

Appendix B Kuhn-Tucker Model Site-Specific Parameter Estimates**Table B1. Baseline Marginal Utility Parameters (β_j)**

Site	2018		2019		2020	
	Estimate	Std.err	Estimate	Std.err	Estimate	Std.err
102	-5.041***	(0.385)	-4.736***	(0.474)	-4.276***	(0.246)
104	-5.779***	(0.412)	-5.236***	(0.469)	-5.041***	(0.302)
106	-6.299***	(0.416)	-6.204***	(0.462)	-5.475***	(0.317)
108	-5.158***	(0.368)	-5.167***	(0.441)	-4.268***	(0.266)
110	-5.954***	(0.408)	-5.562***	(0.434)	-5.209***	(0.311)
112	-6.065***	(0.364)	-6.084***	(0.462)	-5.797***	(0.353)
116	-5.648***	(0.388)	-5.435***	(0.477)	-4.328***	(0.355)
118	-4.936***	(0.449)	-4.399***	(0.531)	-3.649***	(0.380)
119	-5.686***	(0.366)	-5.232***	(0.496)	-4.014***	(0.528)
124	-6.208***	(0.394)	-5.312***	(0.493)	-5.022***	(0.384)
128	-6.768***	(0.455)	-6.458***	(0.443)	-4.008***	(1.233)
130	-6.466***	(0.369)	-7.035***	(0.472)	-5.839***	(0.320)
132	-6.598***	(0.434)	-6.568***	(0.474)	-5.389***	(0.285)
134	-6.662***	(0.407)	-6.567***	(0.485)	-5.252***	(0.297)
136	-6.664***	(0.423)	-6.557***	(0.467)	-5.589***	(0.286)
138	-7.239***	(0.589)	-5.799***	(0.701)	-5.814***	(0.336)
140	-7.314***	(0.428)	-	-	-6.840***	(0.697)
142	-6.239***	(0.936)	-5.725***	(1.148)	-6.160***	(0.346)
144	-6.981***	(0.553)	-6.073***	(0.491)	-2.643	(1.918)
148	-4.990***	(0.754)	-3.542***	(1.357)	-2.477*	(1.248)
150	-4.803***	(0.865)	-3.266**	(1.626)	-0.386	(2.482)
151	-4.307***	(0.981)	-3.668***	(1.336)	-1.875	(1.418)
152	-4.958***	(1.007)	-4.286***	(1.152)	-2.902**	(1.196)
156	-6.125***	(0.389)	-6.015***	(0.509)	-5.153***	(0.263)
158	-5.664***	(0.396)	-5.865***	(0.521)	-4.254***	(0.569)
160	-5.471***	(0.375)	-5.039***	(0.771)	-3.663***	(0.562)
162	-5.285***	(0.611)	-4.740***	(0.835)	-3.530***	(0.885)
163	-4.503***	(1.040)	-3.444**	(1.527)	-1.515	(1.759)
164	-5.394***	(0.479)	-4.747***	(1.031)	-3.348***	(0.744)
166	-5.782***	(0.387)	-5.014***	(0.496)	-3.952***	(0.409)
200	-4.176***	(1.317)	-3.682***	(1.010)	-2.073*	(1.196)
202	-4.713***	(0.866)	-3.914***	(1.264)	-2.064	(1.423)
203	-5.369***	(0.772)	-4.247***	(1.181)	-2.654**	(1.266)
204	-5.701***	(0.376)	-5.206***	(0.594)	-3.832***	(0.619)
206	-6.167***	(0.384)	-6.784***	(0.501)	-5.487***	(0.283)
208	-5.688***	(0.371)	-5.666***	(0.439)	-4.803***	(0.255)
210	-7.118***	(0.498)	-6.540***	(0.475)	-5.397***	(0.284)
212	-8.119***	(0.435)	-7.834***	(0.455)	-7.632***	(0.386)
214	-6.399***	(0.366)	-6.658***	(0.450)	-5.521***	(0.274)
216	-6.640***	(0.412)	-6.908***	(0.517)	-5.730***	(0.280)
220	-6.096***	(0.381)	-6.398***	(0.469)	-5.036***	(0.266)
221	-7.244***	(0.447)	-6.724***	(0.417)	-6.038***	(0.286)
222	-6.761***	(0.410)	-7.603***	(0.546)	-6.014***	(0.342)
224	-6.380***	(0.410)	-6.304***	(0.433)	-5.541***	(0.257)

