

Ecological Archives - A3

818

819 **Nice et al. 2013. A Hierarchical Perspective on the Diversity of Butterfly Species'**
820 **Responses to Weather in the Sierra Nevada Mountains**

821 Appendix C. Supplementary Results: tabulation of standardized coefficients for species and year
822 effect, analyses of correlations among weather variables, and analyses of butterfly flight windows
823 and probabilities of occurrence.

Table C1: Species-level β coefficients for analyses with a single climate covariate and a year effect. Climate covariates are: winter minimum temperature, snow depth, and ENSO April-May. The columns for the β for year effect for a given analyses are indicated at the top of the column with the corresponding climate covariate in parentheses. Each species-level β is followed by the 95% credible interval in parentheses. Values of β whose 95% credible interval (95%CI) do not include zero are indicated in bold.

Species	Winter minT	Year (Winter minT)	Snow Depth	Year (Snow Depth)	ENSO April-May	Year (ENSO April-May)
<i>Adelpha bredowii</i>	-0.013 (-0.419 - 0.260)	0.109 (-0.087 - 0.309)	0.018 (-0.069 - 0.091)	0.106 (-0.089 - 0.305)	-0.112 (-0.261 - 0.015)	0.122 (-0.072 - 0.319)
<i>Agrildes podarce</i>	0.094 (-0.169 - 0.504)	-0.038 (-0.226 - 0.152)	0.024 (-0.057 - 0.102)	-0.030 (-0.216 - 0.158)	-0.011 (-0.134 - 0.120)	-0.025 (-0.212 - 0.162)
<i>Amblyscirtes vialis</i>	0.057 (-0.273 - 0.451)	-0.282 (-0.603 - 0.033)	0.026 (-0.061 - 0.112)	-0.279 (-0.599 - 0.035)	-0.022 (-0.171 - 0.138)	-0.266 (-0.588 - 0.041)
<i>Anthocharis sara</i>	0.069 (-0.238 - 0.485)	0.076 (-0.200 - 0.359)	0.017 (-0.076 - 0.095)	0.080 (-0.193 - 0.363)	-0.066 (-0.221 - 0.075)	0.089 (-0.182 - 0.369)
<i>Anthocharis stella</i>	0.072 (-0.211 - 0.444)	0.044 (-0.134 - 0.224)	0.033 (-0.042 - 0.115)	0.048 (-0.131 - 0.227)	-0.014 (-0.135 - 0.115)	0.054 (-0.121 - 0.232)
<i>Apodemia mormo</i>	0.035 (-0.319 - 0.387)	-0.299 (-0.581 - -0.026)	0.028 (-0.056 - 0.114)	-0.297 (-0.577 - -0.027)	-0.075 (-0.235 - 0.065)	-0.278 (-0.556 - -0.006)
<i>Atalopedes campestris</i>	0.062 (-0.268 - 0.479)	-0.331 (-0.730 - 0.047)	0.028 (-0.060 - 0.115)	-0.329 (-0.727 - 0.050)	-0.039 (-0.198 - 0.123)	-0.312 (-0.707 - 0.063)
<i>Atlides hesalus</i>	0.062 (-0.267 - 0.481)	-0.148 (-0.531 - 0.235)	0.029 (-0.058 - 0.117)	-0.148 (-0.531 - 0.238)	-0.030 (-0.187 - 0.132)	-0.134 (-0.513 - 0.243)
<i>Boloria epithore</i>	0.078 (-0.199 - 0.460)	0.034 (-0.141 - 0.210)	0.019 (-0.065 - 0.092)	0.040 (-0.134 - 0.216)	-0.037 (-0.160 - 0.085)	0.049 (-0.125 - 0.224)
<i>Brephidium exile</i>	0.050 (-0.290 - 0.435)	-0.221 (-0.545 - 0.100)	0.025 (-0.062 - 0.109)	-0.218 (-0.541 - 0.101)	-0.007 (-0.154 - 0.156)	-0.210 (-0.535 - 0.107)
<i>Callophrys sheridanii</i>	0.089 (-0.192 - 0.519)	-0.040 (-0.273 - 0.195)	0.020 (-0.069 - 0.097)	-0.032 (-0.264 - 0.200)	-0.054 (-0.197 - 0.081)	-0.022 (-0.251 - 0.211)
<i>Celastrina ladon</i>	0.040 (-0.276 - 0.361)	-0.040 (-0.207 - 0.128)	0.026 (-0.052 - 0.102)	-0.038 (-0.205 - 0.128)	-0.007 (-0.121 - 0.115)	-0.033 (-0.200 - 0.132)
<i>Cercyonis sthenele</i>	0.071 (-0.244 - 0.516)	-0.128 (-0.517 - 0.263)	0.031 (-0.053 - 0.121)	-0.126 (-0.515 - 0.265)	-0.032 (-0.189 - 0.131)	-0.115 (-0.499 - 0.267)
<i>Chlosyne hoffmanni</i>	0.061 (-0.238 - 0.419)	0.028 (-0.161 - 0.220)	0.019 (-0.066 - 0.094)	0.033 (-0.155 - 0.223)	-0.055 (-0.184 - 0.069)	0.043 (-0.143 - 0.231)
<i>Chlosyne palla</i>	0.050 (-0.266 - 0.404)	-0.103 (-0.313 - 0.107)	0.023 (-0.061 - 0.100)	-0.099 (-0.307 - 0.109)	-0.032 (-0.165 - 0.101)	-0.091 (-0.300 - 0.116)
<i>Coenonympha tullia</i>	0.046 (-0.294 - 0.417)	-0.198 (-0.486 - 0.086)	0.018 (-0.076 - 0.095)	-0.196 (-0.483 - 0.090)	0.010 (-0.133 - 0.173)	-0.191 (-0.480 - 0.091)
<i>Colias eurytheme</i>	-0.004 (-0.387 - 0.275)	-0.451 (-0.645 - -0.263)	0.037 (-0.037 - 0.123)	-0.457 (-0.651 - -0.269)	-0.062 (-0.192 - 0.062)	-0.447 (-0.640 - -0.259)
<i>Colias philodice</i>	0.061 (-0.267 - 0.473)	-0.011 (-0.364 - 0.357)	0.024 (-0.067 - 0.107)	-0.008 (-0.365 - 0.360)	-0.040 (-0.200 - 0.117)	0.000 (-0.351 - 0.365)
<i>Danaus plexippus</i>	-0.022 (-0.430 - 0.242)	-0.375 (-0.563 - -0.191)	0.007 (-0.087 - 0.078)	-0.378 (-0.565 - -0.196)	-0.088 (-0.224 - 0.031)	-0.358 (-0.545 - -0.175)
<i>Erynnis persius</i>	0.046 (-0.294 - 0.420)	-0.169 (-0.461 - 0.122)	0.020 (-0.074 - 0.099)	-0.166 (-0.457 - 0.124)	-0.054 (-0.209 - 0.093)	-0.152 (-0.444 - 0.137)
<i>Erynnis propertius</i>	0.071 (-0.225 - 0.468)	-0.028 (-0.252 - 0.198)	0.019 (-0.070 - 0.096)	-0.022 (-0.243 - 0.204)	-0.043 (-0.182 - 0.093)	-0.012 (-0.233 - 0.211)
<i>Euchloe hyantis</i>	0.083 (-0.198 - 0.485)	-0.248 (-0.454 - -0.045)	0.030 (-0.048 - 0.113)	-0.24 (-0.443 - -0.041)	-0.020 (-0.147 - 0.112)	-0.231 (-0.435 - -0.026)
<i>Euphilotes battoides</i>	0.056 (-0.254 - 0.429)	-0.071 (-0.292 - 0.149)	0.035 (-0.042 - 0.123)	-0.068 (-0.287 - 0.151)	-0.043 (-0.180 - 0.092)	-0.057 (-0.273 - 0.163)
<i>Euphilotes enoptes</i>	0.107 (-0.152 - 0.538)	0.148 (-0.042 - 0.340)	0.017 (-0.070 - 0.091)	0.156 (-0.030 - 0.348)	0.000 (-0.122 - 0.133)	0.159 (-0.026 - 0.349)
<i>Everes amyntula</i>	0.032 (-0.331 - 0.380)	-0.473 (-0.771 - -0.190)	0.022 (-0.068 - 0.103)	-0.47 (-0.767 - -0.191)	-0.053 (-0.207 - 0.093)	-0.451 (-0.746 - -0.172)
