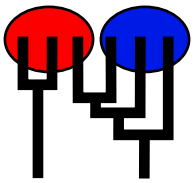
Translated from VCF 2020-07-20

POPULATION SIZE, MIGRATION, DIVERGENCE, ASSIGNMENT, HISTORY
Bayesian inference using the structured coalescent
Migrate-n version 4.5.1(git:4.5-2-g6c1d014-dirty) [July-4-2020]
  Compiled for PARALLEL computer architectures
  One master and 8 compute nodes are available.
  Compiled for a SYMMETRIC multiprocessors (Grandcentral)
Program started at Fri Jul 24 18:17:52 2020
Program finished at Fri Jul 24 18:32:00 2020 [Runtime:0000:00:14:08]



Options

Inheritance scalers in use for Thetas:
All loci use an inheritance scaler of 1.0
[The locus with a scaler of 1.0 used as reference]
Random number seed: (with internal timer) 1842226397
Start parameters:

Theta values were generated Using a percent value of the prior

M values were generated Using a percent value of the prior

Connection matrix:
  m = average (average over a group of Thetas or M,
  s = symmetric migration M, S = symmetric 4Nm,
  0 = zero, and not estimated,
  * = migration free to vary, Thetas are on diagonal
  d = row population split off column population, D = split and then migration

Population	1	2	3
1 Pop1	*	0	t
2 Pop2	0	*	t
3 ancestor	0	0	*

Order of parameters:
  1 Θ_1 <displayed>

2	Θ_2	<displayed>
3	Θ_3	<displayed>
4	$\Delta_{3->1}$	<displayed>
5	$\sigma_{3->1}$	<displayed>
6	$\Delta_{3->2}$	<displayed>
7	$\sigma_{3->2}$	<displayed>

Mutation rate among loci: Mutation rate is constant for all loci

Analysis strategy: Bayesian inference
-Population size estimation: Exponential Distribution
-Geneflow estimation: Exponential Distribution
-Divergence time estimation: Normal Distribution Shortcut (mean and standard dev.)

Proposal distributions for parameter

Parameter	Proposal
Theta	Metropolis sampling
M	Metropolis sampling
Divergence	Metropolis sampling
Divergence Spread	Metropolis sampling
Genealogy	Metropolis-Hastings

Prior distribution for parameter

Parameter		Prior	Minimum	Mean*	Maximum	Delta	Bins	UpdateFreq
1	Theta **	Gamma	0.000000	0.010	0.100	0.010	1500	0.07143
2	Theta **	Gamma	0.000000	0.010	0.100	0.010	1500	0.07143
3	Theta **	Gamma	0.000000	0.010	0.100	0.010	1500	0.07143
4	Splittime mean **	Gamma	0.000000	0.010	0.100	0.010	1500	0.07143
5	Splittime std **	Gamma	0.000000	0.010	0.100	0.010	1500	0.07143
6	Splittime mean **	Gamma	0.000000	0.010	0.100	0.010	1500	0.07143
7	Splittime std **	Gamma	0.000000	0.010	0.100	0.010	1500	0.07143

[* * means priors were set globally]

Posterior distribution:
Parameter values were collected using MCMC, these values
were then used to generate the posterior histograms using KERNEL SMOOTHING (window=41)
and subsequent MOVING AVERAGE SMOOTHING (window=11) for combination over loci

Markov chain settings: Long chain
Number of chains 1

Recorded steps [a]				10000
Increment (record every x step [b]				100
Number of concurrent chains (replicates) [c]				1
Visited (sampled) parameter values [a*b*c]				1000000
Number of discard trees per chain (burn-in)				1000

Multiple Markov chains:

Static heating scheme		4 chains with		temperatures
	1000000.00	3.00	1.50	1.00
		Swapping interval is 1		

Print options:

Data file:	infile
	parmfile
Haplotyping is turned on:	NO
Output file:	outfile
Posterior distribution raw histogram file:	bayesfile
Raw data from the MCMC run:	bayesallfile.gz
Print data:	No
Print genealogies [only some for some data type]:	None

Data summary

Data file: infile
Datatype: Haplotype data
Number of loci: 20

Mutationmodel:

Locus	Sublocus	Mutationmodel	Mutationmodel parameters
1	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
2	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
3	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
4	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
5	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
6	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
7	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
8	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
9	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
10	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
11	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
12	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
13	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
14	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
15	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
16	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
17	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
18	1	Felsenstein 84	[Bf:0.94 0.00 0.00 0.06, t/t ratio=2.000]
19	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]
20	1	Felsenstein 84	[Bf:0.95 0.00 0.00 0.05, t/t ratio=2.000]

Sites per locus

Locus	Sites
1	10000
2	10000
3	10000
4	10000
5	10000
6	10000
7	10000
8	10000
9	10000
10	10000

11	10000
12	10000
13	10000
14	10000
15	10000
16	10000
17	10000
18	10000
19	10000
20	10000

Site rate variation and probabilities:

Locus	Sublocus	Region type	Rate of change	Probability	Patch size
1	1	1	1.000	1.000	1.000
2	1	1	1.000	1.000	1.000
3	1	1	1.000	1.000	1.000
4	1	1	1.000	1.000	1.000
5	1	1	1.000	1.000	1.000
6	1	1	1.000	1.000	1.000
7	1	1	1.000	1.000	1.000
8	1	1	1.000	1.000	1.000
9	1	1	1.000	1.000	1.000
10	1	1	1.000	1.000	1.000
11	1	1	1.000	1.000	1.000
12	1	1	1.000	1.000	1.000
13	1	1	1.000	1.000	1.000
14	1	1	1.000	1.000	1.000
15	1	1	1.000	1.000	1.000
16	1	1	1.000	1.000	1.000
17	1	1	1.000	1.000	1.000
18	1	1	1.000	1.000	1.000
19	1	1	1.000	1.000	1.000
20	1	1	1.000	1.000	1.000

Population		Locus	Gene copies data	(missing)
1	Pop1	1	10	
		2	10	
		3	10	
		4	10	
		5	10	
		6	10	
		7	10	
		8	10	
		9	10	

	10	10
	11	10
	12	10
	13	10
	14	10
	15	10
	16	10
	17	10
	18	10
	19	10
	20	10
2 Pop2	1	10
	2	10
	3	10
	4	10
	5	10
	6	10
	7	10
	8	10
	9	10
	10	10
	11	10
	12	10
	13	10
	14	10
	15	10
	16	10
	17	10
	18	10
	19	10
	20	10
3 ancestor	1	0
	2	0
	3	0
	4	0
	5	0
	6	0
	7	0
	8	0
	9	0
	10	0
	11	0
	12	0
	13	0
	14	0

	15	0	
	16	0	
	17	0	
	18	0	
	19	0	
	20	0	
Total of all populations	1	20	(0)
	2	20	(0)
	3	20	(0)
	4	20	(0)
	5	20	(0)
	6	20	(0)
	7	20	(0)
	8	20	(0)
	9	20	(0)
	10	20	(0)
	11	20	(0)
	12	20	(0)
	13	20	(0)
	14	20	(0)
	15	20	(0)
	16	20	(0)
	17	20	(0)
	18	20	(0)
	19	20	(0)
	20	20	(0)

Bayesian Analysis: Posterior distribution table

Locus	Parameter	2.5%	25.0%	Mode	75.0%	97.5%	Median	Mean
1	Θ_1	0.00000	0.00007	0.00130	0.00720	0.02980	0.00710	0.00990
1	Θ_2	0.00000	0.00000	0.00130	0.00727	0.02927	0.00730	0.00498
1	Θ_3	0.00000	0.00000	0.00130	0.00713	0.02987	0.00710	0.00334
1	$D_{3->1}$	0.00000	0.00000	0.00117	0.00720	0.02733	0.00723	0.00249
1	$S_{3->1}$	0.00000	0.00067	0.00130	0.00273	0.02940	0.00723	0.00199
1	$D_{3->2}$	0.00000	0.00000	0.00117	0.00720	0.02733	0.00723	0.00166
1	$S_{3->2}$	0.00000	0.00067	0.00130	0.00273	0.02940	0.00723	0.00142
2	Θ_1	0.01453	0.03460	0.03777	0.04080	0.05007	0.03297	0.03722
2	Θ_2	0.02607	0.04860	0.04957	0.04993	0.05020	0.03897	0.02603
2	Θ_3	0.00000	0.00020	0.00150	0.00527	0.02620	0.00910	0.02813
2	$D_{3->1}$	0.00000	0.00013	0.00130	0.00527	0.02127	0.00510	0.00187
2	$S_{3->1}$	0.00093	0.00847	0.00950	0.01147	0.02853	0.01243	0.00302
2	$D_{3->2}$	0.00000	0.00013	0.00130	0.00527	0.02127	0.00510	0.00124
2	$S_{3->2}$	0.00093	0.00847	0.00950	0.01147	0.02853	0.01243	0.00216
3	Θ_1	0.00000	0.00000	0.00130	0.00733	0.02747	0.00730	0.01003
3	Θ_2	0.00000	0.00000	0.00137	0.00727	0.03020	0.00730	0.00501
3	Θ_3	0.00000	0.00040	0.00130	0.00533	0.02873	0.00723	0.00331
3	$D_{3->1}$	0.00000	0.00007	0.00130	0.00733	0.02787	0.00723	0.00250
3	$S_{3->1}$	0.00000	0.00000	0.00123	0.00733	0.02947	0.00730	0.00202
3	$D_{3->2}$	0.00000	0.00007	0.00130	0.00733	0.02787	0.00723	0.00167
3	$S_{3->2}$	0.00000	0.00000	0.00123	0.00733	0.02947	0.00730	0.00144
4	Θ_1	0.00000	0.00013	0.00130	0.00600	0.02967	0.00723	0.00990
4	Θ_2	0.00000	0.00007	0.00130	0.00727	0.02920	0.00717	0.00495
4	Θ_3	0.00000	0.00000	0.00123	0.00713	0.02967	0.00717	0.00331
4	$D_{3->1}$	0.00000	0.00000	0.00123	0.00720	0.02780	0.00723	0.00248
4	$S_{3->1}$	0.00000	0.00007	0.00190	0.00720	0.02680	0.00710	0.00197
4	$D_{3->2}$	0.00000	0.00000	0.00123	0.00720	0.02780	0.00723	0.00165
4	$S_{3->2}$	0.00000	0.00007	0.00190	0.00720	0.02680	0.00710	0.00141
5	Θ_1	0.00000	0.00000	0.00123	0.01640	0.02807	0.00730	0.00998
5	Θ_2	0.00000	0.00007	0.00123	0.00733	0.02680	0.00723	0.00497
5	Θ_3	0.00000	0.00000	0.00137	0.00727	0.02847	0.00723	0.00333
5	$D_{3->1}$	0.00000	0.00007	0.00130	0.00727	0.02920	0.00723	0.00250

Locus	Parameter	2.5%	25.0%	Mode	75.0%	97.5%	Median	Mean
5	$S_{3->1}$	0.00000	0.00007	0.00123	0.00733	0.02840	0.00730	0.00201
5	$D_{3->2}$	0.00000	0.00007	0.00130	0.00727	0.02920	0.00723	0.00167
5	$S_{3->2}$	0.00000	0.00007	0.00123	0.00733	0.02840	0.00730	0.00144
6	Θ_1	0.00000	0.00000	0.00137	0.00740	0.03020	0.00737	0.01010
6	Θ_2	0.00000	0.00007	0.00130	0.00700	0.03033	0.00723	0.00502
6	Θ_3	0.00000	0.00000	0.00143	0.00727	0.02860	0.00723	0.00332
6	$D_{3->1}$	0.00000	0.00080	0.00130	0.00187	0.02747	0.00730	0.00251
6	$S_{3->1}$	0.00000	0.00000	0.00130	0.00727	0.02787	0.00723	0.00201
6	$D_{3->2}$	0.00000	0.00080	0.00130	0.00187	0.02747	0.00730	0.00167
6	$S_{3->2}$	0.00000	0.00000	0.00130	0.00727	0.02787	0.00723	0.00144
7	Θ_1	0.00000	0.00000	0.00130	0.00720	0.02773	0.00723	0.00990
7	Θ_2	0.00000	0.00067	0.00130	0.00273	0.02753	0.00737	0.00503
7	Θ_3	0.00000	0.00013	0.00130	0.00647	0.03067	0.00737	0.00337
7	$D_{3->1}$	0.00000	0.00000	0.00137	0.00720	0.02873	0.00717	0.00247
7	$S_{3->1}$	0.00000	0.00007	0.00123	0.00740	0.02920	0.00730	0.00198
7	$D_{3->2}$	0.00000	0.00000	0.00137	0.00720	0.02873	0.00717	0.00165
7	$S_{3->2}$	0.00000	0.00007	0.00123	0.00740	0.02920	0.00730	0.00141
8	Θ_1	0.00000	0.00000	0.00123	0.00740	0.03267	0.00737	0.01224
8	Θ_2	0.00000	0.00000	0.00130	0.00780	0.03367	0.00783	0.00581
8	Θ_3	0.00000	0.00007	0.00123	0.00740	0.02933	0.00730	0.00434
8	$D_{3->1}$	0.00000	0.00000	0.00117	0.00760	0.02687	0.00743	0.00254
8	$S_{3->1}$	0.00000	0.00000	0.00130	0.00780	0.03447	0.00783	0.00224
8	$D_{3->2}$	0.00000	0.00000	0.00117	0.00760	0.02687	0.00743	0.00169
8	$S_{3->2}$	0.00000	0.00000	0.00130	0.00780	0.03447	0.00783	0.00160
9	Θ_1	0.00000	0.00000	0.00143	0.00867	0.02580	0.00923	0.03232
9	Θ_2	0.00000	0.00000	0.00123	0.00747	0.02880	0.00810	0.01690
9	Θ_3	0.00000	0.00007	0.00137	0.00760	0.03200	0.00743	0.01490
9	$D_{3->1}$	0.00000	0.00007	0.00143	0.00820	0.03193	0.00843	0.00287
9	$S_{3->1}$	0.00000	0.00000	0.00130	0.01313	0.04227	0.01597	0.00437
9	$D_{3->2}$	0.00000	0.00007	0.00143	0.00820	0.03193	0.00843	0.00191
9	$S_{3->2}$	0.00000	0.00000	0.00130	0.01313	0.04227	0.01597	0.00312
10	Θ_1	0.02980	0.04287	0.04910	0.04987	0.05013	0.04210	0.05441
10	Θ_2	0.03193	0.04307	0.04617	0.04973	0.05013	0.04343	0.02987
10	Θ_3	0.00000	0.00000	0.00003	0.09993	0.09993	0.00003	0.03279
10	$D_{3->1}$	0.00000	0.00087	0.00217	0.00340	0.03487	0.01263	0.00382
10	$S_{3->1}$	0.01460	0.02260	0.03063	0.03513	0.04720	0.03057	0.00687

Locus	Parameter	2.5%	25.0%	Mode	75.0%	97.5%	Median	Mean
10	$D_{3->2}$	0.00000	0.00087	0.00217	0.00340	0.03487	0.01263	0.00254
10	$S_{3->2}$	0.01460	0.02260	0.03063	0.03513	0.04720	0.03057	0.00491
11	Θ_1	0.02020	0.03880	0.04030	0.04293	0.05020	0.03890	0.04489
11	Θ_2	0.02387	0.04380	0.04830	0.05007	0.05020	0.03863	0.02983
11	Θ_3	0.03547	0.04867	0.04957	0.05007	0.05020	0.03423	0.02528
11	$D_{3->1}$	0.00000	0.00053	0.00157	0.00527	0.03060	0.01123	0.00329
11	$S_{3->1}$	0.00600	0.01220	0.01677	0.02740	0.04600	0.02343	0.00535
11	$D_{3->2}$	0.00000	0.00053	0.00157	0.00527	0.03060	0.01123	0.00219
11	$S_{3->2}$	0.00600	0.01220	0.01677	0.02740	0.04600	0.02343	0.00382
12	Θ_1	0.00000	0.00000	0.00143	0.01153	0.01847	0.01530	0.02796
12	Θ_2	0.00000	0.00000	0.00137	0.01113	0.02180	0.01230	0.01594
12	Θ_3	0.00000	0.00000	0.00117	0.00727	0.02860	0.00730	0.01451
12	$D_{3->1}$	0.00000	0.00000	0.00117	0.00807	0.02773	0.00810	0.00261
12	$S_{3->1}$	0.00000	0.00000	0.00143	0.01200	0.04280	0.01883	0.00434
12	$D_{3->2}$	0.00000	0.00000	0.00117	0.00807	0.02773	0.00810	0.00174
12	$S_{3->2}$	0.00000	0.00000	0.00143	0.01200	0.04280	0.01883	0.00310
13	Θ_1	0.00000	0.00000	0.00130	0.00733	0.02893	0.00730	0.01007
13	Θ_2	0.00000	0.00033	0.00123	0.00480	0.02920	0.00730	0.00510
13	Θ_3	0.00000	0.00000	0.00123	0.00713	0.02940	0.00717	0.00330
13	$D_{3->1}$	0.00000	0.00000	0.00137	0.00740	0.02940	0.00737	0.00253
13	$S_{3->1}$	0.00000	0.00020	0.00130	0.00553	0.02600	0.00723	0.00199
13	$D_{3->2}$	0.00000	0.00000	0.00137	0.00740	0.02940	0.00737	0.00169
13	$S_{3->2}$	0.00000	0.00020	0.00130	0.00553	0.02600	0.00723	0.00142
14	Θ_1	0.00000	0.00000	0.00123	0.01040	0.02547	0.00730	0.01198
14	Θ_2	0.00000	0.00007	0.00137	0.00760	0.03140	0.00750	0.00549
14	Θ_3	0.00000	0.00007	0.00130	0.00733	0.02400	0.00723	0.00398
14	$D_{3->1}$	0.00000	0.00000	0.00123	0.00740	0.02827	0.00737	0.00257
14	$S_{3->1}$	0.00000	0.00000	0.00123	0.00733	0.02893	0.00737	0.00227
14	$D_{3->2}$	0.00000	0.00000	0.00123	0.00740	0.02827	0.00737	0.00171
14	$S_{3->2}$	0.00000	0.00000	0.00123	0.00733	0.02893	0.00737	0.00162
15	Θ_1	0.00000	0.00000	0.00117	0.00760	0.02167	0.01323	0.04587
15	Θ_2	0.02080	0.03093	0.03597	0.04473	0.05000	0.03103	0.01560
15	Θ_3	0.00000	0.00000	0.00157	0.00727	0.02640	0.00737	0.02045
15	$D_{3->1}$	0.00000	0.00040	0.00143	0.00627	0.03767	0.01043	0.00383
15	$S_{3->1}$	0.00000	0.00027	0.00123	0.00580	0.01233	0.02583	0.00609
15	$D_{3->2}$	0.00000	0.00040	0.00143	0.00627	0.03767	0.01043	0.00256

