Figure S1. Variance in the the composition, by basal area, of two hypothetical conifer PFTs explained by 46 trait and model parameters. Parameter descriptions are provided in Table S1.

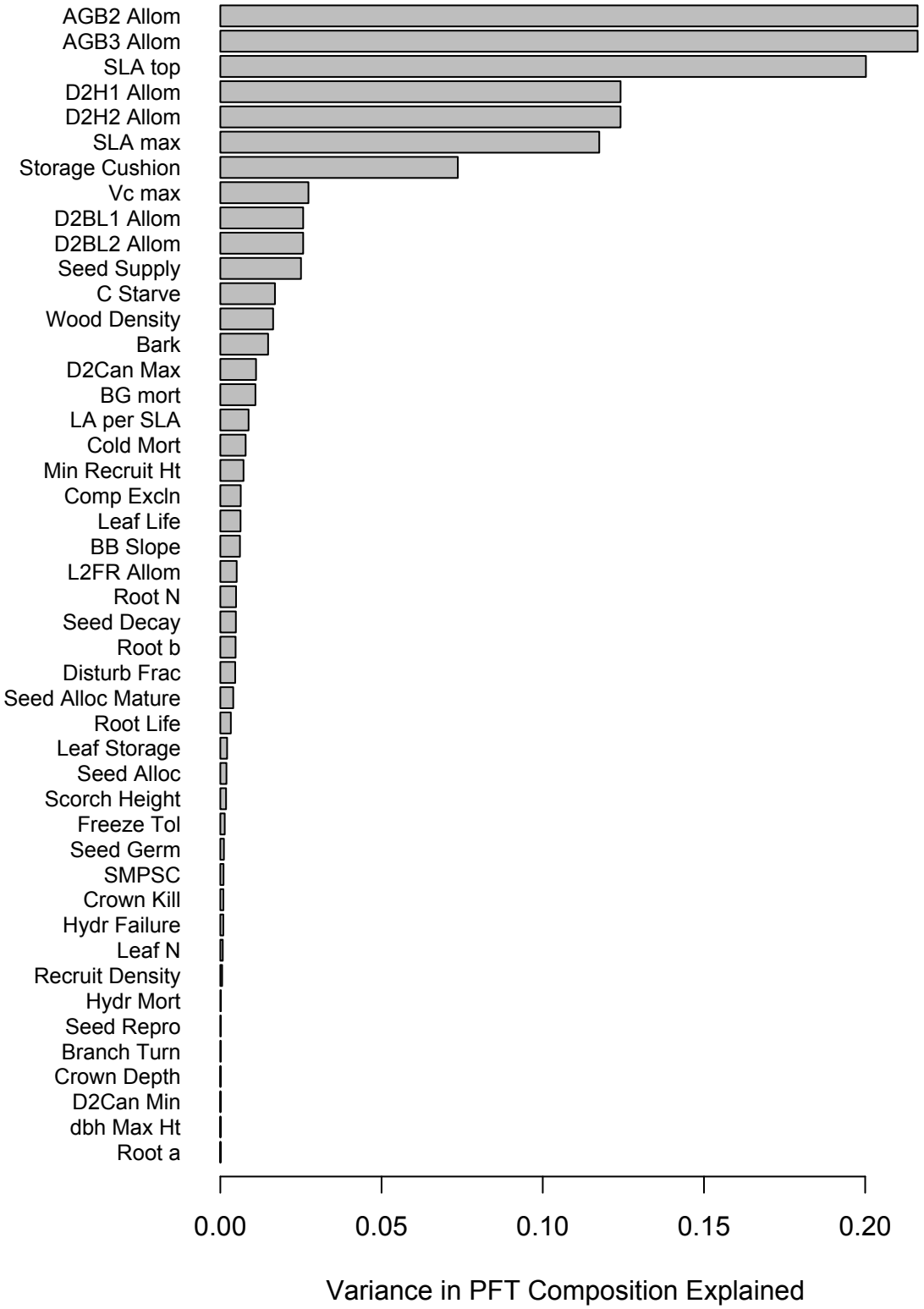
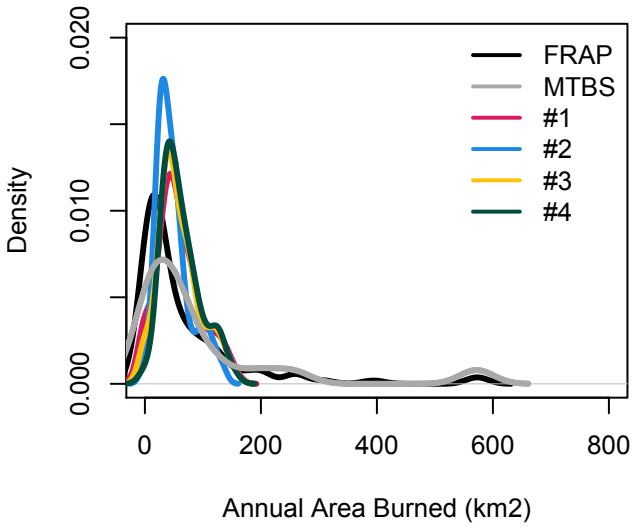
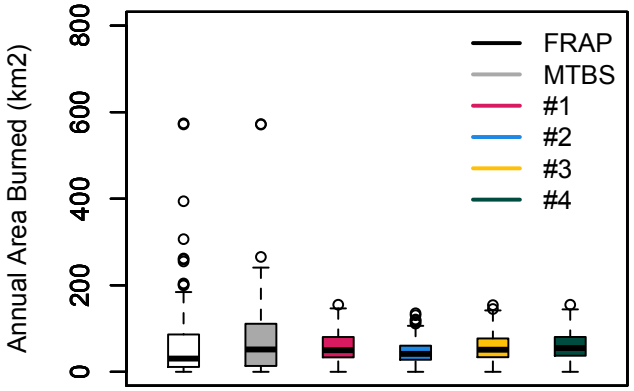
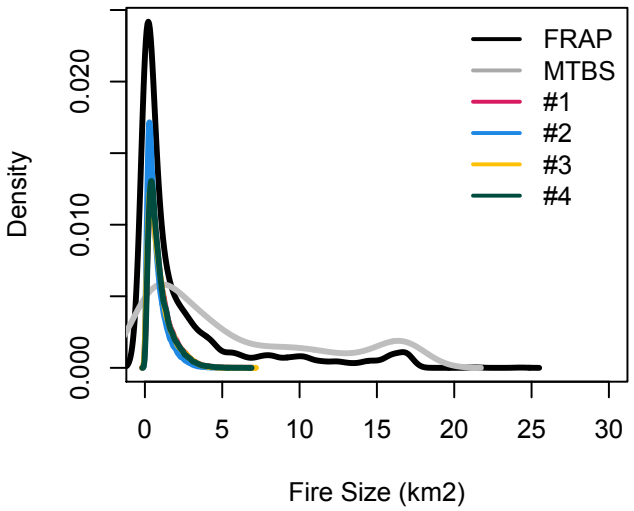


