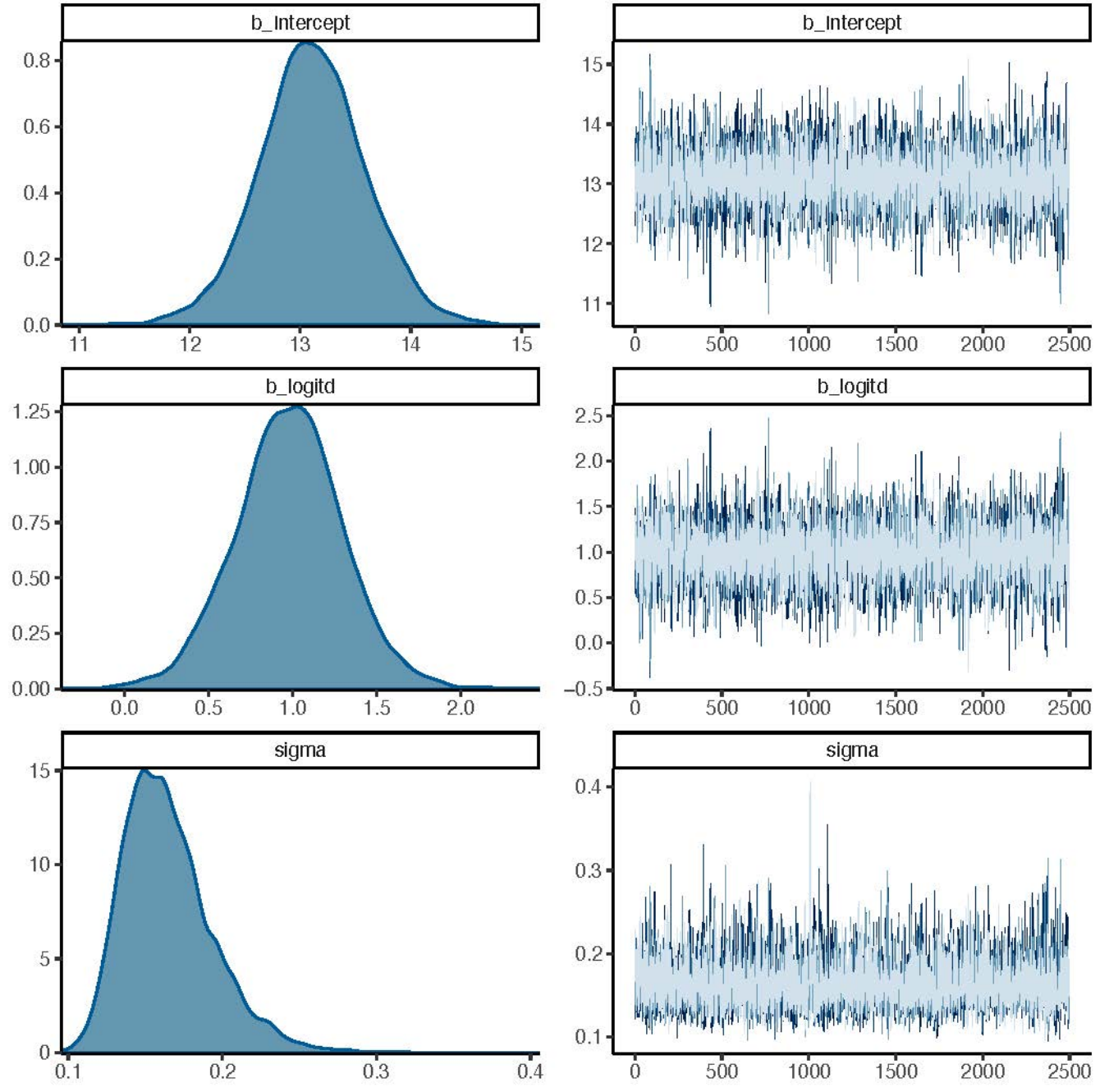
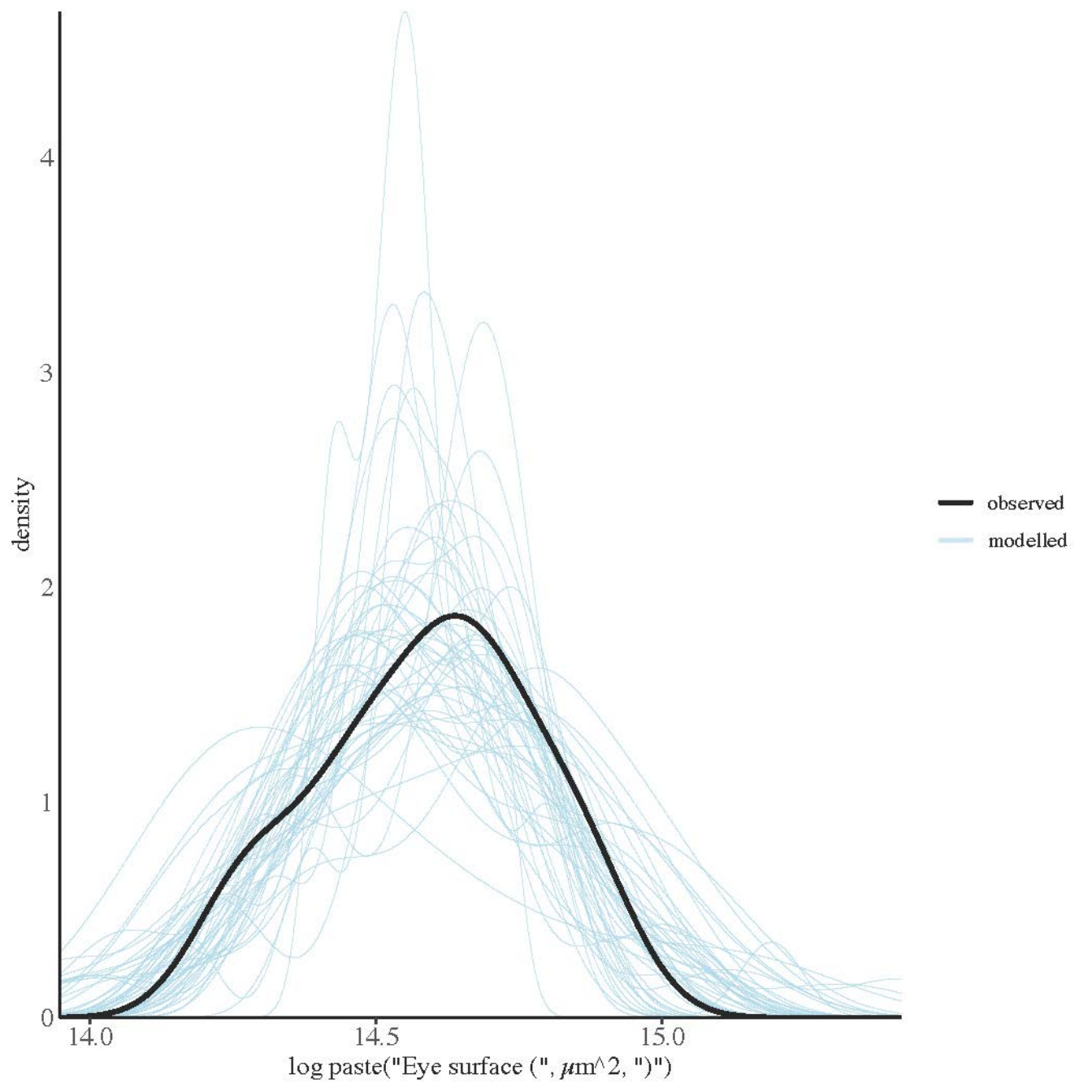
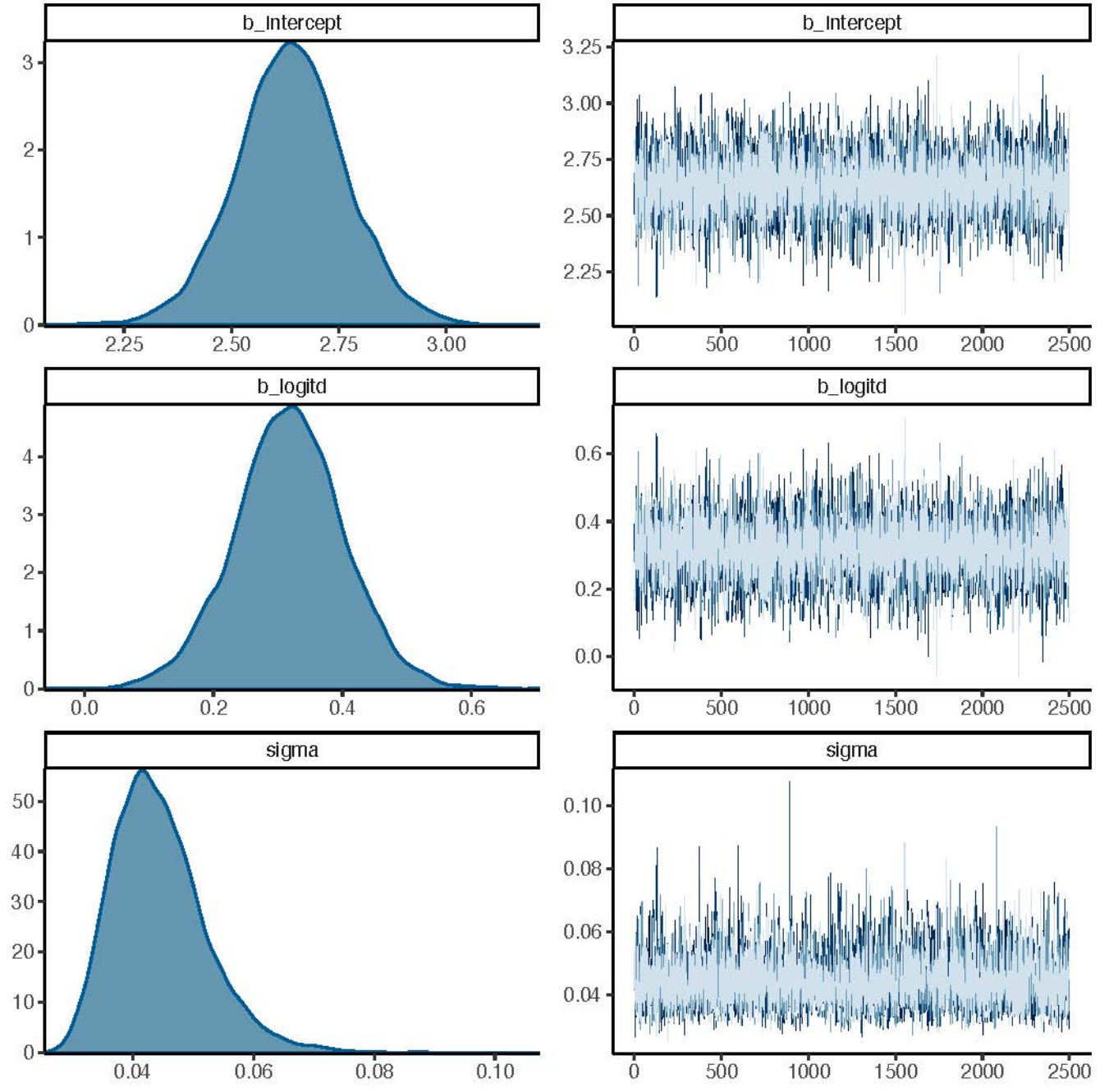
Allometric models. Model traces and posterior predictive check for each visual trait modelled with Bayesian inference without phylogenetic control.

