



## Eastern Black Kingsnake *Lampropeltis nigra* dorsal scale colouration primarily adapted for thermoregulation

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### Supplemental Table

Supplemental Table 1.

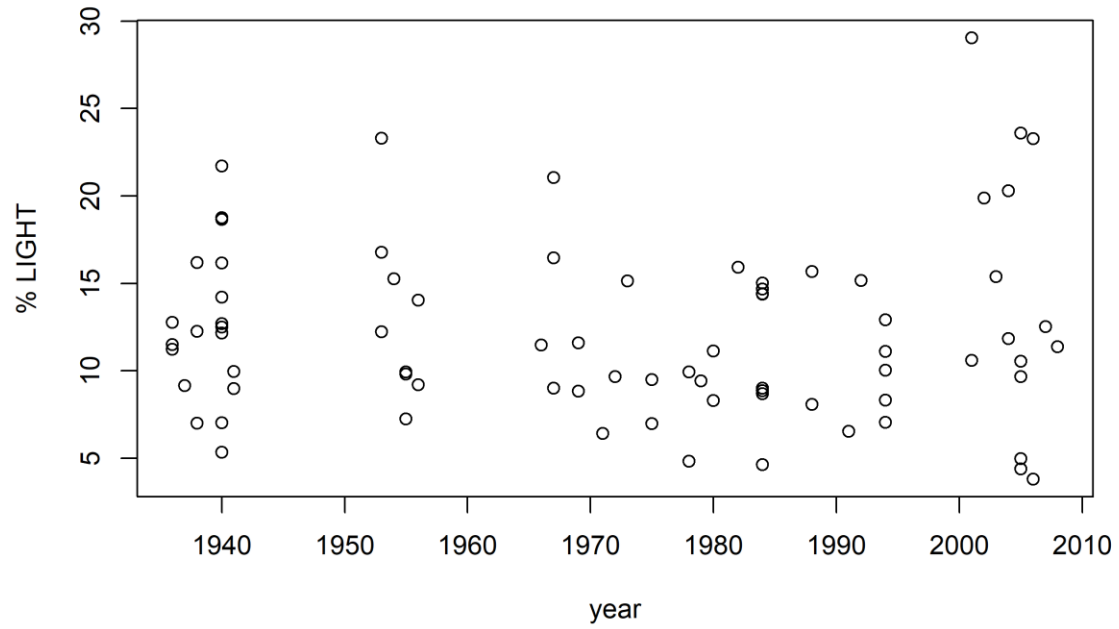
Climate variables	PC1	PC2
temp	0.489	0.176
HDD	-0.487	-0.195
CDD	0.461	0.124
precip	0.369	0.350
min temp	0.318	-0.595
max temp	0.270	-0.662

