

Table S2. Results (mean, 95% HPDs, and root mean squared error (rMSE) of leave-one-out analyses in which leaf ages were estimated for 125 bison sequences of known sample isolation time. Analyses were performed using two different coalescent priors: the multi-change point (MCP) process (Drummond et al 2005), and the Gaussian Markov Random Field (GMRF; Minin et al 2008).

Sequence ID	True Age (calendar years)	GMRF Mean (95% HPD)	GMRF rMSE	MCP Mean (95% HPD)	MCP rMSE
BS102	22 ± 5	2344 (0-5689)	2916.76	2499 (1-6251)	3134.32
BS99	26 ± 5	1518 (1-4432)	2313.11	1346 (1-3929)	1888.20
BS100	29 ± 5	1633 (0-4656)	2205.87	1616 (0-4636)	2232.62
BS200	145 ± 37	4835 (2-9918)	5578.41	4700 (2-9575)	5363.92
BS175	189 ± 90	3364 (8-6137)	3553.66	3337 (6-6171)	3539.46
BS424	216 ± 86	3599 (3-7837)	4090.90	3628 (1-7996)	4167.17
BS434	715 ± 26	3271 (0-7428)	3417.97	3133 (2-7056)	3268.64
BS422	822 ± 52	3425 (1-7523)	3468.82	3552 (8-7871)	3624.22
BS417	823 ± 51	3535 (2-8197)	3718.20	3237 (0-7428)	3323.54
BS441	1220 ± 44	5696 (11-10836)	5522.14	5911 (57-10795)	5633.63
BS123	1638 ± 77	4407 (8-9486)	3888.39	4602 (9-9441)	4002.32
BS289	2179 ± 70	4045 (14-8932)	3172.84	4316 (18-8999)	3334.82
BS490	2420 ± 75	2792 (1-7270)	2417.19	2770 (1-7132)	2313.62
BS198	2534 ± 113	4295 (20-9429)	3227.93	4449 (13-9386)	3304.54
BS517	2669 ± 71	3312 (1-8320)	2607.77	3405 (3-8120)	2618.04
BS503	2863 ± 42	4313 (0-9406)	3056.98	4457 (6-9308)	3109.68
BS560	2898 ± 36	4815 (1-10000)	3544.64	4684 (2-9565)	3364.95
BS177	3376 ± 30	3647 (0-12176)	4541.29	3606 (0-13068)	4765.31
BS173	3433 ± 45	1697 (0-4794)	2297.92	1621 (0-4627)	2342.36
BS569	3903 ± 93	10513 (1035-20385)	8248.62	9713 (501-17841)	7267.37
BS414	5155 ± 126	9337 (856-17317)	6035.76	8768 (363-16127)	5602.64
BS423	5387 ± 58	10838 (298-20692)	7578.71	9823 (609-18331)	6340.01
BS439	6658 ± 49	4849 (0-10026)	3495.74	4638 (2-9440)	3453.97
BS222	6977 ± 65	11967 (3732-19685)	6388.61	11293 (3451-18888)	5755.19
BS148	7326 ± 56	14091 (8284-20545)	7388.16	13965 (8364-19833)	7159.78
BS429	7620 ± 31	5847 (13-11046)	3726.04	5708 (4-10806)	3690.95
BS426	7898 ± 47	5908 (6-11103)	3834.04	5559 (8-10675)	3930.14
BS428	7936 ± 37	5647 (4-10848)	3970.31	5681 (3-10672)	3874.89
BS432	8126 ± 56	9758 (37-19827)	5742.60	8658 (6-18338)	5314.73
BS419	8309 ± 54	5652 (3-10922)	4214.45	5517 (5-10652)	4232.94
BS421	9068 ± 59	10740 (725-21083)	5643.81	9898 (118-18856)	5038.34
BS130	10124 ± 336	16268 (4838-29927)	9062.21	15144 (4519-27715)	8061.16
BS321	10773 ± 101	12875 (681-25849)	7253.16	11707 (278-23891)	6641.60
BS254	11969 ± 101	9274 (815-15459)	4688.87	8966 (926-14591)	4696.70
BS342	12142 ± 84	7109 (2-17919)	7550.87	6498 (0-18245)	8254.76
BS337	12219 ± 95	9034 (791-15065)	4913.22	8964 (713-14167)	4806.98
BS433	12368 ± 110	10503 (633-20223)	5519.40	9491 (1139-18529)	5326.91
BS202	12381 ± 120	80369 (47807-107000)	69509.57	82771 (19936-119000)	73996.76
BS348	12458 ± 69	9594 (24-20034)	6285.93	8150 (15-17488)	6552.76
BS297	12867 ± 53	62262 (41667-79291)	50304.27	64290 (42197-83495)	52424.14

BS237	13078 ± 74	19361 (5889-38408)	11007.72	18113 (5416-35227)	9597.97
BS570	13158 ± 281	10166 (932-20190)	5840.13	9149 (50-17702)	6073.52
