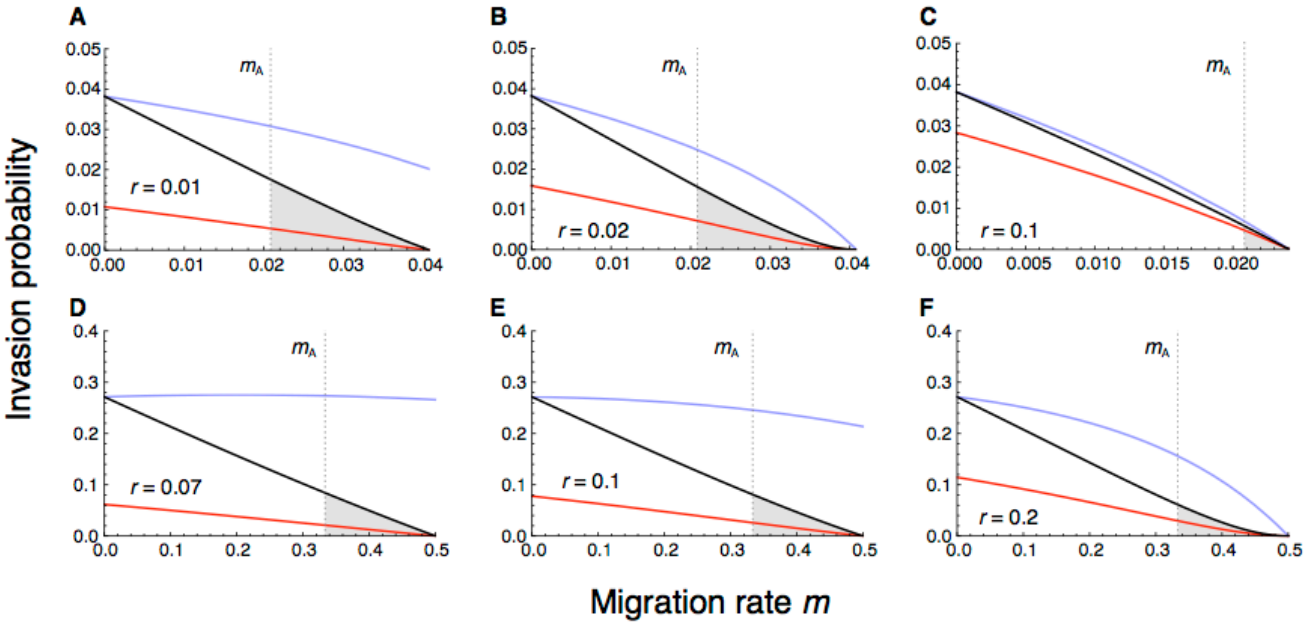

Figure S3 Invasion probability of A_1 as a function of the migration rate for a monomorphic continent. Shown are numerical solutions to the branching process, conditional on initial occurrence of A_1 on background B_1 (blue), on background B_2 (red), and when averaged across backgrounds with weights determined by the equilibrium frequency $\hat{q}_B$ of B_1 (black). The vertical dashed line shows $m_A = a/(1-b)$, the critical migration rate below which A_1 can invade without linkage to the background locus. The shaded area thus indicates where A_1 has a non-zero average invasion probability exclusively due to linkage to locus B. (A)–(C) Weak selection: $a = 0.02$, $b = 0.04$ and r as given in the panels. (D)–(F) Strong selection: $a = 0.2$, $b = 0.4$ and r as given in the panels. In this case, if linkage is tight (r small), the invasion probability conditional on the beneficial background increases with m as long as m is sufficiently small, and only starts decreasing if m is much larger (blue curve in panel D). This is because migration reduces the fitness of the resident population (consisting of A_2B_1 and A_2B_2) more strongly than it reduces the marginal fitness of type A_1B_1, which is favourable to type A_1B_1. As migration becomes stronger, though, the reduction in marginal fitness of A_1B_1 becomes dominant. The parameter combination in (D) was arbitrarily chosen to illustrate this effect (for a detailed explanation, see section 5 of File S1). For $r < 0.07$, the maximum of the blue curve is shifted further to the right.