<i>Glaucoopsyche lygdamus</i>	0.052 (-0.257 - 0.402)	-0.069 (-0.259 - 0.120)	0.017 (-0.070 - 0.090)	-0.065 (-0.252 - 0.125)	-0.031 (-0.157 - 0.096)	-0.057 (-0.247 - 0.131)
<i>Glaucoopsyche piasus</i>	0.077 (-0.231 - 0.528)	0.008 (-0.376 - 0.410)	0.027 (-0.060 - 0.114)	0.011 (-0.373 - 0.412)	-0.052 (-0.218 - 0.104)	0.019 (-0.364 - 0.419)
<i>Habrodais grunus</i>	0.050 (-0.297 - 0.445)	-0.303 (-0.699 - 0.073)	0.028 (-0.058 - 0.117)	-0.300 (-0.695 - 0.076)	-0.049 (-0.213 - 0.109)	-0.284 (-0.672 - 0.090)
<i>Heliopetes ericetorum</i>	0.066 (-0.257 - 0.498)	-0.033 (-0.418 - 0.365)	0.029 (-0.056 - 0.117)	-0.031 (-0.413 - 0.369)	-0.041 (-0.201 - 0.119)	-0.023 (-0.403 - 0.375)
<i>Hesperia colorado</i>	0.028 (-0.314 - 0.351)	-0.325 (-0.527 - -0.126)	0.043 (-0.030 - 0.135)	-0.324 (-0.526 - -0.128)	-0.093 (-0.237 - 0.031)	-0.3 (-0.500 - -0.105)
<i>Hesperia colorado</i>	0.029 (-0.348 - 0.379)	-0.345 (-0.692 - -0.014)	0.024 (-0.065 - 0.107)	-0.344 (-0.692 - -0.012)	-0.042 (-0.199 - 0.110)	-0.328 (-0.671 - -0.002)
<i>Hesperia juba</i>	0.024 (-0.293 - 0.316)	-0.152 (-0.308 - 0.002)	0.014 (-0.070 - 0.082)	-0.151 (-0.304 - 0.001)	-0.052 (-0.169 - 0.061)	-0.140 (-0.293 - 0.011)
<i>Hesperia nevada</i>	0.043 (-0.310 - 0.419)	-0.340 (-0.693 - 0.004)	0.032 (-0.052 - 0.122)	-0.337 (-0.689 - 0.003)	-0.035 (-0.190 - 0.121)	-0.324 (-0.671 - 0.012)
<i>Hylephila phyleus</i>	0.035 (-0.335 - 0.396)	-0.137 (-0.480 - 0.205)	0.033 (-0.050 - 0.125)	-0.136 (-0.482 - 0.211)	-0.065 (-0.229 - 0.085)	-0.123 (-0.462 - 0.219)
<i>Incisalia augustinus</i>	0.075 (-0.208 - 0.460)	-0.048 (-0.240 - 0.145)	0.022 (-0.060 - 0.098)	-0.042 (-0.233 - 0.150)	-0.010 (-0.134 - 0.122)	-0.037 (-0.227 - 0.157)
<i>Incisalia eryphon</i>	0.091 (-0.178 - 0.504)	0.317 (0.114 - 0.528)	0.034 (-0.043 - 0.120)	0.321 (0.118 - 0.533)	-0.003 (-0.130 - 0.135)	0.326 (0.123 - 0.535)
<i>Incisalia mossii</i>	0.053 (-0.278 - 0.435)	-0.043 (-0.321 - 0.237)	0.024 (-0.064 - 0.107)	-0.040 (-0.316 - 0.243)	-0.028 (-0.173 - 0.122)	-0.032 (-0.308 - 0.246)
<i>Junonia coenia</i>	0.193 (-0.062 - 0.744)	-0.154 (-0.333 - 0.023)	0.023 (-0.057 - 0.098)	-0.134 (-0.308 - 0.039)	-0.027 (-0.148 - 0.096)	-0.126 (-0.301 - 0.047)
<i>Leptotes marina</i>	0.073 (-0.239 - 0.514)	-0.148 (-0.519 - 0.221)	0.030 (-0.055 - 0.120)	-0.145 (-0.513 - 0.226)	-0.003 (-0.154 - 0.170)	-0.137 (-0.505 - 0.232)
<i>Limenitis lorquini</i>	0.025 (-0.312 - 0.325)	-0.035 (-0.205 - 0.136)	0.046 (-0.025 - 0.135)	-0.036 (-0.205 - 0.133)	-0.099 (-0.231 - 0.017)	-0.016 (-0.186 - 0.154)
<i>Lycacides idas</i>	0.016 (-0.325 - 0.308)	-0.122 (-0.291 - 0.048)	0.037 (-0.037 - 0.118)	-0.124 (-0.290 - 0.044)	-0.105 (-0.238 - 0.011)	-0.101 (-0.269 - 0.066)
<i>Lycacides melissa</i>	-0.007 (-0.432 - 0.285)	-0.411 (-0.681 - -0.151)	0.013 (-0.084 - 0.088)	-0.414 (-0.682 - -0.157)	-0.023 (-0.164 - 0.123)	-0.402 (-0.674 - -0.143)
<i>Lycacena arota</i>	-0.015 (-0.407 - 0.251)	-0.082 (-0.250 - 0.087)	0.033 (-0.041 - 0.113)	-0.087 (-0.253 - 0.079)	-0.101 (-0.232 - 0.015)	-0.066 (-0.233 - 0.099)
<i>Lycacena cupreus</i>	0.051 (-0.244 - 0.381)	-0.194 (-0.360 - -0.029)	0.025 (-0.054 - 0.101)	-0.191 (-0.355 - -0.027)	-0.050 (-0.170 - 0.067)	-0.179 (-0.343 - -0.016)
<i>Lycacena editha</i>	0.031 (-0.282 - 0.328)	-0.192 (-0.348 - -0.037)	0.025 (-0.053 - 0.098)	-0.191 (-0.345 - -0.039)	-0.067 (-0.186 - 0.047)	-0.177 (-0.331 - -0.025)
<i>Lycacena helloides</i>	0.043 (-0.303 - 0.405)	-0.299 (-0.596 - -0.010)	0.037 (-0.042 - 0.130)	-0.297 (-0.596 - -0.009)	-0.054 (-0.206 - 0.092)	-0.281 (-0.574 - -0.005)
<i>Lycacena heteronea</i>	0.001 (-0.382 - 0.283)	-0.243 (-0.432 - -0.057)	0.046 (-0.024 - 0.140)	-0.248 (-0.432 - -0.065)	-0.085 (-0.220 - 0.036)	-0.225 (-0.411 - -0.042)
<i>Lycacena mariposa</i>	0.052 (-0.255 - 0.402)	-0.259 (-0.462 - -0.057)	0.018 (-0.070 - 0.092)	-0.254 (-0.455 - -0.056)	-0.045 (-0.178 - 0.084)	-0.242 (-0.444 - -0.044)
<i>Lycacena nivalis</i>	0.024 (-0.299 - 0.314)	-0.204 (-0.366 - -0.045)	0.041 (-0.030 - 0.125)	-0.206 (-0.364 - -0.048)	-0.020 (-0.134 - 0.098)	-0.198 (-0.357 - -0.041)
<i>Lycacena rubidus</i>	0.030 (-0.328 - 0.366)	-0.543 (-0.819 - -0.282)	0.013 (-0.085 - 0.089)	-0.540 (-0.813 - -0.282)	-0.076 (-0.230 - 0.060)	-0.516 (-0.788 - -0.259)
<i>Mitoura gryneus</i>	0.028 (-0.348 - 0.380)	-0.024 (-0.348 - 0.308)	0.022 (-0.068 - 0.105)	-0.022 (-0.343 - 0.309)	-0.048 (-0.205 - 0.104)	-0.013 (-0.333 - 0.311)
<i>Mitoura johnsoni</i>	0.086 (-0.212 - 0.553)	0.047 (-0.326 - 0.441)	0.022 (-0.072 - 0.104)	0.050 (-0.323 - 0.445)	-0.036 (-0.194 - 0.126)	0.056 (-0.309 - 0.441)
<i>Mitoura spinetorum</i>	0.059 (-0.274 - 0.469)	-0.232 (-0.617 - 0.141)	0.025 (-0.065 - 0.110)	-0.231 (-0.612 - 0.143)	-0.049 (-0.211 - 0.108)	-0.216 (-0.593 - 0.149)
<i>Neophasia menapia</i>	-0.037 (-0.483 - 0.220)	-0.160 (-0.355 - 0.033)	0.027 (-0.054 - 0.105)	-0.168 (-0.360 - 0.024)	-0.102 (-0.246 - 0.021)	-0.146 (-0.337 - 0.045)
<i>Nymphalis antiopa</i>	0.060 (-0.226 - 0.394)	-0.493 (-0.658 - -0.333)	0.036 (-0.035 - 0.117)	-0.491 (-0.652 - -0.333)	-0.028 (-0.141 - 0.088)	-0.48 (-0.643 - -0.321)
<i>Nymphalis californica</i>	-0.164 (-0.725 - 0.112)	0.002 (-0.154 - 0.159)	0.036 (-0.035 - 0.115)	-0.019 (-0.172 - 0.132)	-0.078 (-0.197 - 0.032)	-0.002 (-0.155 - 0.149)
<i>Nymphalis milberti</i>	0.096 (-0.176 - 0.534)	-0.249 (-0.474 - -0.025)	0.058 (-0.014 - 0.167)	-0.242 (-0.466 - -0.021)	0.055 (-0.075 - 0.214)	-0.245 (-0.471 - -0.025)