Locus	Parameter	2.5%	25.0%	Mode	75.0%	97.5%	Median	Mean
15	$S_{3->2}$	0.00000	0.00027	0.00123	0.00580	0.01233	0.02583	0.00435
16	Θ_1	0.02907	0.04500	0.04810	0.04993	0.05020	0.04270	0.05811
16	Θ_2	0.02620	0.04487	0.04823	0.05000	0.05020	0.04303	0.03139
16	Θ_3	0.00000	0.00000	0.00083	0.00393	0.01347	0.00870	0.03110
16	$D_{3->1}$	0.00000	0.00007	0.00137	0.00907	0.03327	0.01017	0.00331
16	$S_{3->1}$	0.01440	0.02173	0.02823	0.03413	0.04807	0.02943	0.00688
16	$D_{3->2}$	0.00000	0.00007	0.00137	0.00907	0.03327	0.01017	0.00221
16	$S_{3->2}$	0.01440	0.02173	0.02823	0.03413	0.04807	0.02943	0.00492
17	Θ_1	0.02427	0.03280	0.03743	0.04100	0.05000	0.03763	0.04575
17	Θ_2	0.02867	0.04660	0.04790	0.04913	0.05020	0.04390	0.03113
17	Θ_3	0.00000	0.00000	0.00003	0.09993	0.09993	0.00003	0.02932
17	$D_{3->1}$	0.00000	0.00027	0.00143	0.00933	0.02987	0.01083	0.00309
17	$S_{3->1}$	0.00853	0.01400	0.02090	0.02967	0.04147	0.02297	0.00508
17	$D_{3->2}$	0.00000	0.00027	0.00143	0.00933	0.02987	0.01083	0.00206
17	$S_{3->2}$	0.00853	0.01400	0.02090	0.02967	0.04147	0.02297	0.00363
18	Θ_1	0.00000	0.00007	0.00137	0.00720	0.02740	0.00710	0.00988
18	Θ_2	0.00000	0.00000	0.00117	0.00753	0.03087	0.00730	0.00507
18	Θ_3	0.00000	0.00000	0.00190	0.00713	0.02973	0.00723	0.00331
18	$D_{3->1}$	0.00000	0.00000	0.00130	0.00727	0.02633	0.00730	0.00253
18	$S_{3->1}$	0.00000	0.00007	0.00123	0.00720	0.02627	0.00717	0.00198
18	$D_{3->2}$	0.00000	0.00000	0.00130	0.00727	0.02633	0.00730	0.00168
18	$S_{3->2}$	0.00000	0.00007	0.00123	0.00720	0.02627	0.00717	0.00142
19	Θ_1	0.00000	0.00000	0.00170	0.00727	0.02940	0.00723	0.00992
19	Θ_2	0.00000	0.00000	0.00130	0.00707	0.02713	0.00710	0.00496
19	Θ_3	0.00000	0.00007	0.00117	0.00747	0.02853	0.00737	0.00339
19	$D_{3->1}$	0.00000	0.00000	0.00123	0.00727	0.02760	0.00723	0.00251
19	$S_{3->1}$	0.00000	0.00000	0.00150	0.00733	0.03007	0.00730	0.00202
19	$D_{3->2}$	0.00000	0.00000	0.00123	0.00727	0.02760	0.00723	0.00167
19	$S_{3->2}$	0.00000	0.00000	0.00150	0.00733	0.03007	0.00730	0.00145
20	Θ_1	0.00000	0.00000	0.00130	0.00993	0.02587	0.00997	0.03143
20	Θ_2	0.00000	0.00000	0.00123	0.01133	0.04440	0.01830	0.01135
20	Θ_3	0.00000	0.00007	0.00117	0.00733	0.02513	0.00723	0.01371
20	$D_{3->1}$	0.00000	0.00000	0.00123	0.01707	0.02887	0.00763	0.00252
20	$S_{3->1}$	0.00000	0.00000	0.00143	0.01120	0.04133	0.01777	0.00424
20	$D_{3->2}$	0.00000	0.00000	0.00123	0.01707	0.02887	0.00763	0.00168
20	$S_{3->2}$	0.00000	0.00000	0.00143	0.01120	0.04133	0.01777	0.00303

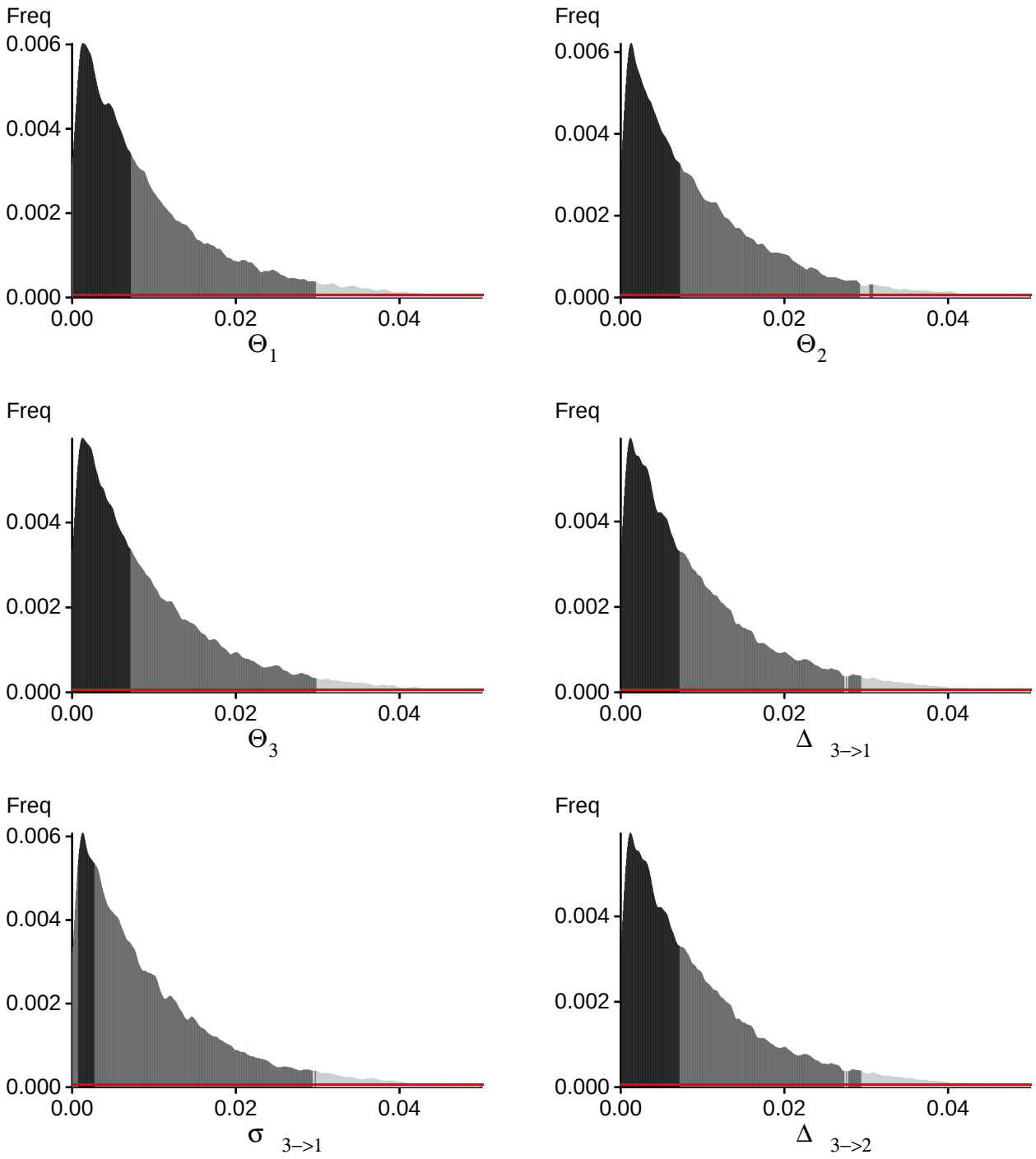
Locus	Parameter	2.5%	25.0%	Mode	75.0%	97.5%	Median	Mean
All	Θ_1	0.04847	0.04907	0.04957	0.04987	0.05000	0.04930	0.04875
All	Θ_2	0.04727	0.04927	0.04957	0.04980	0.05000	0.04950	0.04913
All	Θ_3	0.04587	0.04820	0.04863	0.04900	0.04927	0.04850	0.04805
All	$D_{3->1}$	0.02147	0.02380	0.03077	0.03373	0.03600	0.02977	0.02878
All	$S_{3->1}$	0.04253	0.04847	0.04943	0.04980	0.05000	0.04697	0.04624
All	$D_{3->2}$	0.02147	0.02380	0.03077	0.03373	0.03600	0.02977	0.02878
All	$S_{3->2}$	0.04253	0.04847	0.04943	0.04980	0.05000	0.04697	0.04624

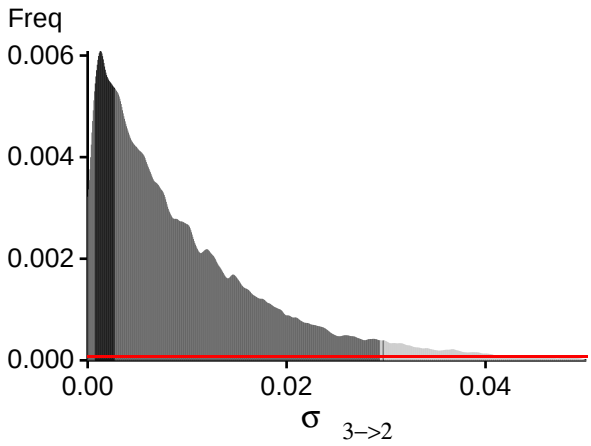
Citation suggestions:

Beerli P., 2006. Comparison of Bayesian and maximum-likelihood inference of population genetic parameters. Bioinformatics 22:341-345

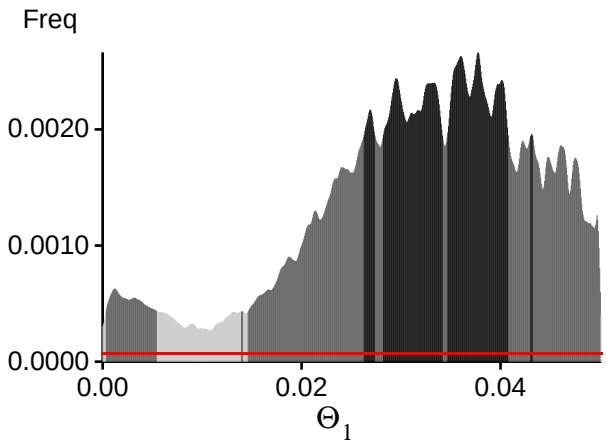
Beerli P., 2009. How to use MIGRATE or why are Markov chain Monte Carlo programs difficult to use? In Population Genetics for Animal Conservation, G. Bertorelle, M. W. Bruford, H. C. Hauffe, A. Rizzoli, and C. Vernesi, eds., vol. 17 of Conservation Biology, Cambridge University Press, Cambridge UK, pp. 42-79.

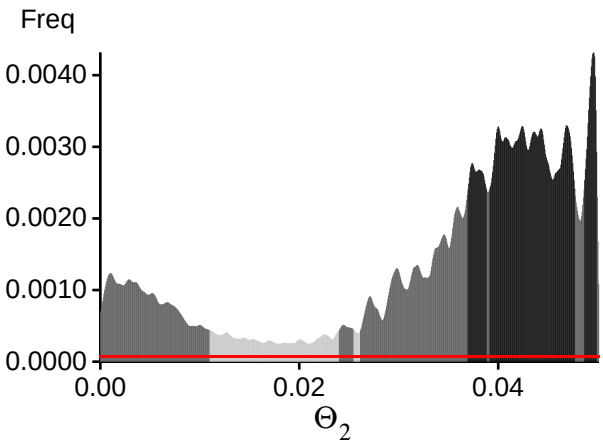
Bayesian Analysis: Posterior distribution for locus 1

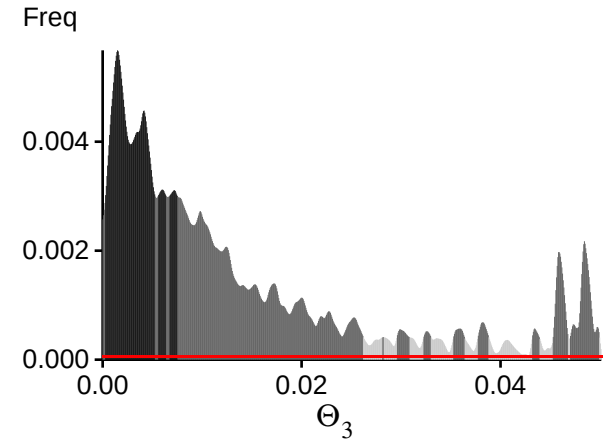


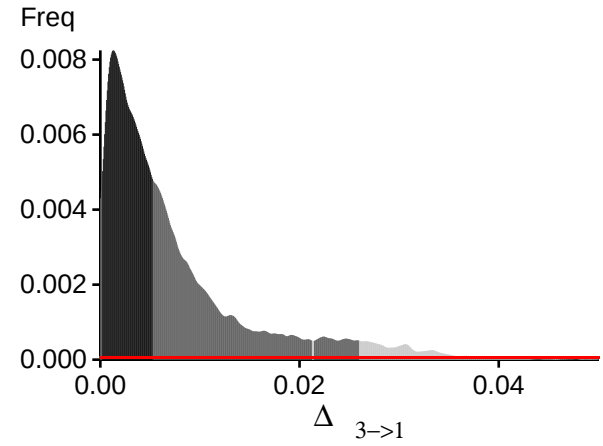

Freq
0.006
0.004
0.002
0.000
0.00
0.02
0.04
σ
3–>2

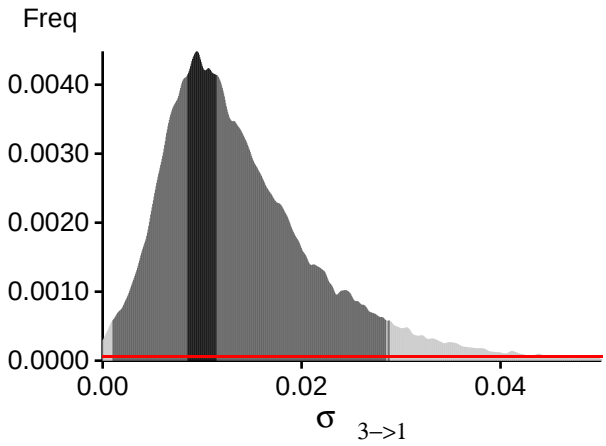
Bayesian Analysis: Posterior distribution for locus 2

