Figure 1. Predicted habitat suitability maps for each of the five species and each of the four model algorithms. The maps show the area predicted as suitable by both climate normal time periods and areas of disagreement between the two time periods. Maps also highlight areas of novel climate (i.e., climate conditions outside the range captured by the location data used to fit the models).

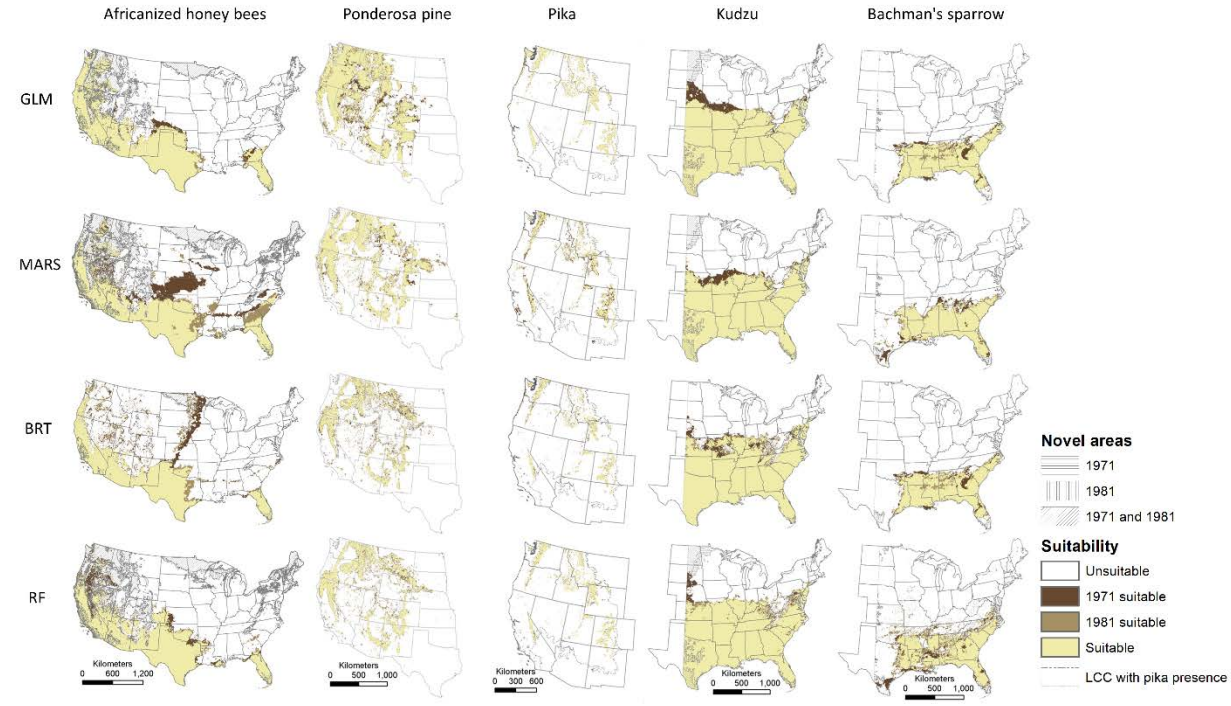

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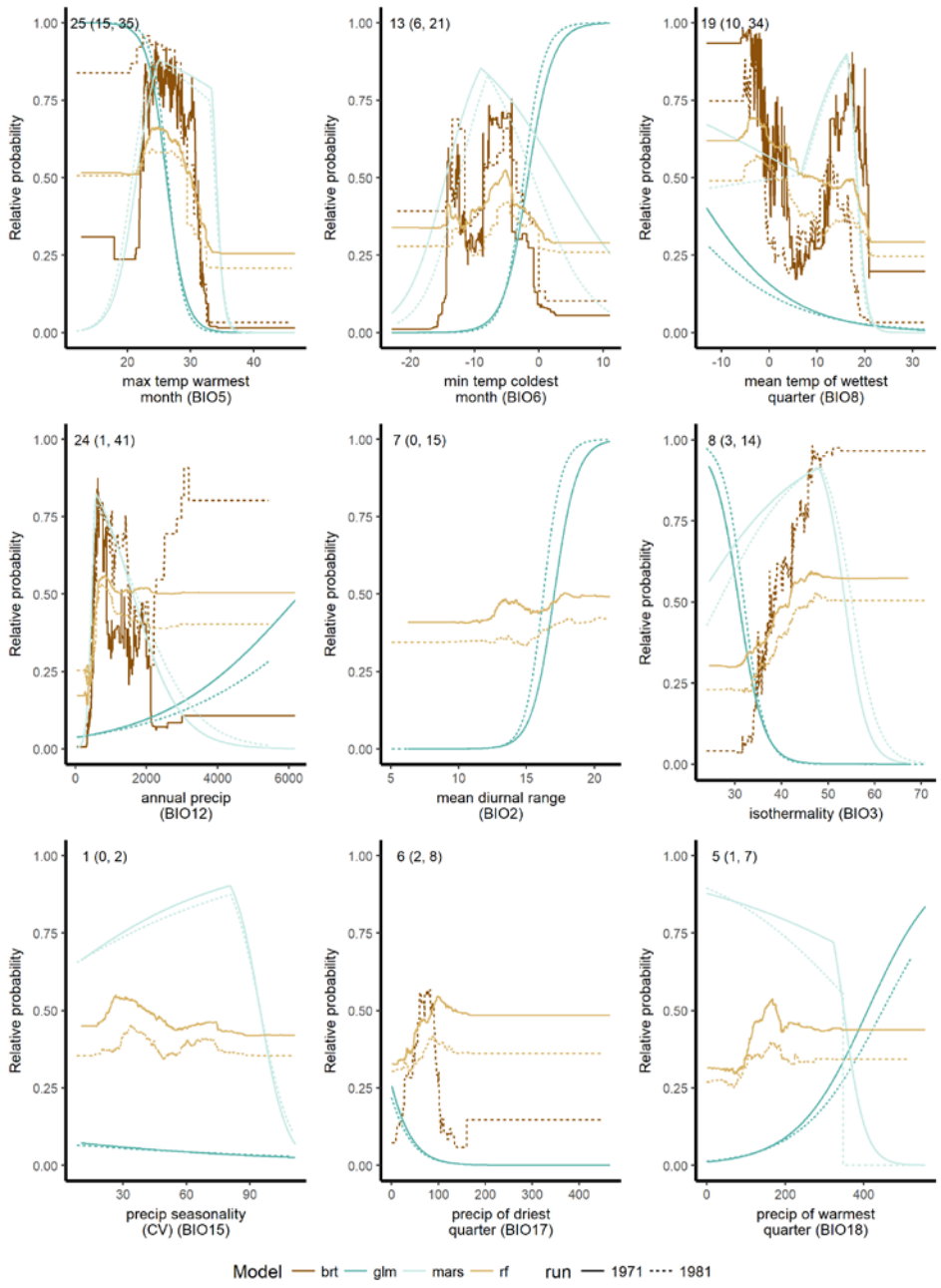
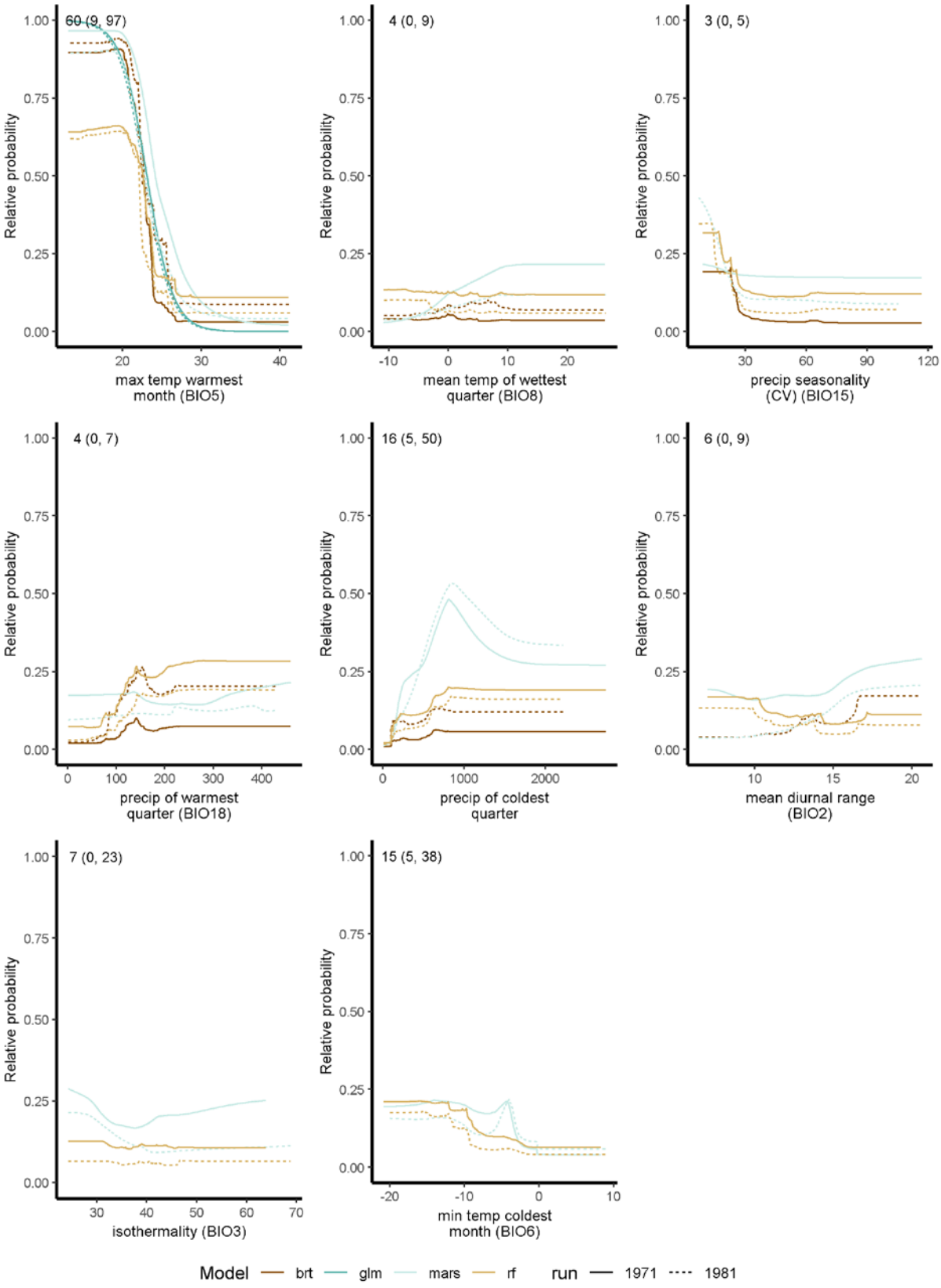
Figure S2. Response curves for the predictors retained in models for (a) ponderosa pine, (b) American pika, (c) kudzu, and (d) Bachman's sparrow. Each graph includes response curves from the subset of the eight models retaining that predictor (four different model algorithms (boosted regression tree (BRT), generalized linear model (GLM), multivariate adaptive regression splines (MARS), random forest (RF)) and the two different runs of each for the climate normal periods (1971 to 2000 and 1981 to 2010)).

