

Appendix E: Model Diagnostics for All Sites and Scales

Table E1 gives the model diagnostics for each site and scale. The values of the basis dimension k used for the smoothing spline are all greater than the default of 10. The Moran test for autocorrelation (in which significant p-values indicate the presence of autocorrelation) shows no autocorrelation for any site or scale. All models were run with large enough k to allow the smoother to be flexible enough to account for spatial autocorrelation. The estimated dispersion parameters for the quasi-binomial are all much greater than one (binomial distribution with no dispersion would have a dispersion parameter of one), indicating that the quasibinomial was necessary. The spatial smoothing term is usually significant, but not always. Finally, the table gives the run time for each model.

Site	Grid cell size	N	Moran Test p.value	Basis dimension k	Estimated dispersion	Spatial term p.value	Run time (seconds)
BH	100	130	0.99	26	3.36	4.10E-016	0.07
	90	154	1.00	30	4.47	1.76E-014	0.14
	80	187	1.00	38	1.75	2.70E-017	0.15
	70	246	1.00	50	4.07	5.23E-028	0.29
	60	323	1.00	64	3.24	5.18E-044	0.75
	50	452	1.00	90	2.24	6.28E-112	2.73
	40	664	1.00	132	2.21	1.05E-120	46.06
	30	1154	1.00	230	1.22	0.00E+000	96.56
	20	2453	1.00	490	2.29	0.00E+000	1435.21
WC	100	106	0.98	22	0.43	4.02E-030	0.11
	90	127	1.00	26	0.63	3.61E-025	0.15
	80	151	1.00	30	1.30	3.15E-020	0.20
	70	198	1.00	40	0.63	3.62E-039	0.70
	60	263	1.00	52	1.04	2.26E-062	1.32
	50	361	1.00	72	13.12	9.83E-001	6.19
	40	553	1.00	110	6.66	5.85E-003	23.75
	30	967	1.00	194	0.41	0.00E+000	37.69
	20	2064	0.86	412	2.61E+014	1.00E+000	890.86
IB	100	99	0.98	20	6.18	4.53E-003	0.05
	90	117	0.98	24	3.19	2.97E-014	0.06
	80	145	1.00	28	4.34	4.22E-019	0.08
	70	184	1.00	36	4.36	6.04E-013	0.11
	60	242	1.00	48	4.77	3.44E-025	0.20
	50	333	1.00	66	5.57	2.59E-027	0.42
	40	490	1.00	98	5.70	2.30E-057	1.12
	30	842	1.00	168	6.38	2.00E-083	6.18
	20	1800	1.00	360	8.45	5.28E-083	87.97
BM	100	137	0.96	28	3.45	6.90E-022	0.08
	90	162	0.95	32	3.42	6.09E-018	0.11
	80	201	0.97	40	3.46	1.29E-032	0.11
	70	250	0.72	50	3.85	3.82E-034	0.22
	60	332	1.00	66	4.28	1.15E-047	0.38
	50	473	1.00	94	4.60	3.06E-066	0.92
	40	722	1.00	144	4.22	9.16E-136	3.37
	30	1215	1.00	244	4.93	9.93E-252	20.70
	20	2678	1.00	536	7.23	0.00E+000	205.83

Table E1: Model diagnostics for each site and scale (IB – Iaqua Buttes, BH – Bald Hills, BM – Blake Mountain, WC – Willow Creek).