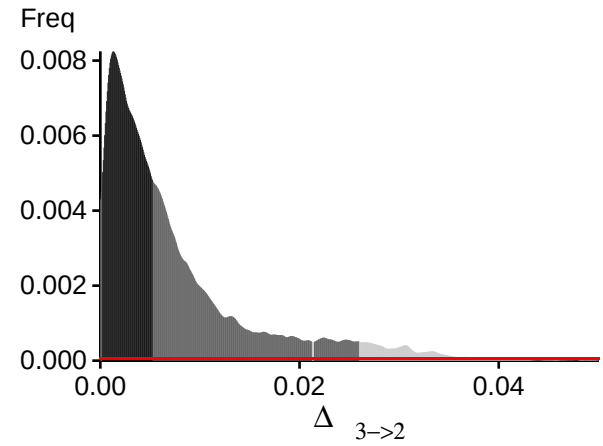


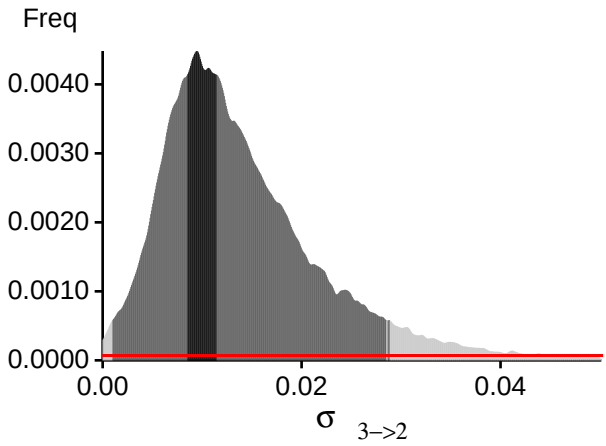




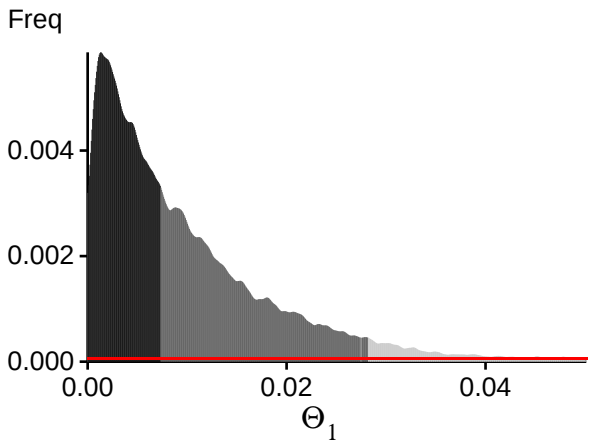


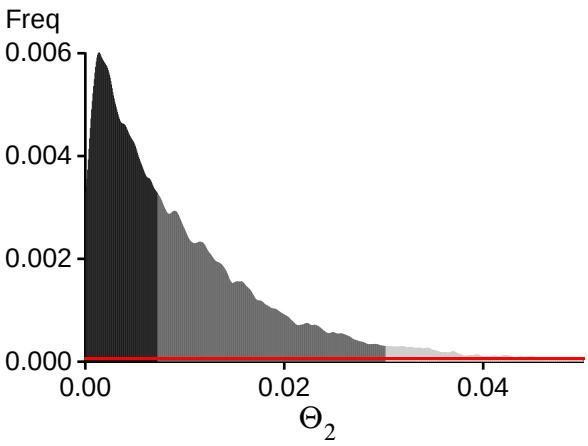


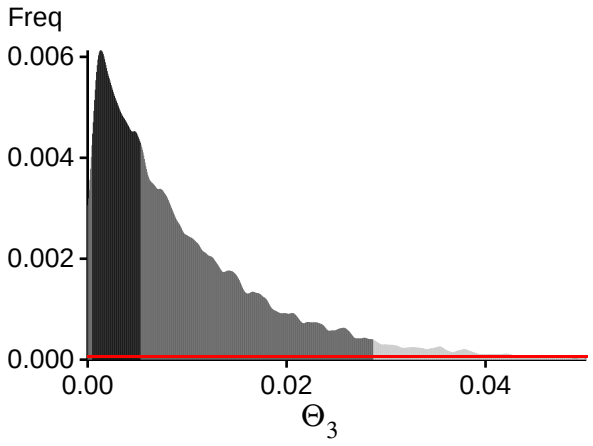


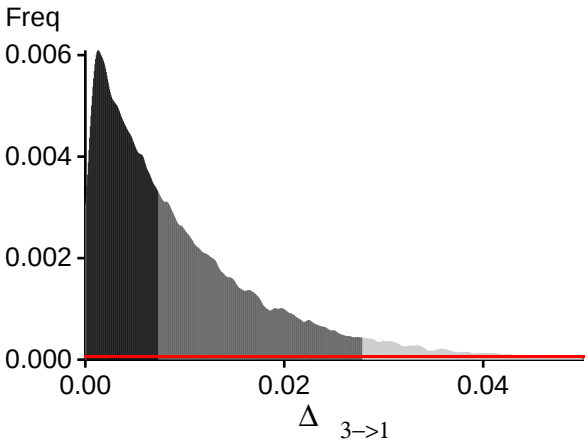

Freq
0.0040
0.0030
0.0020
0.0010
0.0000
0.00
0.02
0.04
σ
3–>2

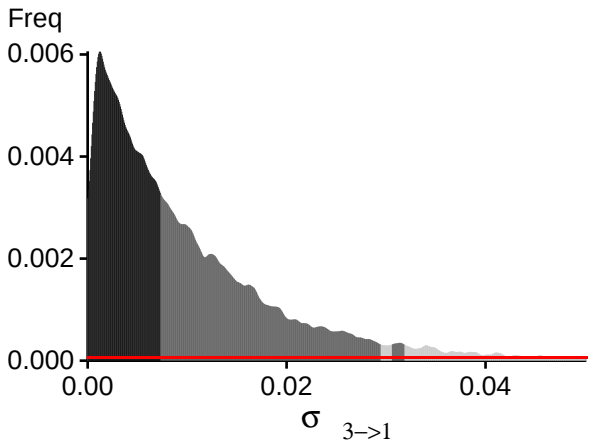
Bayesian Analysis: Posterior distribution for locus 3

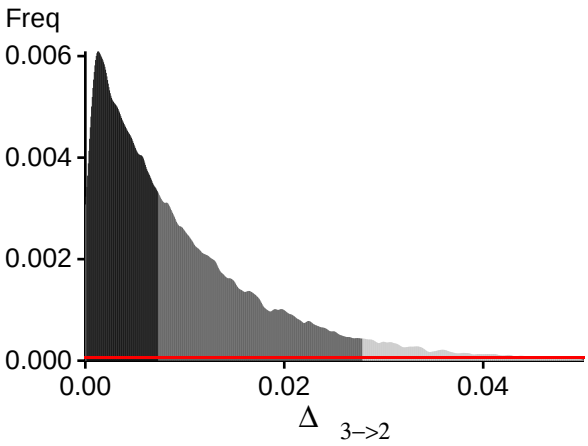


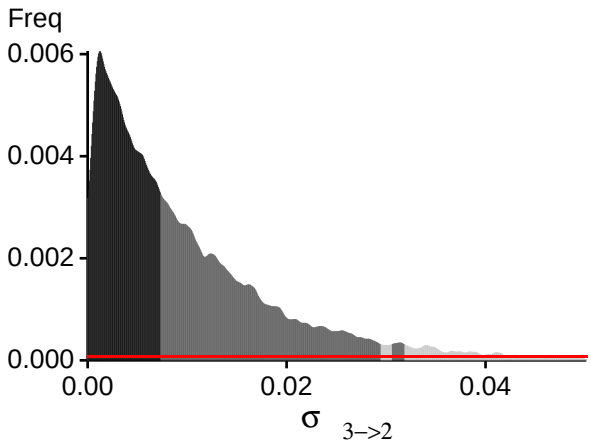




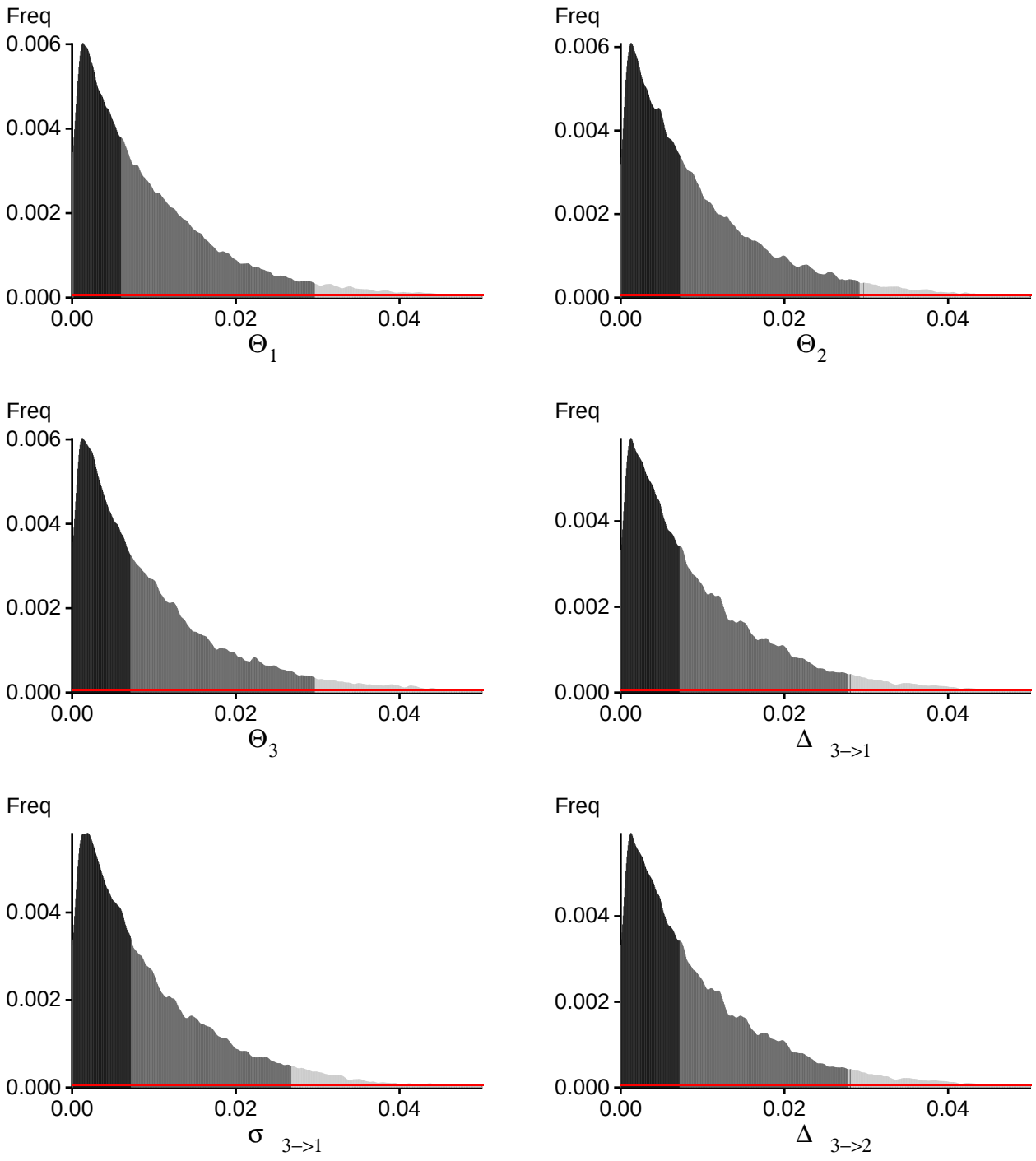


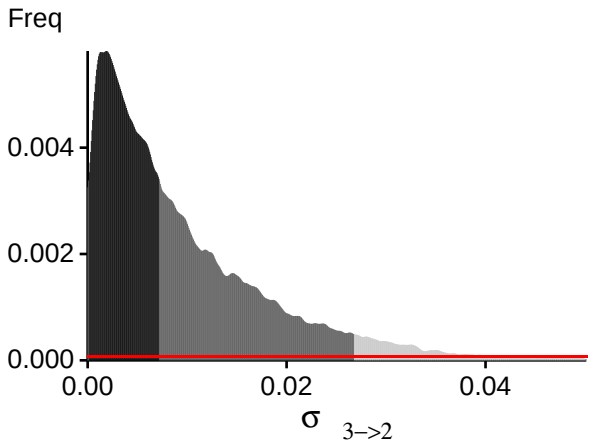




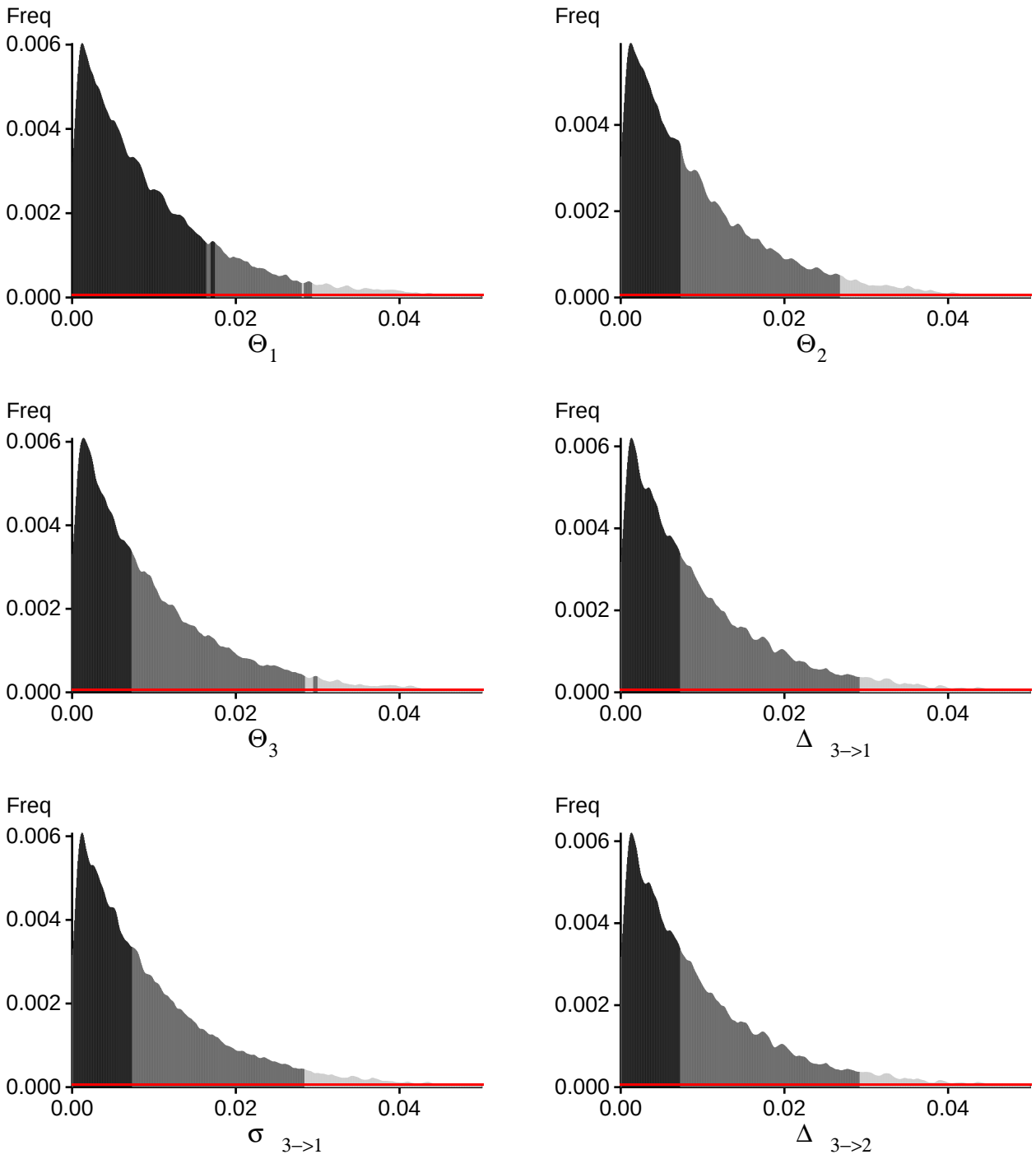

Freq
0.006
0.004
0.002
0.000
0.00
0.02
0.04
σ
3–>2

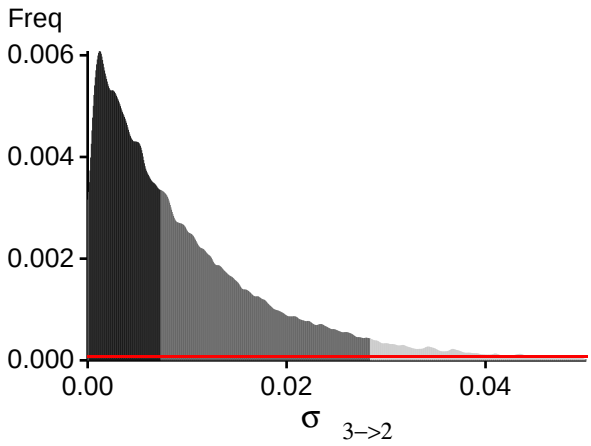
Bayesian Analysis: Posterior distribution for locus 4