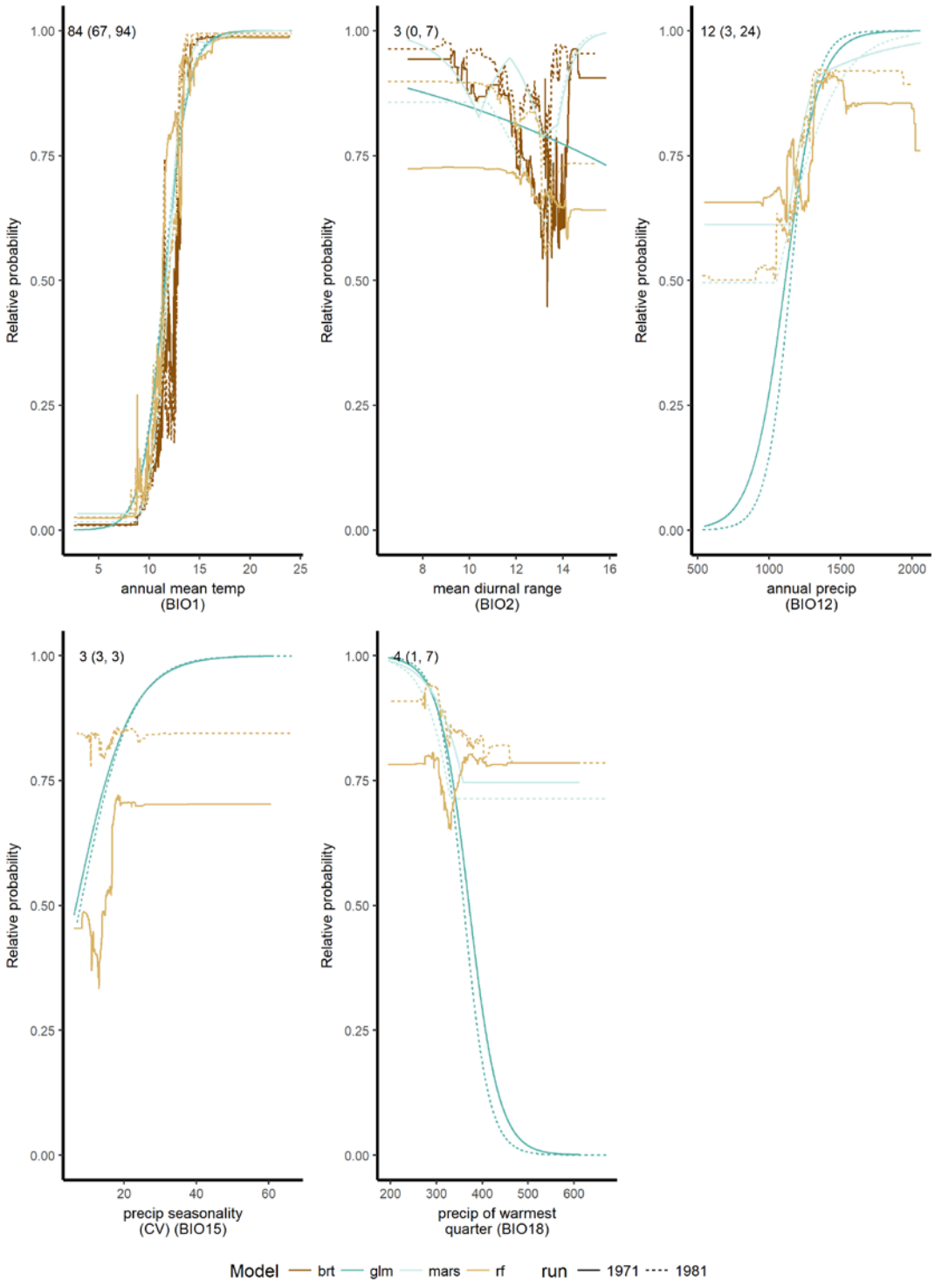
a)