BS146	13662 ± 58	60806 (28641-89428)	49661.15	65235 (20633-107000)	56790.93
BS124	13734 ± 67	21959 (2516-43416)	13364.80	19762 (3868-36975)	10322.16
BS145	14064 ± 82	9157 (2301-15531)	5904.83	8908 (2351-14510)	6011.56
BS176	14232 ± 129	46145 (23488-68808)	33928.31	52947 (21632-83714)	41890.57
BS318	14287 ± 125	31173 (12241-51876)	19841.62	31212 (12061-52840)	20086.39
BS311	14318 ± 121	17679 (7841-29019)	6454.58	17594 (6474-28793)	6613.55
IB179	14407 ± 172	33789 (12593-60406)	23236.85	42109 (13656-73671)	32313.31
BS172	14530 ± 155	20590 (10896-30327)	7960.99	20574 (9825-31591)	8367.85
BS253	14753 ± 112	8530 (1769-14766)	7051.23	8266 (2058-14140)	7202.35
BS261	15046 ± 120	16259 (6277-27113)	5282.64	16331 (6721-27588)	5402.89
BS201	15098 ± 116	18331 (9967-28518)	5716.41	18154 (9720-27892)	5617.58
BS170	15189 ± 126	16323 (6602-27054)	5153.28	16341 (6715-27872)	5267.20
BS224	15286 ± 132	21494 (5980-44685)	11760.70	21952 (6705-45715)	12286.90
BS163	15418 ± 135	13782 (1677-23994)	5866.62	13711 (1933-24985)	6000.93
BS233	19815 ± 112	43278 (15012-73436)	28234.31	94664 (14292-227000)	102688.85
BS389	20337 ± 87	52175 (34999-72762)	33039.52	52238 (33254-75360)	33402.84
BS178	21306 ± 158	44161 (14030-71246)	27670.81	47355 (15060-75730)	31092.23
BS126	22778 ± 353	37012 (12953-66852)	20362.96	51577 (8098-183000)	56085.11
BS121	23050 ± 392	24629 (11877-40138)	7522.79	25341 (11514-43868)	8725.61
BS196	23123 ± 196	64575 (30175-94040)	44762.48	66860 (28657-102000)	47602.10
BS236	23123 ± 196	44743 (16184-73370)	26417.95	48044 (16295-80701)	30216.12
BS164	23319 ± 207	24175 (11670-38017)	6976.78	25164 (11416-44207)	8685.32
BS107	23338 ± 405	51438 (20677-78048)	31899.22	53682 (18345-87785)	35828.90
BS359	23916 ± 185	39958 (16543-64728)	20488.07	41767 (14653-66145)	22520.48
BS605	24283 ± 104	47815 (18104-77142)	28241.46	72476 (13776-181000)	67111.85
BS109	24752 ± 474	27720 (9832-48182)	10523.55	28203 (9259-49460)	11569.79
BS108	25148 ± 507	28424 (10593-49905)	10803.06	28656 (10556-51123)	11520.94
BS161	25181 ± 176	70688 (36052-101000)	48412.09	80242 (30538-125000)	60263.59
BS111	25920 ± 503	16566 (8826-25075)	10216.70	16373 (8823-25628)	10469.05
BS258	26606 ± 184	31004 (8346-59351)	14280.13	207000 (106000-334000)	189476.65
BS405	27653 ± 195	78249 (41825-112000)	53483.55	124000 (48004-208000)	105031.42
BS396	28375 ± 237	32909 (15949-49105)	9727.65	33349 (13818-52123)	11111.66
BS206	28487 ± 208	33547 (13110-56186)	12463.83	34484 (12593-60574)	14172.79
BS340	29303 ± 251	59438 (22925-84630)	34087.53	64378 (22471-96745)	40138.01
BS564	29377 ± 158	56807 (23517-84011)	31619.04	63105 (17915-97952)	40852.05
BS498	31210 ± 284	43411 (21055-64489)	16490.91	47330 (22975-71536)	20537.50
BS244	31459 ± 232	31530 (17626-45120)	6511.12	32385 (17070-47474)	7455.69
BS192	31555 ± 353	40346 (22281-57108)	12342.41	40179 (19355-58652)	13005.73
BS165	31728 ± 228	31174 (18080-45000)	6466.17	32396 (17628-48767)	7689.35
BS418	31830 ± 741	47715 (18702-75062)	21639.06	48607 (15368-76548)	24890.54
BS329	32370 ± 256	67021 (40663-91504)	36984.46	70817 (43050-97395)	40719.53
BS398	32732 ± 317	86951 (63479-108000)	55434.65	99544 (60419-143000)	69836.38