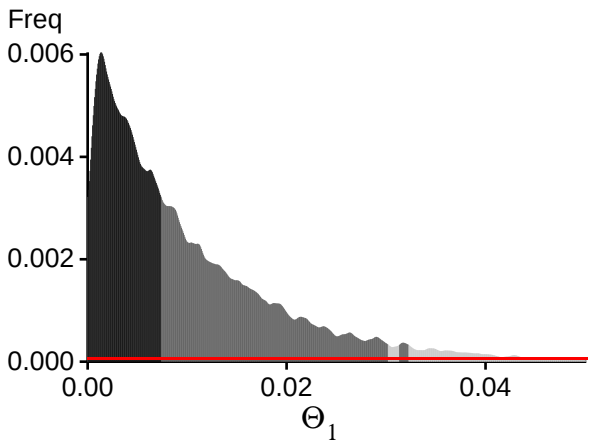

Freq
0.004
0.002
0.000
0.00
0.02
0.04
σ
3–>2

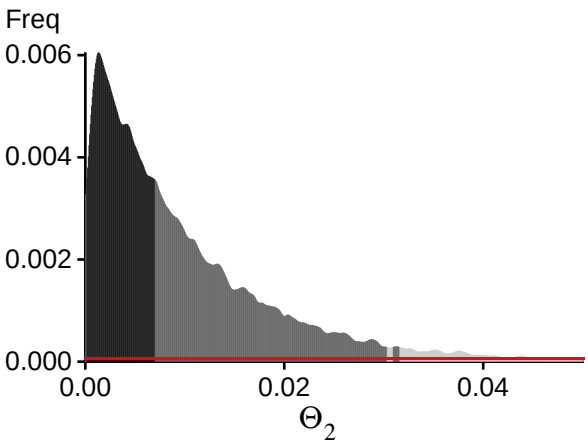
Bayesian Analysis: Posterior distribution for locus 5

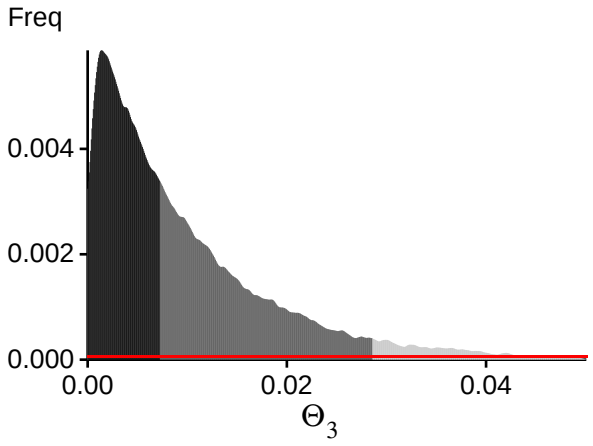


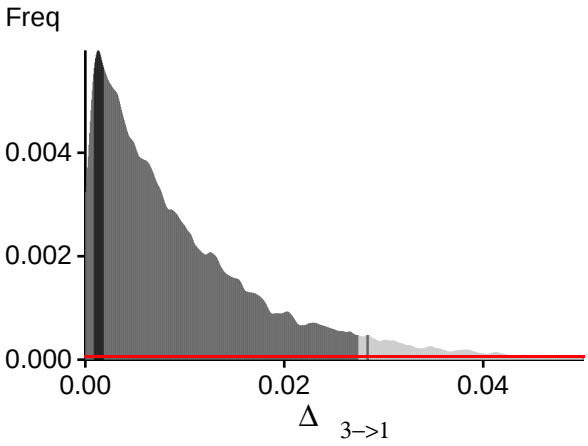

Freq
0.006
0.004
0.002
0.000
0.00
0.02
0.04
σ 3–>2

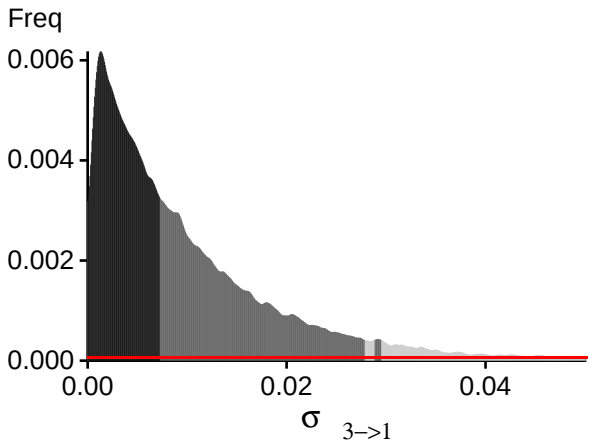
Bayesian Analysis: Posterior distribution for locus 6

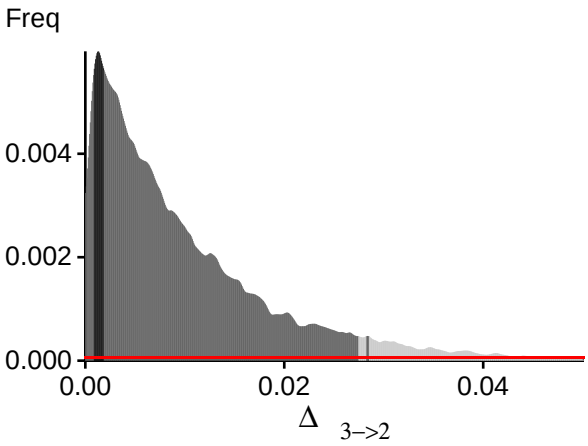


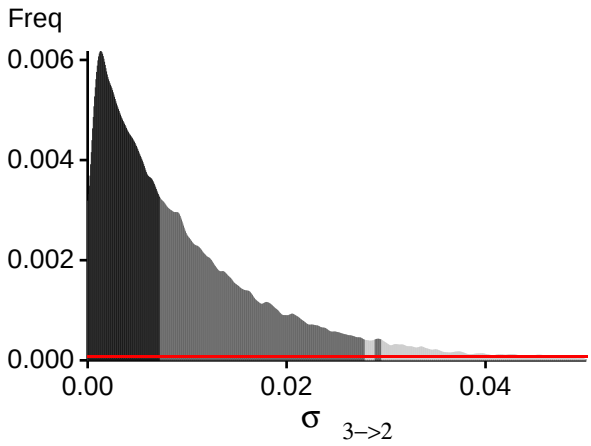




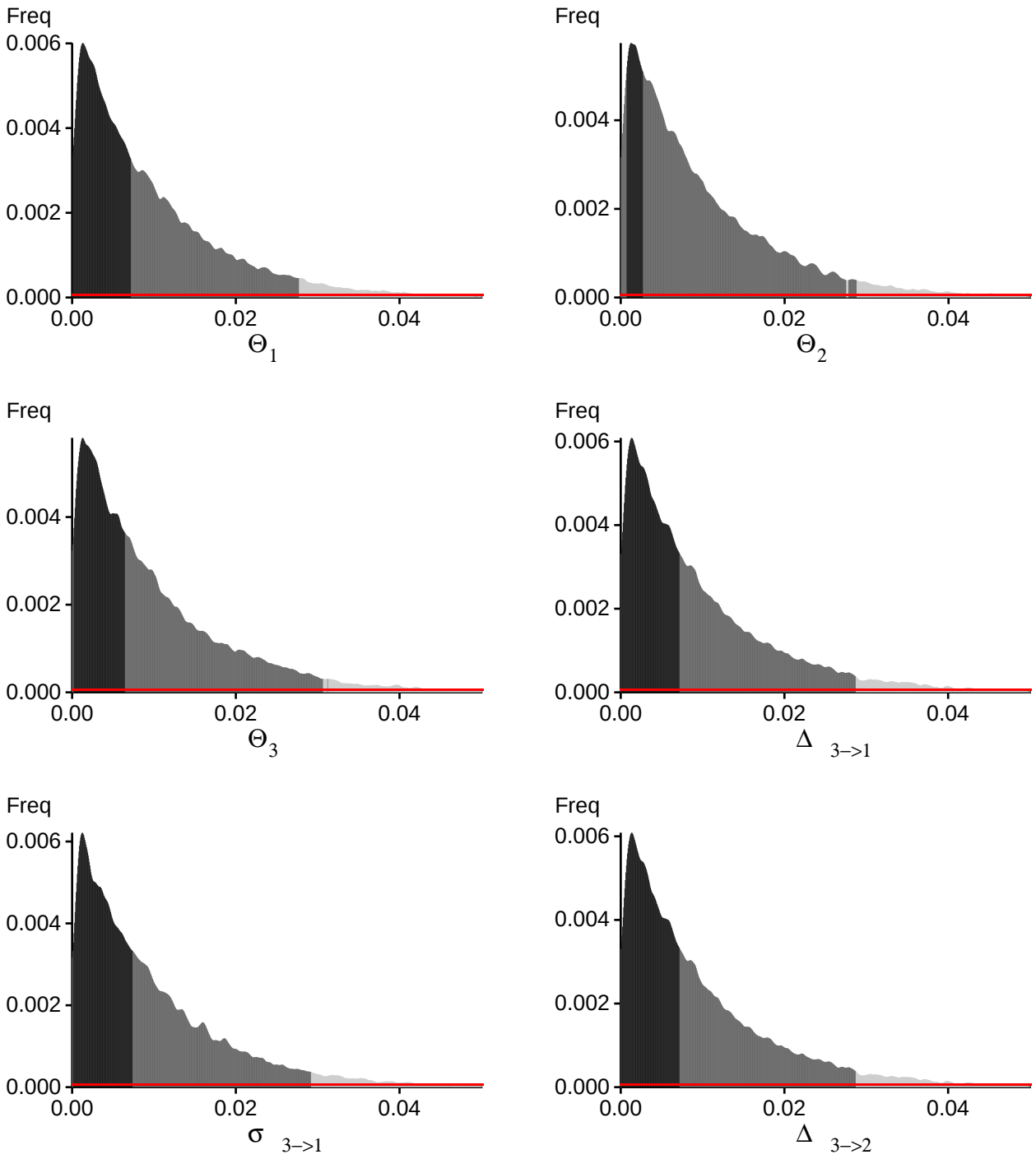


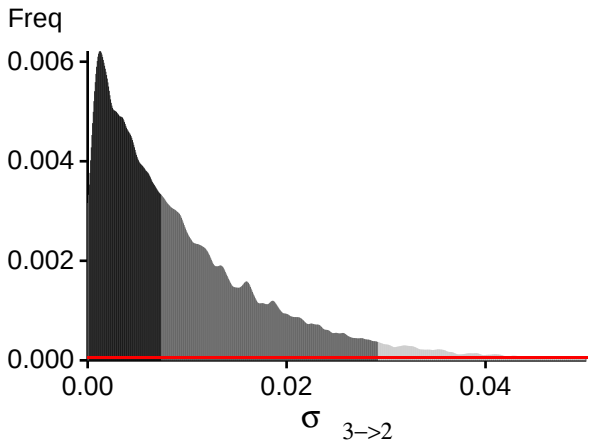




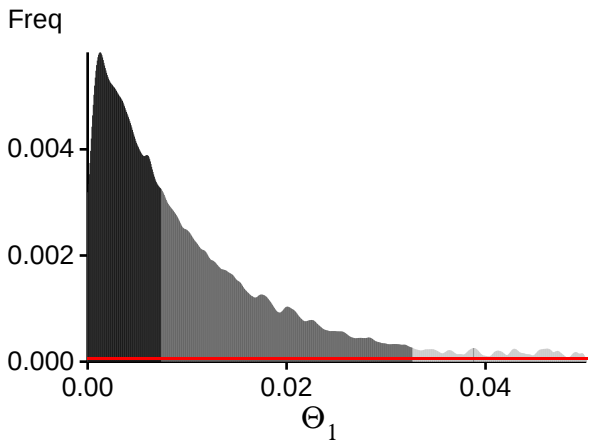

Freq
0.006
0.004
0.002
0.000
0.00
0.02
0.04
σ
3–>2

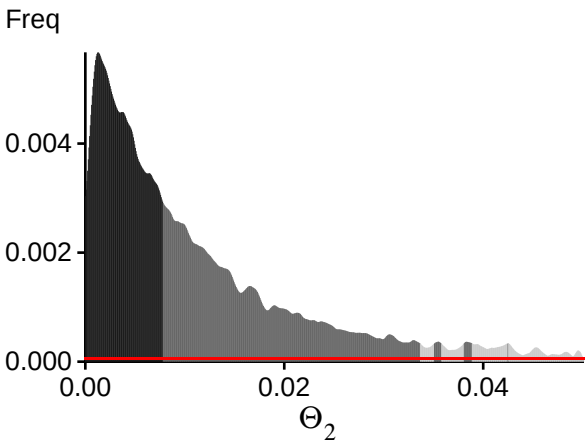
Bayesian Analysis: Posterior distribution for locus 7

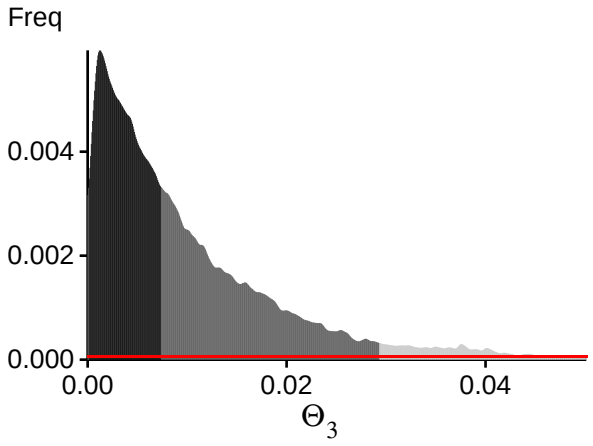


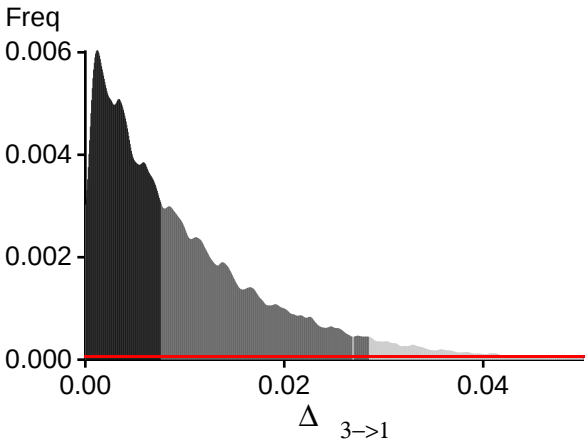

Freq
0.006
0.004
0.002
0.000
0.00
0.02
0.04
σ
3–>2

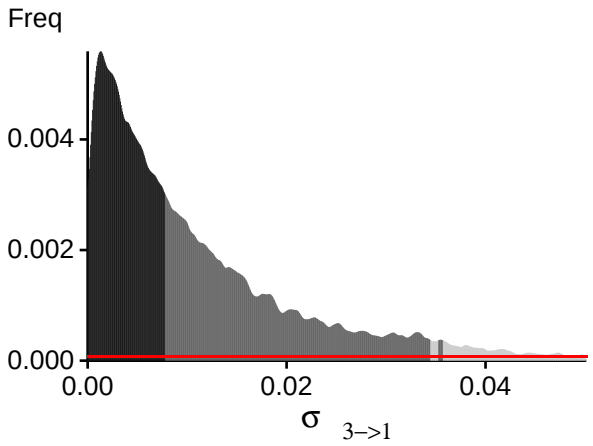
Bayesian Analysis: Posterior distribution for locus 8

