Supporting information

Cryptic Biological Invasions:
a General Model of Hybridization

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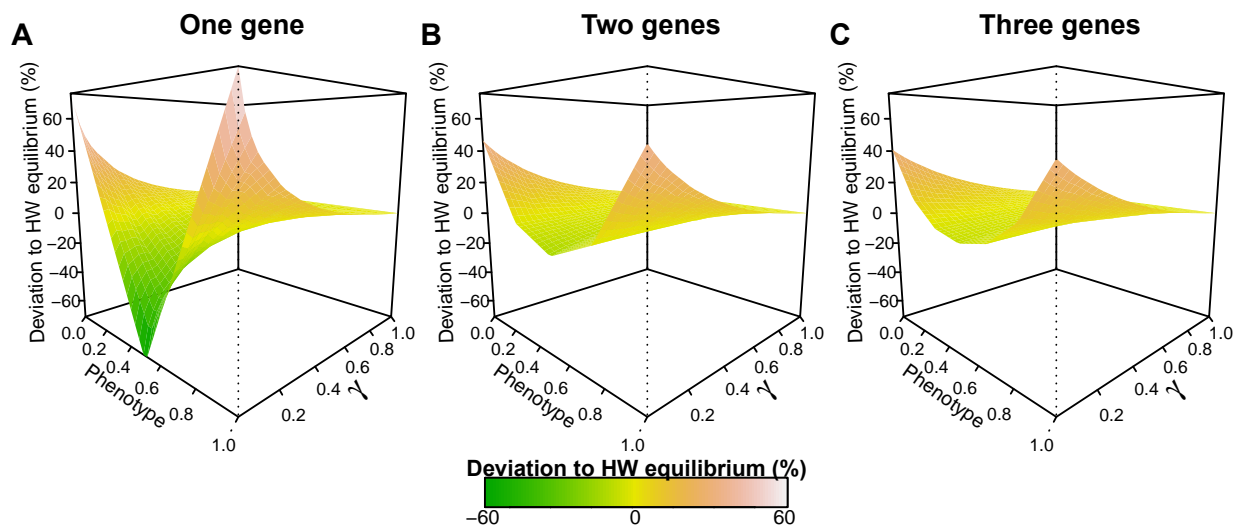
Figure S1. The effect of different number of simulated genes on the deviation to the Hardy-Weinberg (HW) equilibrium reached at the time of frequencies in equilibrium. We explore values of interbreeding success rate ranging from rare hybridization success ($\gamma = 0.01$) to a panmictic mating system ($\gamma = 1$). The data are exposed after 150 generations of genomic mixing.
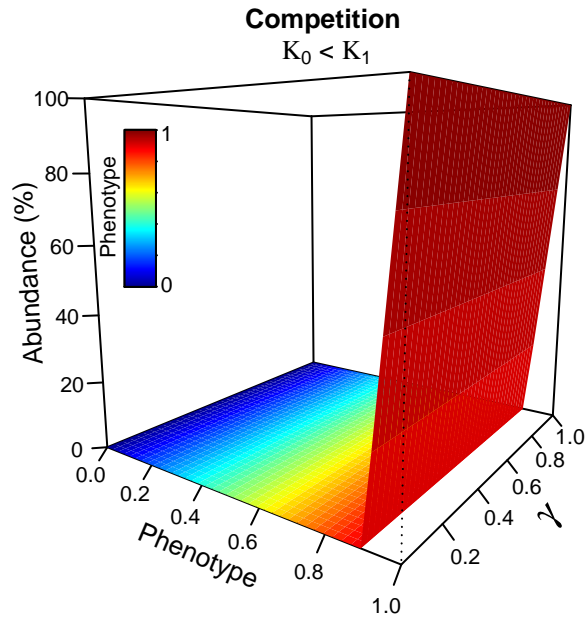
Figure S2. Density-dependent demographic parameters influencing the landscape of observed phenotypes. The phenotypic landscape is extrapolated from the contribution five additive genes ($n_L = 5$). We show the effect of interspecific competition ($\alpha_{01} = \alpha_{10} \neq 0$) with unequal carrying capacities between the two parental species ($K_1 = 1.5K_0$). We explored various levels of interbreeding success rate, from rare hybridization success ($\gamma = 0.01$) to a panmictic mating system ($\gamma = 1$). The data are presented after 100 generations of independent evolution and 150 generations of hybridization (250 total generations)