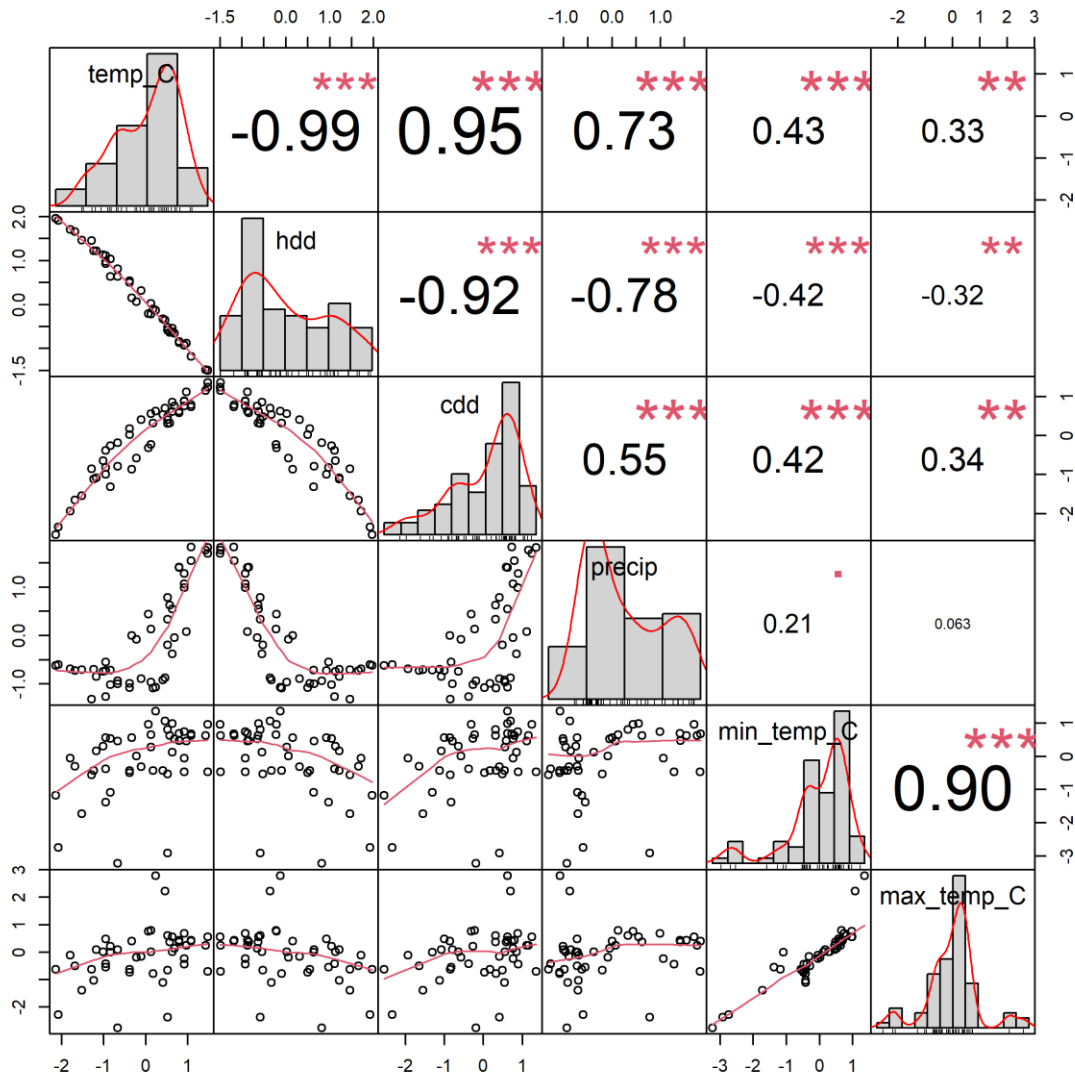
Supplemental Table 2.

County	<i>n</i>	Collection years	Catalog ID MMNS	% light area on dorsal scales	Soil value	<i>temp</i> (°C)	Max. temp. (°C)	Percentage forest cover
Adams	3	1938, 1940, 2008	2405, 2362, 16163	15.11 ± 5.73	3.90	18.67	24.28	43.88
Amite	2	1937, 1953	2385, 7741	12.97 ± 5.40	3.80	18.50	24.67	48.80
Calhoun	2	1975, 1984	9793, 16392	7.84 ± 1.21	4.10	16.78	24.78	40.60
Claiborne	1	1972	2373	15.14	4.00	18.33	23.78	60.02
Coahoma	1	1940	2390	12.71	3.40	16.78	22.83	0.55
Copiah	2	1957, 2007	2354, 16009	12.65 ± 0.16	4.00	18.22	22.33	58.38
Covington	2	1956, 1972	2365, 2414	11.86 ± 3.10	3.80	18.22	25.06	49.41
De Soto	1	1969	2421	8.83	4.30	16.39	22.39	20.86
Forrest	2	1967, 1994	3134, 9747	13.25 ± 4.55	3.50	18.61	25.22	41.30
Hancock	2	1984	16378, 16379	14.72 ± 0.43	4.00	19.17	24.94	19.11
Harrison	2	1940, 1992	2406, 16380	16.96 ± 2.55	3.80	19.11	24.28	27.24
Hinds	1	2005	14018	9.66	4.00	18.11	21.33	37.83
Jackson	1	1967	17282	21.05	3.70	19.17	22.22	21.21
Jasper	1	2004	12059	11.85	3.70	17.78	25.39	53.34
Jefferson	1	2001	8184	10.61	4.00	18.39	24.06	66.84
Jones	1	1969	2368	11.61	4.00	18.33	24.94	47.21
Lafayette	1	1984	16391	4.65	3.80	16.56	21.50	46.32
Lamar	2	1940	2407, 2398	14.34 ± 2.58	3.30	18.56	23.22	39.45
Lauderdale	1	1940	2374	5.34	3.90	17.50	23.33	53.29
Lee	3	1940, 1941	2386, 2382, 2388	8.66 ± 1.5	3.30	16.50	23.94	26.03
Leflore	1	1991	17604	6.55	4.00	17.33	22.17	0.17
Lincoln	2	1936, 1955	2394, 2363	10.73 ± 1.1	4.00	18.28	24.56	54.83
Madison	2	1936, 1984	2392, 16393	12.81 ± 2.23	4.20	17.89	22.06	33.33
Marshall	1	2005	14140	4.4	4.00	16.06	22.67	35.67
Newton	3	1994	2564, 2565, 5732	10.78 ± 2.31	4.00	17.39	24.61	50.44
Oktibbeha	1	1956	2377	9.2	4.40	17.00	23.94	35.96
Panola	1	1984	16388	14.67	4.30	16.72	23.78	27.89
Pearl River	2	1966, 1988	2375, 17276	13.58 ± 2.96	4.00	18.83	24.67	27.78
Perry	3	1953, 1954, 1955	2352, 2344, 2408	11.58 ± 4.05	3.70	18.61	22.78	53.53
Pike	2	1938, 1955	2399, 2351	8.41 ± 1.99	3.50	18.50	24.56	38.54
Prentiss	2	1984, 1994	16390, 2544	7.955 ± 1.28	4.00	15.94	23.50	42.36