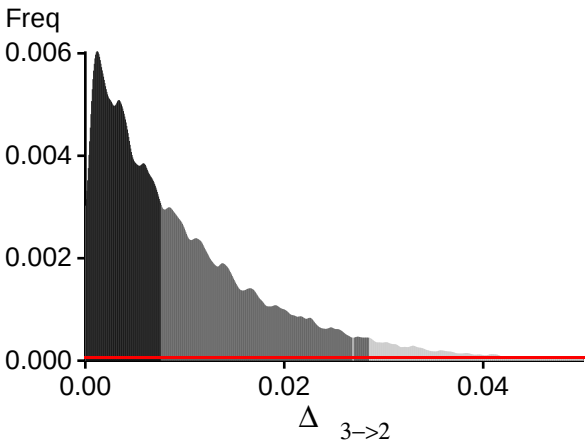


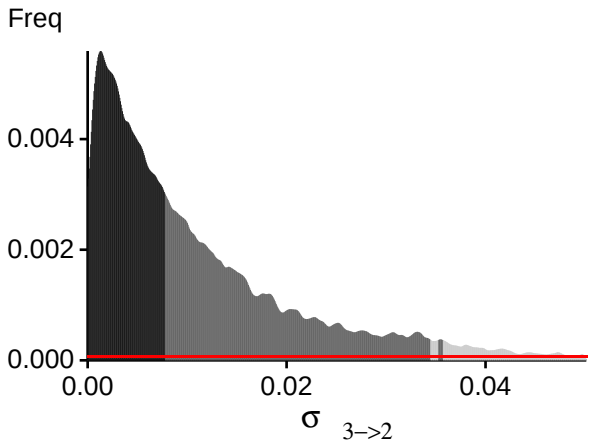




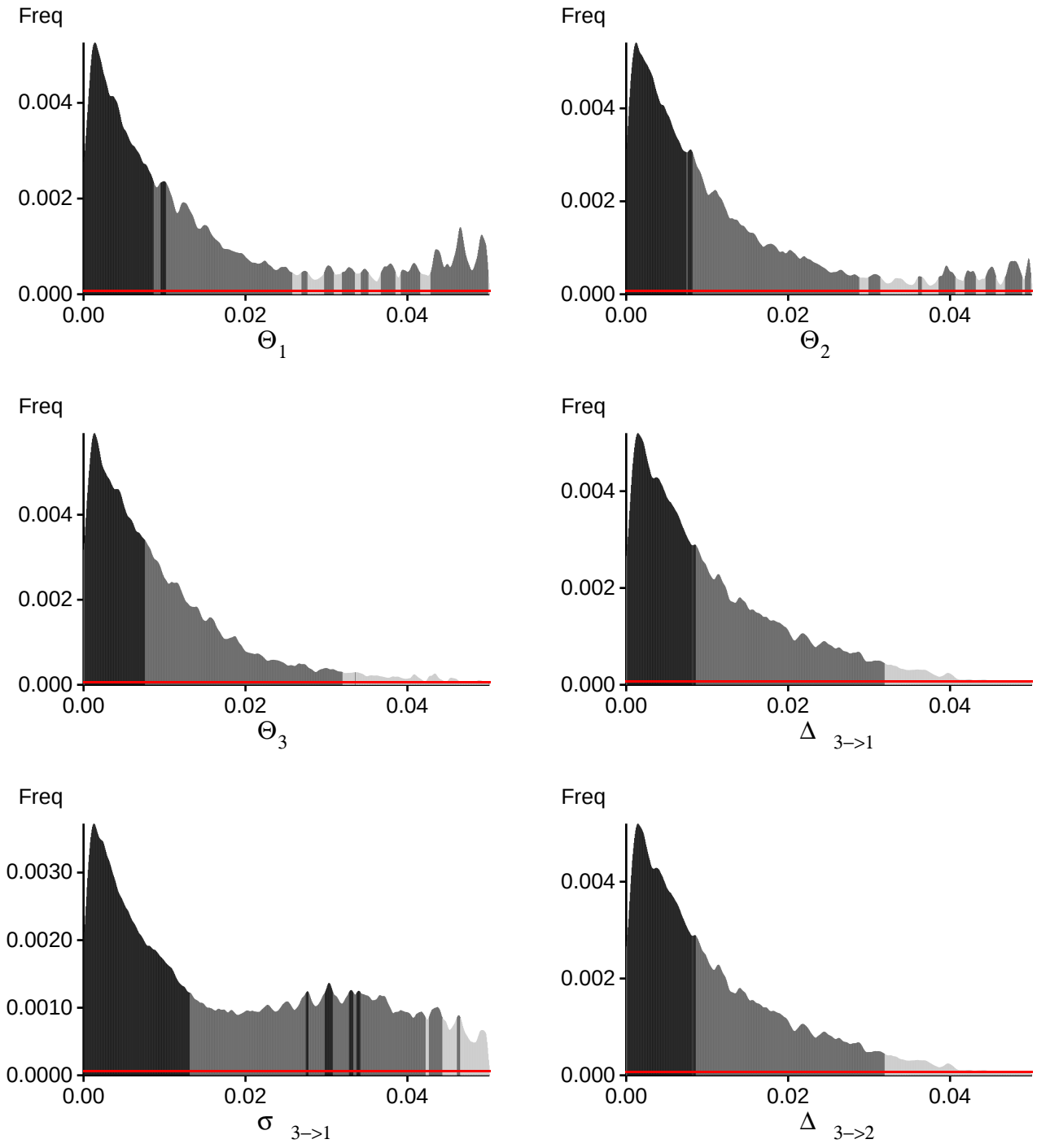


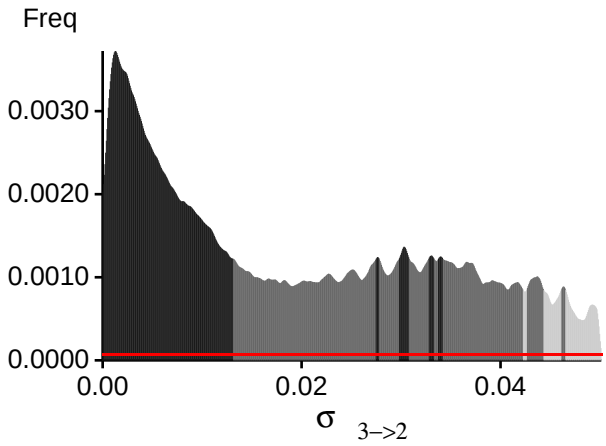




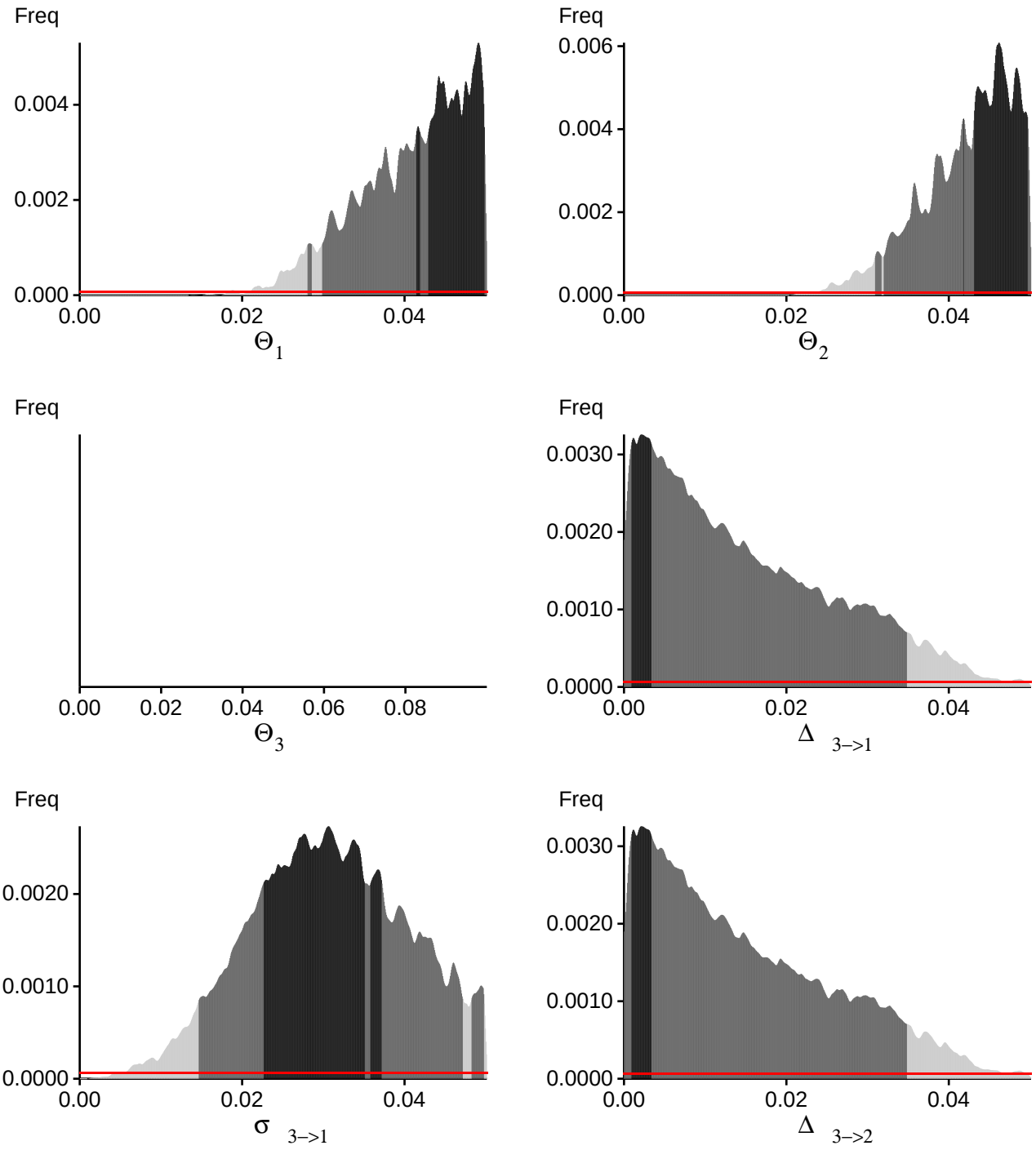

Freq
0.004
0.002
0.000
0.00
0.02
0.04
σ
3–>2

Bayesian Analysis: Posterior distribution for locus 9

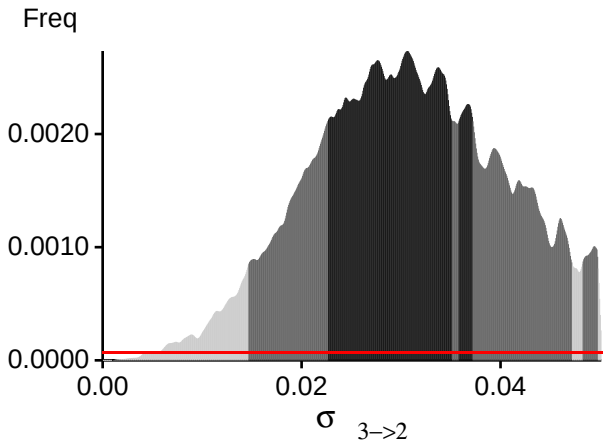



Freq
0.0030
0.0020
0.0010
0.0000
0.00
0.02
0.04
σ
3–>2

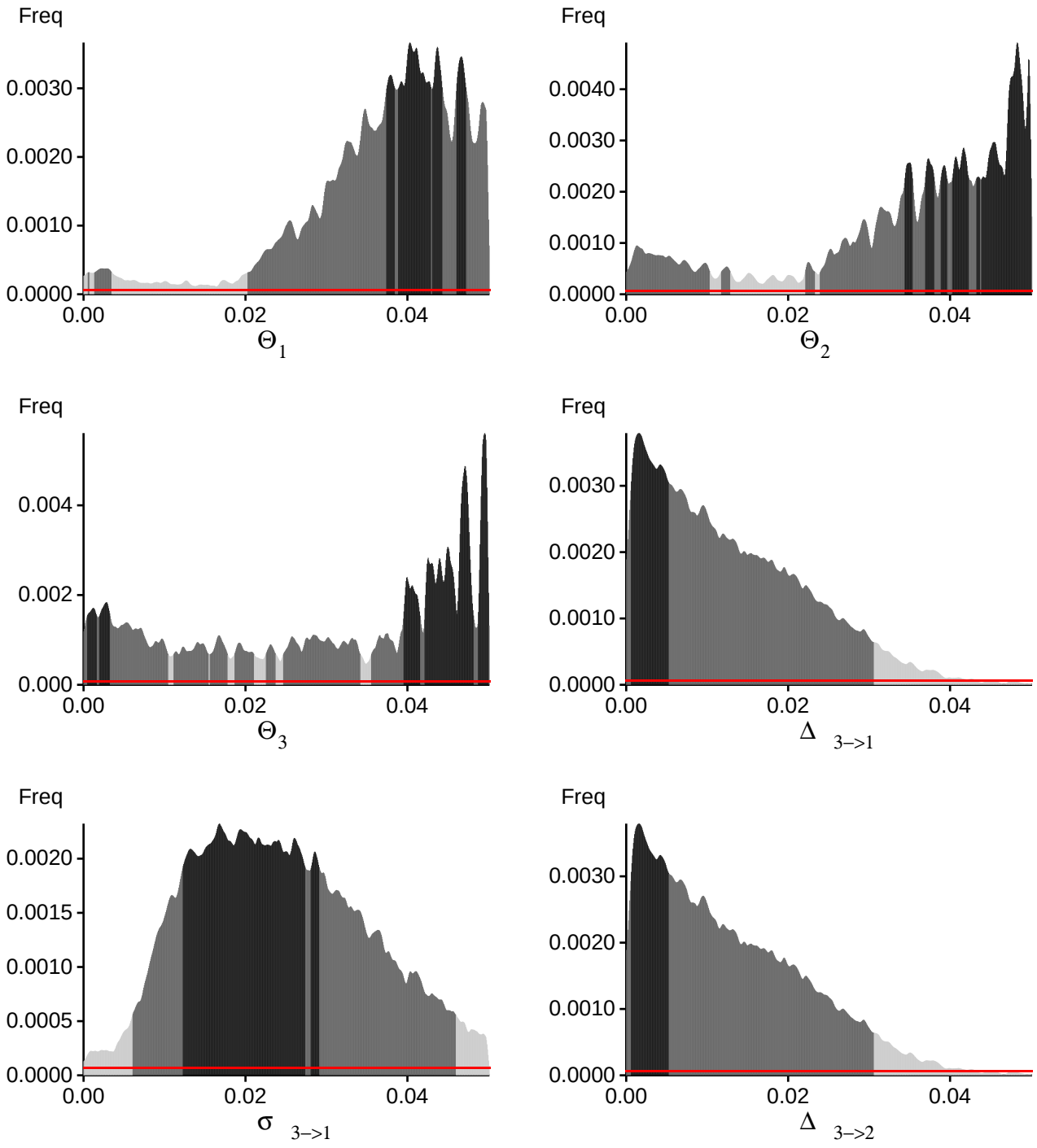
Bayesian Analysis: Posterior distribution for locus 10

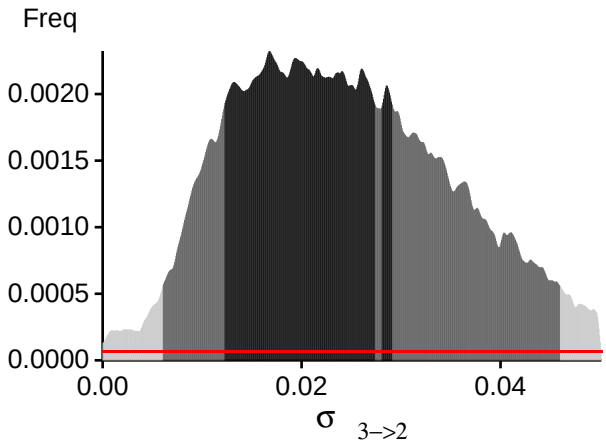


nan

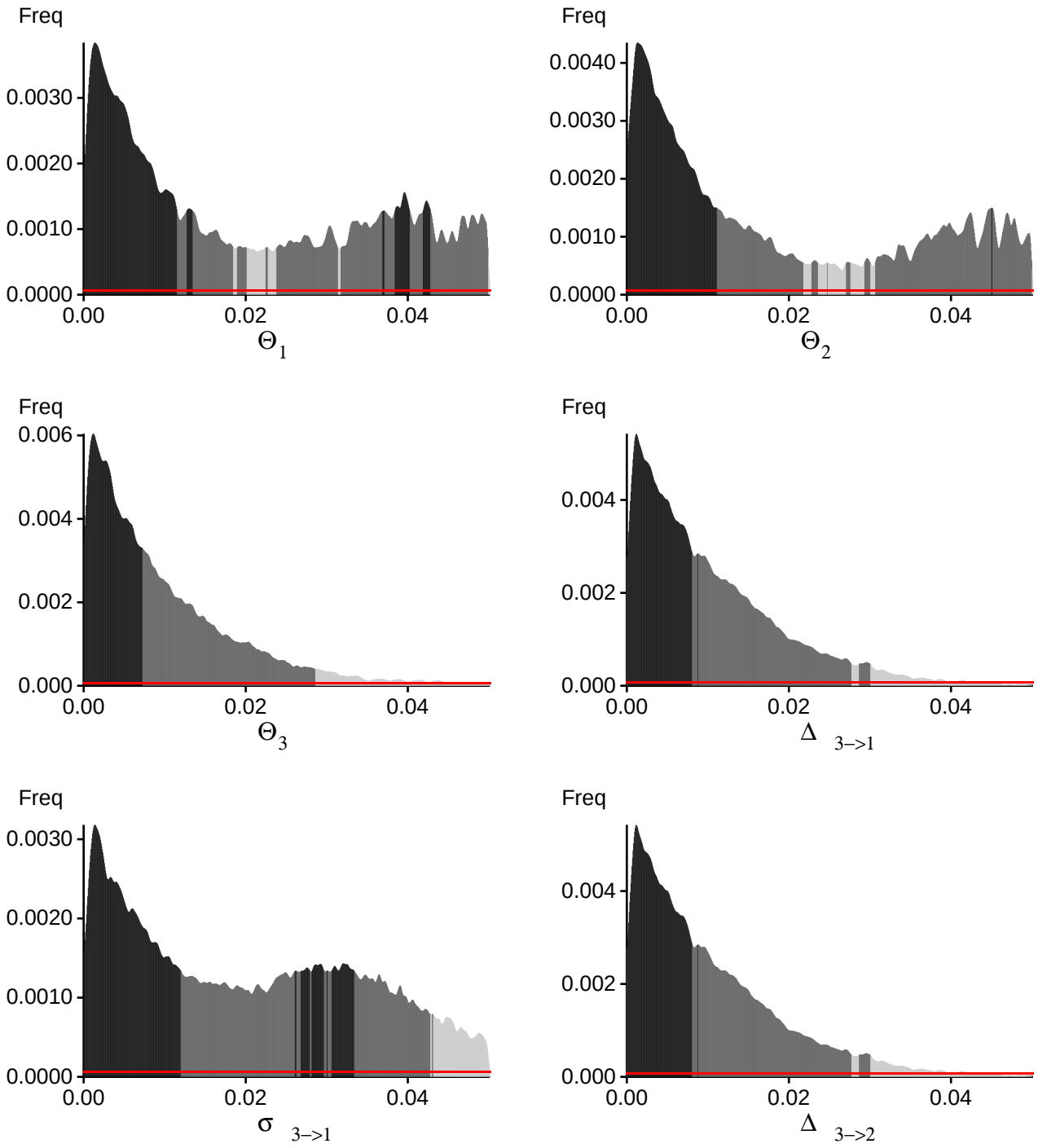

Freq
0.0020
0.0010
0.0000
0.00
0.02
0.04
σ
3–>2

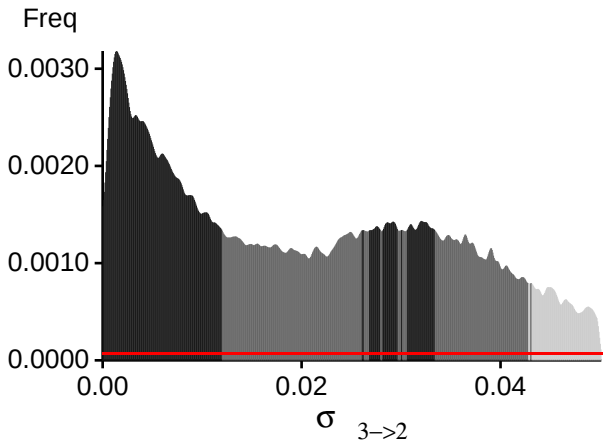
Bayesian Analysis: Posterior distribution for locus 11



