

Supporting Information

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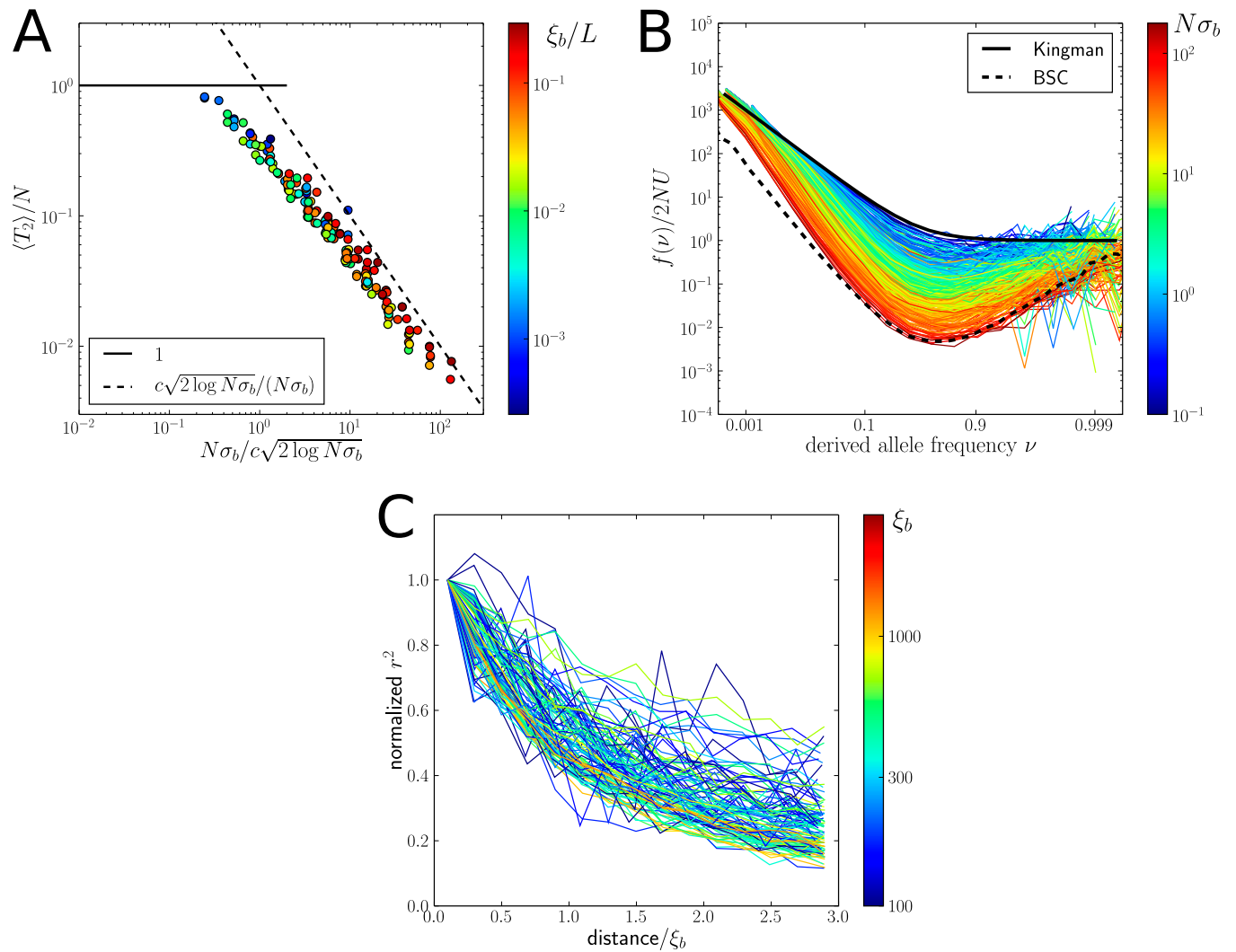


Fig. S1. Recurrent mutations with weak effects. Genetic diversity in populations with recurring mutations between a preferred and unpreferred state with weak effect is shown. (A) Pairwise coalescence time compared with the analytical predictions in the limits of large and small $N\sigma_b$. (B) Site frequency spectra (SFSs) normalized to $\theta = 2N\mu$ (the SFSs are obtained from local coalescent trees). Different curves are colored by their respective $N\sigma_b$ values. The Bolthausen-Sznitman coalescent (BSC) curve serves as a guide to the eye because its proper normalization depends on $N\sigma_b$. (C) Decay of linkage disequilibrium (LD) measured as r^2 and normalized with its value at short distances. The x axis is rescaled by ξ_b . The resulting collapse demonstrates that LD extends over distances ξ_b . The grid of parameters used for simulations was $L \in [3000, 10000]$, $N \in [1000, 3000, 10000]$, $s \in [-0.001, -0.003, -0.01]$, $L\mu \in [1, 3, 10, 30]$, and $L\rho$ logarithmically spaced between s and 1.0. For the analysis, simulations were filtered such that $\xi_b > 30$, $\xi_b < L/3$, and $\langle T_2 \rangle \mu < 0.5$.

