



**Figure S11** Comparison of analytical and simulated sojourn-time densities of  $A_1$  for a monomorphic continent. Results are shown for various recombination rates  $r$ . Histograms were obtained from  $10^6$  simulations (see Methods) and curves give the diffusion approximation  $\tilde{t}_{2, \text{QLE}}(p; p_0)$  from Eq. (109). Throughout,  $a = 0.02$ ,  $b = 0.04$  and  $p_0 = 1/(2N)$  (we assumed  $N_e = N$ ). In the first row, migration is relatively strong compared to selection in favour of  $A_1$  ( $m = 0.024 > a$ ), in the second row it is relatively weak ( $m = 0.018 < a$ ). In the left column, the effective population size is small ( $N_e = 100$ ) and drift dominates, whereas in the right column,  $N_e = 1000$  and deterministic forces become more important.