

McKellar et al. supplemental table and figures

Table S 1: The summary results of a 10-fold targeted cross-validation where all observations from a random sample of years are predicted when left-out of the model training set. The best model is the same as the model identified as the best by the approximate leave-one-out comparison reported in the main paper.

Model	Mean lppd	t-statistic pairwise difference from best model
Climate-plus-core	-2.031	NA
Climate-plus-core [NAOI 1-year lagged]	-2.032	0.7
Climate	-2.034	1.3
Base	-2.037	2.2

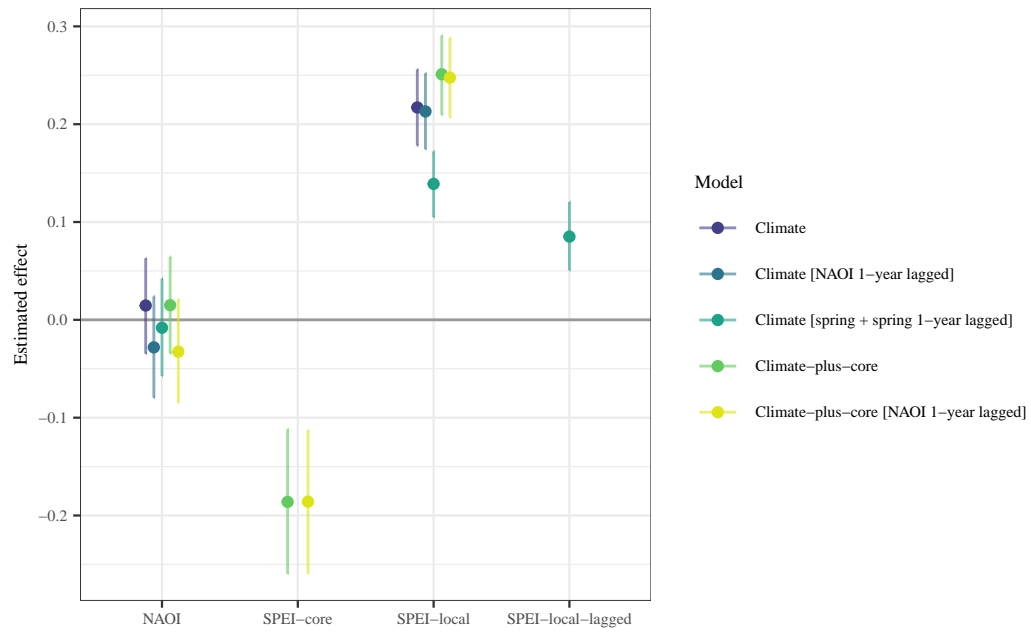


Figure S 1: Covariate effects from all 5 models.

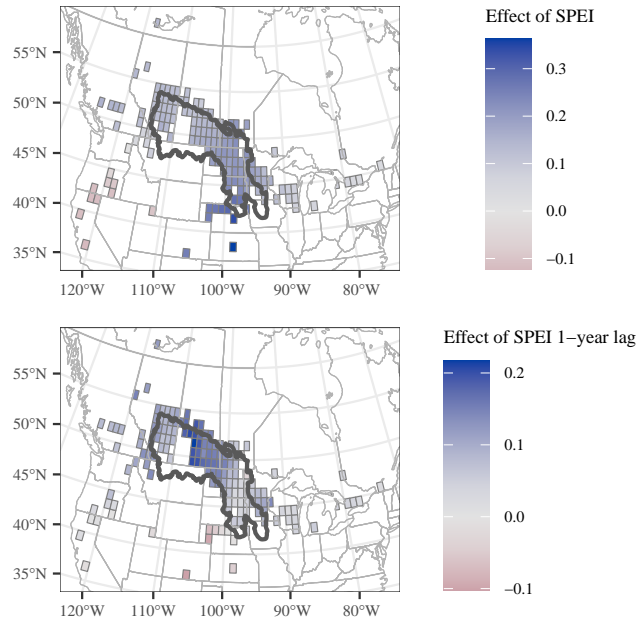


Figure S 2: Local effect of 3-month SPEI (top plot) and 3-month SPEI 1-year lagged (bottom plot) from the Climate [spring+spring 1-year lagged] model. The general pattern of strongest positive effects in the core of the range is very similar to the pattern for the combined effect of local 15-month SPEI that had higher predictive accuracy.