Site	2018		2019		2020	
	Estimate	Std.err	Estimate	Std.err	Estimate	Std.err
226	-6.916***	(0.427)	-7.894**	(0.727)	-5.789**	(0.253)
228	-5.998***	(0.375)	-6.185***	(0.470)	-4.884***	(0.263)
230	-5.762***	(0.365)	-6.101***	(0.452)	-4.115***	(0.483)
232	-5.326***	(1.028)	-4.655***	(1.315)	-2.425	(1.508)
234	-4.359***	(0.938)	-3.507***	(1.328)	-1.101	(1.821)
236	-4.338***	(1.306)	-4.400***	(1.146)	-1.902	(1.634)
238	-6.850***	(0.390)	-5.704***	(0.983)	-4.787***	(0.525)
240	-6.734***	(0.437)	-6.118***	(0.481)	-5.630***	(0.286)
242	-5.878***	(0.339)	-5.333***	(1.063)	-3.962***	(0.799)
244	-7.372***	(0.484)	-	-	-6.393***	(0.308)
246	-6.914***	(0.401)	-	-	-6.096***	(0.297)
248	-7.548***	(0.389)	-7.669***	(0.401)	-7.046***	(0.293)
250	-6.226***	(0.401)	-6.588***	(0.483)	-5.461***	(0.296)
252	-6.371***	(0.396)	-6.455***	(0.468)	-5.298***	(0.403)
254	-5.905***	(0.399)	-5.882***	(0.496)	-4.536***	(0.305)
256	-5.836***	(0.405)	-5.805***	(0.460)	-3.060***	(1.054)
258	-6.040***	(0.413)	-5.809***	(0.474)	-4.719***	(0.279)
260	-6.375***	(0.384)	-6.268***	(0.487)	-5.518***	(0.302)
300	-4.141***	(0.363)	-4.277***	(0.414)	-3.616***	(0.247)
400	-5.654***	(0.356)	-5.749***	(0.465)	-5.251***	(0.278)
500	-5.632***	(0.431)	-5.538***	(0.447)	-1.568	(2.151)
501	-5.850***	(0.420)	-6.718***	(0.637)	-5.850***	(0.347)
502	-6.272***	(0.447)	-6.406***	(0.518)	-5.657***	(0.326)
503	-7.060***	(0.725)	-	-	-5.669***	(0.301)
504	-6.321***	(0.457)	-	-	-5.441***	(0.313)
505	-6.062***	(0.433)	-	-	-6.237***	(0.357)
506	-7.300***	(0.682)	-6.387***	(0.472)	-5.909***	(0.341)
507	-5.658***	(0.395)	-6.398***	(0.515)	-5.181***	(0.311)
508	-6.709***	(0.494)	-	-	-5.572***	(0.307)
509	-6.302***	(0.447)	-6.375***	(0.503)	-5.766***	(0.382)
510	-5.658***	(0.393)	-6.125***	(0.516)	-4.884***	(0.290)
511	-4.757***	(0.396)	-4.541***	(0.433)	-3.909***	(0.258)
728	-5.727***	(0.697)	-5.519***	(1.255)	-4.371***	(0.885)
730	-5.880***	(0.491)	-4.923***	(1.418)	-4.454***	(1.173)
732	-6.241***	(0.440)	-6.693***	(0.580)	-6.300***	(0.474)

Note: Site numbers denote Wildlife Management Unit (WMU) numbers in Alberta. 79 sites would have been visited in the 2018 and 2020 surveys while 72 sites would have been visited in the 2019 survey. Standard errors computed using 50 multivariate normal draws are in parentheses. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table B2. Translation Parameters (γ_j)

Site	2018		2019		2020	
	Estimate	Std.err	Estimate	Std.err	Estimate	Std.err
102	3.479***	(0.766)	2.896***	(0.738)	2.787***	(0.687)
104	4.720***	(1.469)	3.147***	(0.865)	2.757***	(0.881)
106	6.231*	(3.501)	6.285**	(2.700)	7.502***	(2.959)
108	4.661***	(0.935)	4.305***	(0.999)	4.403***	(0.707)
110	4.120***	(1.449)	4.586***	(1.174)	3.109***	(1.100)
112	4.719***	(1.553)	7.016***	(3.225)	5.635**	(2.955)
116	4.217***	(1.154)	5.648***	(1.849)	4.405***	(1.233)
118	3.034***	(0.741)	3.761***	(0.744)	4.257***	(0.848)
119	5.663***	(1.631)	3.989**	(1.155)	4.653***	(0.913)
124	6.789***	(2.441)	4.216***	(1.405)	6.027***	(2.038)
128	5.379*	(3.008)	9.532*	(5.660)	5.152**	(2.468)
130	4.637***	(1.268)	6.602	(6.141)	4.649***	(1.636)
132	4.221***	(1.822)	2.28**	(0.961)	2.224***	(0.601)
134	2.891*	(1.594)	4.208	(2.570)	3.173***	(1.007)
136	3.822***	(1.449)	7.933	(5.115)	3.614***	(1.425)
138	4.442	(4.623)	2.799	(1.862)	2.641	(1.884)
140	7.161	(6.048)	-	-	7.535	(9.037)
142	6.463	(4.595)	3.375	(3.083)	6.618**	(2.671)
144	9.329**	(4.754)	2.679**	(1.182)	4.919	(1.746)
148	4.207***	(0.809)	3.798***	(0.717)	3.355***	(0.571)
150	3.305***	(0.911)	4.183***	(1.048)	2.498***	(0.466)
151	3.603***	(0.668)	3.016***	(0.707)	2.350***	(0.301)
152	3.905***	(0.628)	3.084***	(0.551)	3.794***	(0.610)
156	5.228***	(1.317)	6.135***	(2.192)	3.771***	(0.728)
158	3.289***	(0.827)	4.066**	(1.594)	3.617***	(0.739)
160	4.354***	(1.046)	5.715***	(2.198)	4.087***	(0.696)
162	3.117***	(0.794)	3.941***	(0.866)	2.640***	(0.792)
163	3.468***	(0.756)	3.518***	(0.678)	3.316***	(0.497)
164	3.300***	(1.019)	2.469***	(0.752)	3.121***	(0.564)
166	5.174***	(1.247)	3.626***	(0.815)	5.359***	(0.859)
200	3.267***	(0.776)	3.765***	(0.721)	3.554***	(0.444)
202	3.119***	(0.600)	2.767***	(0.760)	5.085***	(0.739)
203	4.307***	(1.324)	5.166***	(1.752)	3.921***	(0.766)
204	3.681***	(0.938)	7.313***	(2.079)	4.308***	(0.911)
206	4.184***	(1.188)	6.431*	(3.539)	4.221***	(0.958)
208	5.242***	(0.860)	4.242***	(1.167)	3.903***	(0.776)
210	9.568	(5.915)	8.124*	(3.728)	5.704***	(1.721)
212	7.887**	(3.589)	7.130*	(4.072)	4.980**	(2.289)
214	8.055***	(2.316)	7.139*	(3.454)	6.860***	(1.672)
216	10.677***	(3.219)	4.076*	(2.239)	7.186***	(2.522)
220	8.909***	(1.881)	6.509***	(2.440)	6.914***	(1.389)
221	7.438****	(3.602)	11.65***	(3.611)	4.667**	(1.947)
222	10.622***	(4.050)	11.132***	(6.323)	12.935***	(4.732)
224	9.041***	(3.000)	5.435**	(2.442)	5.086***	(1.858)
226	7.445***	(2.645)	10.405***	(6.778)	12.069***	(3.506)
228	6.833***	(1.476)	3.212***	(1.311)	5.182***	(0.899)