BS388	32933 ± 336	85768 (49700-114000)	55260.38	118000 (52790-179000)	90526.79
BS147	33491 ± 340	55058 (17241-86626)	29037.80	56642 (16601-95587)	32221.89
BS195	34450 ± 377	37953 (13399-62823)	13674.61	40310 (15294-66732)	15147.54
BS674	34474 ± 197	45003 (23537-67965)	15629.72	47562 (23062-75273)	18722.37

BS262	34559 ± 528	32285 (12990-54100)	11130.05	32478 (12258-55491)	11802.50
BS660	34923 ± 193	45537 (24450-71874)	16156.83	46647 (23506-74660)	17631.96
BS495	34987 ± 363	73148 (25846-108000)	44151.22	109000 (24823-179000)	84494.79
BS497	35399 ± 537	45787 (17448-72157)	17863.45	47259 (17174-76286)	19583.67
BS412	35875 ± 270	41301 (23644-60667)	10513.28	43245 (23532-65259)	12605.40
BS260	36116 ± 312	29374 (8659-56572)	14442.26	35873 (9119-71799)	18709.04
BS415	36194 ± 976	41600 (19680-65750)	12989.77	45655 (18776-69159)	16251.12
BS713	36331 ± 219	45474 (13057-83839)	22055.54	99297 (13124-234000)	92187.58
BS499	36784 ± 452	38126 (14268-63659)	12805.82	41090 (13989-68452)	14882.04
BS327	36904 ± 276	31414 (16373-47873)	9610.66	32277 (14672-49868)	10193.43
BS397	37762 ± 498	55707 (24128-82207)	23186.70	77427 (19583-142000)	51251.73
BS387	38708 ± 551	73520 (33874-104000)	39061.87	94040 (21708-161000)	64321.30
BS477	39089 ± 277	40131 (16243-67946)	14092.41	41243 (13654-67423)	16425.32
BS478	39836 ± 261	17416 (2988-32063)	23567.41	18784 (3171-36834)	22853.03
BS395	40700 ± 1300	37826 (14328-64497)	13322.42	40474 (13333-68490)	14654.45
BS500	40878 ± 529	43211 (16075-68856)	13464.06	45048 (15772-71643)	15136.45
BS292	40991 ± 686	67453 (43506-91413)	29163.64	70453 (42618-94697)	32237.09
BS392	41536 ± 712	37821 (16392-62268)	12722.54	39719 (13844-65140)	13914.45
BS394	42528 ± 788	55609 (30035-80499)	18161.17	60865 (28021-88257)	24002.67
BS243	42608 ± 385	29612 (9889-57205)	18080.87	36723 (4147-76072)	37078.57
BS323	42831 ± 370	43756 (20263-65046)	11720.88	45313 (20256-69328)	12975.86
BS350	43597 ± 885	41623 (16444-66507)	13008.73	44959 (16332-71568)	14314.01
BS364	43685 ± 971	60618 (18727-91878)	26934.98	64213 (20572-102000)	30338.28
BS345	44554 ± 1062	35409 (19905-54593)	12533.67	38158 (19439-62476)	12462.95
BS393	44598 ± 1063	39138 (21487-58725)	11008.18	40383 (20162-61913)	11422.48
BS281	45428 ± 564	39993 (14729-67010)	15188.38	42816 (12723-73341)	23336.62
BS592	46908 ± 440	38063 (15865-60184)	14750.53	39096 (16067-62754)	14776.98
BS235	47663 ± 812	36380 (14631-59214)	16383.77	37429 (14017-60167)	16077.38
BS149	49975 ± 3033	44888 (13289-69531)	16934.96	50810 (13681-74558)	16720.17
BS400	50204 ± 3427	21796 (12297-33451)	28965.41	21807 (11094-33915)	29105.12
BS708	50652 ± 2042	36799 (18013-56546)	16932.78	38420 (18684-64788)	16732.63
BS365	51433 ± 4004	29187 (11700-46697)	24107.90	28916 (11986-47484)	24432.21
BS216	51433 ± 4004	47092 (16286-70604)	15743.19	49580 (13207-74804)	17226.90
BS286	54134 ± 2800	83049 (64269-102000)	30465.46	90412 (66629-116000)	38401.43
BS320	54524 ± 3181	54926 (24497-80546)	14702.55	58260 (24708-88449)	17007.20
BS291	54640 ± 3130	57076 (22244-83109)	16466.27	60653 (24841-90550)	17640.78
BS493	55182 ± 5568	33422 (14301-53997)	24162.26	33857 (13411-56696)	24395.63