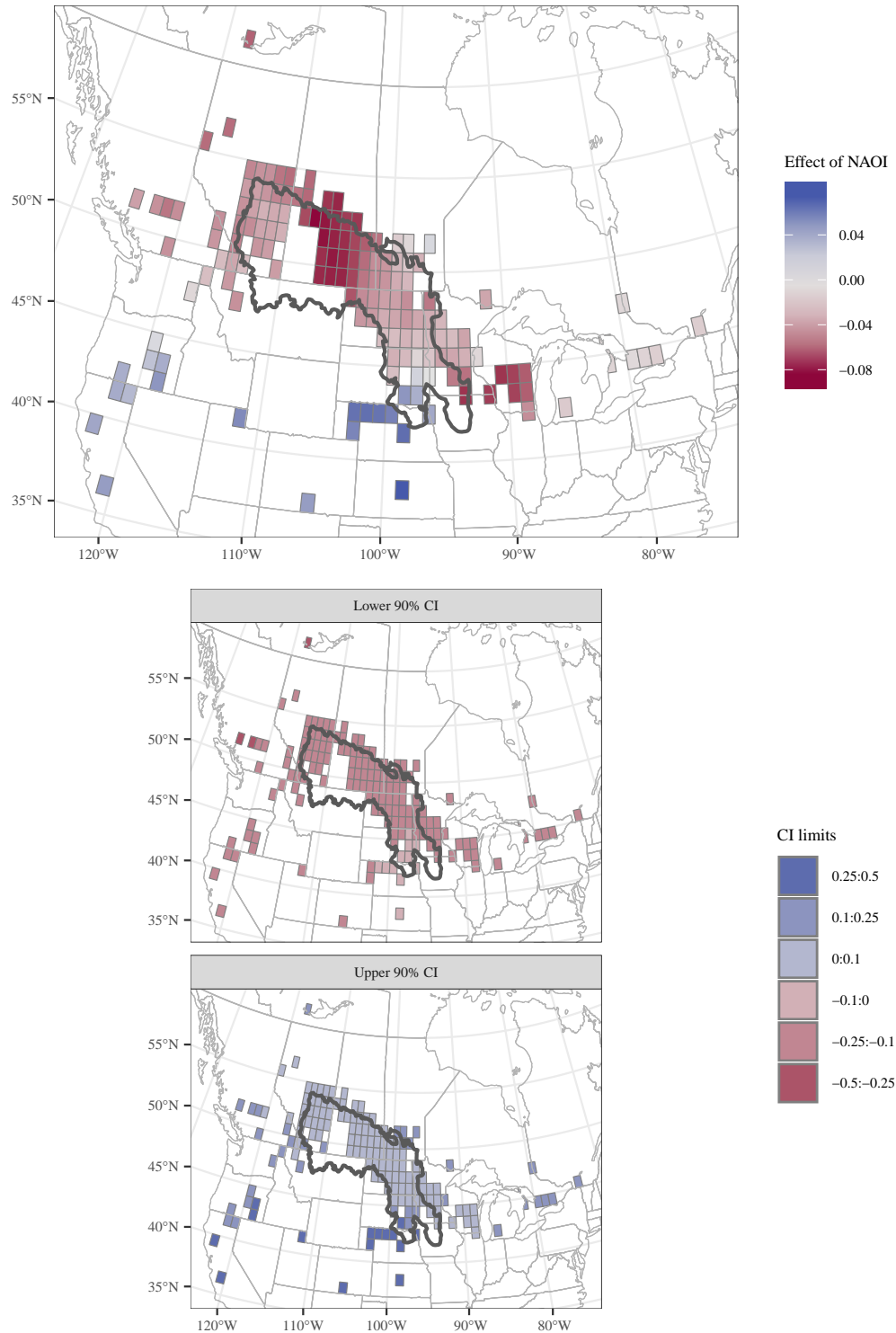


Figure S 3: Local effect of NAOI 1-year lagged (12-18 months before BBS counts) from the Climate-plus-core [NAOI 1-year lagged] model. The spatial pattern in effects is largely opposite to the pattern for the NAOI from the preceding winter (1-6 months before BBS counts): negative in the core of the species' range and positive in the southern perimeter.

