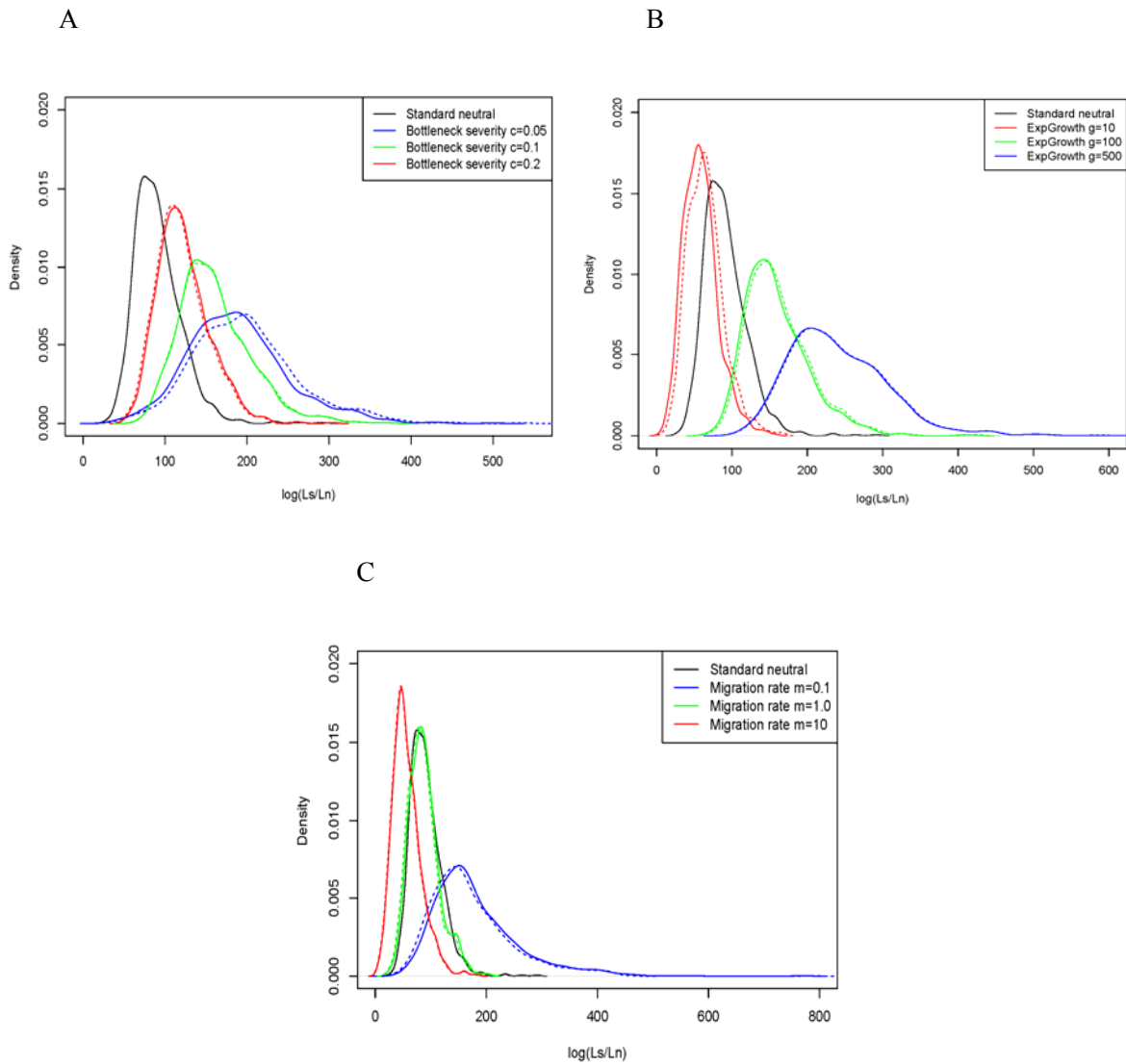


**Figure S3**



**Figure S3 legend:** Distributions of maximum CLR,  $T_0 = \max_{x \in S[10]} \log(L_{IS} / L_N)$  where the maximum was obtained over the set of polymorphic sites with  $n_1 = 10$  ( $S[10]$  for each replicate), for samples generated under different demographic models: A, population bottleneck model with different bottleneck severities  $c = 0.05, 0.1,$  and  $0.2$ ; B, exponential population growth with different growth rates  $g = 10, 100$  and  $500$ ; C, population subdivision model with different migration rates  $m = 0.1, 1,$  and  $10$  between 2 subpopulations. Recombination rate  $4Nr_n = 0.04$  ( $R = 4,000$ ) was used to generate all data sets. Distribution of  $T_0$  for standard neutral model is plotted in each figure (black lines) for comparison. Distributions of  $T_0$  calculated from empirical frequency spectrum (option B) are shown by dashed curves.