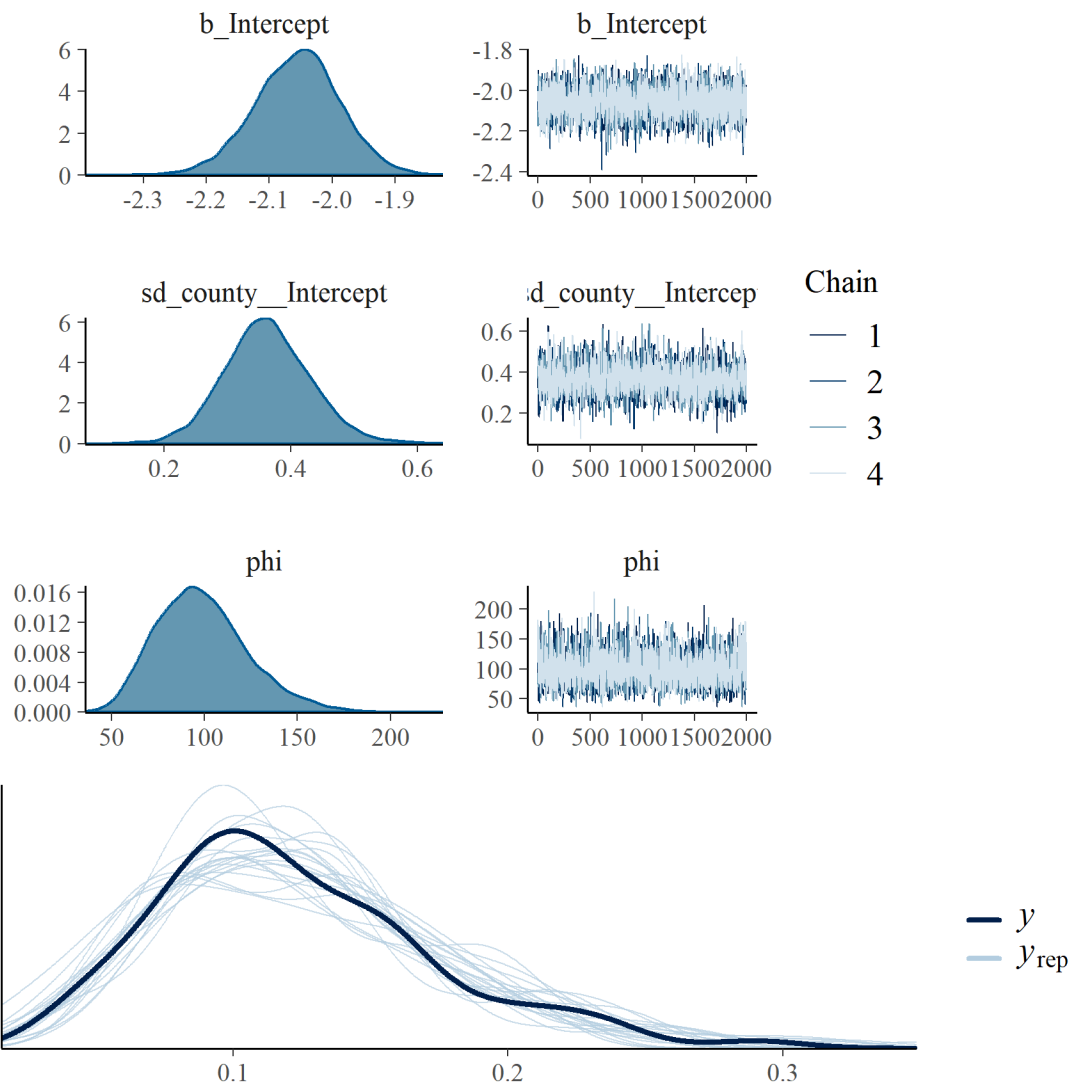
Quitman	3	1980, 2003	15765, 15764, 13302	11.61 ± 3.57	3.70	16.89	24.22	0.25
Sharkey	1	2005	14011	10.54	3.40	17.83	23.78	0.09
Smith	1	1967	17285	9.01	4.00	17.83	25.44	56.66
Stone	2	1978, 1982	16385, 2367	12.92 ± 4.23	3.60	18.78	24.61	38.30
Sunflower	1	1953	15897	23.29	3.70	17.33	22.39	0.26
Tallahatchie	1	1971	15766	6.42	4.00	17.06	17.78	14.71
Tippah	2	1975, 1984	10000, 15762	9.25 ± 0.35	4.10	15.72	18.83	45.68
Tishomingo	2	1978, 1988	16384, 16377	6.45 ± 2.29	4.00	15.56	22.39	53.19
Union	1	1979	9997	9.43	4.00	16.22	20.72	40.44
Warren	3	2001, 2002, 2004	9244, 9284, 12772	23.07 ± 5.17	3.80	18.17	28.56	41.63
Washington	3	1940, 2006	2393, 16106, 2341	19.67 ± 3.21	3.20	17.61	23.39	0.10
Wayne	2	1940	2401	13.19 ± 1.45	4.00	18.28	18.61	58.59
Winston	1	2005	13982	4.98	3.70	16.89	23.72	52.24
Yalobusha	1	2006	15480	3.81	4.00	16.78	22.56	46.44
Yazoo	2	1938, 2005	2391, 14101	19.89 ± 5.23	3.60	17.94	29.78	29.81
OVERALL	78	1936–2006 (70 years)		12.24 ± 5.05	3.82 ± 0.28	17.71 ± 0.99	23.75 ± 2.16	36.65 ± 17.81

