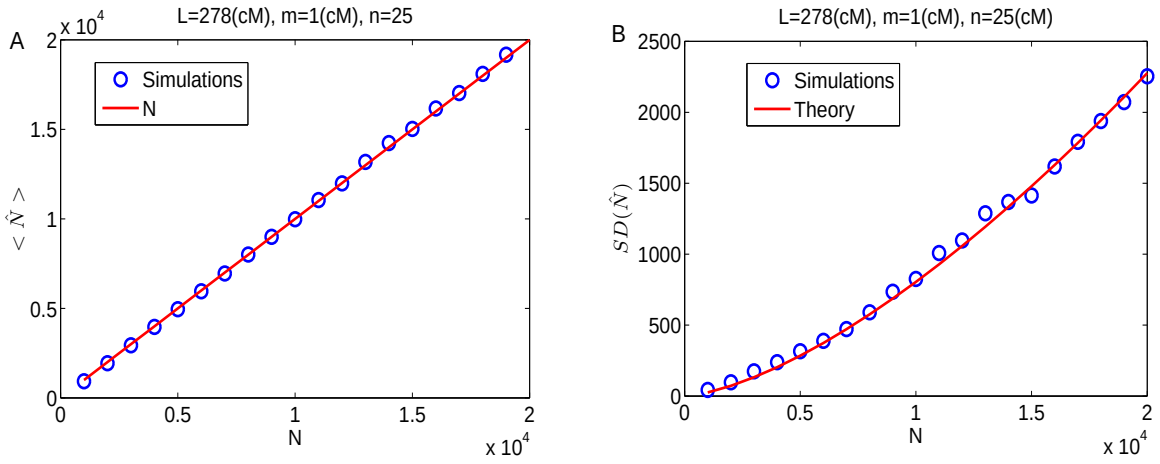

Figure S8: The mean and the variance of an estimator of the population size vs. N. We plot simulation results (symbols) for the estimator of the population size, $\hat{N}$, given in Eq. (38) in the main text. For each value of N, we simulated a number of Wright-Fisher populations and calculated the total sharing as in Figure 2A in the main text. For each of the populations simulated for each n, we divided the individuals into four disjoint groups of 25 individuals each. In each group, we calculated the mean total sharing, $\overline{\overline{f}}$, between all $\binom{25}{2}$ pairs. We then applied the main text Eq. (38) to calculate the population size estimator $\hat{N}$. Finally, for each N, we plotted the average of the estimator over all groups, $\left\langle \hat{N} \right\rangle$ (A), as well as its standard deviation (B). In (A), we also plot the identity line ($\left\langle \hat{N} \right\rangle = N$), and in (B), we also plot the theory, the main text Eq. (39).