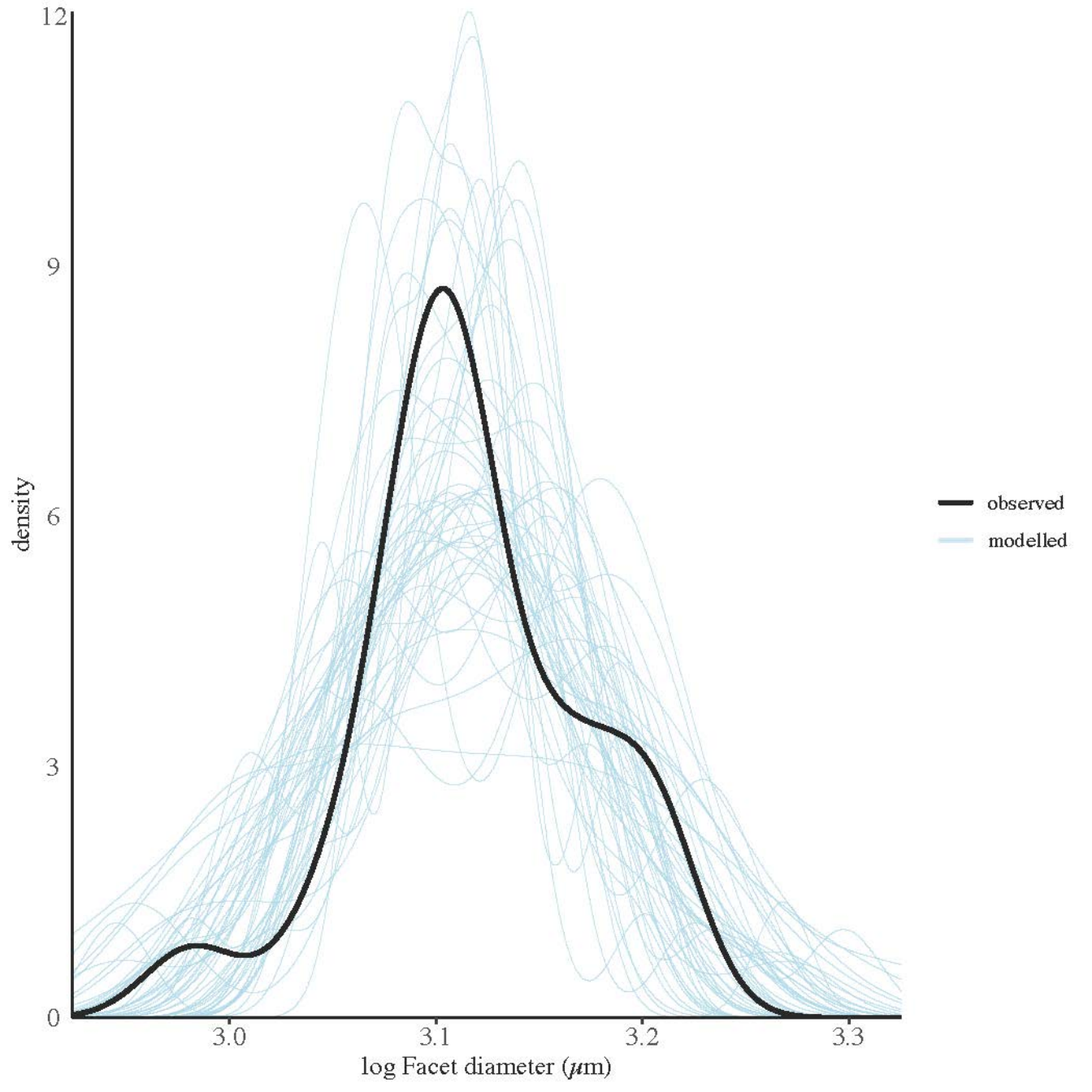
Eye surface (μm^2)