Table C1 - Continued from previous page

Species	Winter minT	Year (Winter minT)	Snow Depth	Year (Snow Depth)	ENSO April-May	Year (ENSO April-May)
<i>Ochlodes sylvanoides</i>	0.070 (-0.211 - 0.434)	-0.089 (-0.266 - 0.087)	0.015 (-0.073 - 0.086)	-0.083 (-0.257 - 0.092)	-0.027 (-0.148 - 0.097)	-0.076 (-0.252 - 0.099)
<i>Oeneis chryxus</i>	0.066 (-0.253 - 0.495)	-0.233 (-0.636 - 0.160)	0.025 (-0.063 - 0.111)	-0.230 (-0.637 - 0.166)	-0.028 (-0.186 - 0.138)	-0.217 (-0.619 - 0.168)
<i>Papilio eurymedon</i>	0.064 (-0.227 - 0.431)	0.120 (-0.070 - 0.315)	0.025 (-0.056 - 0.102)	0.124 (-0.066 - 0.318)	0.004 (-0.120 - 0.139)	0.128 (-0.061 - 0.320)
<i>Papilio indra</i>	0.078 (-0.223 - 0.511)	-0.151 (-0.458 - 0.156)	0.023 (-0.066 - 0.105)	-0.145 (-0.452 - 0.161)	-0.028 (-0.177 - 0.126)	-0.135 (-0.442 - 0.169)
<i>Papilio rutulus</i>	0.000 (-0.386 - 0.285)	0.248 (0.051 - 0.452)	0.017 (-0.071 - 0.091)	0.247 (0.051 - 0.448)	-0.011 (-0.137 - 0.124)	0.248 (0.053 - 0.449)
<i>Papilio zelicaon</i>	0.052 (-0.263 - 0.404)	-0.347 (-0.549 - -0.149)	0.028 (-0.053 - 0.108)	-0.343 (-0.542 - -0.148)	-0.118 (-0.268 - 0.007)	-0.314 (-0.513 - -0.117)
<i>Parnassius clodius</i>	0.062 (-0.229 - 0.420)	0.005 (-0.180 - 0.191)	0.011 (-0.081 - 0.083)	0.011 (-0.171 - 0.193)	-0.035 (-0.160 - 0.090)	0.018 (-0.164 - 0.202)
<i>Parnassius phoebus</i>	0.058 (-0.276 - 0.471)	-0.216 (-0.604 - 0.166)	0.024 (-0.068 - 0.107)	-0.214 (-0.602 - 0.168)	-0.040 (-0.198 - 0.121)	-0.201 (-0.581 - 0.172)
<i>Phyciodes campestris</i>	0.069 (-0.200 - 0.414)	-0.22 (-0.376 - -0.065)	0.021 (-0.058 - 0.094)	-0.214 (-0.369 - -0.061)	-0.075 (-0.194 - 0.036)	-0.2 (-0.354 - -0.047)
<i>Phyciodes mylitta</i>	0.058 (-0.227 - 0.398)	-0.017 (-0.172 - 0.138)	0.004 (-0.089 - 0.071)	-0.010 (-0.163 - 0.142)	-0.083 (-0.202 - 0.027)	0.003 (-0.148 - 0.156)
<i>Phyciodes orseis</i>	0.038 (-0.303 - 0.382)	0.103 (-0.118 - 0.330)	0.014 (-0.079 - 0.089)	0.106 (-0.116 - 0.332)	-0.057 (-0.198 - 0.076)	0.113 (-0.105 - 0.336)
<i>Pieris napi</i>	0.079 (-0.227 - 0.542)	-0.059 (-0.451 - 0.343)	0.032 (-0.053 - 0.123)	-0.056 (-0.447 - 0.348)	-0.041 (-0.200 - 0.121)	-0.047 (-0.435 - 0.352)
<i>Pieris rapae</i>	0.033 (-0.282 - 0.337)	-0.415 (-0.582 - -0.253)	0.033 (-0.041 - 0.114)	-0.415 (-0.580 - -0.255)	-0.028 (-0.141 - 0.090)	-0.407 (-0.572 - -0.245)
<i>Plebejus acmon</i>	0.024 (-0.300 - 0.312)	-0.111 (-0.267 - 0.043)	0.011 (-0.075 - 0.080)	-0.110 (-0.263 - 0.041)	-0.038 (-0.151 - 0.075)	-0.103 (-0.256 - 0.051)
<i>Plebejus icarioides</i>	0.061 (-0.230 - 0.406)	-0.075 (-0.247 - 0.097)	0.032 (-0.043 - 0.111)	-0.071 (-0.242 - 0.100)	-0.006 (-0.122 - 0.118)	-0.066 (-0.235 - 0.105)
<i>Plebejus lupini</i>	0.028 (-0.311 - 0.345)	-0.116 (-0.302 - 0.071)	0.036 (-0.039 - 0.121)	-0.116 (-0.300 - 0.066)	-0.044 (-0.171 - 0.081)	-0.104 (-0.289 - 0.081)
<i>Plebejus saepiolus</i>	0.054 (-0.237 - 0.393)	-0.218 (-0.381 - -0.057)	0.035 (-0.038 - 0.115)	(-0.378 - -0.056)	-0.021 (-0.135 - 0.096)	-0.207 (-0.368 - -0.048)
<i>Plebejus shasta</i>	0.064 (-0.249 - 0.463)	-0.618 (-0.927 - -0.330)	0.022 (-0.067 - 0.103)	-0.612 (-0.917 - -0.327)	-0.021 (-0.165 - 0.131)	-0.599 (-0.908 - -0.313)
<i>Polites sabuleti</i>	0.072 (-0.241 - 0.510)	-0.393 (-0.774 - -0.035)	0.027 (-0.061 - 0.114)	-0.388 (-0.770 - -0.035)	-0.060 (-0.226 - 0.091)	-0.37 (-0.744 - -0.021)
<i>Polites sabuleti</i>	0.070 (-0.245 - 0.501)	0.055 (-0.301 - 0.427)	0.025 (-0.067 - 0.109)	0.056 (-0.297 - 0.429)	-0.032 (-0.189 - 0.128)	0.064 (-0.287 - 0.433)
<i>Polites sabuleti</i>	0.061 (-0.233 - 0.413)	-0.135 (-0.313 - 0.042)	0.033 (-0.042 - 0.114)	-0.131 (-0.306 - 0.043)	0.055 (-0.065 - 0.193)	-0.136 (-0.312 - 0.043)
<i>Polites sonora</i>	0.044 (-0.260 - 0.365)	-0.138 (-0.304 - 0.028)	0.036 (-0.036 - 0.118)	-0.137 (-0.301 - 0.026)	-0.029 (-0.146 - 0.090)	-0.128 (-0.292 - 0.035)
<i>Polygonia faunus</i>	0.035 (-0.328 - 0.394)	-0.010 (-0.322 - 0.310)	0.026 (-0.062 - 0.111)	-0.008 (-0.319 - 0.310)	-0.049 (-0.207 - 0.101)	0.003 (-0.310 - 0.321)
<i>Polygonia satyrus</i>	0.064 (-0.260 - 0.493)	-0.163 (-0.561 - 0.232)	0.025 (-0.066 - 0.109)	-0.160 (-0.560 - 0.237)	-0.033 (-0.190 - 0.134)	-0.150 (-0.542 - 0.242)
<i>Polygonia zephyrus</i>	0.006 (-0.339 - 0.279)	-0.140 (-0.294 - 0.015)	0.040 (-0.029 - 0.124)	-0.144 (-0.297 - 0.009)	-0.071 (-0.188 - 0.040)	-0.128 (-0.282 - 0.025)
<i>Pontia beckerii</i>	-0.015 (-0.449 - 0.268)	-0.072 (-0.309 - 0.166)	0.022 (-0.065 - 0.100)	-0.076 (-0.313 - 0.159)	0.005 (-0.128 - 0.157)	-0.073 (-0.308 - 0.162)
<i>Pontia occidentalis</i>	-0.097 (-0.599 - 0.149)	-0.433 (-0.598 - -0.272)	0.033 (-0.040 - 0.110)	-0.448 (-0.609 - -0.291)	-0.030 (-0.144 - 0.084)	-0.438 (-0.600 - -0.280)
<i>Pontia protodice</i>	-0.021 (-0.420 - 0.240)	-0.246 (-0.419 - -0.074)	-0.002 (-0.104 - 0.066)	-0.249 (-0.421 - -0.080)	0.027 (-0.090 - 0.158)	-0.253 (-0.426 - -0.083)
<i>Pontia sisymbrii</i>	0.074 (-0.227 - 0.496)	-0.130 (-0.397 - 0.135)	0.014 (-0.083 - 0.090)	-0.123 (-0.391 - 0.139)	0.024 (-0.113 - 0.189)	-0.123 (-0.390 - 0.143)
<i>Pyrgus communis</i>	0.027 (-0.293 - 0.323)	-0.203 (-0.360 - -0.048)	0.041 (-0.029 - 0.124)	-0.205 (-0.360 - -0.051)	-0.095 (-0.216 - 0.015)	-0.185 (-0.339 - -0.030)
<i>Pyrgus ruralis</i>	0.069 (-0.218 - 0.437)	0.010 (-0.175 - 0.196)	0.031 (-0.046 - 0.112)	0.015 (-0.169 - 0.198)	-0.010 (-0.131 - 0.120)	0.020 (-0.163 - 0.204)
<i>Satyrrium behrii</i>	0.082 (-0.206 - 0.517)	-0.186 (-0.451 - 0.073)	0.019 (-0.072 - 0.098)	-0.180 (-0.440 - 0.081)	-0.058 (-0.208 - 0.083)	-0.165 (-0.428 - 0.093)
<i>Satyrrium californica</i>	-0.001 (-0.404 - 0.293)	-0.368 (-0.602 - -0.139)	0.057 (-0.015 - 0.168)	-0.371 (-0.603 - -0.146)	-0.069 (-0.215 - 0.062)	-0.349 (-0.581 - -0.125)
<i>Satyrrium fuliginosum</i>	0.002 (-0.402 - 0.301)	-0.150 (-0.387 - 0.088)	0.023 (-0.062 - 0.103)	-0.151 (-0.387 - 0.083)	-0.057 (-0.202 - 0.078)	-0.137 (-0.371 - 0.095)
<i>Satyrrium saepium</i>	0.025 (-0.304 - 0.327)	-0.175 (-0.340 - -0.010)	0.021 (-0.059 - 0.095)	-0.174 (-0.337 - -0.013)	-0.064 (-0.186 - 0.051)	-0.159 (-0.322 - 0.002)
<i>Satyrrium sylvinus</i>	0.054 (-0.244 - 0.396)	-0.112 (-0.284 - 0.060)	0.042 (-0.030 - 0.128)	-0.110 (-0.278 - 0.059)	-0.031 (-0.149 - 0.090)	-0.099 (-0.270 - 0.072)
<i>Speyeria atlantis</i>	0.032 (-0.286 - 0.333)	-0.137 (-0.293 - 0.018)	0.029 (-0.045 - 0.105)	-0.137 (-0.290 - 0.016)	-0.033 (-0.145 - 0.081)	-0.127 (-0.281 - 0.025)
<i>Speyeria coronis</i>	0.046 (-0.277 - 0.398)	0.454 (0.241 - 0.677)	0.021 (-0.065 - 0.097)	0.457 (0.247 - 0.678)	-0.064 (-0.202 - 0.064)	0.46 (0.252 - 0.677)
<i>Speyeria cybele</i>	0.104 (-0.164 - 0.566)	-0.002 (-0.235 - 0.234)	0.031 (-0.050 - 0.117)	0.006 (-0.223 - 0.239)	-0.037 (-0.177 - 0.101)	0.016 (-0.212 - 0.246)
<i>Speyeria egleis</i>	-0.036 (-0.445 - 0.215)	-0.296 (-0.463 - -0.131)	0.011 (-0.078 - 0.080)	-0.302 (-0.466 - -0.141)	-0.109 (-0.239 - 0.007)	-0.279 (-0.445 - -0.117)
<i>Speyeria hydaspe</i>	0.064 (-0.255 - 0.471)	-0.103 (-0.410 - 0.204)	0.011 (-0.093 - 0.086)	-0.097 (-0.406 - 0.211)	-0.071 (-0.236 - 0.073)	-0.085 (-0.385 - 0.221)
<i>Speyeria mormonia</i>	0.009 (-0.338 - 0.290)	-0.195 (-0.357 - -0.034)	0.022 (-0.058 - 0.094)	-0.197 (-0.358 - -0.039)	-0.099 (-0.225 - 0.014)	-0.177 (-0.338 - -0.017)
<i>Speyeria zerene</i>	0.014 (-0.335 - 0.310)	-0.137 (-0.314 - 0.041)	0.012 (-0.078 - 0.083)	-0.137 (-0.314 - 0.038)	-0.025 (-0.147 - 0.100)	-0.130 (-0.307 - 0.046)
<i>Strymon melinus</i>	0.016 (-0.359 - 0.330)	0.010 (-0.225 - 0.249)	0.024 (-0.062 - 0.104)	0.010 (-0.223 - 0.249)	-0.077 (-0.227 - 0.058)	0.023 (-0.208 - 0.257)
<i>Thorybes mexicana</i>	0.042 (-0.273 - 0.372)	-0.332 (-0.518 - -0.148)	0.036 (-0.039 - 0.119)	-0.33 (-0.516 - -0.150)	-0.049 (-0.176 - 0.073)	-0.315 (-0.501 - -0.134)
<i>Vanessa annabella</i>	0.064 (-0.211 - 0.408)	-0.498 (-0.663 - -0.339)	0.038 (-0.032 - 0.120)	-0.495 (-0.659 - -0.337)	-0.024 (-0.138 - 0.093)	-0.486 (-0.648 - -0.329)
<i>Vanessa atalanta</i>	0.029 (-0.338 - 0.369)	-0.273 (-0.552 - 0.000)	0.041 (-0.037 - 0.136)	-0.274 (-0.553 - -0.001)	-0.014 (-0.156 - 0.139)	-0.264 (-0.539 - 0.005)
<i>Vanessa cardui</i>	0.002 (-0.351 - 0.277)	-0.053 (-0.210 - 0.105)	0.050 (-0.018 - 0.141)	-0.058 (-0.212 - 0.095)	0.191 (0.042 - 0.354)	-0.081 (-0.241 - 0.076)
<i>Vanessa virginiensis</i>	0.143 (-0.099 - 0.593)	-0.224 (-0.383 - -0.065)	0.033 (-0.039 - 0.112)	-0.21 (-0.368 - -0.055)	-0.062 (-0.179 - 0.051)	-0.196 (-0.354 - -0.041)

Table C2: Species-level β coefficients for analyses with a single climate covariate and a year effect, continued. Climate covariates are: spring maximum temperature, winter maximum temperature, and spring minimum temperature. The columns for the β for year effect for a given analyses are indicated at the top of the column with the corresponding climate covariate in parentheses. Each species-level β is followed by the 95% credible interval in parentheses. Values of β whose 95% credible interval (95%CI) do not include zero are indicated in bold.