Fig S2. Comparison of average annual area burned across the domain (top row) and individual fire size (bottom row) during 100 year simulations started from bare ground (top row) for four FATES parameterizations, the Monitoring Trends in Burn Severity (MTBS) and the California Department of Forestry and Fire Protection's Fire and Resource Assessment Program (FGRAP) databases of observations.







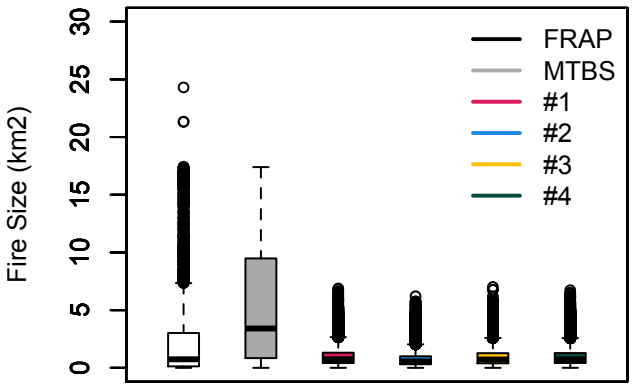


Figure S3. Variance in the difference between pine minus cedar growth and mortality rates that is explained by environmental variables for each of four pine and cedar parameterizations run over a regional domain in the Sierra Nevada mixed conifer forest

