



**Figure S13** Comparison of various diffusion approximations of the mean absorption time of  $A_1$ . (A) The error of  $\tilde{t}_{QLE}$  (Eq. 110 in File S1) relative to  $\bar{t}_{QLE}$  (Eq. 8) for various parameter combinations and an initial frequency of  $A_1$  equal to  $p_0 = 1/(2N)$  (we assumed  $N_e = N$ ). Squares bounded by thick lines delimit combinations of values of the recombination rate  $r$  and the effective population size  $N_e$ . Within each of them, squares bounded by thin lines correspond to combinations of values of the migration rate  $m$  and the continental frequency  $q_c$  of  $A_1$ , as shown in the small panels on top. The colour code assigns deeper blue to more negative, and deeper red to more positive values. Empty (filled) circles indicate that the marginal one-locus equilibrium  $\tilde{E}_B$  is unstable (stable) and  $A_1$  can (not) be established under deterministic dynamics. Selection coefficients are  $a = 0.02$  and  $b = 0.04$ . (B) The error of  $\tilde{t}_{QLE, \rho \gg 0}$  (Eq. 114 in File S1) relative to  $\bar{t}_{QLE}$  for  $p_0 = 1/(2N)$ . Other details as for panel (A). (C) The error of  $\tilde{t}_{QLE, \rho \gg 0}$  (Eq. 115 in File S1) relative to  $\bar{t}_{QLE, \rho \gg 0}$  for  $p_0 = 1/(2N)$ . Other details as for panel (A). (D) As in panel (A), but for an initial frequency of  $A_1$  equal to  $p_0 = 0.005$ , independently of  $N$ . (E) As in panel (B), but for  $p_0 = 0.005$  fixed. (F) As in panel (C), but for  $p_0 = 0.005$  fixed. Simulations were as described in Methods. Numerical values for errors represented in panels (A) to (C) and (D) to (F) are shown in Tables S2 to S4 and S6 to S8, respectively.