Species	Spring maxT	Year (Spring maxT)	Winter maxT	Year (Winter maxT)	Spring minT	Year (Spring minT)
<i>Adelpha bredowii</i>	0.001 (-0.159 - 0.329)	0.106 (-0.090 - 0.307)	-0.119 (-0.373 - 0.094)	0.115 (-0.081 - 0.314)	-0.094 (-0.240 - 0.122)	0.118 (-0.078 - 0.315)
<i>Agradias podarce</i>	-0.031 (-0.218 - 0.206)	-0.024 (-0.211 - 0.165)	-0.103 (-0.320 - 0.142)	-0.021 (-0.207 - 0.166)	-0.103 (-0.258 - 0.086)	-0.014 (-0.200 - 0.173)
<i>Amblyscirtes vialis</i>	-0.046 (-0.278 - 0.175)	-0.269 (-0.588 - 0.042)	-0.105 (-0.332 - 0.146)	-0.269 (-0.590 - 0.042)	-0.110 (-0.285 - 0.074)	-0.259 (-0.580 - 0.050)
<i>Anthocharis sara</i>	-0.042 (-0.256 - 0.187)	0.086 (-0.186 - 0.369)	-0.094 (-0.301 - 0.190)	0.088 (-0.186 - 0.372)	-0.114 (-0.294 - 0.059)	0.094 (-0.180 - 0.376)
<i>Anthocharis stella</i>	-0.045 (-0.256 - 0.164)	0.057 (-0.121 - 0.237)	-0.105 (-0.326 - 0.135)	0.058 (-0.119 - 0.236)	-0.108 (-0.270 - 0.068)	0.065 (-0.111 - 0.244)
<i>Apodemia mormo</i>	-0.048 (-0.282 - 0.166)	-0.286 (-0.567 - -0.014)	-0.110 (-0.342 - 0.125)	-0.289 (-0.569 - -0.016)	-0.119 (-0.306 - 0.047)	-0.275 (-0.556 - -0.007)
<i>Atalopedes campestris</i>	-0.043 (-0.271 - 0.188)	-0.317 (-0.714 - 0.061)	-0.102 (-0.322 - 0.159)	-0.319 (-0.718 - 0.059)	-0.111 (-0.288 - 0.067)	-0.308 (-0.704 - 0.068)
<i>Atitides halesus</i>	-0.044 (-0.275 - 0.184)	-0.136 (-0.519 - 0.244)	-0.099 (-0.314 - 0.173)	-0.137 (-0.519 - 0.245)	-0.109 (-0.286 - 0.076)	-0.127 (-0.507 - 0.248)
<i>Boloria epithore</i>	-0.032 (-0.218 - 0.199)	0.047 (-0.127 - 0.222)	-0.103 (-0.318 - 0.142)	0.048 (-0.126 - 0.223)	-0.106 (-0.266 - 0.073)	0.056 (-0.117 - 0.232)
<i>Brepheidium exile</i>	-0.034 (-0.240 - 0.214)	-0.208 (-0.532 - 0.107)	-0.103 (-0.324 - 0.154)	-0.208 (-0.532 - 0.112)	-0.105 (-0.270 - 0.087)	-0.197 (-0.522 - 0.120)
<i>Callophrys sheridanii</i>	-0.038 (-0.245 - 0.193)	-0.026 (-0.259 - 0.209)	-0.093 (-0.298 - 0.189)	-0.025 (-0.258 - 0.208)	-0.109 (-0.278 - 0.069)	-0.017 (-0.249 - 0.217)
<i>Celastrina ladon</i>	-0.023 (-0.199 - 0.227)	-0.034 (-0.199 - 0.133)	-0.106 (-0.324 - 0.133)	-0.030 (-0.195 - 0.136)	-0.095 (-0.239 - 0.108)	-0.023 (-0.190 - 0.142)
<i>Cercyonis sthenelus</i>	-0.047 (-0.284 - 0.178)	-0.115 (-0.502 - 0.271)	-0.102 (-0.323 - 0.160)	-0.116 (-0.504 - 0.275)	-0.113 (-0.295 - 0.065)	-0.106 (-0.491 - 0.281)
<i>Chlosyne hoffmanni</i>	-0.025 (-0.206 - 0.224)	0.037 (-0.150 - 0.226)	-0.103 (-0.320 - 0.147)	0.041 (-0.146 - 0.229)	-0.105 (-0.265 - 0.083)	0.049 (-0.139 - 0.235)
<i>Chlosyne palla</i>	-0.033 (-0.230 - 0.208)	-0.094 (-0.304 - 0.117)	-0.097 (-0.305 - 0.173)	-0.092 (-0.300 - 0.116)	-0.112 (-0.284 - 0.061)	-0.083 (-0.291 - 0.125)
<i>Coenonympha tullia</i>	-0.037 (-0.247 - 0.204)	-0.188 (-0.476 - 0.094)	-0.103 (-0.323 - 0.153)	-0.187 (-0.475 - 0.098)	-0.098 (-0.252 - 0.115)	-0.180 (-0.465 - 0.103)
<i>Colias eurhytheme</i>	-0.066 (-0.324 - 0.110)	-0.442 (-0.636 - -0.253)	-0.126 (-0.396 - 0.077)	-0.445 (-0.639 - -0.258)	-0.127 (-0.329 - 0.022)	-0.438 (-0.631 - -0.251)
<i>Colias philodice</i>	-0.036 (-0.250 - 0.211)	-0.002 (-0.352 - 0.359)	-0.098 (-0.311 - 0.178)	0.000 (-0.355 - 0.367)	-0.108 (-0.279 - 0.078)	0.007 (-0.343 - 0.368)
<i>Danaus plexippus</i>	-0.040 (-0.244 - 0.179)	-0.373 (-0.561 - -0.189)	-0.100 (-0.305 - 0.155)	-0.373 (-0.560 - -0.189)	-0.122 (-0.310 - 0.033)	-0.36 (-0.546 - -0.176)
<i>Erynnis persius</i>	-0.039 (-0.254 - 0.196)	-0.158 (-0.449 - 0.133)	-0.103 (-0.324 - 0.150)	-0.158 (-0.449 - 0.132)	-0.107 (-0.274 - 0.080)	-0.149 (-0.442 - 0.139)
<i>Erynnis propertius</i>	-0.037 (-0.242 - 0.197)	-0.016 (-0.238 - 0.206)	-0.100 (-0.313 - 0.162)	-0.014 (-0.236 - 0.210)	-0.103 (-0.261 - 0.086)	-0.007 (-0.228 - 0.216)
<i>Euchloe hyantis</i>	-0.044 (-0.264 - 0.169)	-0.232 (-0.436 - -0.029)	-0.106 (-0.328 - 0.133)	-0.232 (-0.434 - -0.030)	-0.107 (-0.270 - 0.074)	-0.222 (-0.424 - -0.021)
<i>Euphilotes battoides</i>	-0.056 (-0.298 - 0.142)	-0.058 (-0.279 - 0.162)	-0.109 (-0.336 - 0.126)	-0.059 (-0.277 - 0.162)	-0.117 (-0.303 - 0.046)	-0.050 (-0.270 - 0.170)
<i>Euphilotes enoptes</i>	-0.035 (-0.231 - 0.194)	0.163 (-0.024 - 0.354)	-0.102 (-0.316 - 0.150)	0.164 (-0.023 - 0.356)	-0.103 (-0.260 - 0.085)	0.170 (-0.015 - 0.361)
<i>Everes amyntula</i>	-0.038 (-0.249 - 0.202)	-0.461 (-0.755 - -0.181)	-0.104 (-0.326 - 0.147)	-0.462 (-0.761 - -0.181)	-0.110 (-0.282 - 0.071)	-0.448 (-0.744 - -0.170)
<i>Glaucopsyche lygdamus</i>	-0.039 (-0.244 - 0.181)	-0.058 (-0.247 - 0.131)	-0.100 (-0.312 - 0.152)	-0.058 (-0.245 - 0.131)	-0.113 (-0.285 - 0.055)	-0.048 (-0.237 - 0.140)
<i>Glaucopsyche piasus</i>	-0.039 (-0.259 - 0.207)	0.018 (-0.366 - 0.421)	-0.099 (-0.313 - 0.174)	0.019 (-0.364 - 0.422)	-0.109 (-0.281 - 0.075)	0.025 (-0.356 - 0.419)
<i>Habrodactis grunus</i>	-0.050 (-0.296 - 0.168)	-0.291 (-0.685 - 0.086)	-0.105 (-0.331 - 0.150)	-0.293 (-0.687 - 0.086)	-0.116 (-0.305 - 0.058)	-0.280 (-0.674 - 0.096)
