

3 **A Supplementary Figures**

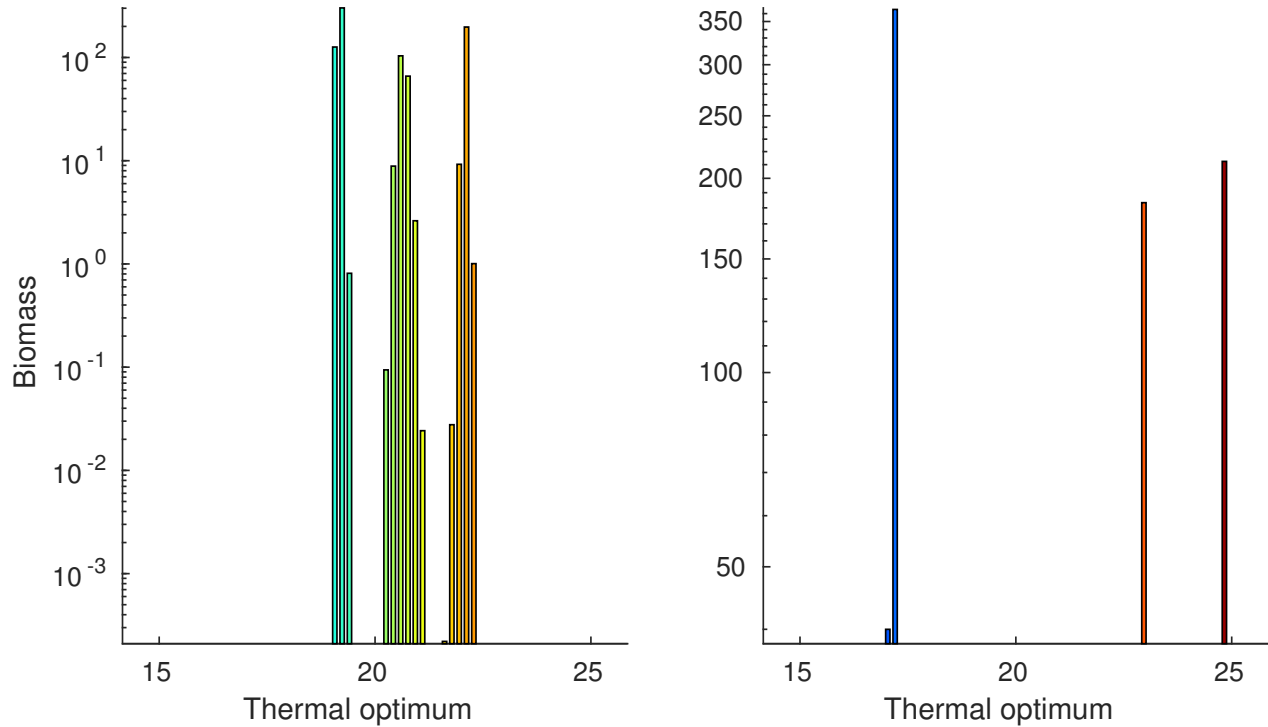


Figure A.1: Temporal mean of biomass a function of the thermal optimum defining each species. The temporal means are computed over the last 200 years of a simulation spanning 5000 years. We considered both a white noise (left) or a seasonal forcing signal (right). The coexistence mechanism implemented is the storage effect, and no stabilizing niche differences were considered (same inter- and intra-specific competition). This simulation is the one described in Fig.1 in the main text. 99 other simulations have been performed to produce the main text results in Figs. 2-4.

