



**Figure S13** Predicted statistics of model C for autosomal loci (chromosome 3). Predictions of the mean and variance of  $S_n$ , mean and variance of Tajima's  $D$  and mean  $Z_{ns}$  are shown for each population. Predicted mean Distance of Nei for all pairs of populations are shown as well. Statistics are predicted by sampling parameters from the posterior distributions based on the regression method (see main text for details).