Supplemental Figures

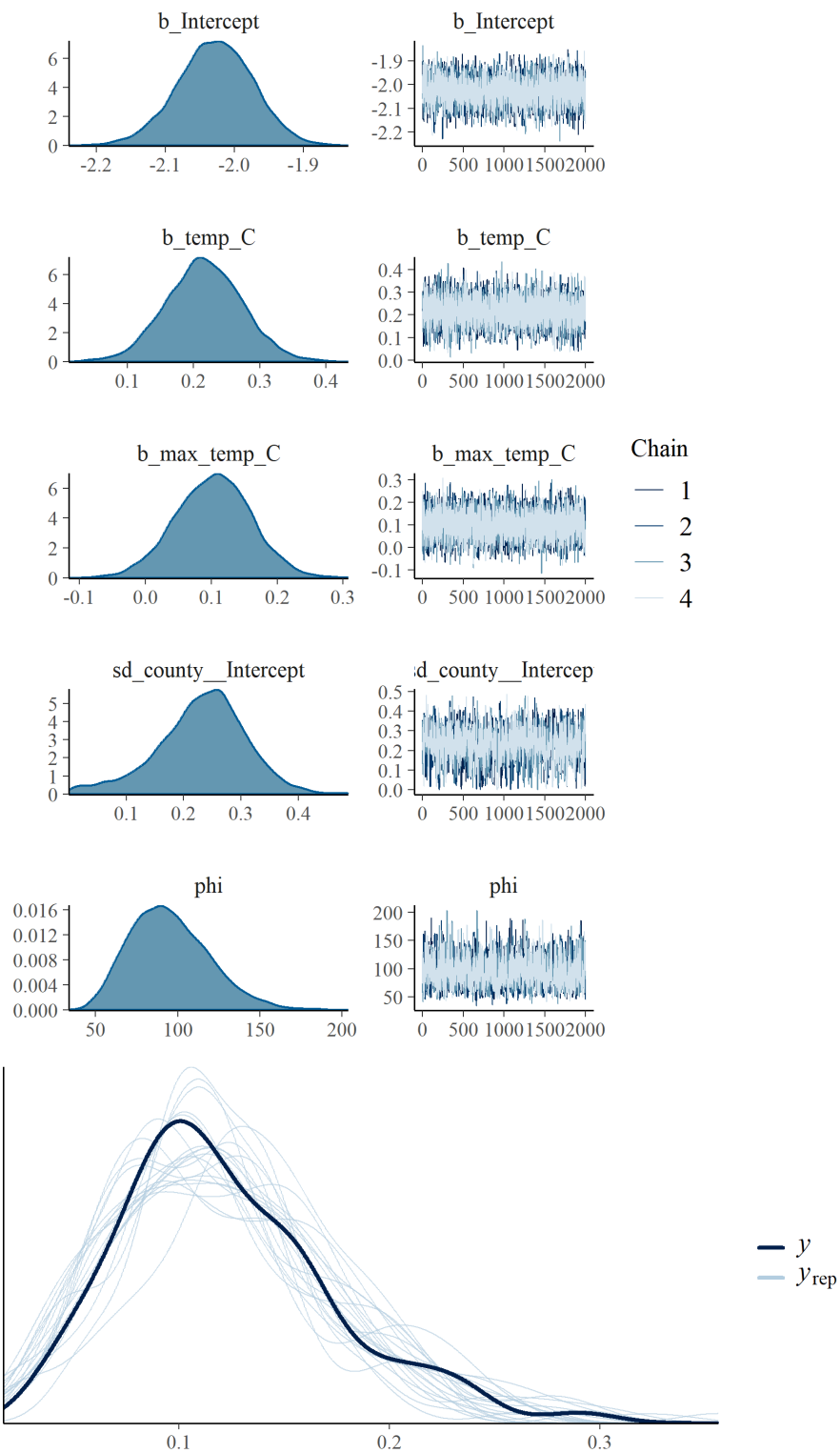




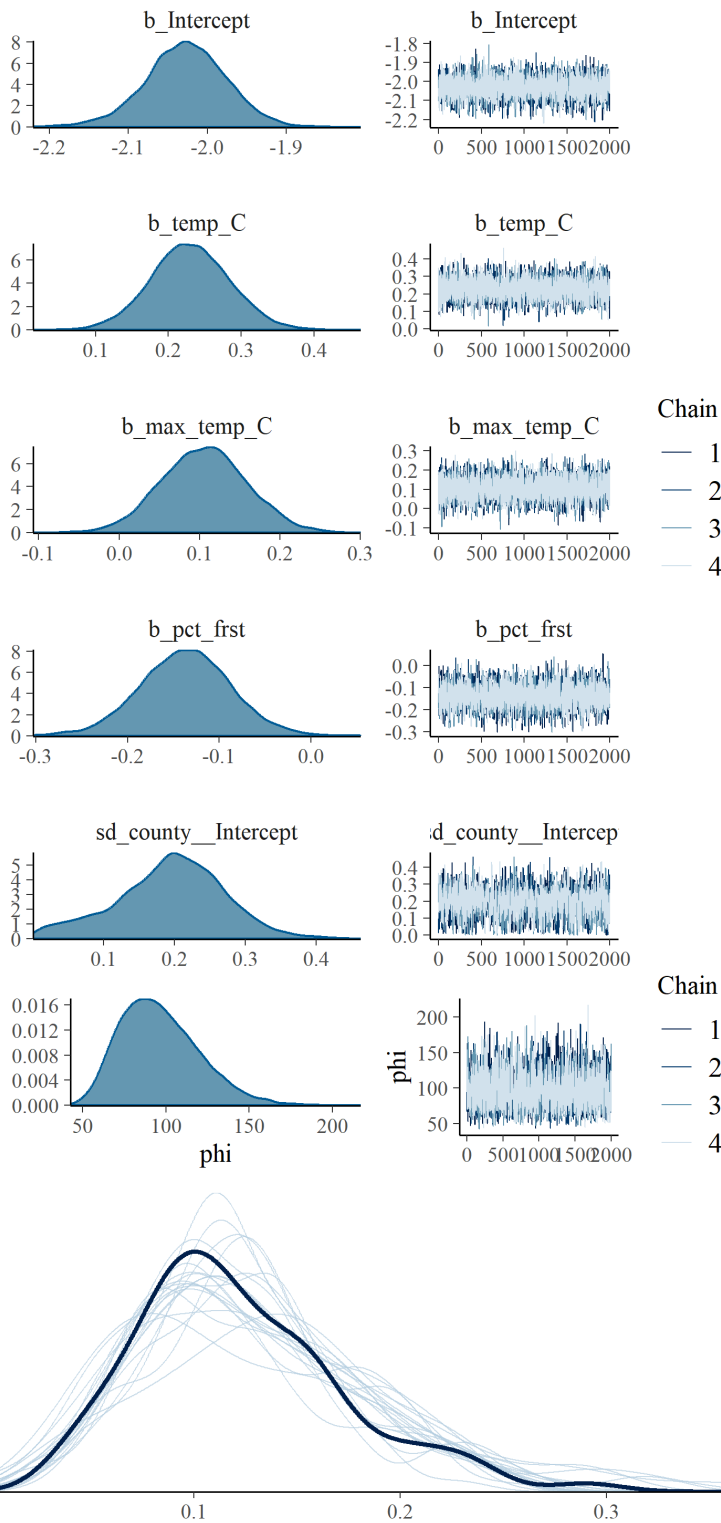
**Supplemental Figure 2.** Correlogram of climate variables screened for further analysis. Average temperature (temp\_C), heating degree days (hdd), cooling degree days (cdd), precipitation (precip), average minimum temperature (min\_temp\_C), and average maximum temperature (max\_temp\_C) for counties from which specimens were collected from the National Centers for Environmental Information county climate database (ncei.noaa.gov), which reports averages using data from 1901 to 2000.



