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Table S1 Values assigned to cells of resistance surfaces. Costs are response ratios calculated from results of field surveys and experiments.

Species	Land use	Source of cost values				
<i>Oophaga pumilio</i>		Abundance	Water loss	Survival	Substrate	Predation
	Banana	41	2.63	12.5	0.95	12.12
	Palmito	41	2.63	12.5	0.95	12.12
	Pineapple	9.11	3.4	24.24	1.59	6.06
	Pasture	9.11	3.4	24.24	1.59	6.06
	Water	17.04	2.34	12.58	1.18	6.39
	Plantation	5.06	1.82	6.75	0.98	3.53
	Forest	1	1	1	1	1
<i>Craugasto bransfordii</i>						
	Banana	3.59	3.99	25.93	1.01	0.86
	Palmito	3.59	3.99	25.93	1.01	0.86
	Pineapple	790	3.72	33.33	1.76	0.86
	Pasture	790	3.72	33.33	1.76	0.86
	Water	264.86	2.9	20.09	1.26	0.91
	Plantation	2.3	2.36	13.47	1.01	0.93
	Forest	1	1	1	1	1

Table S2 Number of individuals with complete genotypes (N), observed heterozygosities (Ho), and mean number of alleles (A) across loci at each site. Except for one site, 30-36 DNA samples per species per site were amplified; however, individuals with incomplete genotype information (i.e., missing data) were culled from the final dataset.

Site	<i>Oophaga pumilio</i> (poison frog)			<i>Craugastor bransfordi</i> (litter frog)		
	N	Ho	A	N	Ho	A
1				31	0.82	17.1
2				35	0.82	17.2
3	18	0.72	7.9	29	0.81	16.2
4	36	0.79	10.6	28	0.83	16.6
5	35	0.77	10.4	30	0.8	17.2
6	34	0.87	11.3	30	0.76	15.2
7	35	0.81	12.4	33	0.86	16.2
8	34	0.83	11.9	31	0.86	14.6
9	35	0.81	12.6	30	0.83	16.9
10	36	0.83	12	29	0.8	16.8
11	36	0.83	11.4	35	0.79	16.4
12	36	0.82	12.3	34	0.82	16.1
13	35	0.86	11	26	0.81	16.2
14	36	0.85	11.3	23	0.77	14.8
15	35	0.82	10.4	30	0.8	15.1
16	36	0.83	11.2	30	0.78	18.1
17	35	0.77	9.6	29	0.75	17.1

Table S3 Pairwise genetic distances. F_{ST} shown below the diagonal and D_{EST} shown above the diagonal.*Oophaga pumilio*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1		0.030428	0.047723	0.045922	0.113846	0.113818	0.115128	0.089884	0.103516	0.147281	0.119152	0.151377	0.092972	0.154267	0.066883
2	0.01632		0.00066	0.021616	0.079397	0.110223	0.098289	0.080008	0.102231	0.201453	0.153624	0.092623	0.123551	0.104748	0.170675
3	0.01962	0.00041		0.015411	0.07545	0.11541	0.083684	0.05787	0.091208	0.158907	0.102453	0.041669	0.054602	0.103637	0.124552
4	0.02412	0.01021	0.00721		0.066388	0.074717	0.064068	0.036014	0.084237	0.154679	0.10887	0.052411	0.069991	0.069236	0.112415
5	0.05137	0.03574	0.02746	0.02147		0.000881	-9.6E-06	0.01939	0.024769	0.037609	0.042349	0.021771	0.064997	0.109432	0.100318
6	0.04966	0.03513	0.0316	0.02222	0.00383		0.019202	0.062411	0.027656	0.01781	0.072658	0.02951	0.051259	0.072863	0.108266
7	0.05386	0.04017	0.03038	0.02247	-0.00128	0.00917		0.015113	0.018326	0.072504	0.029578	0.042736	0.077936	0.082758	0.112013
8	0.04785	0.0304	0.02264	0.0174	0.00687	0.01541	0.00691		0.008134	0.030466	0.035681	0.014533	0.054474	0.110171	0.13195
9	0.0557	0.04329	0.03938	0.02701	0.01485	0.01079	0.01062	0.01114		0.000324	0.007956	0.009394	0.01083	0.104513	0.167806
10	0.07003	0.06071	0.05637	0.03842	0.02334	0.01309	0.02023	0.02263	0.0027		0.026014	0.035072	0.018507	0.115276	0.162386
11	0.0602	0.04764	0.03799	0.0298	0.01629	0.01899	0.01531	0.01224	0.00775	0.0127		0.033018	0.033305	0.19833	0.116251
12	0.05653	0.03018	0.0265	0.01913	0.01432	0.00888	0.01939	0.01187	0.00689	0.01057	0.01088		0.00168	0.073292	0.143065
13	0.05248	0.03533	0.0322	0.02106	0.02468	0.01556	0.02912	0.02347	0.0091	0.01505	0.01474	0.00463		0.081431	0.082562
14	0.05631	0.03618	0.0352	0.02475	0.0323	0.02105	0.03527	0.03806	0.03855	0.04188	0.05456	0.02671	0.03344		0.124373
15	0.06022	0.05043	0.04161	0.03455	0.02686	0.03071	0.0314	0.04106	0.05359	0.06069	0.05089	0.04574	0.04456	0.03532	