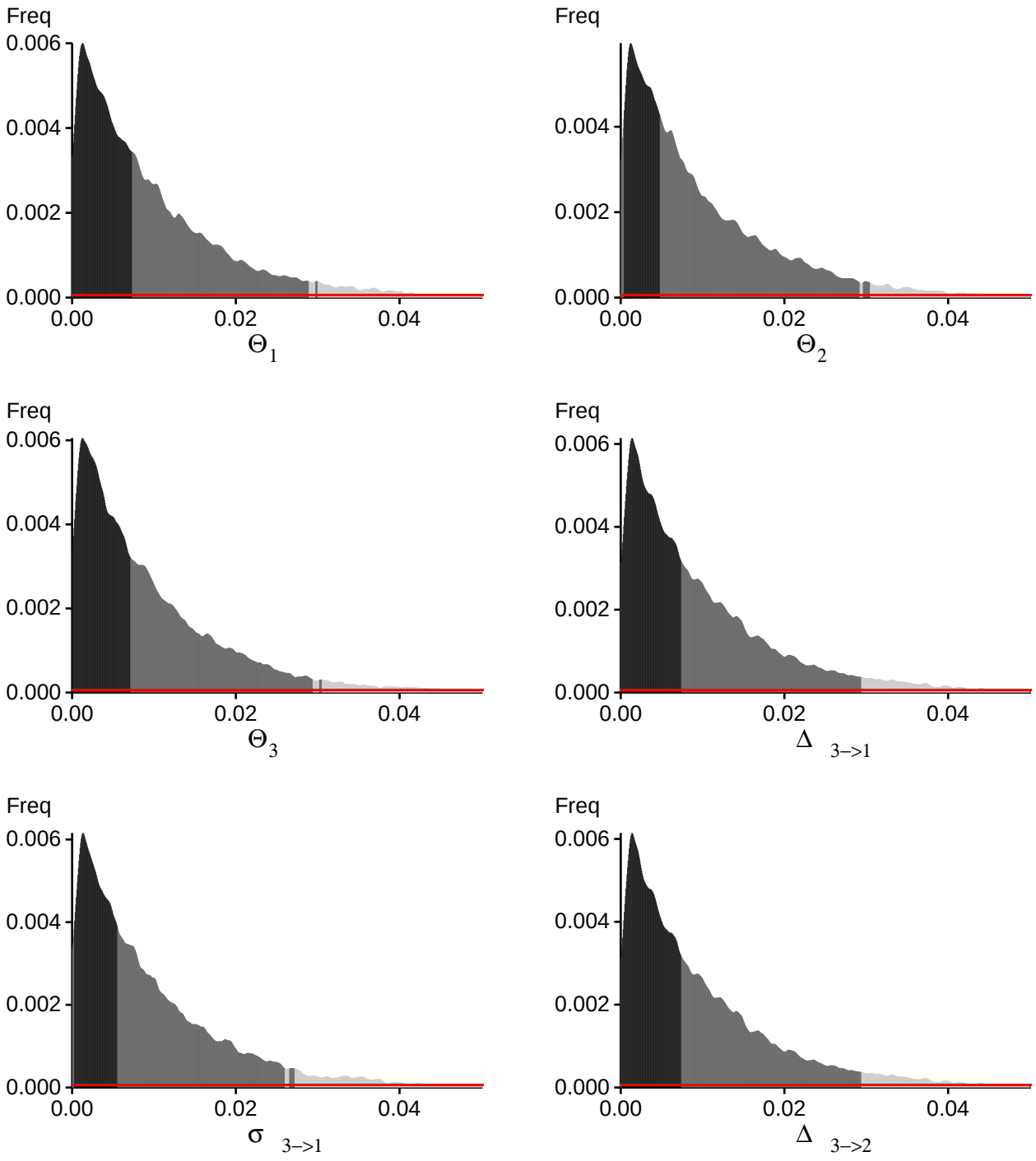

Freq
0.0020
0.0015
0.0010
0.0005
0.0000
0.00
0.02
0.04
σ
3–>2

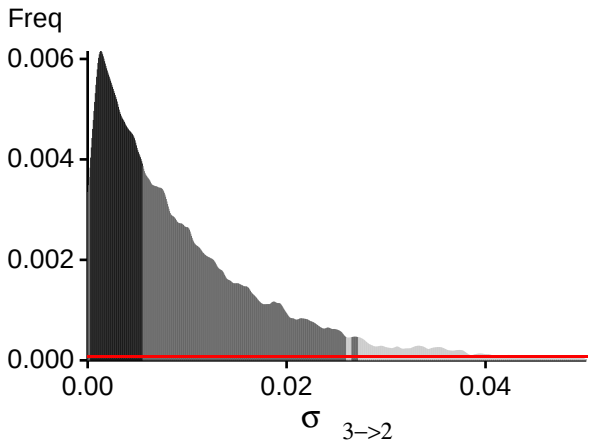
Bayesian Analysis: Posterior distribution for locus 12



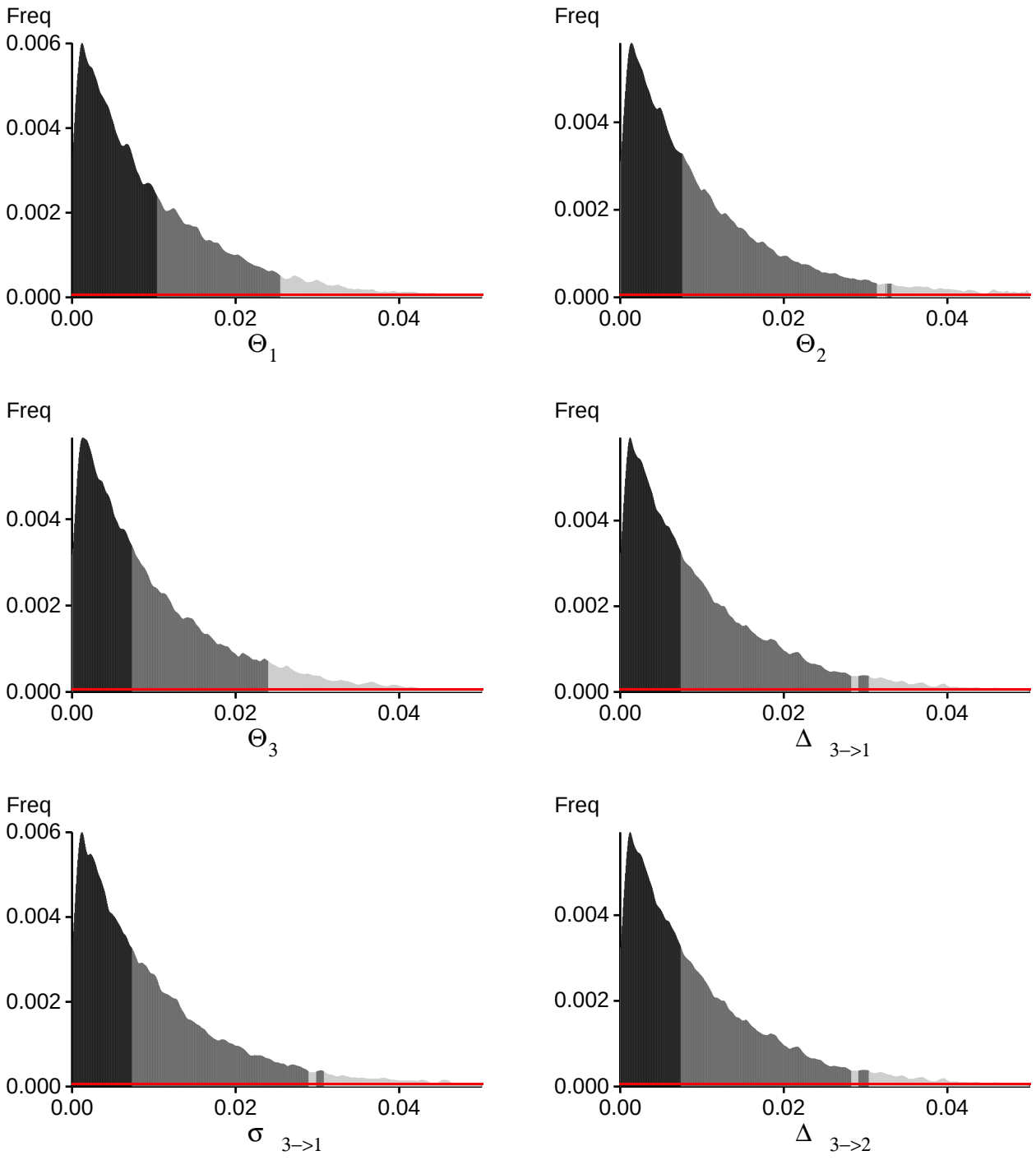

Freq
0.0030
0.0020
0.0010
0.0000
0.00
0.02
0.04
σ
3–>2

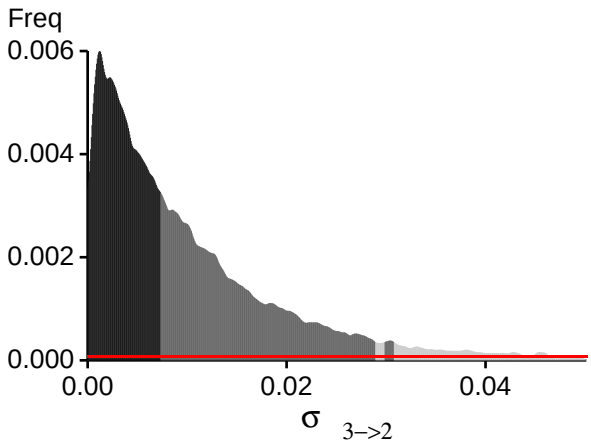
Bayesian Analysis: Posterior distribution for locus 13



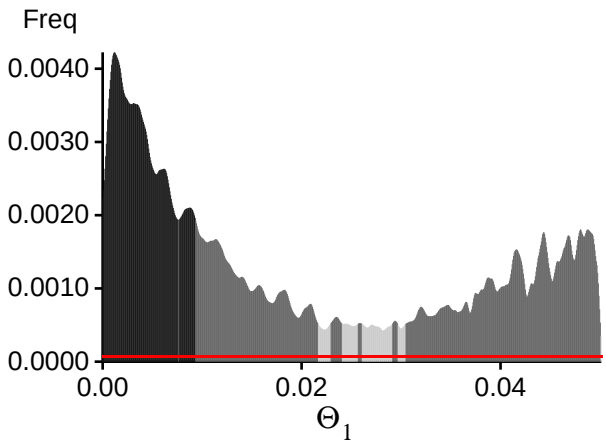

Freq
0.006
0.004
0.002
0.000
0.00
0.02
0.04
σ
3–>2

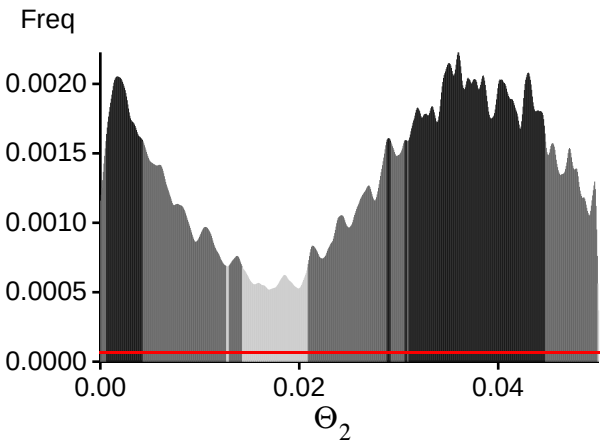
Bayesian Analysis: Posterior distribution for locus 14

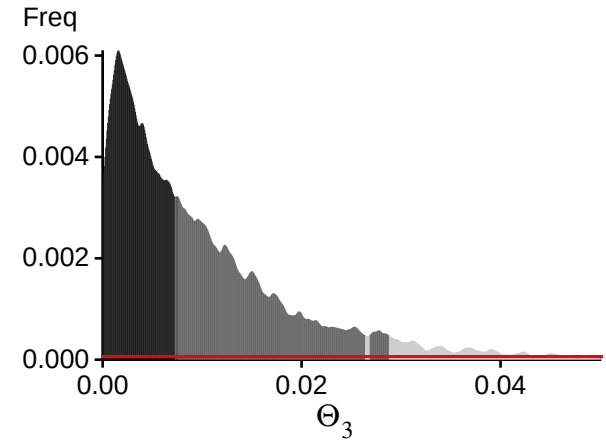


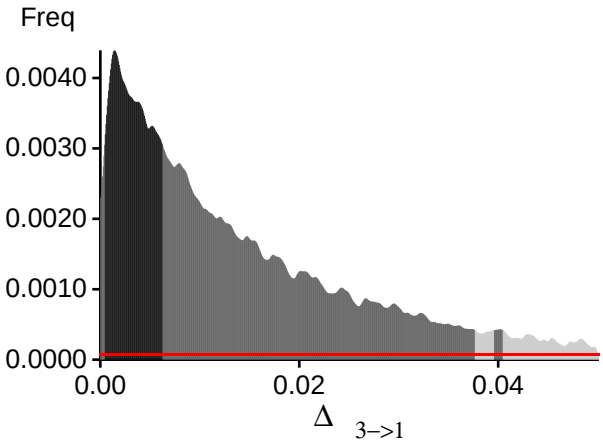

Freq
0.006
0.004
0.002
0.000
0.00
0.02
0.04
σ
3–>2

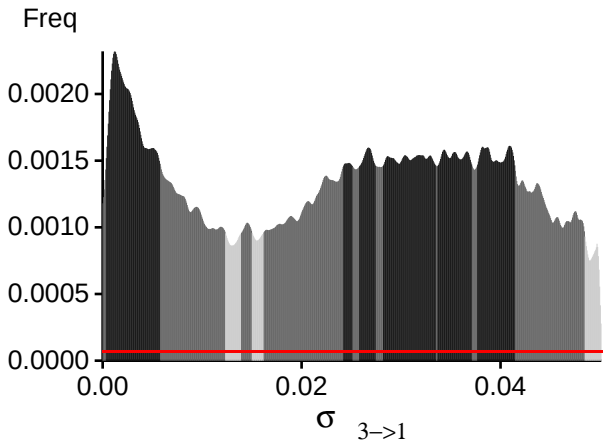
Bayesian Analysis: Posterior distribution for locus 15