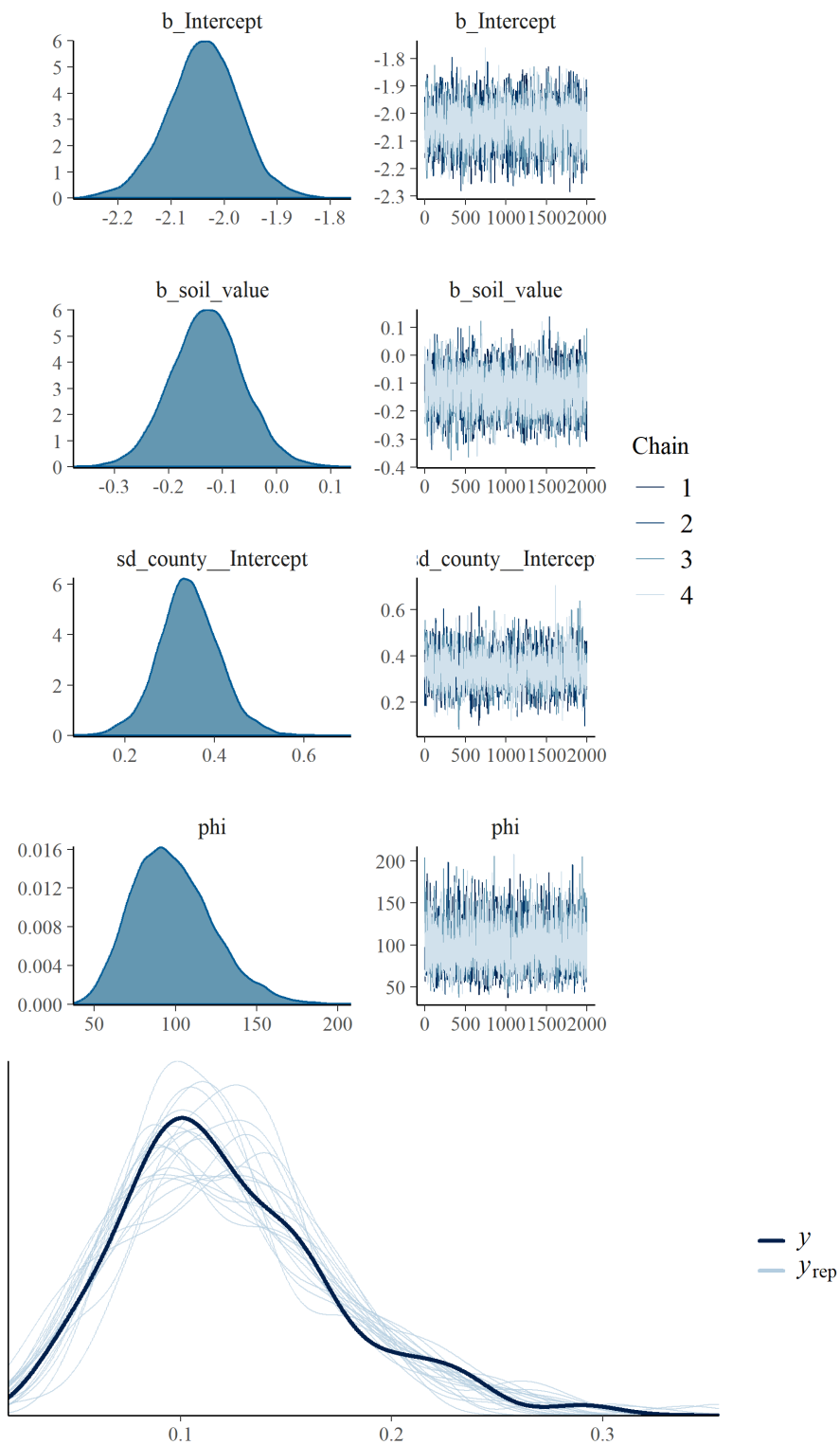
**Supplemental Figure 3.** Model 1 diagnostic plots. Top: density and trace plots of MCMC draws. Bottom: density plot of response  $y$  (% light) and replicated responses  $y_{rep}$  generated from posterior model parameters.



