

Figure S2 Precision and accuracy of our estimator  $\hat{F}_{\rm ST}^{\rm pool}$  as a function of pool size and coverage, with experimental error rate  $\epsilon$  varying from 0 to 0.5 (A–E). Each density plot, which represents the root mean squared error (RMSE) of the estimator  $\hat{F}_{\rm ST}^{\rm pool}$ , was obtained using simple linear interpolation from a set of  $44 \times 44$  pairs of pool size and coverage values. For each pool size and coverage, 500 replicates of 5,000 markers were simulated from an island model with  $n_{\rm d}=8$  demes. Plain white isolines represent the RMSE of the WC<sub>84</sub> estimator computed from Ind-seq data, for various sample sizes (n=5,10,20, and 50). Each isoline was fitted using a thin plate spline regression with smoothing parameter  $\lambda=0.005$ , implemented in the fields package for R.