Table S3 Continued.

Craugastor bransfordii

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1		0.13369	0.313344	0.229455	0.148361	0.159218	0.217991	0.242901	0.164993	0.230811	0.17213	0.19529	0.162893	0.224064	0.237922	0.171468	0.15033
2	0.0171		0.219938	0.200897	0.211442	0.156142	0.181602	0.176036	0.128063	0.172319	0.172529	0.171246	0.141853	0.225814	0.259937	0.122739	0.153297
3	0.03484	0.02773		0.369507	0.308007	0.304071	0.231687	0.312018	0.238569	0.14255	0.245964	0.257059	0.169339	0.374685	0.215732	0.20545	0.183005
4	0.01958	0.02019	0.03845		0.122521	0.151732	0.185506	0.304547	0.198873	0.147253	0.214261	0.198732	0.116114	0.162708	0.219941	0.117107	0.139489
5	0.01782	0.02086	0.03328	0.0138		0.17237	0.240467	0.254451	0.194922	0.124067	0.238434	0.180779	0.095666	0.234763	0.208399	0.176917	0.19544
6	0.01962	0.01683	0.03407	0.01761	0.02171		0.205707	0.199952	0.157657	0.151599	0.154818	0.140083	0.147544	0.139625	0.132387	0.137011	0.231353
7	0.02641	0.02268	0.03238	0.02647	0.02778	0.02518		0.113209	0.01576	0.091135	0.200345	0.110375	0.101789	0.135527	0.185294	0.1534	0.221311
8	0.03141	0.02232	0.03496	0.03496	0.02883	0.02537	0.01442		0.124945	0.12169	0.139633	0.120451	0.15843	0.196981	0.145627	0.153503	0.338177
9	0.01657	0.01287	0.02604	0.0231	0.02084	0.01793	0.00543	0.01408		0.077947	0.099247	0.102773	0.131164	0.133459	0.150579	0.126963	0.184478
10	0.02011	0.01695	0.02173	0.01728	0.01559	0.01767	0.01444	0.01722	0.01054		0.010697	0.043278	0.022107	0.055487	0.055841	0.098537	0.144854
11	0.02032	0.02071	0.02829	0.02029	0.02319	0.01868	0.02054	0.02017	0.01304	0.00378		0.090237	0.112255	0.142248	0.09378	0.11417	0.184125
12	0.02294	0.01908	0.03158	0.02207	0.02056	0.02008	0.01723	0.02108	0.01448	0.00628	0.01182		0.029354	0.031408	0.055499	0.130693	0.173956
13	0.01958	0.0182	0.02492	0.01708	0.01665	0.02019	0.02124	0.02266	0.02019	0.00797	0.01392	0.00933		0.063936	0.054485	0.128289	0.110983
14	0.02771	0.02446	0.04369	0.02003	0.02916	0.02347	0.02205	0.03197	0.02118	0.01021	0.01665	0.00931	0.01282		0.111066	0.169685	0.162969
15	0.02678	0.02836	0.03328	0.02483	0.02329	0.02045	0.02548	0.02331	0.02054	0.01045	0.01531	0.0123	0.01063	0.02058		0.182966	0.189831
16	0.01726	0.01342	0.02836	0.01322	0.01726	0.01306	0.01949	0.0178	0.0128	0.01053	0.01417	0.01399	0.01515	0.01906	0.0176		0.137236
17	0.01698	0.01688	0.02635	0.01592	0.01981	0.02392	0.02835	0.03493	0.02042	0.01859	0.0202	0.02139	0.01825	0.01944	0.0223	0.01562	