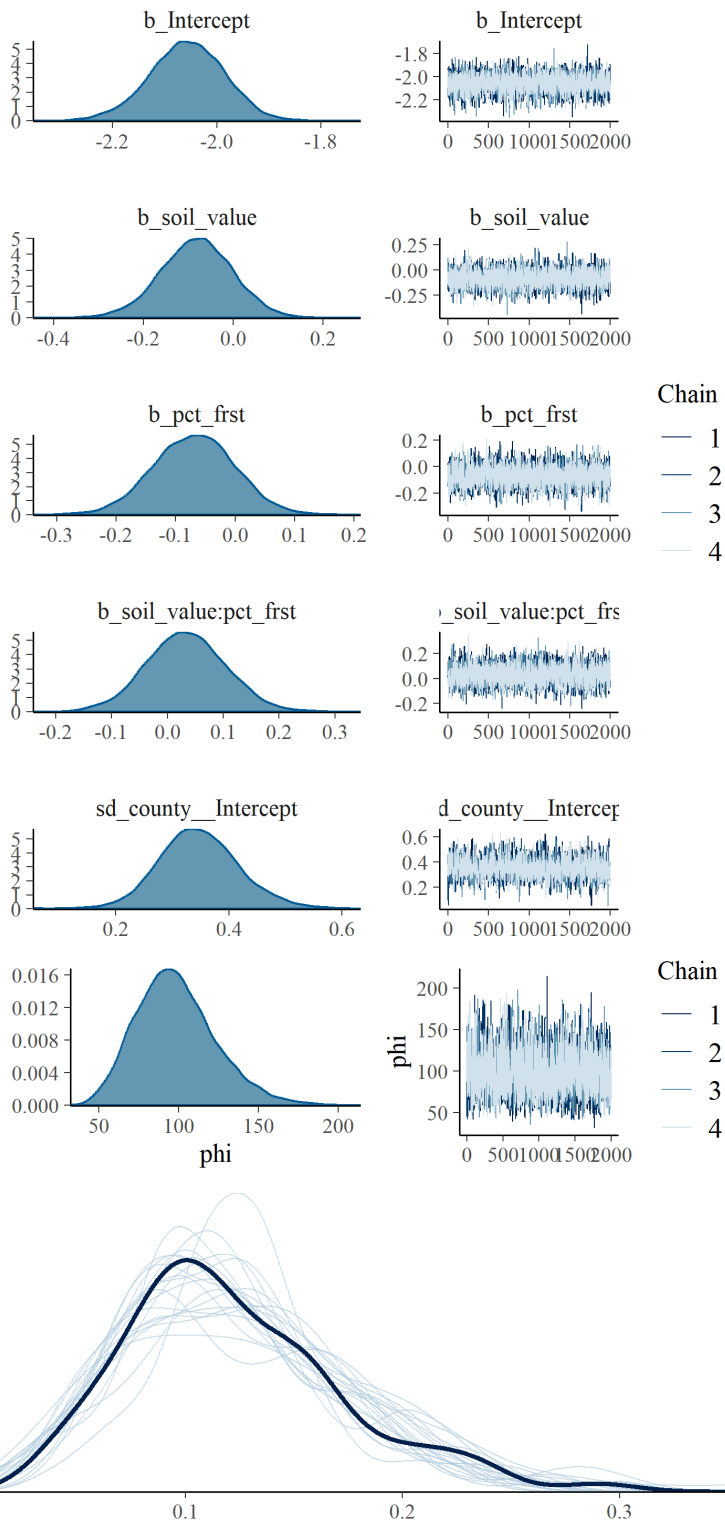
**Supplemental Figure 4.** Model 2 (*temp*) diagnostic plots. Top: density and trace plots of MCMC draws. Bottom: density plot of response  $y$  (% light) and replicated responses  $y_{rep}$  generated from posterior model parameters.