b_Intercept
b_Intercept
b_logitd
b_logitd
sigma
sigma

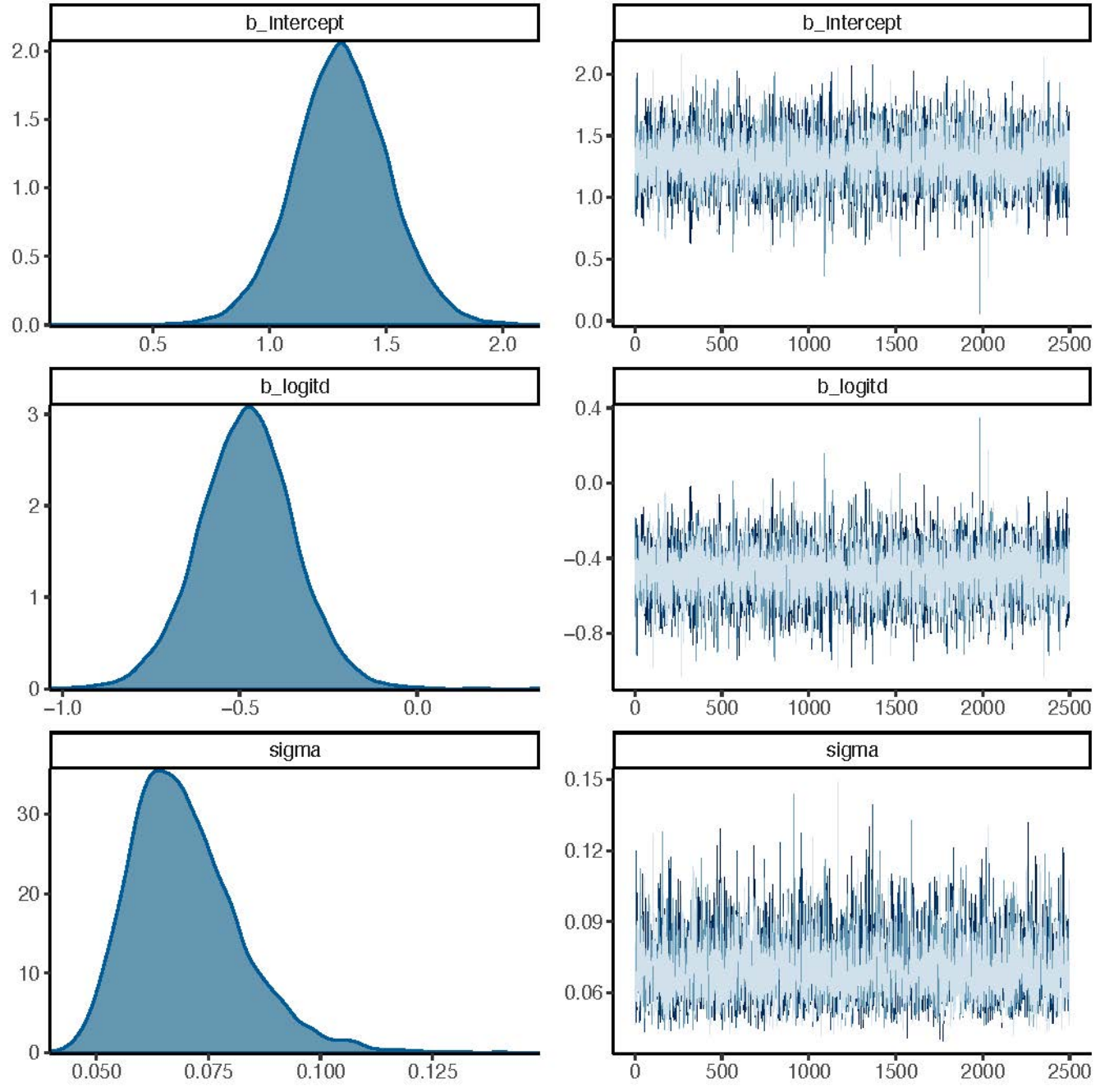

density
0
1
2
3
4
14.0
14.5
15.0
log paste("Eye surface (", μm^2, ")")
observed
modelled