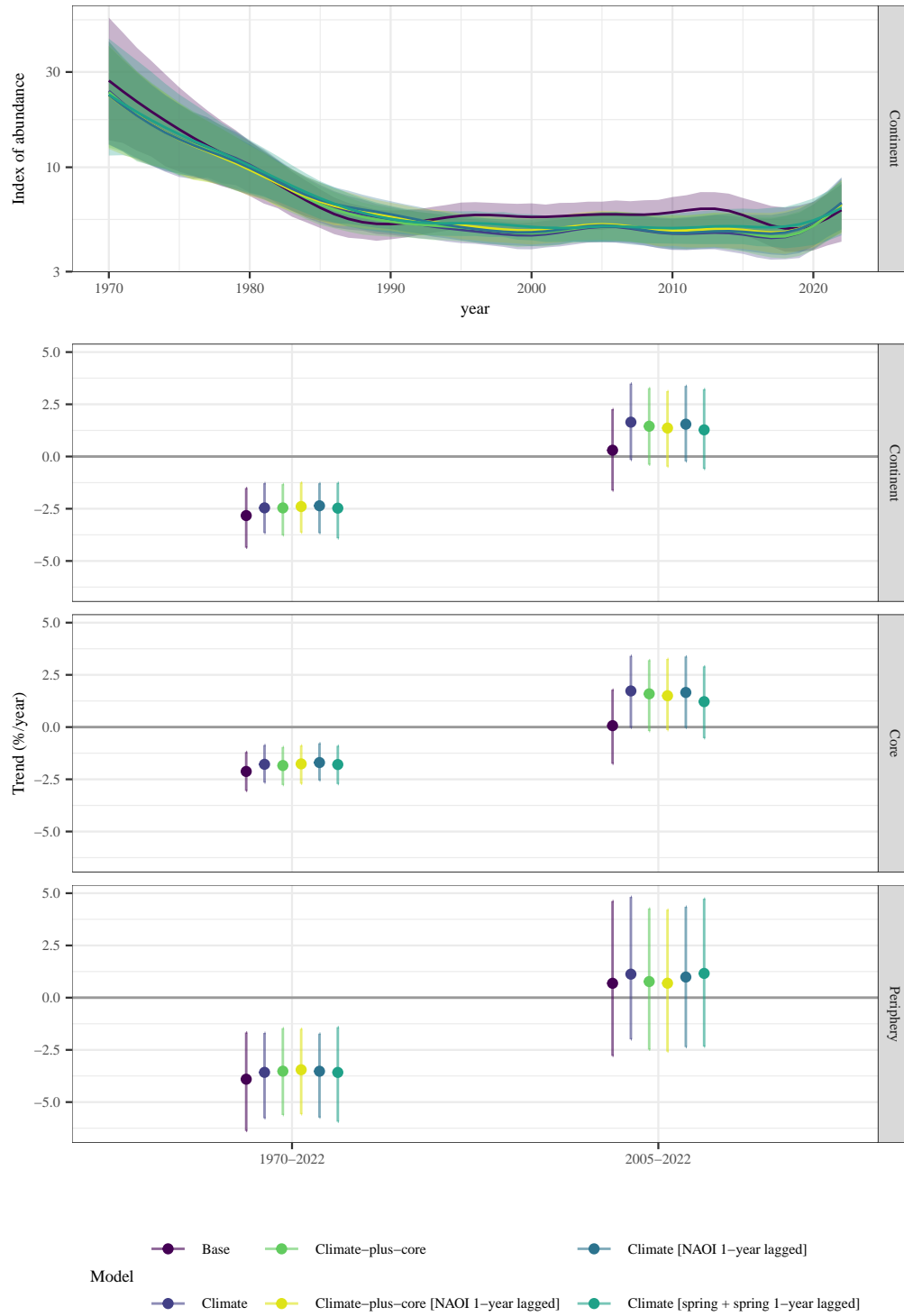


Figure S 4: Population trajectories and trends from all of the models compared in the paper. Long-term trends are very similar across all models, and the short-term effects from all covariate models (all models except the base model) are all very similar.