<i>Heliopteryx erictorum</i>	-0.040 (-0.259 - 0.201)	-0.024 (-0.403 - 0.373)	-0.101 (-0.318 - 0.168)	-0.023 (-0.407 - 0.376)	-0.110 (-0.288 - 0.075)	-0.016 (-0.394 - 0.381)
<i>Hesperia colorado</i>	-0.082 (-0.391 - 0.084)	-0.309 (-0.511 - -0.111)	-0.118 (-0.363 - 0.099)	-0.315 (-0.516 - -0.119)	-0.133 (-0.353 - 0.010)	-0.3 (-0.502 - -0.105)
<i>Hesperia colorado</i>	-0.038 (-0.255 - 0.204)	-0.334 (-0.680 - -0.004)	-0.107 (-0.335 - 0.140)	-0.334 (-0.681 - -0.003)	-0.106 (-0.273 - 0.082)	-0.322 (-0.666 - 0.006)
<i>Hesperia juba</i>	-0.018 (-0.190 - 0.234)	-0.148 (-0.303 - 0.006)	-0.114 (-0.346 - 0.103)	-0.144 (-0.297 - 0.009)	-0.100 (-0.248 - 0.088)	-0.137 (-0.291 - 0.016)
<i>Hesperia nevada</i>	-0.041 (-0.263 - 0.193)	-0.328 (-0.679 - 0.004)	-0.114 (-0.360 - 0.118)	-0.328 (-0.680 - 0.007)	-0.110 (-0.287 - 0.075)	-0.316 (-0.664 - 0.014)
<i>Hylephila phyleus</i>	-0.045 (-0.276 - 0.180)	-0.127 (-0.466 - 0.217)	-0.109 (-0.345 - 0.130)	-0.127 (-0.470 - 0.215)	-0.115 (-0.300 - 0.059)	-0.119 (-0.460 - 0.219)
<i>Incisalia augustinus</i>	-0.030 (-0.220 - 0.212)	-0.036 (-0.227 - 0.154)	-0.091 (-0.289 - 0.194)	-0.035 (-0.225 - 0.157)	-0.099 (-0.252 - 0.097)	-0.027 (-0.216 - 0.164)
<i>Incisalia eryphon</i>	-0.036 (-0.238 - 0.192)	0.329 (0.126 - 0.540)	-0.106 (-0.330 - 0.138)	0.332 (0.131 - 0.542)	-0.098 (-0.249 - 0.105)	0.336 (0.135 - 0.544)
<i>Incisalia mossii</i>	-0.036 (-0.242 - 0.203)	-0.034 (-0.306 - 0.245)	-0.103 (-0.324 - 0.153)	-0.031 (-0.308 - 0.250)	-0.105 (-0.271 - 0.083)	-0.024 (-0.295 - 0.253)
<i>Junonia coenia</i>	-0.039 (-0.240 - 0.179)	-0.127 (-0.303 - 0.048)	-0.083 (-0.275 - 0.222)	-0.128 (-0.303 - 0.047)	-0.107 (-0.268 - 0.073)	-0.118 (-0.292 - 0.055)
<i>Leptotes marina</i>	-0.038 (-0.256 - 0.206)	-0.137 (-0.508 - 0.234)	-0.104 (-0.329 - 0.151)	-0.137 (-0.507 - 0.234)	-0.103 (-0.263 - 0.103)	-0.127 (-0.495 - 0.238)
<i>Limnitis lorquini</i>	-0.068 (-0.322 - 0.106)	-0.023 (-0.193 - 0.148)	-0.113 (-0.343 - 0.114)	-0.026 (-0.195 - 0.143)	-0.132 (-0.342 - 0.009)	-0.015 (-0.184 - 0.154)
<i>Lycacides idas</i>	-0.048 (-0.261 - 0.152)	-0.114 (-0.282 - 0.054)	-0.115 (-0.354 - 0.102)	-0.114 (-0.281 - 0.054)	-0.124 (-0.315 - 0.028)	-0.102 (-0.270 - 0.065)
<i>Lycacides melissa</i>	-0.051 (-0.291 - 0.159)	-0.404 (-0.678 - -0.143)	-0.105 (-0.326 - 0.143)	-0.406 (-0.675 - -0.147)	-0.108 (-0.275 - 0.078)	-0.393 (-0.660 - -0.137)
<i>Lycacides arota</i>	-0.051 (-0.270 - 0.142)	-0.077 (-0.245 - 0.091)	-0.116 (-0.360 - 0.099)	-0.078 (-0.244 - 0.088)	-0.123 (-0.310 - 0.030)	-0.067 (-0.234 - 0.099)
<i>Lycacides cupreus</i>	-0.045 (-0.253 - 0.156)	-0.182 (-0.349 - -0.018)	-0.113 (-0.346 - 0.113)	-0.182 (-0.347 - -0.019)	-0.115 (-0.290 - 0.046)	-0.173 (-0.337 - -0.009)
<i>Lycacides editha</i>	-0.035 (-0.225 - 0.182)	-0.184 (-0.338 - -0.030)	-0.110 (-0.333 - 0.116)	-0.183 (-0.336 - -0.030)	-0.113 (-0.279 - 0.048)	-0.174 (-0.328 - -0.022)
<i>Lycacides helioides</i>	-0.054 (-0.305 - 0.149)	-0.285 (-0.579 - -0.002)	-0.117 (-0.371 - 0.104)	-0.287 (-0.582 - 0.001)	-0.113 (-0.291 - 0.062)	-0.276 (-0.571 - 0.006)
<i>Lycacides heteronea</i>	-0.062 (-0.308 - 0.123)	-0.234 (-0.422 - -0.050)	-0.120 (-0.370 - 0.092)	-0.236 (-0.423 - -0.053)	-0.119 (-0.300 - 0.040)	-0.227 (-0.412 - -0.042)
<i>Lycacides mariposa</i>	-0.038 (-0.240 - 0.185)	-0.247 (-0.450 - -0.048)	-0.102 (-0.318 - 0.150)	-0.247 (-0.448 - -0.048)	-0.105 (-0.264 - 0.081)	-0.237 (-0.436 - -0.039)
<i>Lycacides nivalis</i>	-0.059 (-0.292 - 0.123)	-0.193 (-0.355 - -0.035)	-0.117 (-0.362 - 0.093)	-0.195 (-0.355 - -0.038)	-0.124 (-0.309 - 0.026)	-0.185 (-0.346 - -0.029)
<i>Lycacides rubidus</i>	-0.049 (-0.283 - 0.164)	-0.529 (-0.799 - -0.271)	-0.096 (-0.303 - 0.174)	-0.533 (-0.806 - -0.273)	-0.113 (-0.293 - 0.060)	-0.517 (-0.789 - -0.262)
<i>Mitoura gryneus</i>	-0.027 (-0.224 - 0.243)	-0.016 (-0.335 - 0.312)	-0.106 (-0.335 - 0.145)	-0.014 (-0.336 - 0.316)	-0.103 (-0.265 - 0.096)	-0.008 (-0.329 - 0.322)
<i>Mitoura johnsoni</i>	-0.028 (-0.226 - 0.243)	0.054 (-0.313 - 0.449)	-0.095 (-0.304 - 0.192)	0.059 (-0.312 - 0.449)	-0.104 (-0.269 - 0.097)	0.064 (-0.302 - 0.454)
<i>Mitoura spinetorum</i>	-0.041 (-0.267 - 0.192)	-0.219 (-0.600 - 0.154)	-0.098 (-0.311 - 0.177)	-0.221 (-0.604 - 0.151)	-0.112 (-0.294 - 0.068)	-0.209 (-0.590 - 0.158)
<i>Neophasia menapia</i>	-0.046 (-0.264 - 0.161)	-0.158 (-0.352 - 0.034)	-0.113 (-0.352 - 0.112)	-0.159 (-0.352 - 0.033)	-0.125 (-0.322 - 0.027)	-0.148 (-0.339 - 0.043)
<i>Nymphalis antiopa</i>	-0.043 (-0.241 - 0.162)	-0.481 (-0.646 - -0.320)	-0.123 (-0.374 - 0.082)	-0.48 (-0.642 - -0.322)	-0.102 (-0.252 - 0.079)	-0.472 (-0.635 - -0.313)
<i>Nymphalis californica</i>	-0.005 (-0.167 - 0.276)	-0.016 (-0.170 - 0.137)	-0.147 (-0.477 - 0.039)	-0.007 (-0.160 - 0.146)	-0.095 (-0.238 - 0.103)	-0.005 (-0.157 - 0.147)
<i>Nymphalis milberti</i>	-0.065 (-0.329 - 0.120)	-0.228 (-0.454 - -0.007)	-0.117 (-0.363 - 0.101)	-0.231 (-0.454 - -0.010)	-0.111 (-0.283 - 0.063)	-0.222 (-0.444 - -0.003)