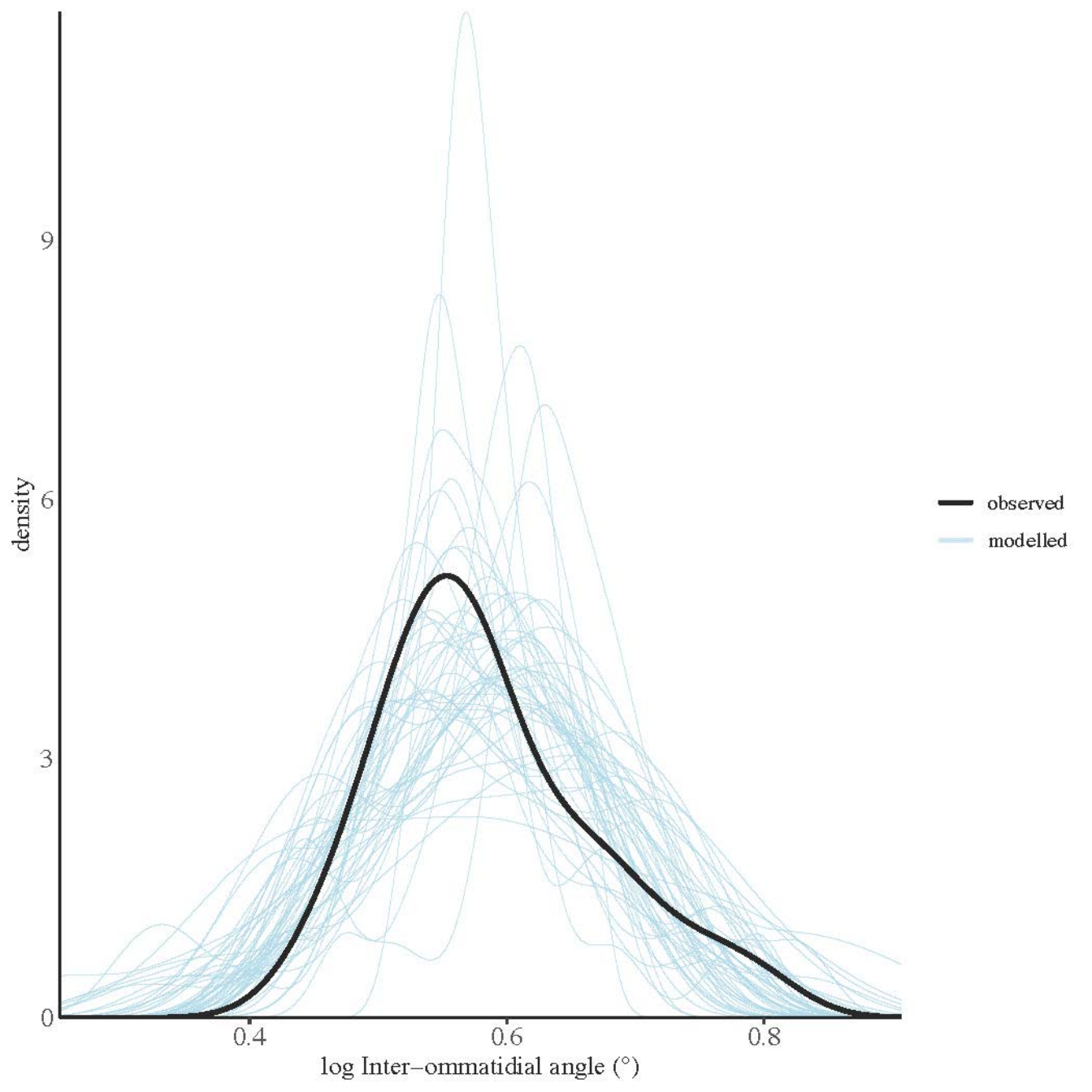
Facet diameter (μm)


b_Intercept
b_Intercept
b_logitd
b_logitd
sigma
sigma

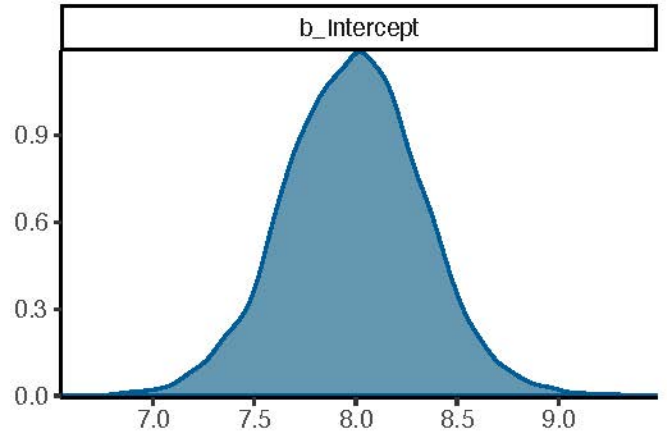

12
9
6
3
0
density
3.0
3.1
3.2
3.3
log Facet diameter (μm)
observed
modelled

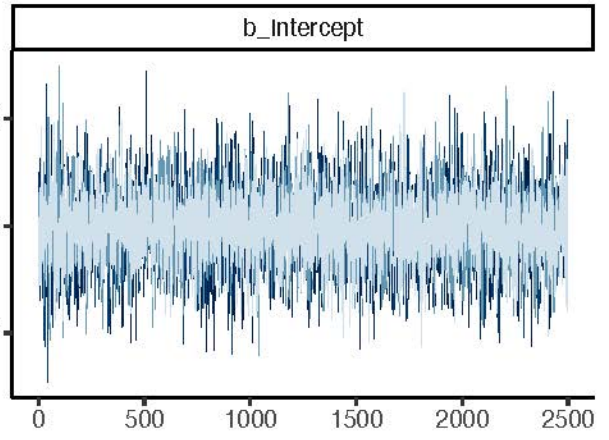
Inter–ommatidial angle (°)

