

**Supplemental Table 1.** Correlation of variation for each independent variable included in a final model. Final models, denoted by scale as “C”, “L”, and “U”, denote “County”, “Local”, and “UFS”, respectively.

Independent Variable	Scale	yr	templag2	templag3	templag4	Jantemp	mirlag1	mirlag2	mirlag3	mirlag4	totpop	owpct	dlipect	dfpct	glandpct	hpctpos90	asianpct	dhipct	mfpcct	wwpct	precilag1	precilag2	precilag4	Vllag1	
yr	C	1																							
templag2	C	0.0024	1																						
	C	-0.0017	0.7701	1																					
templag3	L			1																					
	U			1																					
templag4	C	-0.0014	0.6402	0.7416	1																				
	L			0.8444	1																				
	U			0.8421	1																				
Jantemp	C	-0.3932	0.0933	0.1038	0.1082	1																			
	L			0.0785	0.0779	1																			
mirlag1	C	-0.0153	0.1668	0.2053	0.2281	0.0962	1																		
mirlag2	C	-0.0124	0.1333	0.1784	0.2126	0.1005	0.1707	1																	
mirlag3	C	-0.0271	0.0815	0.1292	0.1857	0.1087	0.1433	0.1753	1																
mirlag4	C	-0.0314	0.0417	0.091	0.151	0.1144	0.1359	0.1525	0.1747	1															
	L			0.2739	0.3131	0.2039				1															
totpop	C	0	0.0351	0.0352	0.0337	0.0953	0.0237	0.0295	0.0272	0.0265	1														
	L			0.0194	0.017	0.0564				0.0417	1														
owpct	C	-0.0006	-0.0047	-0.0057	-0.0061	0.0119	-0.0047	-0.0048	-0.0043	-0.0041	-0.1251	1													
	C	-0.0028	-0.0141	-0.0145	-0.014	-0.0347	0.0001	-0.0028	-0.0015	-0.0013	-0.1042	-0.1927	1												
dlipect	L			0.0096	0.0082	0.0312				0.025	0.4853		1												
dfpct	C	0.0039	-0.0211	-0.0218	-0.0213	-0.0478	-0.019	-0.0209	-0.0191	-0.0186	-0.2757	0.0528	-0.3254	1											
glandpct	C	-0.0114	-0.0179	-0.0184	-0.018	-0.0379	-0.0144	-0.0162	-0.0144	-0.0141	-0.188	0.0498	-0.2271	0.2659	1										
hpctpos90	C	0	-0.0308	-0.0314	-0.0305	-0.0736	-0.0309	-0.0339	-0.0309	-0.0305	-0.3075	0.0305	-0.1531	0.2036	0.2844	1									
asianpct	U															1									
dhipct	U															0.1411	1								
mfpcct	U															-0.1988	-0.2161	1							
wwpct	U															-0.2279	-0.2371	0.8923	1						
precilag1	U															0	-0.0025	0.0048	0.0039	1					
precilag2	U															-0.0004	-0.0036	0.0051	0.0038	0.0496	1				
precilag4	U															0.0019	-0.001	0.0041	0.005	-0.1068	-0.0383	1			
Vllag1	U															-0.0133	0.0033	0.0076	0.0187	-0.0481	-0.0388	-0.0585	1		