b)


60 (9, 97)
4 (0, 9)
3 (0, 5)
4 (0, 7)
16 (5, 50)
6 (0, 9)
7 (0, 23)
15 (5, 38)
Relative probability
max temp warmest month (BIO5)
mean temp of wettest quarter (BIO8)
precip seasonality (CV) (BIO15)
precip of warmest quarter (BIO18)
precip of coldest quarter
mean diurnal range (BIO2)
isothermality (BIO3)
min temp coldest month (BIO6)
Model brt glm mars rf
run 1971 1981

c)


84 (67, 94)
3 (0, 7)
12 (3, 24)
3 (3, 3)
4 (1, 7)
Relative probability
annual mean temp (BIO1)
mean diurnal range (BIO2)
annual precip (BIO12)
precip seasonality (CV) (BIO15)
precip of warmest quarter (BIO18)
Model brt glm mars rf
run 1971 1981

d)

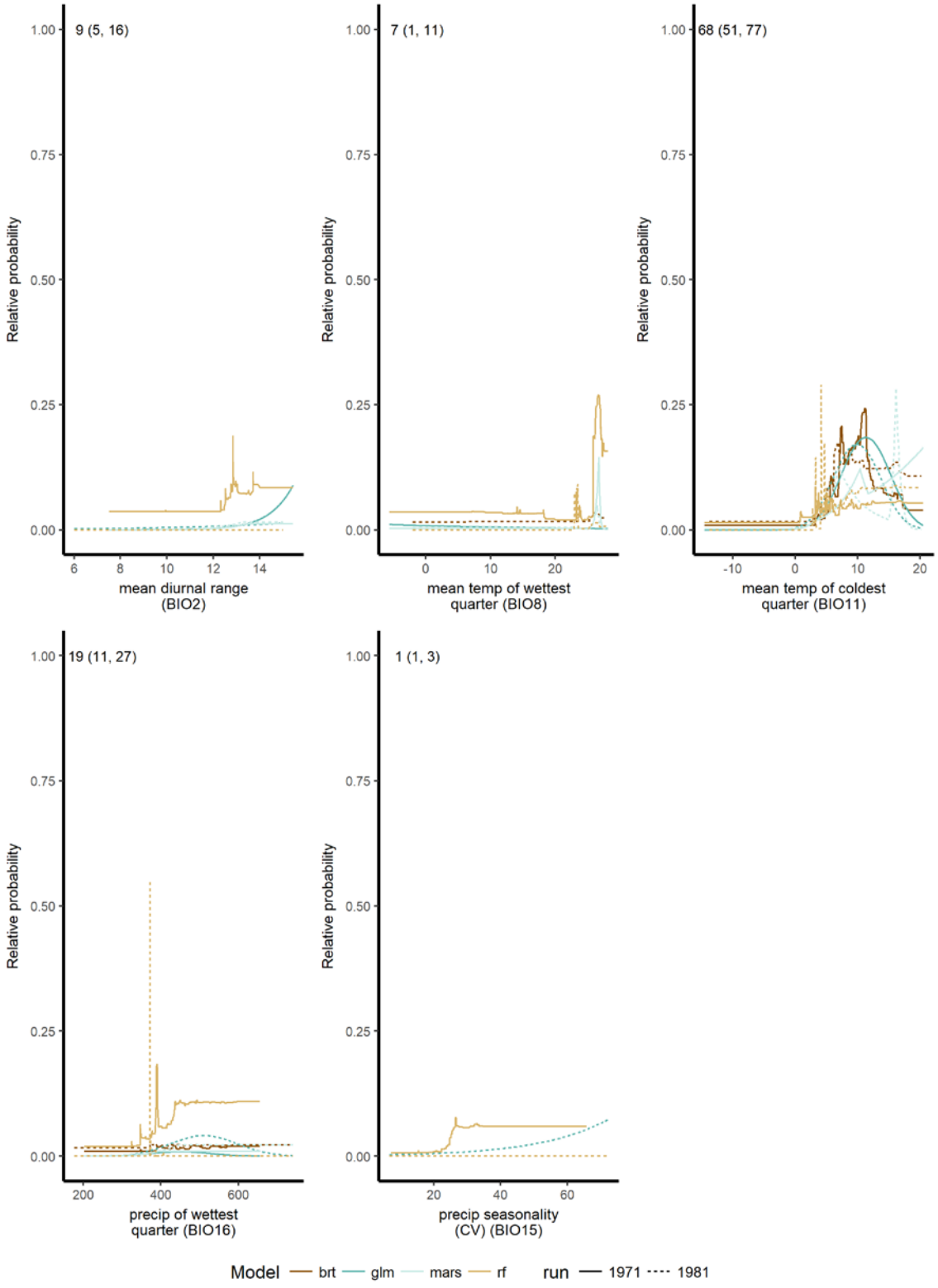

9 (5, 16)
7 (1, 11)
68 (51, 77)
19 (11, 27)
1 (1, 3)
Relative probability
1.00
0.75
0.50
0.25
0.00
mean diurnal range (BIO2)
mean temp of wettest quarter (BIO8)
mean temp of coldest quarter (BIO11)
precip of wettest quarter (BIO16)
precip seasonality (CV) (BIO15)
Model
brt
glm
mars
rf
run
1971
1981

Table S1. Bioclimatic variable correlations for each variable between each climate normal period (1971 to 2000 as rows and 1981 to 2010 as columns) as the diagonal from top left to bottom right and correlations within the 1971 to 2000 time period below the diagonal and correlations within the 1981 to 2010 time period above the diagonal as a mirror image including correlations across a) the Western United States and b) the Eastern United States. Abbreviations are: annual mean temperature (bio1); mean diurnal range (bio2); isothermality (bio3); temperature seasonality (bio4); maximum temperature warmest month (bio5); minimum temperature coldest month (bio6); temperature annual range (bio7); mean temperature of wettest quarter (bio8); mean temperature of driest quarter (bio9); mean temperature of warmest quarter (bio10); mean temperature of coldest quarter (bio11); annual precipitation (bio12); precipitation of wettest month (bio13); precipitation of driest month (bio14); precipitation seasonality (bio15); precipitation of wettest quarter (bio16); precipitation of driest quarter (bio17); precipitation of warmest quarter (bio18); precipitation of coldest quarter (bio19).