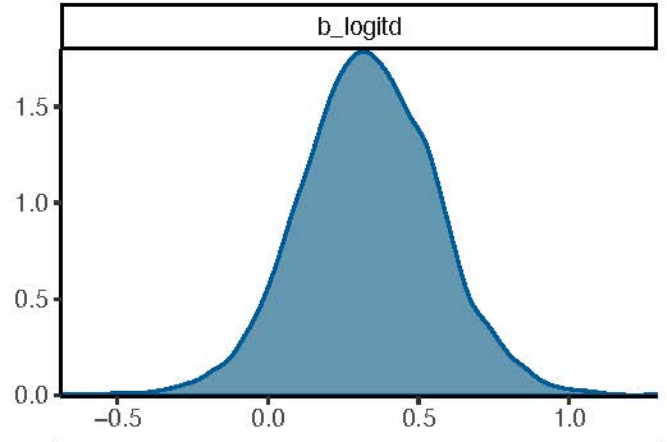

b_Intercept
2.0
1.5
1.0
0.5
0.0
0.5
1.0
1.5
2.0
b_Intercept
2.0
1.5
1.0
0.5
0.0
0
500
1000
1500
2000
2500
b_logitd
3
2
1
0
−1.0
−0.5
0.0
b_logitd
0.4
0.0
−0.4
−0.8
0
500
1000
1500
2000
2500
sigma
30
20
10
0
0.050
0.075
0.100
0.125
sigma
0.15
0.12
0.09
0.06
0
500
1000
1500
2000
2500