Table C2 - Continued from previous page

Species	Spring maxT	Year (Spring maxT)	Winter maxT	Year (Winter maxT)	Spring minT	Year (Spring minT)
<i>Ochlodes sylvanoides</i>	-0.033 (-0.224 - 0.200)	-0.077 (-0.253 - 0.097)	-0.105 (-0.324 - 0.133)	-0.076 (-0.252 - 0.099)	-0.085 (-0.223 - 0.148)	-0.071 (-0.247 - 0.104)
<i>Oeneis chryxus</i>	-0.040 (-0.264 - 0.201)	-0.219 (-0.624 - 0.173)	-0.096 (-0.308 - 0.180)	-0.220 (-0.623 - 0.171)	-0.109 (-0.284 - 0.080)	-0.210 (-0.607 - 0.178)
<i>Papilio eurymedon</i>	-0.014 (-0.184 - 0.264)	0.127 (-0.064 - 0.320)	-0.108 (-0.334 - 0.130)	0.133 (-0.057 - 0.325)	-0.094 (-0.239 - 0.116)	0.137 (-0.054 - 0.330)
<i>Papilio indra</i>	-0.040 (-0.258 - 0.193)	-0.138 (-0.446 - 0.167)	-0.105 (-0.331 - 0.146)	-0.136 (-0.443 - 0.170)	-0.111 (-0.286 - 0.069)	-0.127 (-0.433 - 0.178)
<i>Papilio rutulus</i>	-0.023 (-0.202 - 0.233)	0.249 (0.052 - 0.452)	-0.111 (-0.345 - 0.120)	0.254 (0.059 - 0.457)	-0.103 (-0.262 - 0.086)	0.257 (0.063 - 0.459)
<i>Papilio zelicaon</i>	-0.065 (-0.324 - 0.116)	-0.331 (-0.531 - -0.133)	-0.106 (-0.327 - 0.135)	-0.335 (-0.536 - -0.139)	-0.127 (-0.330 - 0.022)	-0.322 (-0.521 - -0.125)
<i>Parnassius clodius</i>	-0.022 (-0.201 - 0.236)	0.014 (-0.170 - 0.197)	-0.101 (-0.311 - 0.152)	0.017 (-0.165 - 0.201)	-0.107 (-0.266 - 0.074)	0.024 (-0.159 - 0.206)
<i>Parnassius phoebus</i>	-0.043 (-0.268 - 0.188)	-0.205 (-0.590 - 0.176)	-0.099 (-0.315 - 0.172)	-0.205 (-0.593 - 0.174)	-0.110 (-0.283 - 0.073)	-0.194 (-0.581 - 0.182)
<i>Phyciodes campestris</i>	-0.025 (-0.200 - 0.219)	-0.209 (-0.364 - -0.056)	-0.109 (-0.334 - 0.118)	-0.206 (-0.361 - -0.054)	-0.108 (-0.264 - 0.064)	-0.199 (-0.355 - -0.045)
<i>Phyciodes mylitta</i>	-0.014 (-0.180 - 0.248)	-0.009 (-0.162 - 0.144)	-0.093 (-0.294 - 0.173)	-0.006 (-0.157 - 0.147)	-0.113 (-0.278 - 0.050)	0.004 (-0.149 - 0.157)
<i>Phyciodes orseis</i>	-0.034 (-0.233 - 0.210)	0.110 (-0.110 - 0.336)	-0.099 (-0.306 - 0.165)	0.113 (-0.107 - 0.337)	-0.114 (-0.292 - 0.053)	0.120 (-0.099 - 0.342)
<i>Pieris napi</i>	-0.042 (-0.268 - 0.197)	-0.049 (-0.440 - 0.354)	-0.097 (-0.309 - 0.182)	-0.048 (-0.438 - 0.354)	-0.111 (-0.288 - 0.069)	-0.039 (-0.429 - 0.358)
<i>Pieris rapae</i>	-0.043 (-0.246 - 0.162)	-0.405 (-0.571 - -0.244)	-0.128 (-0.396 - 0.073)	-0.404 (-0.570 - -0.244)	-0.111 (-0.274 - 0.057)	-0.398 (-0.565 - -0.237)
<i>Plebejus acmon</i>	-0.018 (-0.188 - 0.233)	-0.108 (-0.262 - 0.045)	-0.105 (-0.320 - 0.131)	-0.104 (-0.256 - 0.048)	-0.107 (-0.263 - 0.067)	-0.096 (-0.249 - 0.057)
<i>Plebejus icarioides</i>	-0.045 (-0.252 - 0.163)	-0.062 (-0.233 - 0.109)	-0.112 (-0.344 - 0.113)	-0.061 (-0.232 - 0.110)	-0.114 (-0.285 - 0.047)	-0.053 (-0.222 - 0.117)
<i>Plebejus lupini</i>	-0.067 (-0.320 - 0.112)	-0.103 (-0.288 - 0.082)	-0.108 (-0.335 - 0.124)	-0.106 (-0.291 - 0.078)	-0.132 (-0.346 - 0.010)	-0.093 (-0.279 - 0.090)
<i>Plebejus saepiolus</i>	-0.052 (-0.275 - 0.139)	-0.205 (-0.367 - -0.045)	-0.109 (-0.329 - 0.119)	-0.206 (-0.367 - -0.047)	-0.117 (-0.292 - 0.038)	-0.196 (-0.358 - -0.035)
<i>Plebejus shasta</i>	-0.043 (-0.263 - 0.186)	-0.602 (-0.911 - -0.319)	-0.092 (-0.295 - 0.195)	-0.605 (-0.912 - -0.319)	-0.109 (-0.284 - 0.072)	-0.589 (-0.895 - -0.305)
<i>Polites sabuleti</i>	-0.048 (-0.285 - 0.171)	-0.377 (-0.756 - -0.025)	-0.099 (-0.314 - 0.171)	-0.38 (-0.758 - -0.025)	-0.113 (-0.293 - 0.068)	-0.367 (-0.747 - -0.012)
<i>Polites sabuleti</i>	-0.028 (-0.225 - 0.246)	0.062 (-0.288 - 0.431)	-0.100 (-0.316 - 0.169)	0.066 (-0.290 - 0.440)	-0.102 (-0.262 - 0.100)	0.072 (-0.275 - 0.444)
<i>Polites sonora</i>	-0.044 (-0.252 - 0.167)	-0.122 (-0.299 - 0.051)	-0.110 (-0.339 - 0.117)	-0.122 (-0.296 - 0.054)	-0.101 (-0.254 - 0.088)	-0.115 (-0.291 - 0.058)
<i>Polygona faunus</i>	-0.046 (-0.255 - 0.155)	-0.127 (-0.293 - 0.038)	-0.119 (-0.364 - 0.093)	-0.127 (-0.291 - 0.037)	-0.107 (-0.268 - 0.069)	-0.120 (-0.282 - 0.043)
<i>Polygona satyrus</i>	-0.027 (-0.221 - 0.241)	-0.001 (-0.314 - 0.320)	-0.108 (-0.339 - 0.133)	0.001 (-0.311 - 0.319)	-0.102 (-0.262 - 0.097)	0.008 (-0.305 - 0.325)
<i>Polygona zephyrus</i>	-0.040 (-0.259 - 0.200)	-0.151 (-0.550 - 0.240)	-0.098 (-0.310 - 0.179)	-0.152 (-0.551 - 0.244)	-0.109 (-0.287 - 0.076)	-0.143 (-0.534 - 0.249)
<i>Pontia beckerii</i>	-0.069 (-0.319 - 0.100)	-0.130 (-0.285 - 0.024)	-0.128 (-0.395 - 0.068)	-0.133 (-0.286 - 0.019)	-0.134 (-0.344 - 0.006)	-0.122 (-0.277 - 0.031)
<i>Pontia beckerii</i>	-0.046 (-0.270 - 0.168)	-0.067 (-0.305 - 0.168)	-0.119 (-0.377 - 0.099)	-0.067 (-0.301 - 0.171)	-0.098 (-0.251 - 0.104)	-0.060 (-0.296 - 0.175)
<i>Pontia occidentalis</i>	-0.074 (-0.341 - 0.092)	-0.433 (-0.594 - -0.274)	-0.141 (-0.452 - 0.045)	-0.437 (-0.597 - -0.280)	-0.128 (-0.322 - 0.018)	-0.427 (-0.590 - -0.270)
<i>Pontia protodice</i>	-0.074 (-0.349 - 0.094)	-0.238 (-0.410 - -0.067)	-0.093 (-0.292 - 0.173)	-0.244 (-0.416 - -0.074)	-0.123 (-0.309 - 0.031)	-0.232 (-0.403 - -0.062)
<i>Pontia sisymbrii</i>	-0.047 (-0.272 - 0.173)	-0.116 (-0.380 - 0.148)	-0.090 (-0.289 - 0.207)	-0.117 (-0.382 - 0.149)	-0.110 (-0.283 - 0.070)	-0.108 (-0.369 - 0.155)
<i>Pyrgus communis</i>	-0.049 (-0.260 - 0.144)	-0.194 (-0.350 - -0.037)	-0.120 (-0.365 - 0.087)	-0.194 (-0.349 - -0.041)	-0.120 (-0.301 - 0.032)	-0.185 (-0.341 - -0.031)
<i>Pyrgus ruralis</i>	-0.048 (-0.263 - 0.153)	0.023 (-0.160 - 0.210)	-0.101 (-0.314 - 0.152)	0.023 (-0.159 - 0.207)	-0.118 (-0.301 - 0.044)	0.032 (-0.152 - 0.216)
<i>Satyrrium behrii</i>	-0.030 (-0.229 - 0.222)	-0.173 (-0.436 - 0.087)	-0.095 (-0.303 - 0.185)	-0.172 (-0.435 - 0.087)	-0.105 (-0.269 - 0.084)	-0.162 (-0.424 - 0.098)
<i>Satyrrium californica</i>	-0.085 (-0.413 - 0.080)	-0.353 (-0.588 - -0.127)	-0.132 (-0.423 - 0.068)	-0.36 (-0.591 - -0.134)	-0.141 (-0.391 - -0.001)	-0.345 (-0.578 - -0.121)
<i>Satyrrium fuliginosum</i>	-0.051 (-0.281 - 0.156)	-0.143 (-0.376 - 0.091)	-0.107 (-0.332 - 0.136)	-0.143 (-0.378 - 0.092)	-0.124 (-0.320 - 0.034)	-0.134 (-0.367 - 0.099)
<i>Satyrrium saepium</i>	-0.043 (-0.246 - 0.164)	-0.166 (-0.330 - -0.004)	-0.114 (-0.345 - 0.104)	-0.165 (-0.328 - -0.003)	-0.113 (-0.283 - 0.050)	-0.157 (-0.320 - 0.006)
<i>Satyrrium sylvinus</i>	-0.055 (-0.279 - 0.136)	-0.099 (-0.269 - 0.072)	-0.122 (-0.374 - 0.087)	-0.099 (-0.269 - 0.071)	-0.113 (-0.282 - 0.055)	-0.091 (-0.262 - 0.078)
<i>Speyeria atlantis</i>	-0.045 (-0.250 - 0.156)	-0.128 (-0.282 - 0.025)	-0.117 (-0.358 - 0.096)	-0.127 (-0.281 - 0.024)	-0.117 (-0.290 - 0.039)	-0.119 (-0.272 - 0.035)
<i>Speyeria coronis</i>	-0.024 (-0.207 - 0.229)	0.46 (0.246 - 0.682)	-0.116 (-0.358 - 0.110)	0.465 (0.254 - 0.686)	-0.111 (-0.280 - 0.062)	0.467 (0.258 - 0.688)
<i>Speyeria cybele</i>	-0.038 (-0.247 - 0.190)	0.014 (-0.216 - 0.247)	-0.109 (-0.338 - 0.130)	0.015 (-0.215 - 0.249)	-0.100 (-0.259 - 0.099)	0.021 (-0.207 - 0.252)
<i>Speyeria egleis</i>	-0.039 (-0.236 - 0.176)	-0.295 (-0.459 - -0.133)	-0.103 (-0.315 - 0.139)	-0.295 (-0.460 - -0.133)	-0.127 (-0.325 - 0.017)	-0.283 (-0.449 - -0.117)
<i>Speyeria hydaspe</i>	-0.027 (-0.222 - 0.242)	-0.092 (-0.395 - 0.215)	-0.101 (-0.319 - 0.162)	-0.090 (-0.395 - 0.216)	-0.105 (-0.270 - 0.090)	-0.083 (-0.386 - 0.223)
<i>Speyeria mormonia</i>	-0.026 (-0.205 - 0.212)	-0.192 (-0.353 - -0.032)	-0.109 (-0.330 - 0.118)	-0.188 (-0.348 - -0.029)	-0.107 (-0.264 - 0.067)	-0.18 (-0.341 - -0.021)
<i>Speyeria zerene</i>	-0.033 (-0.221 - 0.199)	-0.131 (-0.308 - 0.046)	-0.119 (-0.368 - 0.093)	-0.129 (-0.305 - 0.046)	-0.103 (-0.258 - 0.083)	-0.122 (-0.298 - 0.053)
<i>Strymon melinus</i>	-0.041 (-0.255 - 0.185)	0.017 (-0.217 - 0.253)	-0.106 (-0.329 - 0.142)	0.018 (-0.216 - 0.254)	-0.109 (-0.277 - 0.071)	0.025 (-0.208 - 0.262)
<i>Thorybes mexicana</i>	-0.063 (-0.319 - 0.118)	-0.317 (-0.503 - -0.135)	-0.117 (-0.356 - 0.099)	-0.32 (-0.506 - -0.138)	-0.119 (-0.303 - 0.039)	-0.309 (-0.493 - -0.126)
<i>Vanessa annabella</i>	-0.074 (-0.336 - 0.091)	-0.48 (-0.644 - -0.321)	-0.119 (-0.360 - 0.095)	-0.485 (-0.648 - -0.327)	-0.126 (-0.315 - 0.021)	-0.475 (-0.637 - -0.318)
<i>Vanessa atalanta</i>	-0.063 (-0.335 - 0.129)	-0.261 (-0.540 - 0.011)	-0.117 (-0.371 - 0.105)	-0.264 (-0.542 - 0.008)	-0.116 (-0.302 - 0.053)	-0.252 (-0.529 - 0.017)
<i>Vanessa cardui</i>	-0.115 (-0.488 - 0.040)	-0.036 (-0.193 - 0.122)	-0.141 (-0.450 - 0.043)	-0.045 (-0.200 - 0.110)	-0.143 (-0.377 - -0.009)	-0.035 (-0.190 - 0.121)
<i>Vanessa virginiensis</i>	-0.054 (-0.273 - 0.135)	-0.200 (-0.358 - -0.044)	-0.109 (-0.333 - 0.121)	-0.202 (-0.358 - -0.047)	-0.115 (-0.284 - 0.048)	-0.192 (-0.350 - -0.038)

Table C3: Results of hierarchical analyses of the year effect in single weather variables. Variables are listed in the same order as in Table 1. Values of β for year whose 95% credible interval (95%CI) do not include zero are indicated in bold. Effective samples sizes (ESS) are reported for β and τ coefficients.