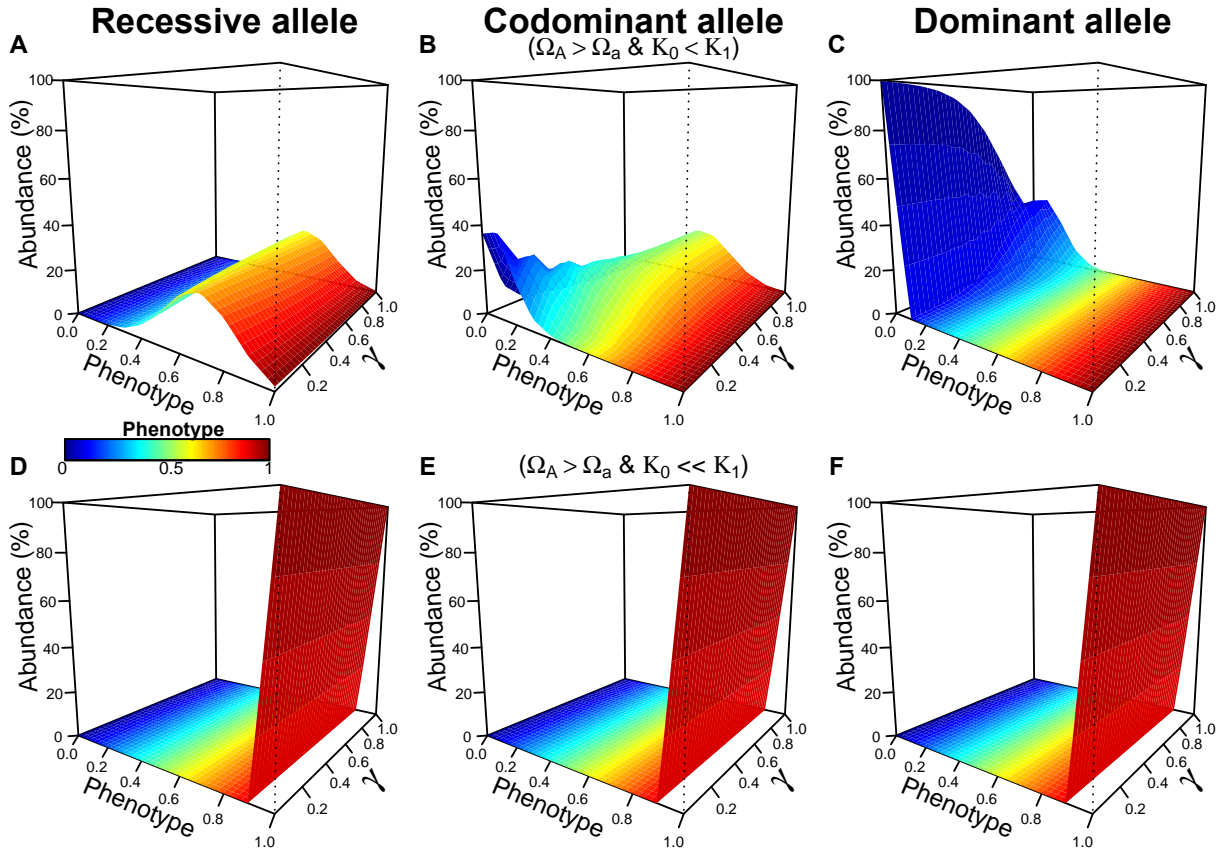
Figure S3. Effects of a deleterious allele "*a*" with fitness reduced by 30%. There is interspecific competition between parental taxa ($\alpha_{01} = \alpha_{10} \neq 0$). The parental species with reduced allelic fitness (species of class 1) has higher or much higher carrying capacities than the other parental species (class 0) ($K_1 = 1.5K_0$ and $K_1 = 2K_0$). The results are obtained after 100 generations of independent evolution and 150 generations of genomic mixing (250 total generations).
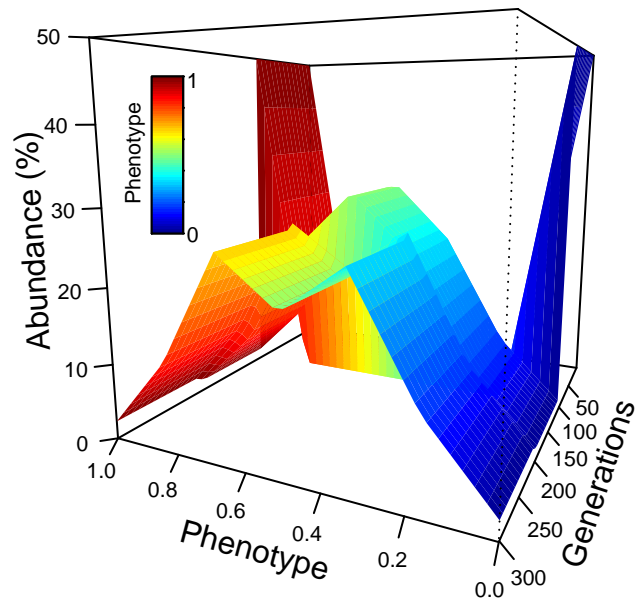
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Figure S4. Forward simulations of the abundance of two parental species (classes 0 and 1), which have experienced independent evolution during 100 generations before hybridization starts. The interbreeding is panmictic ($\gamma = 1$). A lethal genotype ("*AaBbCc*") appears in generation 200 ($n_L = 3$).