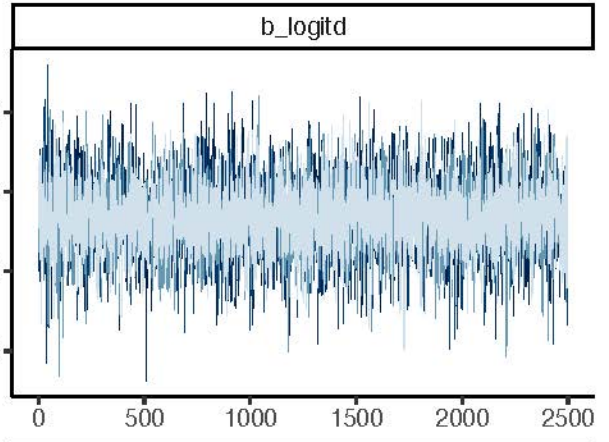

density
9
6
3
0
0.4
0.6
0.8
log Inter−ommatidial angle (°)
observed
modelled

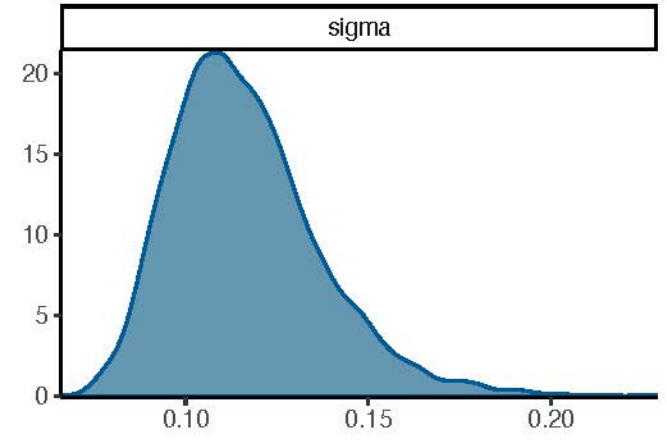
Facet number

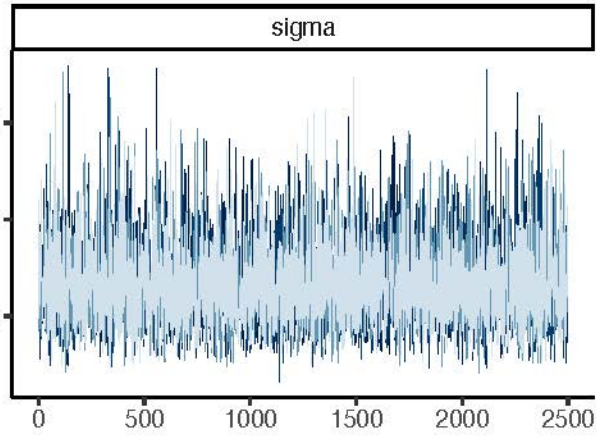

b_Intercept
0.9
0.6
0.3
0.0
7.0
7.5
8.0
8.5
9.0

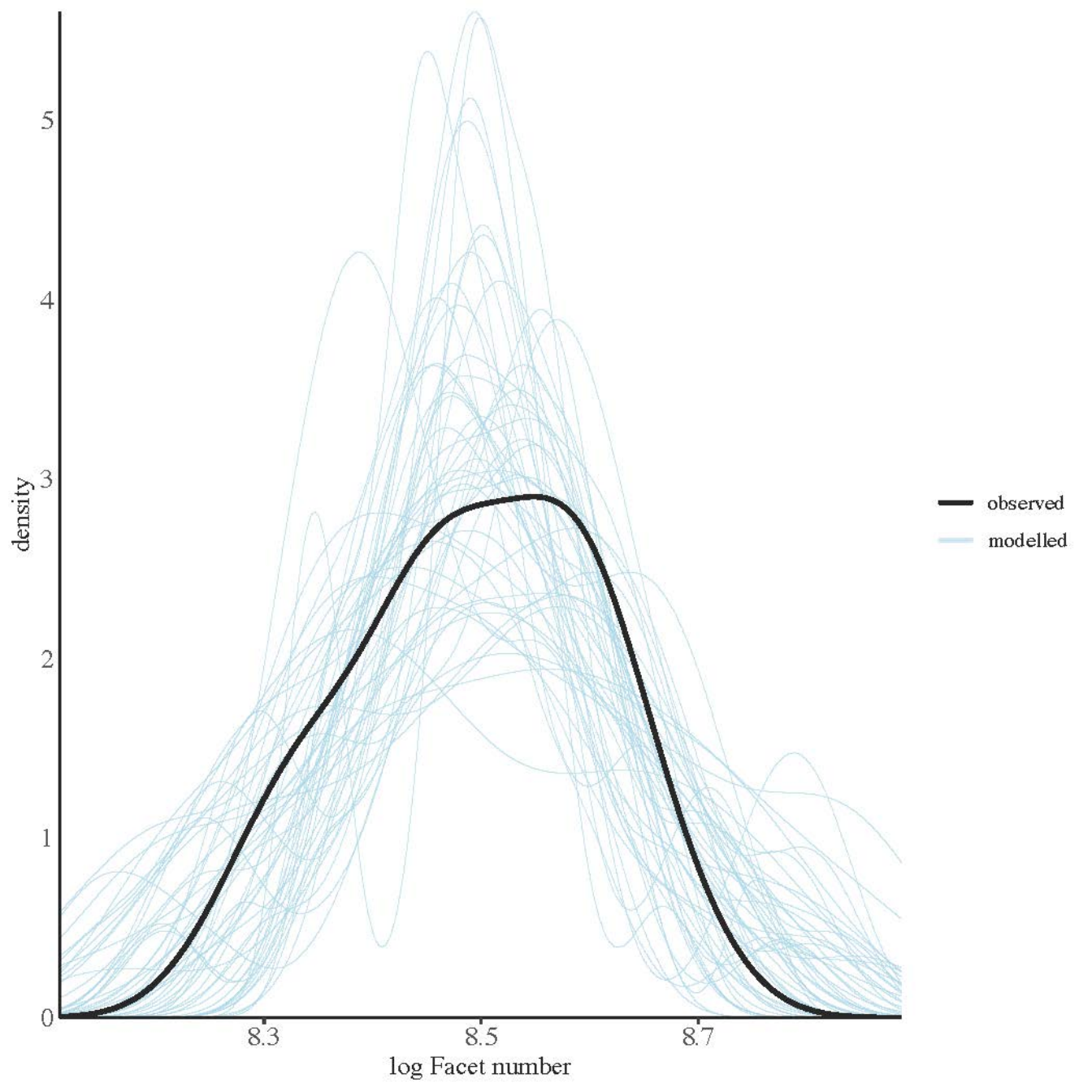

