



**Figure S18** Effective migration rate at a weakly beneficial mutation arising in linkage to a migration–selection polymorphism. (A) The effective migration rate under the QLE approximation up to second ( $m_e$ , Eq. 19, solid) and first ( $\tilde{m}_e$ , Eq. 20, dashed) order of the actual migration rate  $m$ . The orange curve has a slope of 1 and represents the marginal case of linkage to a neutral background ( $b = 0$ ). Parameter values are  $b = 0.02$  (light grey),  $b = 0.04$  (medium grey),  $b = 0.08$  (black), and  $r = 0.1$ . (B) The gene-flow factor (ratio of effective to actual migration rate, Bengtsson 1985) as a function of the selective advantage  $b$  of the beneficial background allele  $B_1$ . Grey solid and dashed curves show the gene-flow factor computed using  $m_e$  and  $\tilde{m}_e$ , respectively. The curves cross the horizontal axis at  $b = m + r$  and  $b = r$ , respectively (vertical lines). The blue dashed curve gives the gene-flow factor for Petry's (1983)  $m_e^{(P)}$  in Eq. (21). Parameters are  $m = 0.02$  and  $r = 0.1$ . (C) As in panel (B), but as a function of the recombination rate. Vertical dotted lines indicate  $r = b - m$  and  $r = b$  for  $m_e/m$  and  $\tilde{m}_e/m$ , respectively. Parameters are  $b = 0.04$  and  $m = 0.02$ .