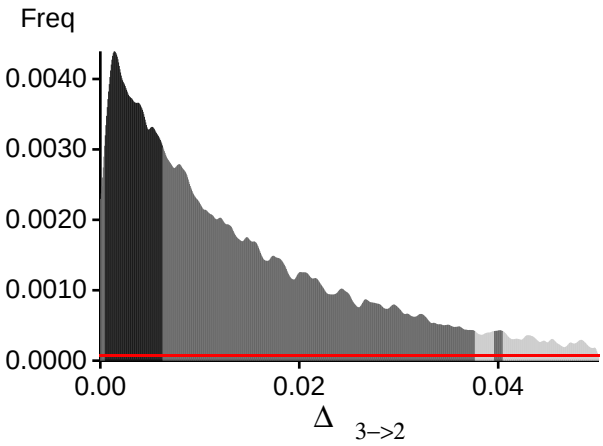


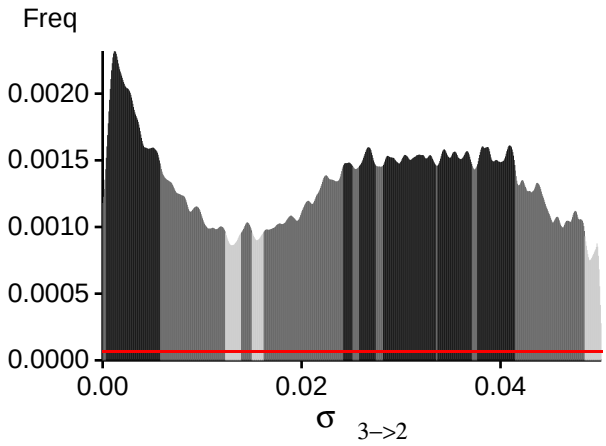




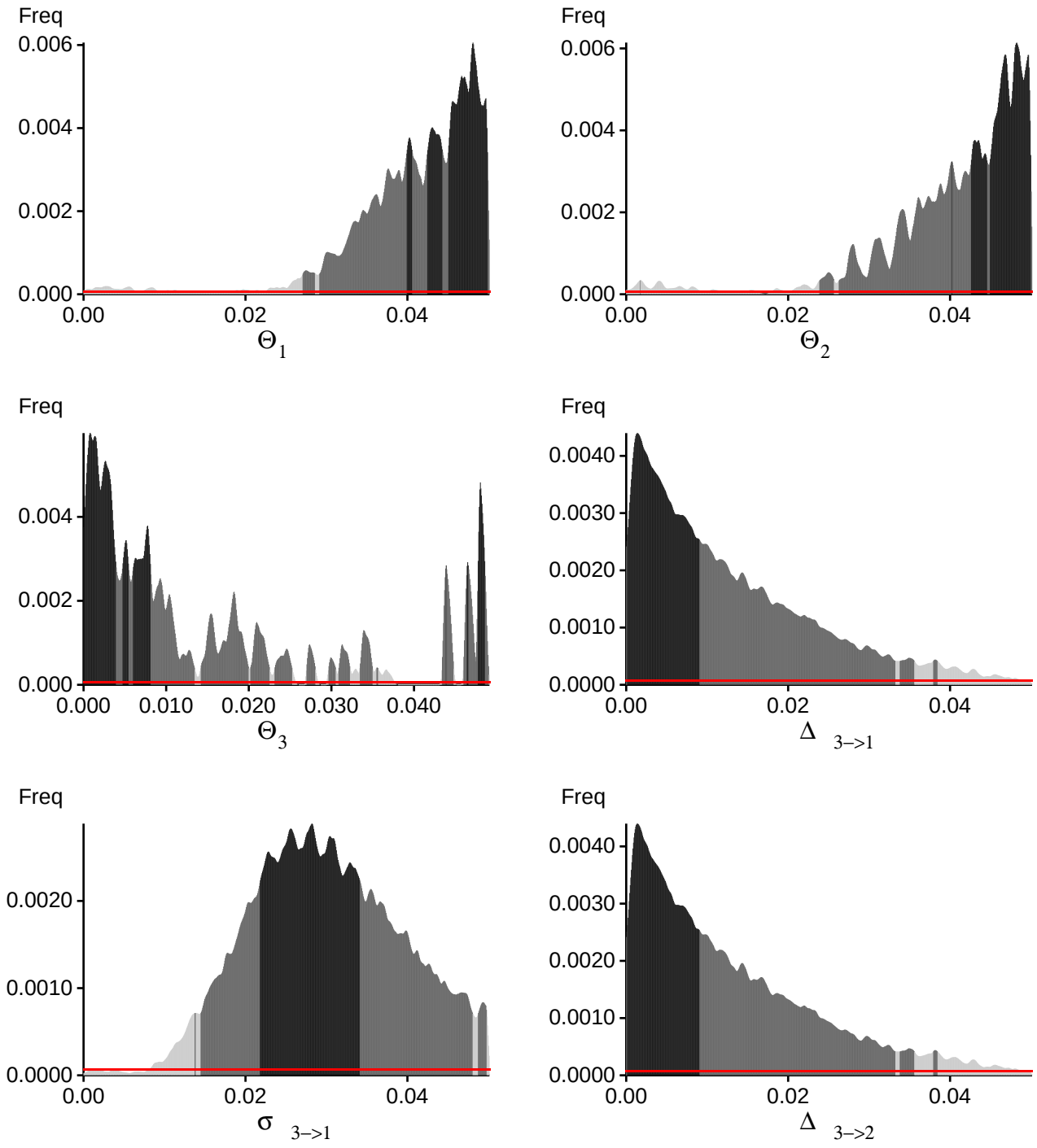


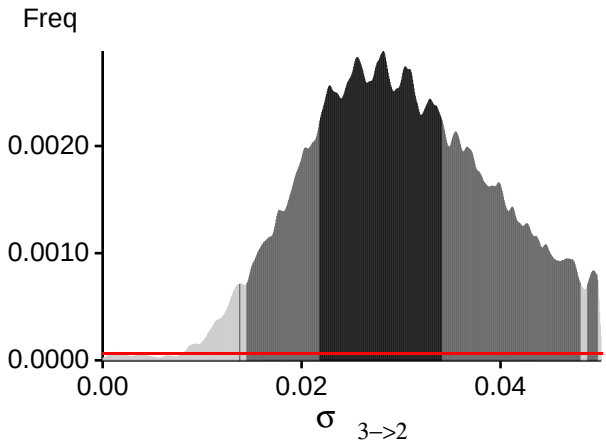




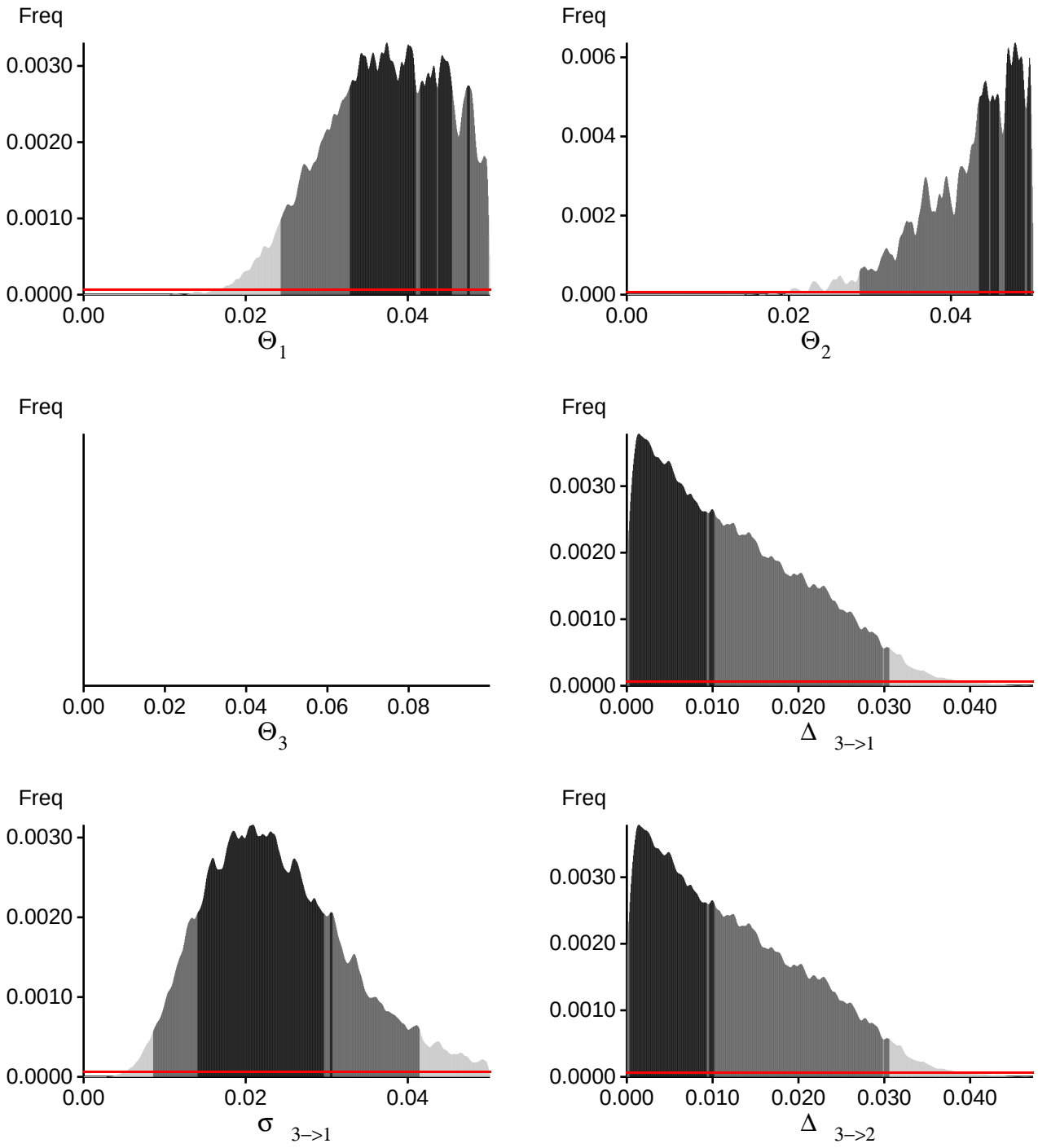

Freq
0.0020
0.0015
0.0010
0.0005
0.0000
0.00
0.02
0.04
σ
3–>2

Bayesian Analysis: Posterior distribution for locus 16

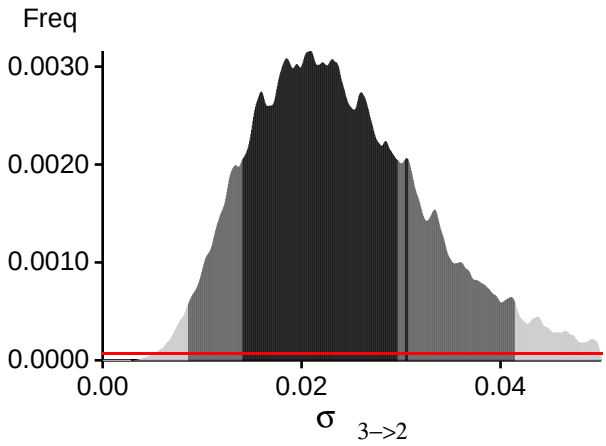



Freq
0.0020
0.0010
0.0000
0.00
0.02
0.04
σ
3–>2

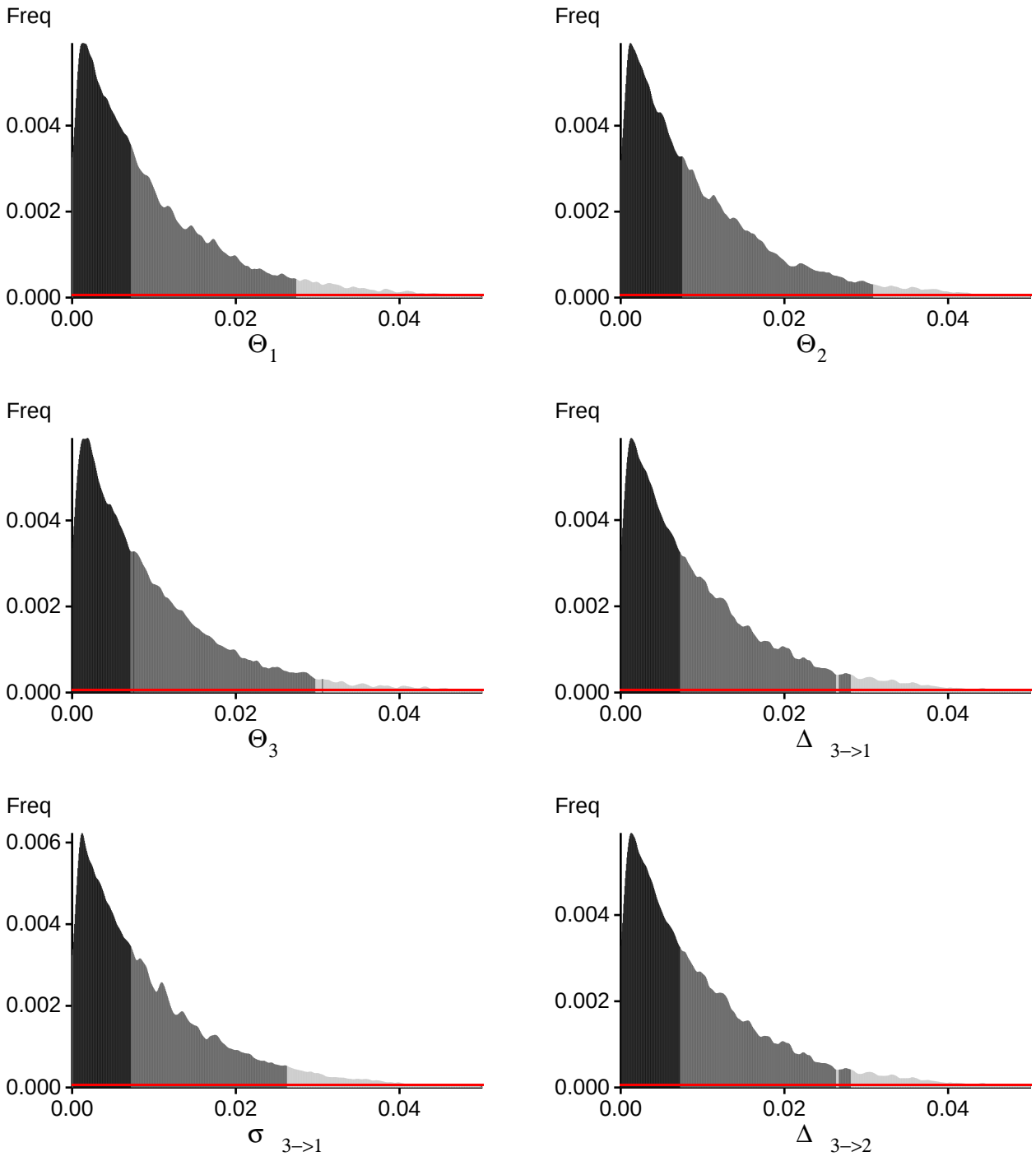
Bayesian Analysis: Posterior distribution for locus 17

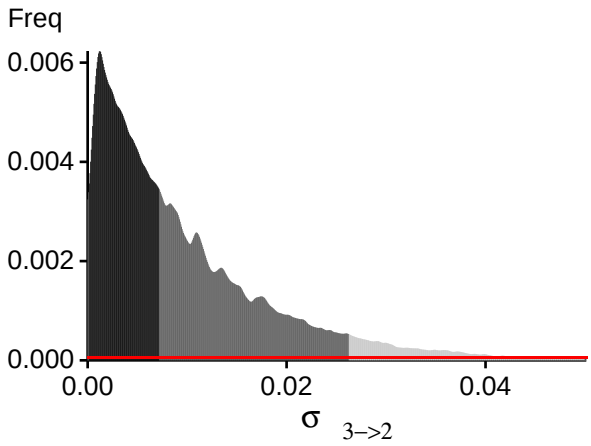


nan

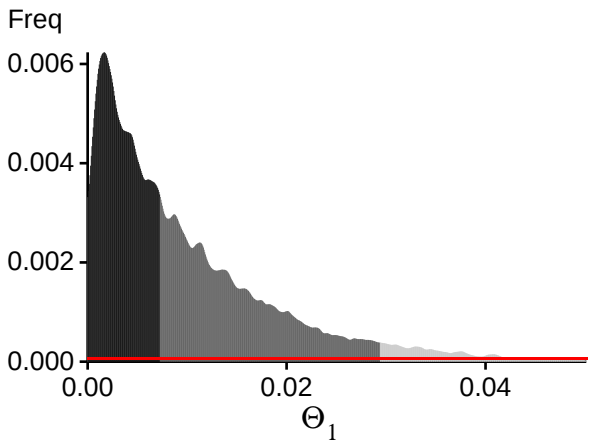

Freq
0.0030
0.0020
0.0010
0.0000
0.00
0.02
0.04
σ
3–>2

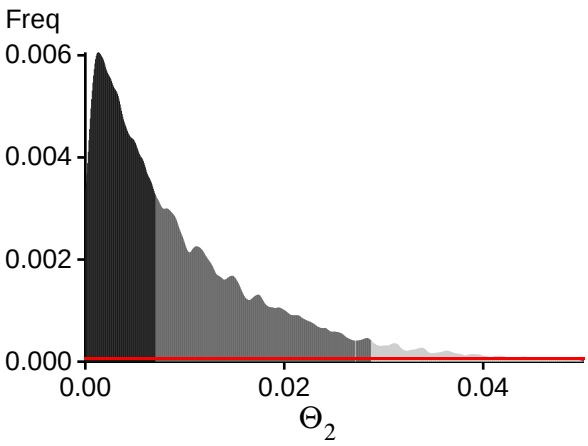
Bayesian Analysis: Posterior distribution for locus 18