Site	2018		2019		2020	
	Estimate	Std.err	Estimate	Std.err	Estimate	Std.err
230	5.038***	(1.315)	5.144**	(1.804)	7.472***	(1.385)
232	3.803***	(0.920)	4.510***	(1.212)	4.782**	(0.743)
234	3.748***	(0.601)	5.323***	(1.133)	4.616***	(0.617)
236	4.563***	(1.117)	4.736***	(1.695)	5.737***	(1.055)
238	3.794***	(1.191)	4.158	(2.823)	6.456***	(1.247)
240	8.167*	(4.413)	10.92**	(3.469)	6.452***	(2.290)
242	6.175***	(1.208)	7.666**	(3.490)	9.848***	(2.061)
244	4.963*	(2.762)	-	-	9.163**	(4.342)
246	2.485*	(1.290)	-	-	6.712***	(2.538)
248	4.447***	(1.684)	9.471**	(4.411)	9.815***	(3.304)
250	6.872***	(2.007)	6.620*	(3.580)	5.614***	(1.308)
252	5.234**	(2.035)	8.612**	(3.920)	8.155**	(3.944)
254	8.711***	(2.757)	9.167*	(5.040)	6.850***	(1.399)
256	4.117***	(1.459)	4.154**	(1.803)	3.985***	(0.937)
258	4.894**	(2.307)	7.347***	(2.743)	6.891***	(1.407)
260	5.595*	(3.144)	7.133*	(3.672)	10.25***	(3.730)
300	3.628***	(0.494)	5.127***	(0.782)	3.271***	(0.379)
400	5.986***	(1.490)	4.363***	(1.263)	4.667***	(1.297)
500	5.037***	(1.915)	6.367***	(2.716)	8.437***	(2.627)
501	8.301***	(3.170)	8.990	(8.037)	11.034**	(5.486)
502	2.174**	(1.126)	7.053	(6.607)	12.619***	(4.169)
503	2.768	(4.202)	-	-	2.698*	(1.400)
504	2.264**	(1.115)	-	-	6.598**	(2.893)
505	3.792*	(2.143)	-	-	3.651	(4.470)
506	5.711	(6.790)	11.471*	(6.836)	4.114	(4.140)
507	9.329***	(3.055)	6.361	(5.969)	6.828**	(3.050)
508	5.574	(3.500)	-	-	4.890**	(2.353)
509	3.225	(3.082)	3.238	(3.153)	3.582	(3.338)
510	6.207***	(2.307)	8.023	(6.101)	2.363***	(0.689)
511	2.248***	(0.619)	3.936***	(1.398)	2.973***	(0.683)
728	1.661***	(0.442)	2.748*	(1.547)	2.237***	(0.687)
730	1.537***	(0.459)	2.219	(1.792)	4.188	(2.819)
732	3.644*	(1.956)	1.650	(1.335)	2.252	(2.759)

Note: Site numbers denote Wildlife Management Unit (WMU) numbers in Alberta. 79 sites would have been visited in the 2018 and 2020 surveys while 72 sites would have been visited in the 2019 survey. Standard errors computed using 50 multivariate normal draws are in parentheses. * p < 0.1; ** p < 0.05; *** p < 0.01.