Variable	β Coefficient (95%CI)	ESS	τ Coefficient (95%CI)	ESS
W minT	-0.150 (-0.202 - -0.098)	37639.2	21.09 (13.87 - 32.07)	13329.1
Snow Depth	-0.148 (-0.200 - -0.097)	43197.4	21.10 (13.87 - 32.06)	20685.8
W precip	-0.150 (-0.202 - -0.098)	40019.1	21.03 (13.88 - 32.10)	19724.6
Sp precip.	-0.146 (-0.198 - -0.095)	43373.2	21.00 (13.8 - 32.0)	57494.4
ENSO May-Jun	-0.141 (-0.193 - -0.091)	41808.5	21.39 (14.09 - 32.48)	19635.7
ENSO Dec-Jan	-0.143 (-0.195 - -0.092)	42752.9	21.09 (13.91 - 32.03)	19579.0
ENSO Mar-Apr	-0.143 (-0.194 - -0.092)	44058.3	21.19 (13.95 - 32.17)	20089.8
ENSO Jan-Feb	-0.144 (-0.196 - -0.093)	43446.6	21.08 (13.87 - 32.02)	20100.3
ENSO Feb-Mar	-0.145 (-0.196 - -0.094)	43596.7	21.18 (13.98 - 32.15)	19952.8
ENSO Apr-May	-0.137 (-0.198 - -0.086)	41271.5	21.60 (14.23 - 32.91)	19965.4
Sp maxT	-0.139 (-0.192 - -0.087)	27989.6	21.39 (14.04 - 32.55)	18945.4
W maxT	-0.139 (-0.191 - -0.088)	47874.1	21.09 (13.88 - 32.05)	9437.9
Sp minT	-0.130 (-0.182 - -0.079)	20499.5	21.52 (14.19 - 32.69)	19309.9

Table C4: Results of analyses of year effect for unconstrained hierarchical model with species grouped according to natural history categories. For each natural history category, models were fit for each of the four weather variables and year. Standardized β 's and precision parameters (τ 's) are reported for the year effect for each analysis. Samples sizes (n) are indicated for each natural history group. Values of β whose 95% credible interval (95%CI) does not include zero are indicated in bold. Standardized β 's and precision parameters (τ 's) for the weather variables in each model are reported in Tables 4 and 5.

Climate Variable:	Winter min T	Snow Depth	ENSO Apr-May
Resident Status β			
Resident (n = 74)	-0.148 (-0.208 - -0.088)	-0.143 (-0.202 - -0.083)	-0.130 (-0.188 - -0.071)
Non-Resident (n = 32)	-0.148 (-0.259 - -0.045)	-0.164 (-0.268 - -0.066)	-0.164 (-0.276 - -0.062)
Resident Status τ			
Resident (n = 74)	19.78 (12.59 - 30.96)	19.76 (12.62 - 30.82)	20.30 (12.96 - 31.80)
Non-Resident (n = 32)	37.13 (9.61 - 303.1)	40.0 (10.41 - 402.27)	34.44 (9.24 - 274.11)
Diapause Stage β			
Egg (n = 17)	-0.252 (-0.364 - -0.163)	-0.266 (-0.373 - -0.183)	-0.236 (-0.341 - -0.154)
Larva (n = 47)	-0.136 (-0.217 - -0.059)	-0.130 (-0.210 - -0.055)	-0.115 (-0.194 - -0.041)
Pupa (n = 27)	-0.019 (-0.130 - 0.099)	-0.010 (-0.122 - 0.109)	-0.012 (-0.123 - 0.106)
Adult (n = 13)	-0.247 (-0.386 - -0.107)	-0.243 (-0.368 - -0.114)	-0.237 (-0.361 - -0.110)
Diapause Stage τ			
Egg (n = 17)	56.95 (13.68 - 765.6)	60.49 (14.25 - 817.7)	66.63 (15.03 - 932.1)
Larva (n = 47)	23.28 (11.53 - 48.37)	23.21 (11.58 - 47.88)	24.30 (12.08 - 49.88)
Pupa (n = 27)	18.30 (8.29 - 39.10)	17.58 (8.01 - 36.59)	17.66 (8.07 - 36.90)
Adult (n = 13)	25.77 (8.14 - 77.17)	32.57 (10.03 - 105.9)	33.39 (10.09 - 109.6)
Number of Broods β			
Single (n = 75)	-0.126 (-0.190 - -0.063)	-0.121 (-0.104 - -0.060)	-0.108 (-0.170 - -0.048)
Double (n = 7)	-0.041 (-0.231 - 0.114)	-0.068 (-0.251 - 0.080)	-0.041 (-0.229 - 0.107)
Multiple (n = 23)	-0.254 (-0.354 - -0.151)	-0.254 (-0.356 - -0.149)	-0.256 (-0.356 - -0.152)
Number of Broods τ			
Single (n = 75)	19.38 (11.79 - 31.98)	19.48 (11.90 - 32.09)	20.33 (12.40 - 33.57)
Double (n = 7)	108.8 (8.71 - 1570.9)	110.9 (8.95 - 1554)	105.1 (8.63 - 1511)
Multiple (n = 23)	33.44 (12.41 - 96.90)	30.83 (11.75 - 81.04)	32.27 (12.01 - 90.43)
Ruderal Status β			
Ruderal (n = 22)	-0.263 (-0.370 - -0.148)	-0.274 (-0.390 - -0.159)	-0.272 (-0.386 - -0.158)
Non-Ruderal (n = 84)	-0.122 (-0.180 - -0.065)	-0.117 (-0.173 - -0.061)	-0.103 (-0.159 - -0.048)
Ruderal Status τ			
Ruderal (n = 22)	25.60 (9.03 - 73.77)	22.78 (14.08 - 37.17)	25.09 (8.94 - 69.14)
Non-Ruderal (n = 84)	22.61 (14.04 - 37.06)	24.12 (8.69 - 65.79)	23.78 (14.74 - 38.87)

Table C5: Results of analyses of year effect for unconstrained hierarchical model with species grouped according to natural history categories, continued. For each natural history category, models were fit for each of the four weather variables and year. Standardized β 's and precision parameters (τ 's) are reported for the year effect for each analysis. Samples sizes (n) are indicated for each natural history group. Values of β whose 95% credible interval (95%CI) does not include zero are indicated in bold. Standardized β 's and precision parameters (τ 's) for the weather variables in each model are reported in Tables 4 and 5.

Climate Variable:	Spring max T	Winter max T	Spring min T
Resident Status β			
Resident (n = 74)	-0.136 (-0.196 - -0.077)	-0.135 (-0.195 - -0.075)	-0.124 (-0.184 - -0.065)
Non-Resident (n = 32)	-0.145 (-0.251 - -0.047)	-0.148 (-0.255 - -0.048)	-0.151 (-0.259 - -0.052)
Resident Status τ			
Resident (n = 74)	19.92 (12.69 - 31.11)	19.78 (12.64 - 30.82)	20.13 (12.88 - 31.45)
Non-Resident (n = 32)	45.86 (11.11 - 497.6)	38.79 (10.16 - 303.3)	44.13 (10.88 - 537.9)
Diapause Stage β			
Egg (n = 17)	-0.251 (-0.362 - -0.163)	-0.252 (-0.363 - -0.166)	-0.226 (-0.335 - -0.141)
Larva (n = 47)	-0.132 (-0.213 - -0.057)	-0.124 (-0.205 - -0.049)	-0.115 (-0.195 - -0.039)
Pupa (n = 27)	-0.005 (-0.118 - 0.113)	-0.013 (-0.125 - 0.105)	-0.007 (-0.118 - 0.112)
Adult (n = 13)	-0.247 (-0.385 - -0.107)	-0.215 (-0.342 - -0.085)	-0.215 (-0.339 - -0.087)
Diapause Stage τ			
Egg (n = 17)	57.24 (13.68 - 750.14)	53.04 (13.56 - 762.1)	65.55 (14.82 - 928.2)
Larva (n = 47)	23.67 (11.67 - 49.69)	23.30 (11.61 - 48.41)	24.01 (11.96 - 49.76)
Pupa (n = 27)	18.04 (8.21 - 37.95)	17.93 (8.16 - 37.79)	18.07 (8.20 - 37.98)
Adult (n = 13)	25.82 (8.12 - 77.16)	32.36 (10.02 - 103.9)	32.75 (10.17 - 107.0)
Number of Broods β			
Single (n = 75)	-0.120 (-0.183 - -0.057)	-0.115 (-0.178 - -0.054)	-0.108 (-0.171 - -0.046)
Double (n = 7)	-0.061 (-0.242 - 0.083)	-0.047 (-0.232 - 0.102)	-0.043 (-0.232 - -0.105)
Multiple (n = 23)	-0.223 (-0.323 - -0.118)	-0.239 (-0.339 - -0.135)	-0.224 (-0.327 - -0.119)
Number of Broods τ			
Single (n = 75)	19.56 (11.91 - 32.15)	19.47 (11.01 - 31.99)	19.86 (12.07 - 32.82)
Double (n = 7)	154.3 (10.32 - 1788)	113.5 (9.20 - 1578)	138.1 (9.52 - 1753)
Multiple (n = 23)	32.66 (12.22 - 90.92)	32.52 (12.20 - 88.77)	32.08 (12.12 - 85.58)
Ruderal Status β			
Ruderal (n = 22)	-0.250 (-0.365 - -0.134)	-0.262 (-0.377 - -0.148)	-0.247 (-0.363 - -0.133)
Non-Ruderal (n = 84)	-0.113 (-0.170 - -0.056)	-0.108 (-0.165 - -0.052)	-0.101 (-0.157 - -0.045)
Ruderal Status τ			
Ruderal (n = 22)	25.13 (9.02 - 70.27)	24.99 (8.98 - 68.47)	24.83 (9.10 - 67.79)
Non-Ruderal (n = 84)	23.02 (14.23 - 37.58)	22.79 (14.13 - 37.26)	23.39 (14.38 - 38.27)

Table C6: Correlations among weather variables and year (see Figure C1). * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.0001$.

	Year	Snow	W precip	W maxT	W minT	Sp precip	Sp maxT	Sp minT	ENSO	ENSO	ENSO	ENSO	ENSO
									Dec-Jan	Jan-Feb	Feb-Mar	Mar-Apr	Apr-May
Snow	0.05												
W precip	0.16	0.52***											
W maxT	0.3	-0.51**	-0.25										
W minT	0.37*	-0.1	0.50**	0.62***									
Sp precip	0.06	0.70***	0.21	-0.14	0.05								
Sp maxT	0.45**	-0.59***	-0.06	0.43**	0.32	-0.61***							
Sp minT	0.42**	-0.41*	0.12	0.37*	0.45**	-0.39*	0.88***						
ENSO Dec-Jan	0.01	0.14	0.07	-0.15	0.02	0.1	-0.2	-0.04					
ENSO Jan-Feb	0	0.21	0.1	-0.14	0.05	0.14	-0.23	-0.06	0.98***				
ENSPFeb-Mar	-0.02	0.17	0.1	-0.09	0.12	0.16	-0.23	-0.03	0.92***	0.97***			
ENSO Mar-Apr	0.02	0.04	0.09	-0.06	0.13	0	-0.09	0.08	0.87***	0.90***	0.94***		
ENSO Apr-May	0.15	0.05	0.19	0.03	0.22	0.01	0.03	0.2	0.71***	0.75***	0.81***	0.93***	
ENSO May-Jun	0.13	0	0.19	0.11	0.22	0.04	0.05	0.16	0.35*	0.39*	0.48**	0.65***	0.83***

