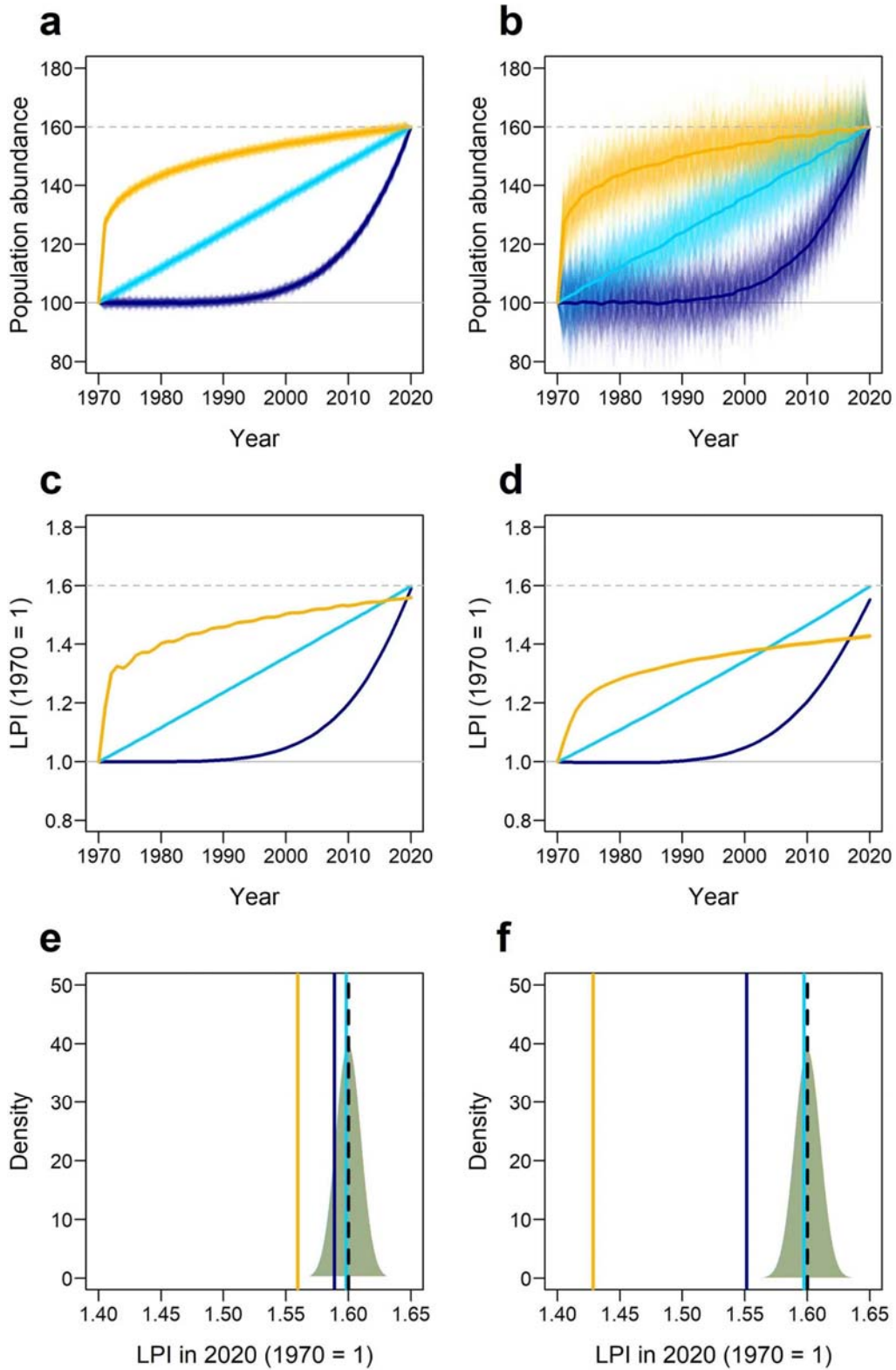


Extended Data Fig. 4: Larger population fluctuations cause less precise estimates of the Living Planet Index (LPI) in nonlinear population trajectories.

From: Random population fluctuations bias the Living Planet Index



a and **b**, Simulated sets of populations each with 500 species that increase from 100 to 160 individuals along concave-up, linear and concave-down trajectories with low (**a**) and high (**b**) population fluctuations. **c** and **d**, The accompanying trends in LPI for increasing populations with low (**c**) and high (**d**) fluctuations; the confidence intervals around the LPI are negligible because the starting (solid horizontal grey lines) and ending (dashed horizontal grey lines) populations are identical in all sets. **e** and **f**, The LPI in the final year of the simulation, 2020. Here, coloured vertical lines correspond to the LPI from the simulated data (**c** and **d**) and the dashed black line is the true value based on the actual final populations. The distribution is the density of LPI values from a null model that approximated linear declines by randomly reshuffling the order of population changes (100 times), while keeping the starting and end values constant.