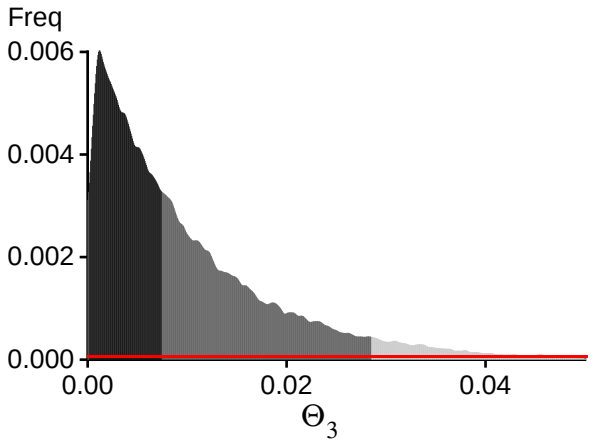


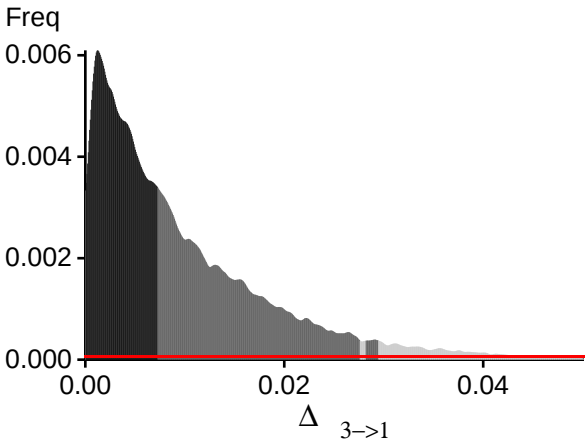

Freq
0.006
0.004
0.002
0.000
0.00
0.02
0.04
σ 3–>2

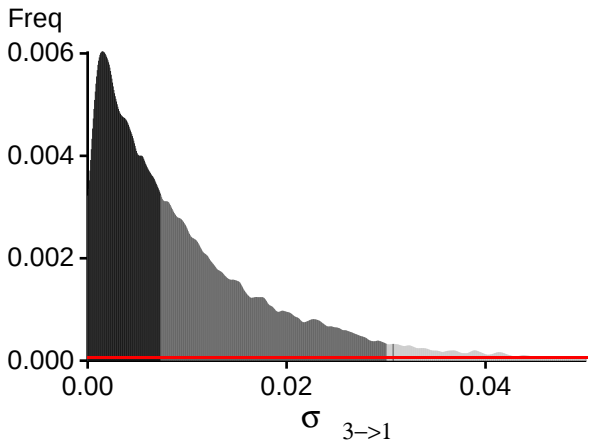
Bayesian Analysis: Posterior distribution for locus 19

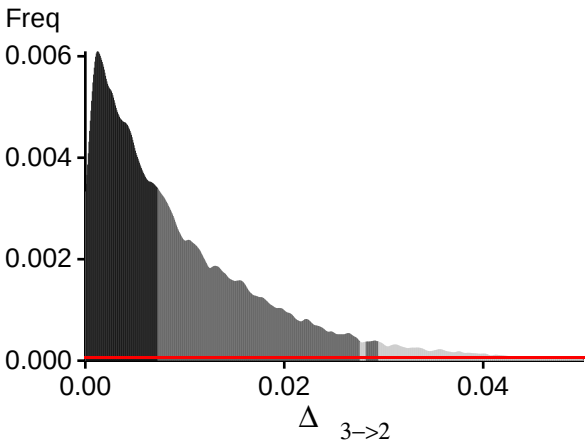


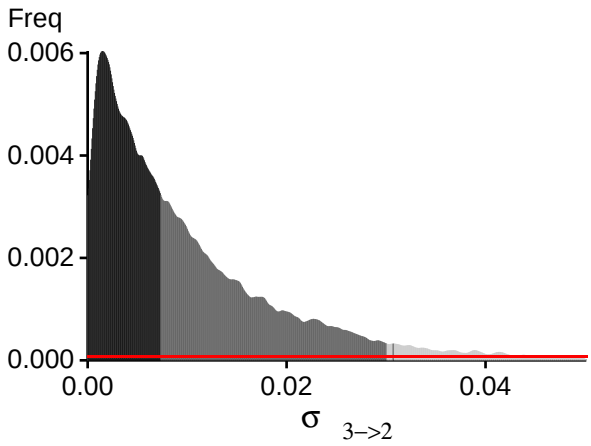




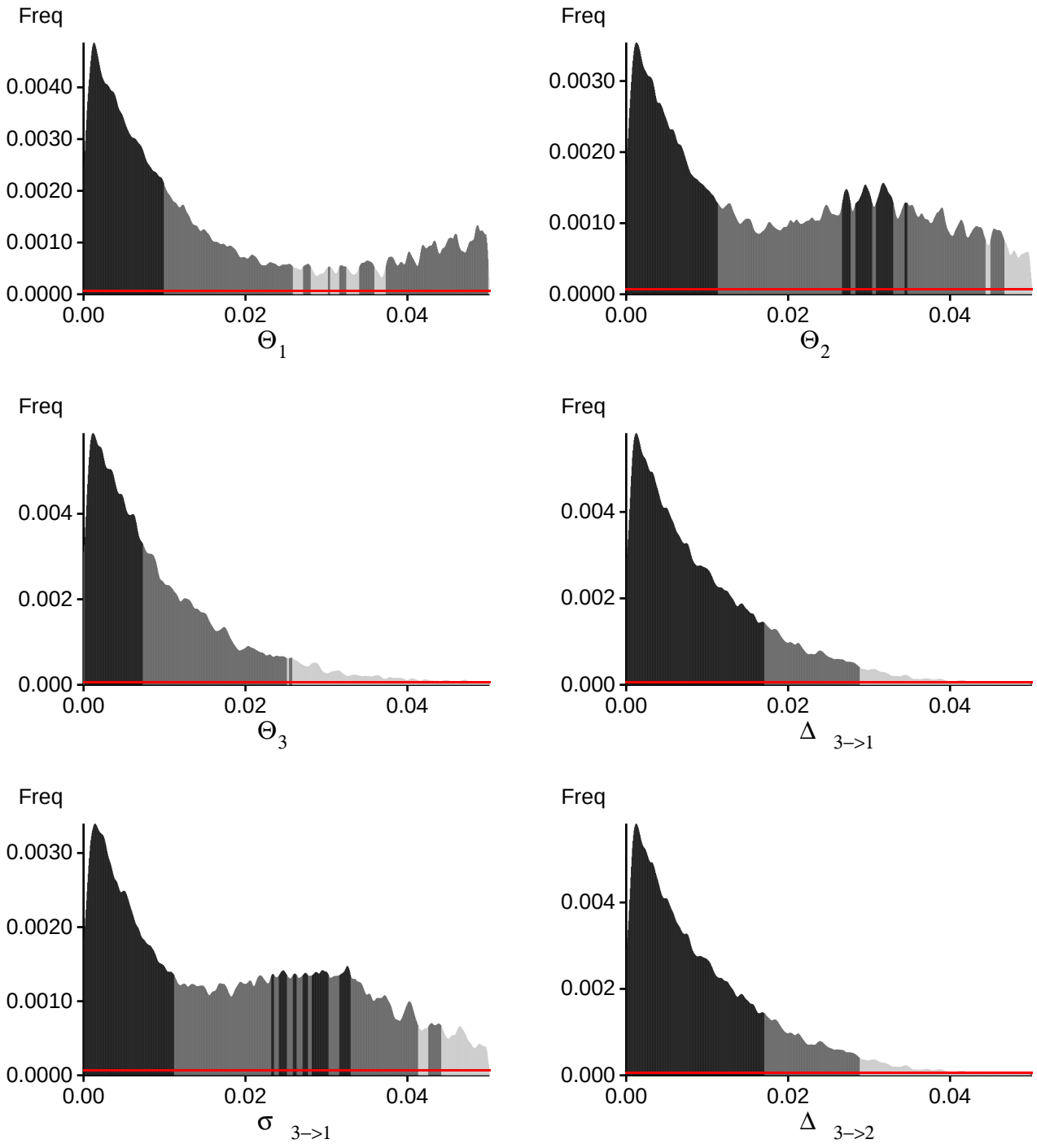


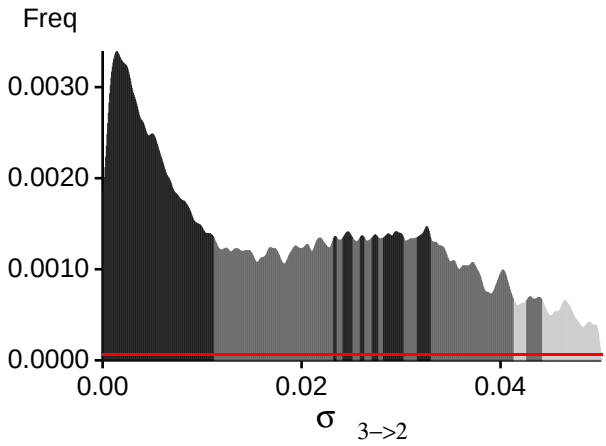




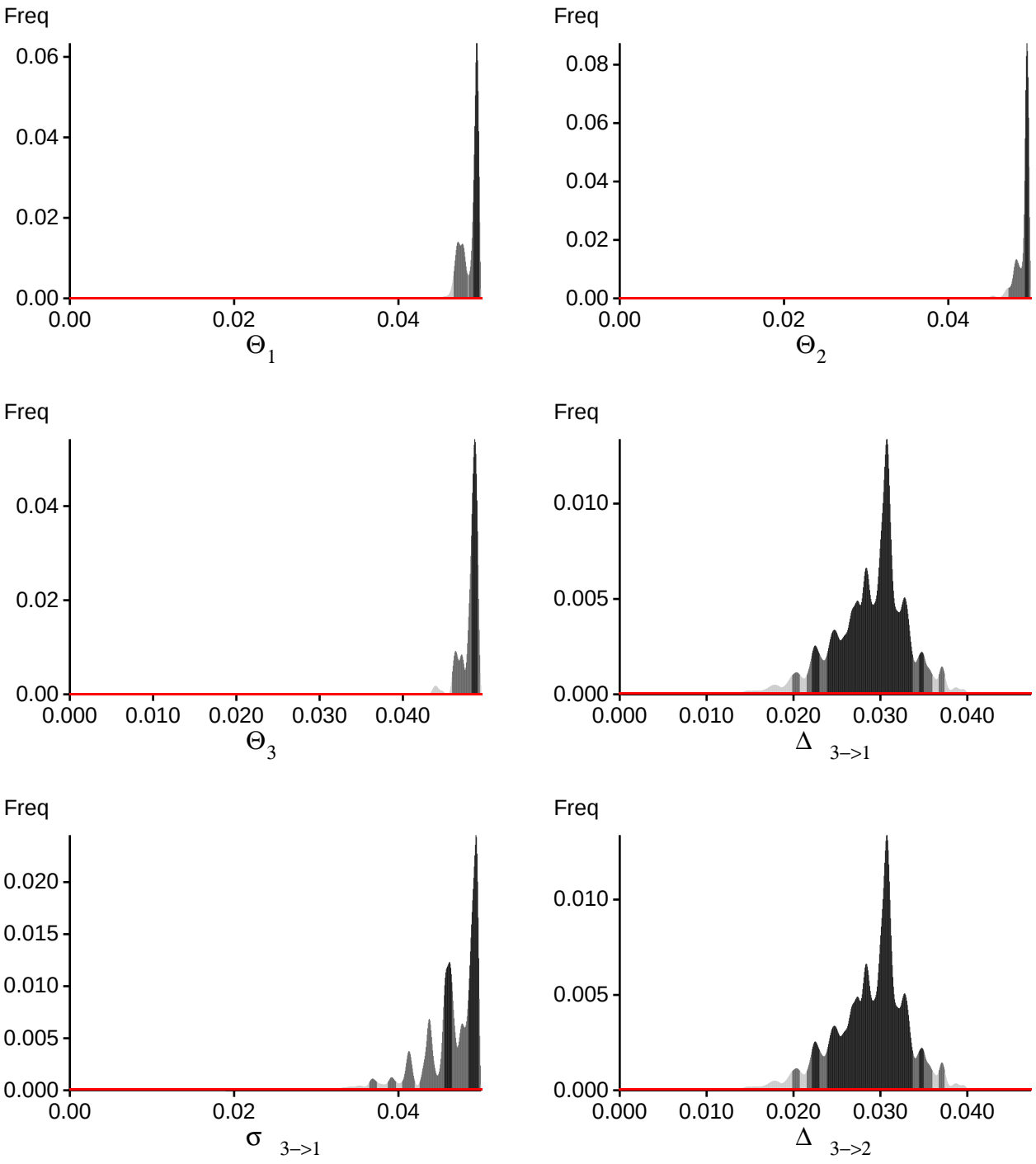

Freq
0.006
0.004
0.002
0.000
0.00
0.02
0.04
σ
3–>2

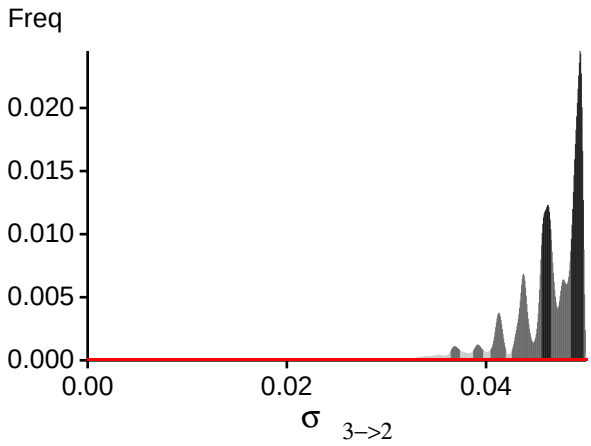
Bayesian Analysis: Posterior distribution for locus 20




Freq
0.0030
0.0020
0.0010
0.0000
0.00
0.02
0.04
σ
3–>2

Bayesian Analysis: Posterior distribution over all loci




Freq
0.020
0.015
0.010
0.005
0.000
0.00
0.02
0.04
σ
3–>2

Log-Probability of the data given the model (marginal likelihood)

Use this value for Bayes factor calculations:
BF = Exp[ln(Prob(D | thisModel) - ln(Prob(D | otherModel)
or as LBF = 2 (ln(Prob(D | thisModel) - ln(Prob(D | otherModel))
shows the support for thisModel]

Locus	Raw thermodynamic score(1a)	Bezier approximation score(1b)	Harmonic mean(2)
1	-12109.88	-9234.86	-9073.81
2	-8831.81	-7316.51	-6839.02
3	-8991.26	-7455.37	-7434.83
4	-9162.24	-7666.06	-7770.82
5	-11808.36	-8948.87	-8553.46
6	-10005.48	-7953.91	-7886.55
7	-9762.59	-7948.74	-8080.32
8	-9973.75	-7984.03	-7968.50
9	-11356.84	-9480.54	-9525.89
10	-11181.87	-8908.72	-8461.95
11	-8917.68	-7381.15	-7239.30
12	-10360.71	-8270.68	-7642.74
13	-11915.09	-9749.65	-9667.81
14	-11615.02	-9451.34	-8864.04
15	-9779.74	-7958.44	-7923.08
16	-10029.04	-8266.48	-8213.03
17	-9503.83	-7780.39	-7772.83
18	-10167.01	-8343.96	-8605.04
19	-10740.33	-8444.11	-8333.47
20	-10648.77	-8697.14	-8828.49
All	-207448.58	-167828.22	-165272.25

(1a, 1b and 2) are approximations to the marginal likelihood, make sure that the program run long enough!
(1a, 1b) and (2) should give similar results, in principle.
But (2) is overestimating the likelihood, it is presented for historical reasons and should not be used
(1a, 1b) needs heating with chains that span a temperature range of 1.0 to at least 100,000.
(1b) is using a Bezier-curve to get better approximations for runs with low number of heated chains
[Scaling factor = -587.270129]

Citation suggestions:

Beerli P. and M. Palczewski, 2010. Unified framework to evaluate panmixia and migration direction among multiple sampling locations, Genetics, 185: 313-326.

Acceptance ratios for all parameters and the genealogies

Parameter	Accepted changes	Ratio
Θ_1	950215/1427627	0.66559
Θ_2	946731/1430137	0.66199
Θ_3	935394/1427846	0.65511
$\Delta_{3->1}$	1259557/1428195	0.88192
$\sigma_{3->1}$	1004717/1429172	0.70301
$\Delta_{3->2}$	1258863/1428069	0.88151
$\sigma_{3->2}$	1002183/1426978	0.70231
Genealogies	389214/10001976	0.03891

MCMC-Autocorrelation and Effective MCMC Sample Size

Parameter	Autocorrelation	Effective Sampe Size
Θ_1	0.46424	273847.58
Θ_2	0.44139	290373.18
Θ_3	0.50321	263585.50
$\Delta_{3->1}$	0.13347	430233.11
$\sigma_{3->1}$	0.32098	325520.22
$\Delta_{3->2}$	0.13347	430233.11
$\sigma_{3->2}$	0.32098	325520.22
Genealogies	0.32098	325520.22

Potential Problems

This section reports potential problems with your run, but such reporting is often not very accurate. Whith many parameters in a multilocus analysi s, it is very common that some parameters for some loci will not be very informative, triggering suggestions (for example to increase the prior ran ge) that are not sensible. This suggestion tool will improve with time, therefore do not blindly follow its suggestions. If some parameters are fla gged, inspect the tables carefully and judge wether an action is required. For example, if you run a Bayesian inference with sequence data, for mac roscopic species there is rarely the need to increase the prior for Theta beyond 0.1; but if you use microsatellites it is rather common that your prior distribution for Theta should have a range from 0.0 to 100 or more. With many populations (>3) it is also very common that some migration rou tes are estimated poorly because the data contains little or no information for that route. Increasing the range will not help in such situations, reducing number of parameters may help in such situations.

No warning was recorded during the run