1.09
Mymarid	-1.67	20.83	-2.07	3.35
Bud gall				
<i>Platygaster</i> sp.	0.43	0.23	5.81	-14.25
<i>Mesopolobus</i> sp.	0.16	0.30	0.77	1.95

<i>Torymus</i> sp.	-0.17	0.31	1.39	-0.43
Eulophid	0.15	0.51	1.83	0.08
<i>Lestodiplosis</i> sp.	0.04	-0.61	<i>1.46</i>	1.75
apical-Stem gall				
<i>Torymus</i> sp.	-0.12	0.05	-0.64	4.09
mid-Stem gall				
<i>Platygaster</i> sp.	1.54	<i>-15.03</i>	0.53	-9.23

Notes: ¹GLM (error distribution = Gaussian, link function = identity), log-transformed; ²multivariate GLM (error distribution = negative binomial, link function = log). P-values in bold (P < 0.05), italics (P < 0.10), and normal font (P > 0.10) denote degree of statistical significance.

Table S3: Models explaining the proportion of leaf galls parasitized.

Response	Predictor	df	χ^2	P
Total parasitism	Gall size	1,79	22.28	<0.001
<i>Platygaster</i> sp.	Gall size	1,77	17.58	<0.001
	Gall abundance	1,77	0.73	0.394
	Gall size x abundance	1,77	8.71	0.003
<i>Mesopolobus</i> sp.	Gall size	1,77	7.28	0.007
	Gall abundance	1,77	0.29	0.588
	Gall size x abundance	1,77	4.21	0.040
<i>Torymus</i> sp.	Gall size	1,78	3.83	<i>0.050</i>
	Gall abundance	1,78	5.24	0.022