a)

1971 \ 1981	bio1	bio2	bio3	bio4	bio5	bio6	bio7	bio8	bio9	bio10	bio11	bio12	bio13	bio14	bio15	bio16	bio17	bio18	bio19
bio1	0.998	0.189	0.446	0.326	0.891	0.859	0.267	0.592	0.46	0.932	0.936	0.022	0.042	0.104	0.049	0.059	0.08	0.086	0.097
bio2	0.201	0.967	0.584	0.142	0.462	0.095	0.513	0.318	0.035	0.24	0.131	0.646	0.607	0.488	0.115	0.616	0.515	0.268	0.523
bio3	0.476	0.547	0.98	0.731	0.295	0.569	0.435	0.086	0.526	0.18	0.623	0.226	0.216	0.253	0.165	0.236	0.207	0.416	0.196
bio4	0.331	0.149	0.755	0.996	0.076	0.724	0.919	0.286	0.696	0.046	0.634	0.383	0.374	0.229	0.053	0.373	0.271	0.327	0.709
bio5	0.889	0.471	0.284	0.096	0.99	0.603	0.221	0.629	0.306	0.951	0.729	0.358	0.356	0.22	0.051	0.369	0.224	0.038	0.378
bio6	0.854	0.081	0.618	0.741	0.584	0.994	0.69	0.217	0.716	0.634	0.971	0.234	0.213	0.191	0.035	0.203	0.211	0.161	0.491
bio7	0.278	0.48	0.504	0.934	0.214	0.716	0.985	0.323	0.621	0.081	0.543	0.585	0.558	0.379	0.13	0.558	0.427	0.173	0.804
bio8	0.602	0.343	0.081	0.309	0.661	0.22	0.342	0.927	0.34	0.729	0.382	0.215	0.185	0.053	0.153	0.212	0.091	0.551	0.454
bio9	0.467	0.069	0.561	0.728	0.263	0.743	0.684	0.332	0.968	0.215	0.638	0.147	0.098	0.129	0.21	0.097	0.169	0.536	0.643
bio10	0.927	0.267	0.197	0.052	0.962	0.613	0.079	0.747	0.206	0.997	0.75	0.177	0.192	0.126	0.058	0.209	0.131	0.228	0.279
bio11	0.933	0.136	0.661	0.646	0.713	0.973	0.574	0.387	0.657	0.734	0.998	0.114	0.097	0.137	0.045	0.083	0.148	0.099	0.336
bio12	0.012	0.617	0.181	0.375	0.349	0.235	0.557	0.213	0.169	0.172	0.121	0.996	0.956	0.686	0.094	0.958	0.731	0.568	0.884
bio13	0.06	0.56	0.157	0.367	0.341	0.22	0.533	0.171	0.118	0.176	0.113	0.962	0.98	0.516	0.212	0.995	0.553	0.588	0.906
bio14	0.149	0.526	0.262	0.241	0.255	0.177	0.397	0.129	0.15	0.184	0.104	0.695	0.53	0.989	0.626	0.512	0.985	0.557	0.464
bio15	0.11	0.164	0.192	0.038	0.103	0.062	0.126	0.223	0.189	0.114	0.093	0.079	0.203	0.621	0.981	0.214	0.627	0.119	0.318
bio16	0.044	0.566	0.171	0.367	0.358	0.206	0.532	0.205	0.126	0.201	0.095	0.962	0.995	0.516	0.212	0.989	0.547	0.581	0.917
bio17	0.108	0.539	0.187	0.291	0.251	0.216	0.447	0.156	0.2	0.187	0.136	0.72	0.536	0.983	0.646	0.52	0.994	0.534	0.562
bio18	0.095	0.249	0.384	0.309	0.079	0.142	0.181	0.546	0.493	0.241	0.08	0.593	0.614	0.545	0.09	0.605	0.514	0.993	0.14
bio19	0.086	0.536	0.219	0.706	0.407	0.488	0.805	0.457	0.648	0.3	0.325	0.897	0.913	0.518	0.339	0.926	0.631	0.112	0.995

b)