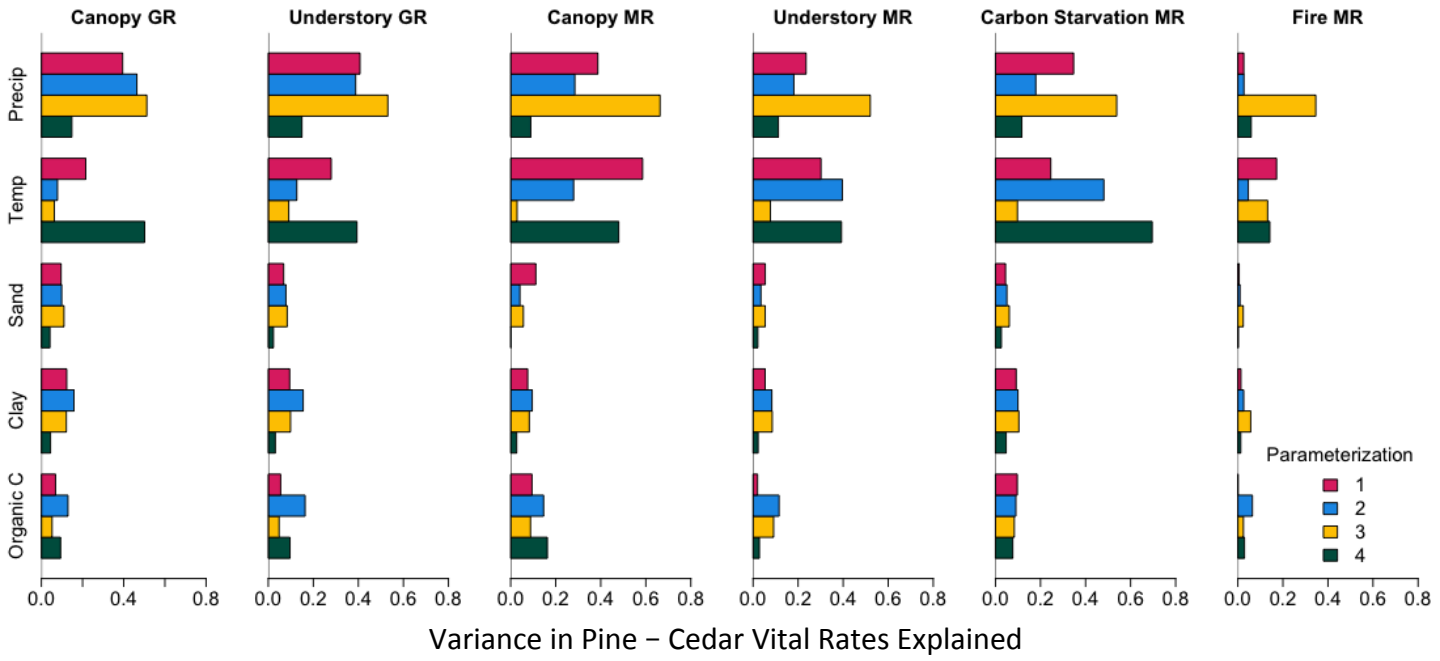
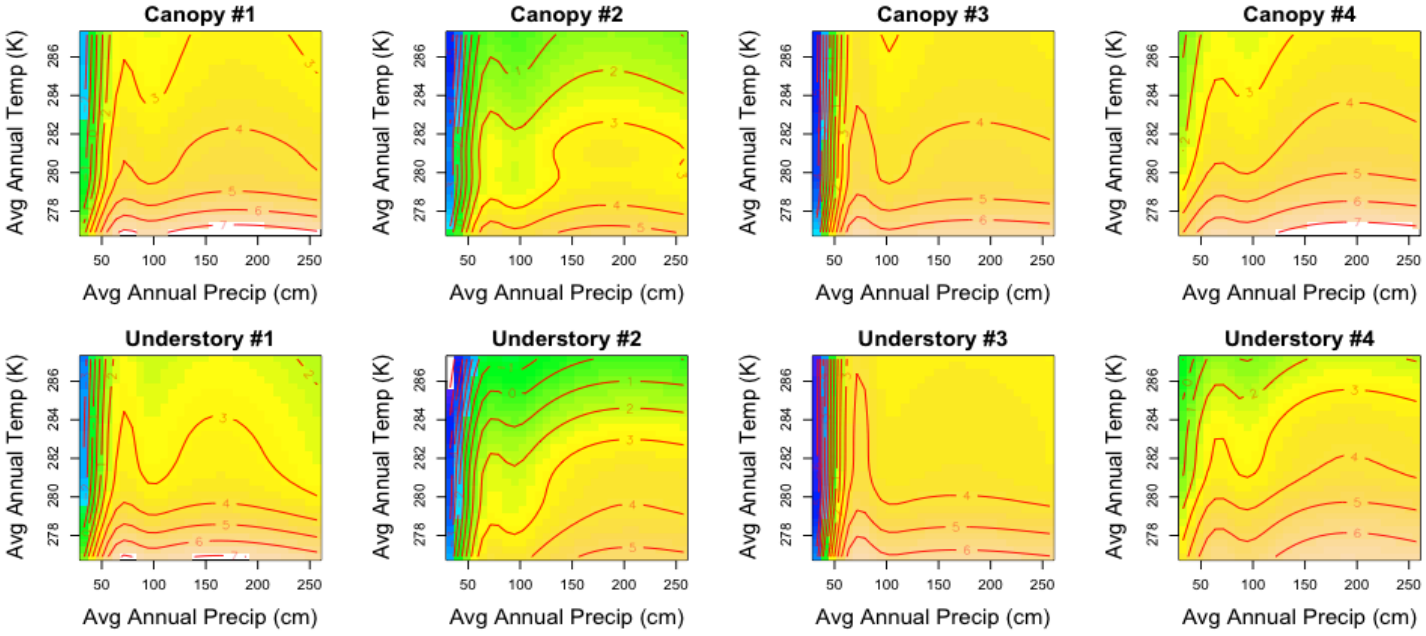