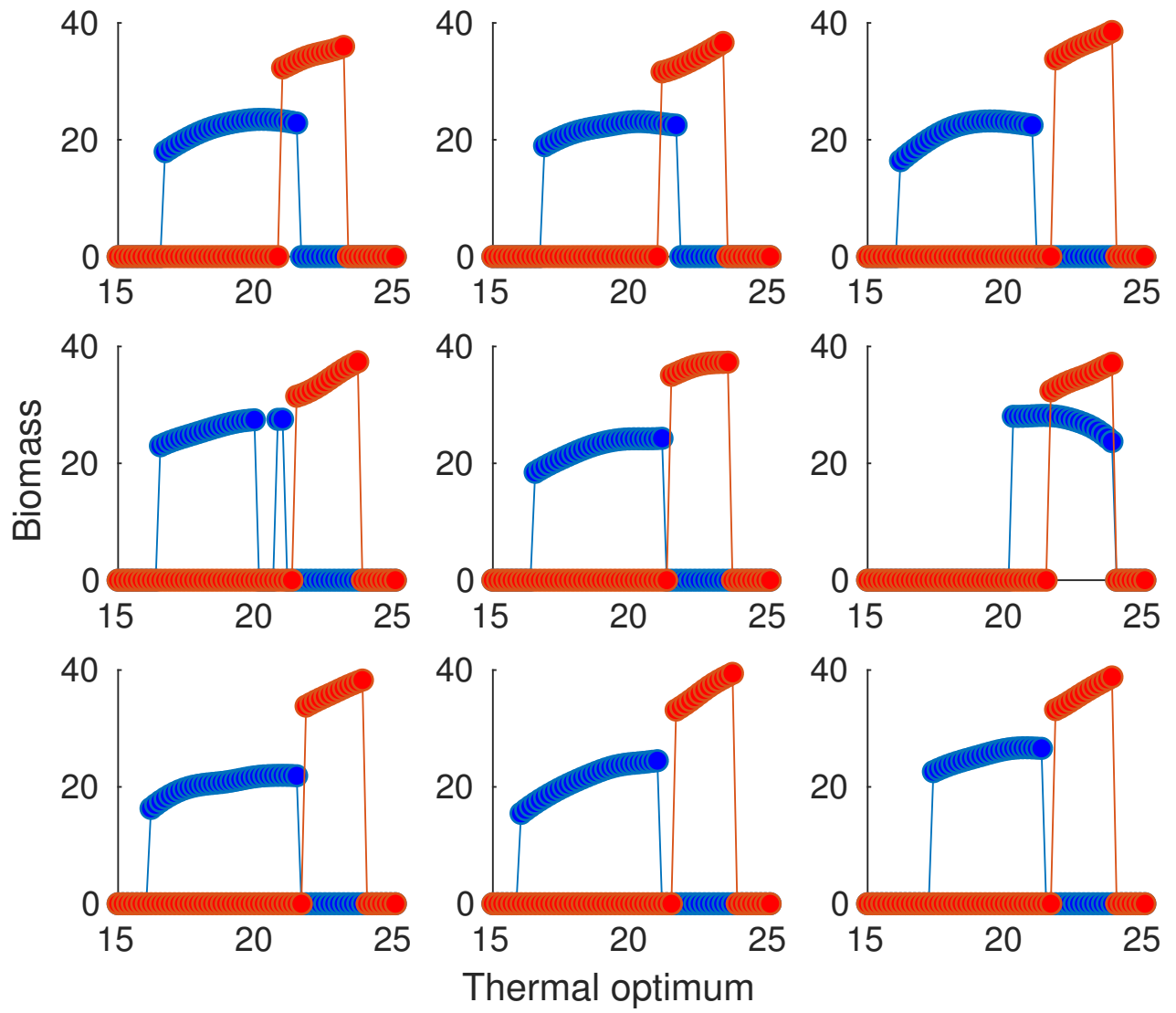


Figure A.2: Temporal mean biomass distribution, computed over the last 200 years, for 9 representative simulations, as a function of the thermal optimum of the species. These simulations are done without storage effect but with stabilizing niche differences. Temperature is either a seasonal signal (in red) or a white noise (in blue). The distribution induced by a white noise forcing overlaps the one obtained with a seasonal forcing signal in only 4 simulations out of 100, hence the two signals lead in general to very different biomass distributions on the environmental trait axis.