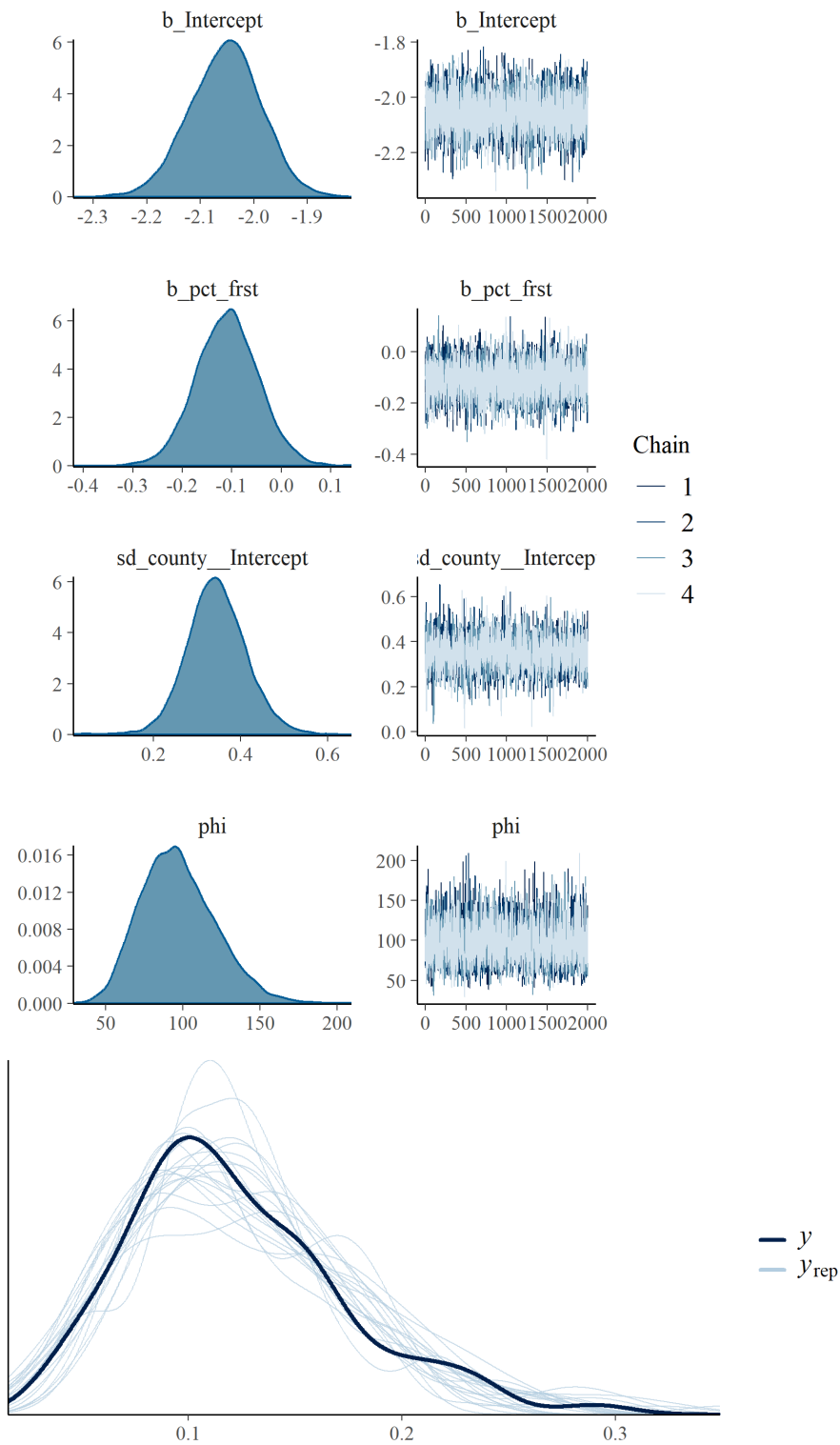
**Supplemental Figure 5.** Model 3 (*temp* +% forest) diagnostic plots. Top: density and trace plots of MCMC draws. Bottom: density plot of response  $y$  (% light) and replicated responses  $y_{\text{rep}}$  generated from posterior model parameters.



**Supplemental Figure 6.** Model 4 (*soil val*) diagnostic plots. Top: density and trace plots of MCMC draws. Bottom: density plot of response  $y$  (% light) and replicated responses  $y_{rep}$  generated from posterior model parameters.



**Supplemental Figure 7.** Model 5 (*soil val*  $\times$  % forest) diagnostic plots. Top: density and trace plots of MCMC draws. Bottom: density plot of response  $y$  (% light) and replicated responses  $y_{rep}$  generated from posterior model parameters.



**Supplemental Figure 8.** Model 6 (% forest) diagnostic plots. Top: density and trace plots of MCMC draws. Bottom: density plot of response  $y$  (% light) and replicated responses  $y_{rep}$  generated from posterior model parameters.

**Supplemental Data 1.** Data used in analyses including *Lampropeltis nigra* specimen information and climate variables (county level). See CSV file, kingsnake-county-data.csv, in online supplemental information.

**Supplemental Code 1.** R script used in analysis of *Lampropeltis nigra* lightness in relation to climate variables. See R file, supp-script.R, in online supplemental information.