Fig S4

Precipitation and temperature effects on differences in pine and cedar growth rates (pine-cedar, in cm/yr/ha) for canopy (top row) and understory trees (bottom row). Growth rates are averaged over 100 years in simulations that started from bare ground and had fire active.



Log-odds of pine-cedar growth rates

-7 0 7

cedar faster pine faster

Figure S5. Annual average pine and incense cedar fire mortality and carbon starvation mortality rates in four simulations started from bare ground and run with fire active over a regional domain in the Sierra Nevada mixed conifer forest for 100 years. Regional simulations were run with parameterizations retained from filtering the outcomes of 72 parameterizations run at a single site according to the criteria in Table 1.

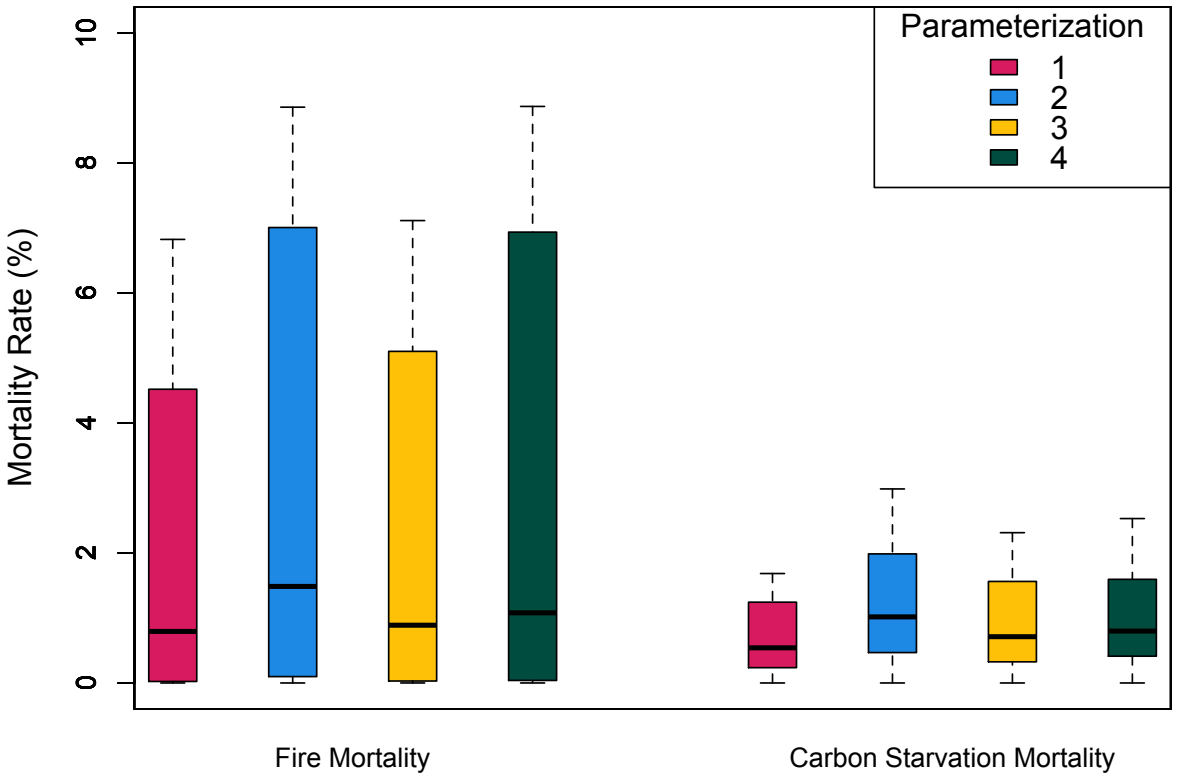


Fig S6 climate effects on the difference between pine − cedar carbon starvation mortality, in % per year. Mortality was averaged over 100 years and across grid cells in regional simulations that started from bare ground, with fire active. Numbers indicate the retained PFT parameterizations that met the criteria in Table 2.