1981 / 1971	bio1	bio2	bio3	bio4	bio5	bio6	bio7	bio8	bio9	bio10	bio11	bio12	bio13	bio14	bio15	bio16	bio17	bio18	bio19
bio1	1	0.1	0.5	0.54	0.87	0.91	0.52	0.46	0.64	0.94	0.95	0.25	0.26	0.33	0.19	0.24	0.33	0.25	0.3
bio2	0.24	0.96	0.64	0.13	0.43	0.02	0.36	0.03	0.16	0.09	0.16	0.67	0.64	0.58	0.34	0.66	0.59	0.55	0.52
bio3	0.87	0.5	0.99	0.81	0.48	0.64	0.51	0.06	0.64	0.28	0.68	0.2	0.18	0.24	0.22	0.2	0.22	0.4	0.16
bio4	0.91	0.14	0.91	1	0.3	0.82	0.9	0.19	0.76	0.25	0.77	0.3	0.33	0.21	0.1	0.32	0.23	0.17	0.55
bio5	0.87	0.53	0.76	0.64	0.99	0.69	0.16	0.44	0.52	0.91	0.77	0.2	0.25	0.08	0.04	0.26	0.08	0.04	0.21
bio6	0.98	0.14	0.88	0.96	0.77	1	0.8	0.19	0.8	0.73	0.98	0.32	0.31	0.32	0.18	0.28	0.33	0.1	0.51
bio7	0.84	0.2	0.77	0.96	0.48	0.93	0.99	0.14	0.68	0.29	0.71	0.57	0.55	0.44	0.31	0.55	0.47	0.15	0.78
bio8	0.36	0.15	0.25	0.19	0.41	0.27	0.11	0.86	0.3	0.59	0.28	0.11	0.15	0.15	0.02	0.13	0.13	0.52	0.32
bio9	0.89	0.15	0.82	0.9	0.69	0.92	0.87	0.14	0.98	0.44	0.77	0.18	0.12	0.2	0.22	0.12	0.22	0.23	0.53
bio10	0.96	0.31	0.78	0.77	0.96	0.89	0.67	0.42	0.8	1	0.79	0.21	0.23	0.26	0.17	0.2	0.26	0.31	0.13
bio11	0.99	0.23	0.91	0.96	0.82	0.99	0.89	0.31	0.91	0.92	1	0.25	0.24	0.3	0.16	0.22	0.31	0.12	0.41
bio12	0.46	0.48	0.36	0.6	0.09	0.58	0.74	0.32	0.66	0.31	0.51	1	0.94	0.85	0.54	0.95	0.88	0.76	0.84
bio13	0.53	0.4	0.4	0.59	0.24	0.59	0.68	0.12	0.62	0.44	0.55	0.89	0.95	0.7	0.31	0.99	0.73	0.71	0.86
bio14	0.43	0.41	0.36	0.61	0.05	0.56	0.75	0.37	0.66	0.26	0.49	0.95	0.77	0.99	0.83	0.71	0.99	0.78	0.7
bio15	0.26	0.5	0.19	0.45	0.11	0.41	0.6	0.37	0.49	0.11	0.33	0.83	0.55	0.92	0.99	0.33	0.83	0.49	0.58
bio16	0.45	0.44	0.35	0.54	0.12	0.53	0.65	0.16	0.57	0.33	0.48	0.92	0.98	0.8	0.59	0.98	0.74	0.73	0.87
bio17	0.43	0.42	0.36	0.61	0.05	0.56	0.75	0.38	0.65	0.26	0.49	0.96	0.78	0.99	0.92	0.8	0.99	0.77	0.74
bio18	0.23	0.51	0.19	0.37	0.21	0.32	0.51	0.04	0.27	0.08	0.27	0.75	0.83	0.65	0.51	0.89	0.64	0.98	0.37
bio19	0.49	0.34	0.41	0.66	0.12	0.62	0.79	0.43	0.74	0.33	0.54	0.96	0.8	0.97	0.88	0.82	0.98	0.63	1