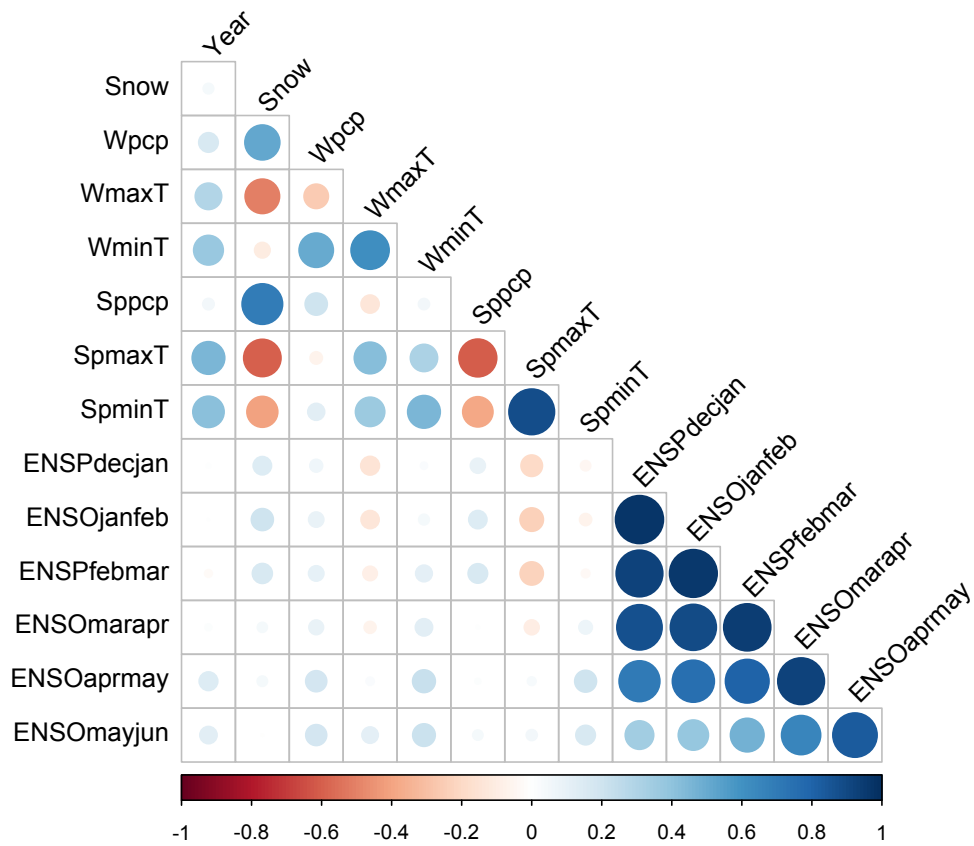


Figure C1: Matrix of correlations among weather variables and year. The colored scale at the bottom of the figure indicates the magnitude and sign of the correlations. The size of colored circles indicate significance level of the correlations: small circles indicate $p < 0.05$, medium circles indicate $p < 0.01$, large circles indicate $p < 0.0001$. Values are reported in Table C6.

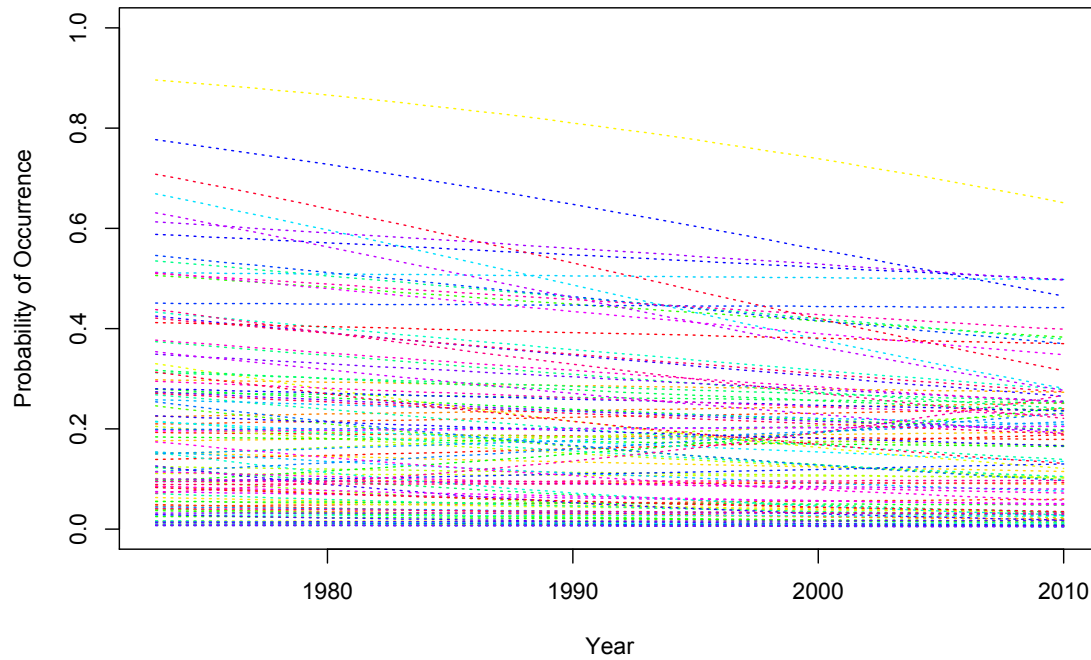


Figure C2: Estimates (medians of posterior distributions) of annual probability of occurrence (p) for each of the 106 species included in analyses of the Donner Pass data from 1973 through 2010. Each species is represented by a different color line. 95% credible intervals have been omitted for clarity.

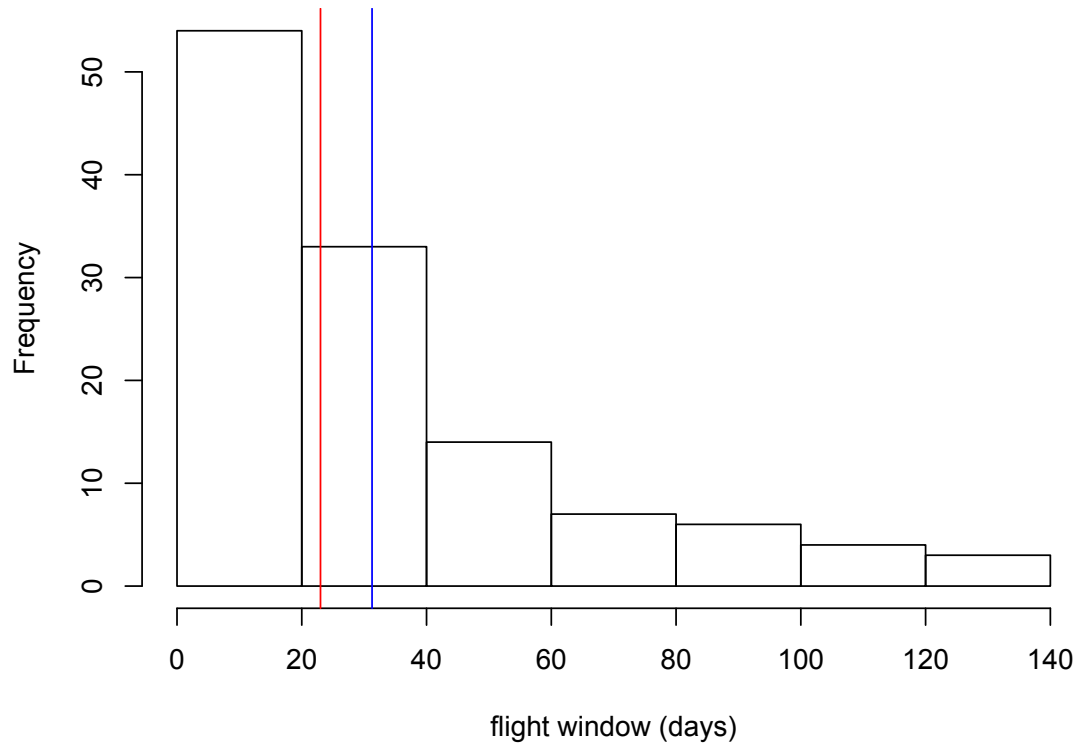


Figure C3: Distribution of the adult flight interval (flight window) for Donner Pass butterfly species. The number of days between date of first flight (i.e. when a species is first detected in a given year) and date of last flight for each species was averaged across the 38 years of data. The distribution of mean flight windows for the 106 species is plotted, the vertical red line indicates the median (23 days), the vertical blue line indicates the mean (31.3 days, ± 3.0 days, SE).

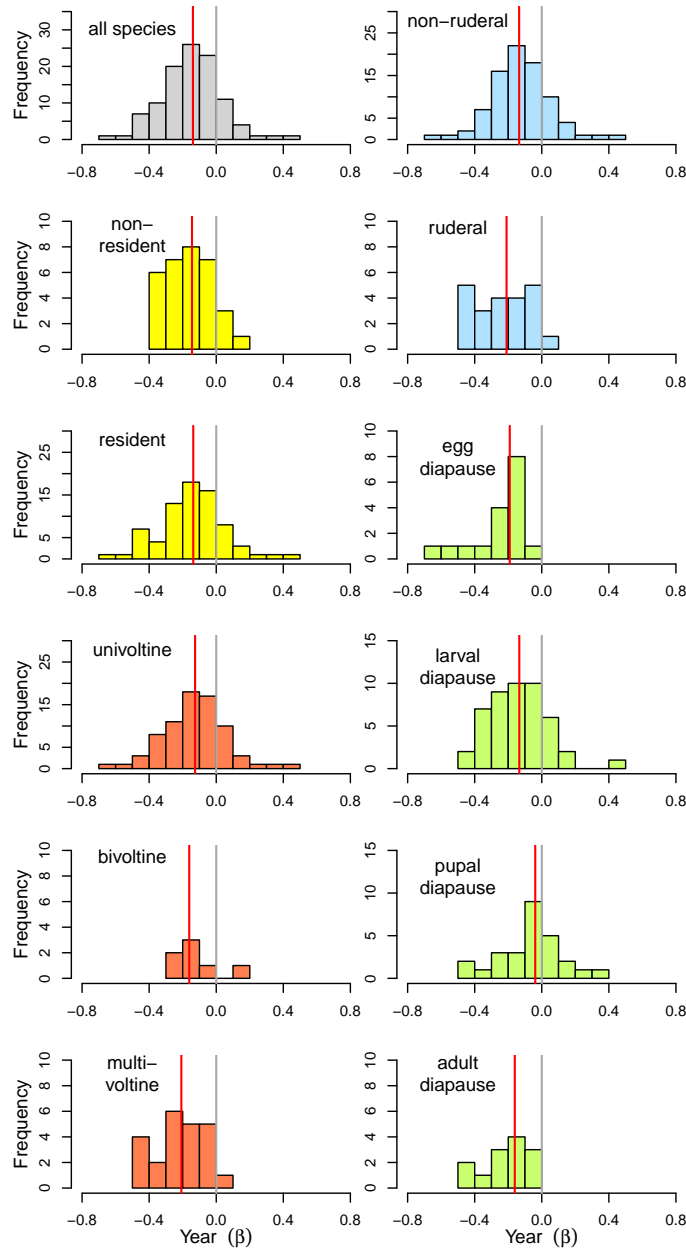


Figure C4: Histograms of standardized β coefficients for the year effect for all species (top left pane) and species grouped by natural history categories (separated by color for ease of visualization). Negative values of the year effect indicate a decline over years in the number of days that individual butterfly species were observed. For each panel, the vertical gray line indicates $\beta = 0$ for reference, and the vertical red line indicates the median β for each group of species.