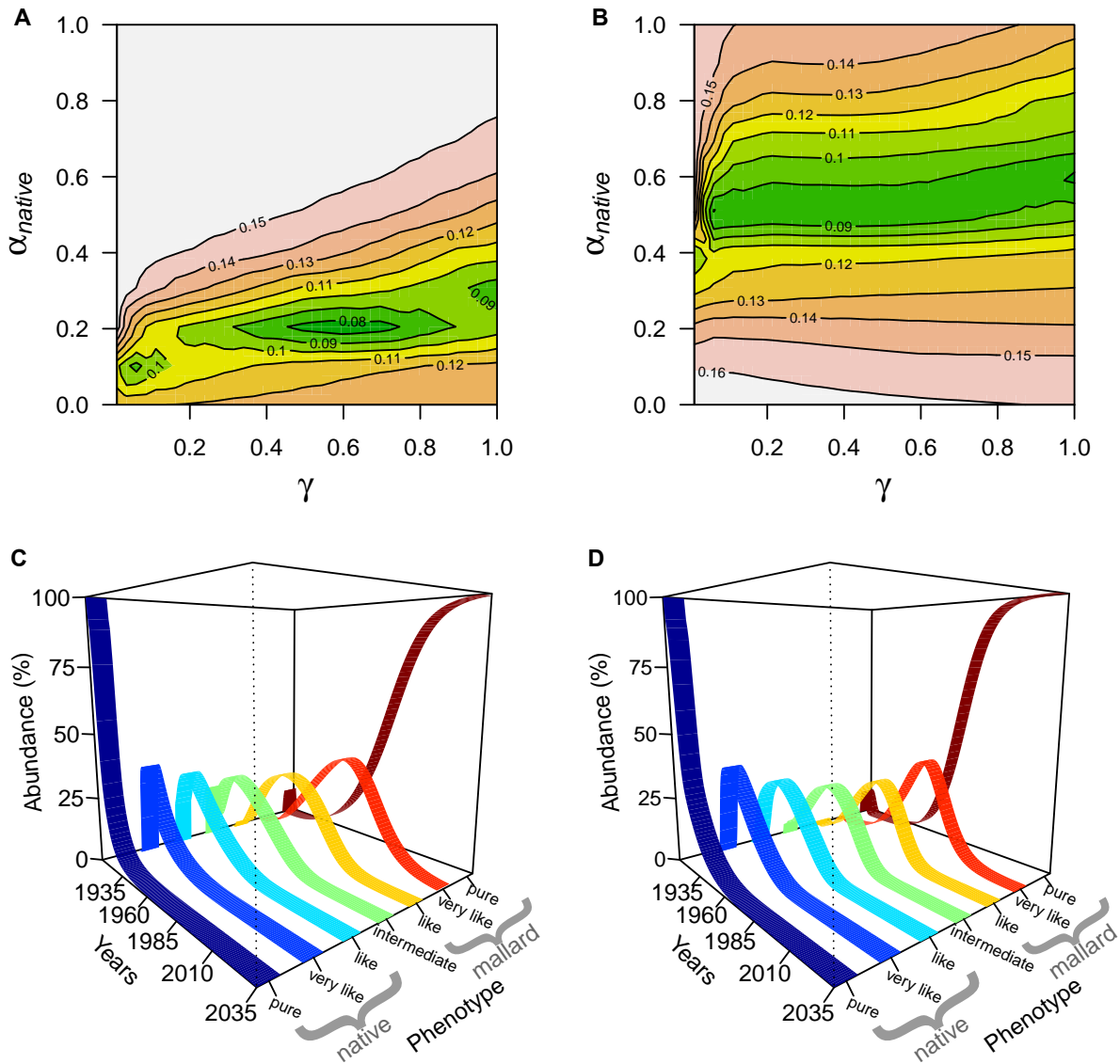
Figure S5. Parameter values and forward simulations when using alternative combinations of carrying capacities to explain the observed colonization of mallards (*Anas platyrhynchos*) in New Zealand. a) and c) carrying capacity of mallard 1.75 times larger than the one of the native species; b) and d) carrying capacity of mallard 1.5 times larger than the one of the native species.