b_Intercept
9
8
7
0
500
1000
1500
2000
2500


b_logitd
1.5
1.0
0.5
0.0
−0.5
0.0
0.5
1.0

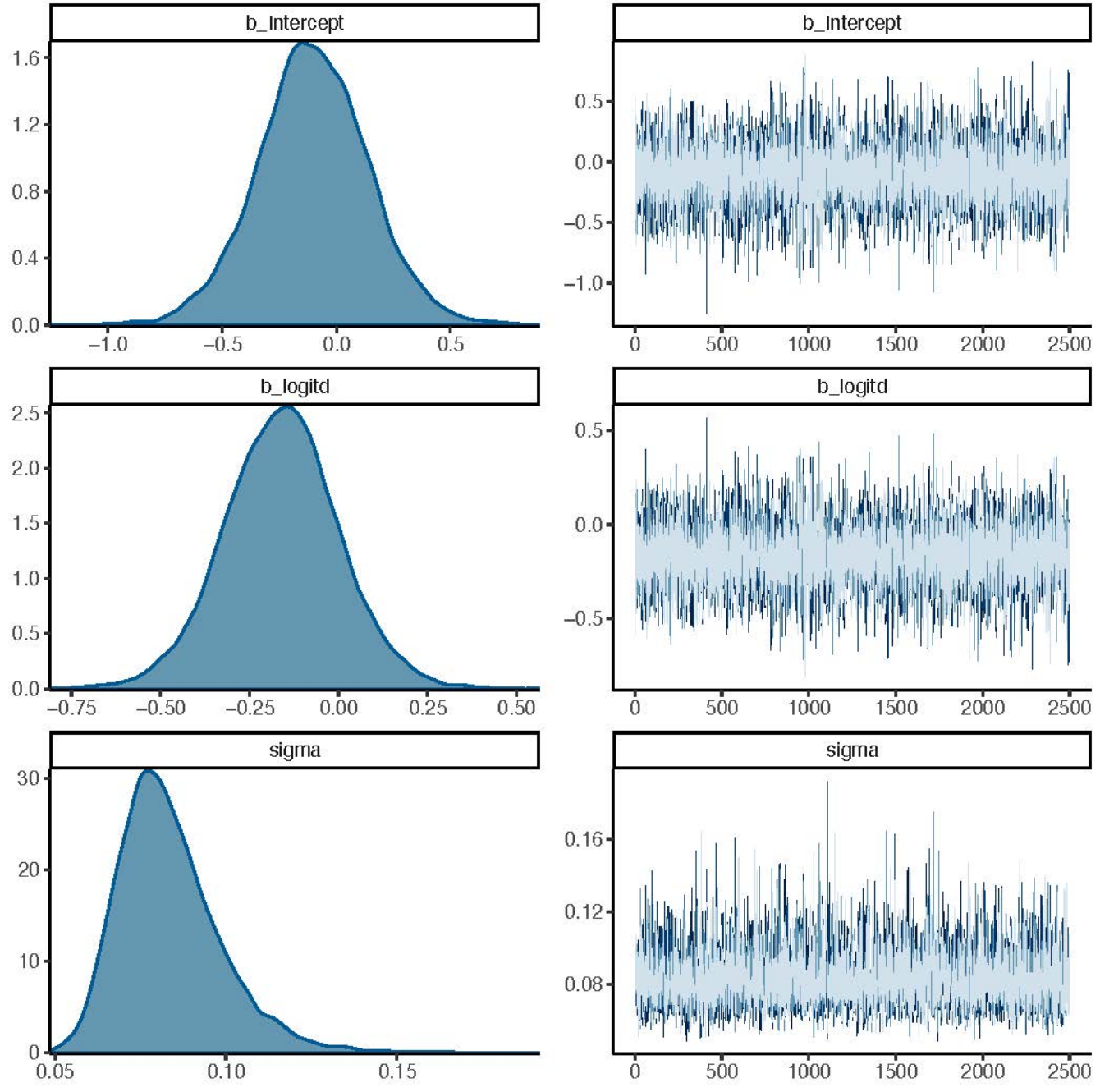

b_logitd
1.0
0.5
0.0
−0.5
0
500
1000
1500
2000
2500

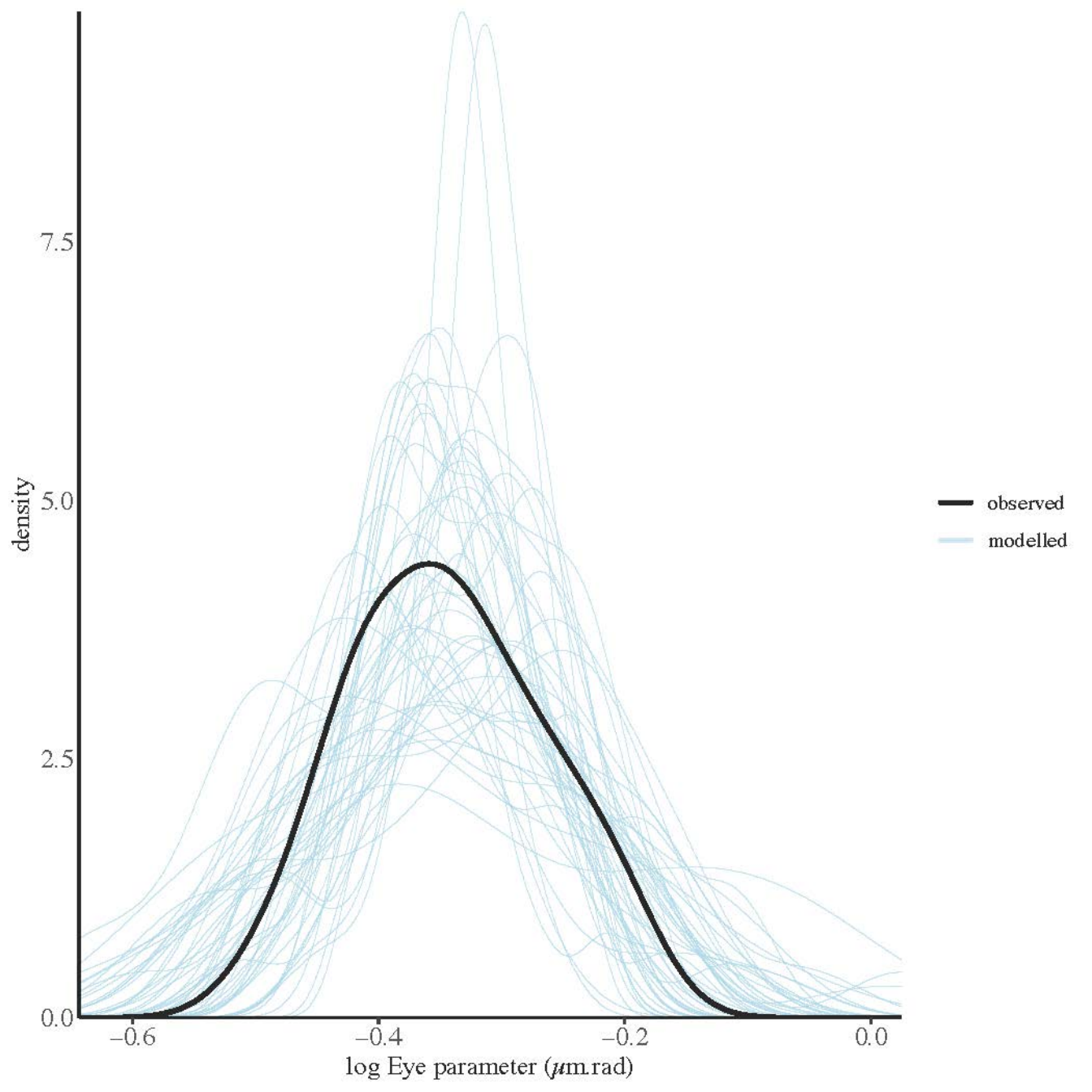

sigma
20
15
10
5
0
0.10
0.15
0.20


sigma
0.20
0.15
0.10
0
500
1000
1500
2000
2500

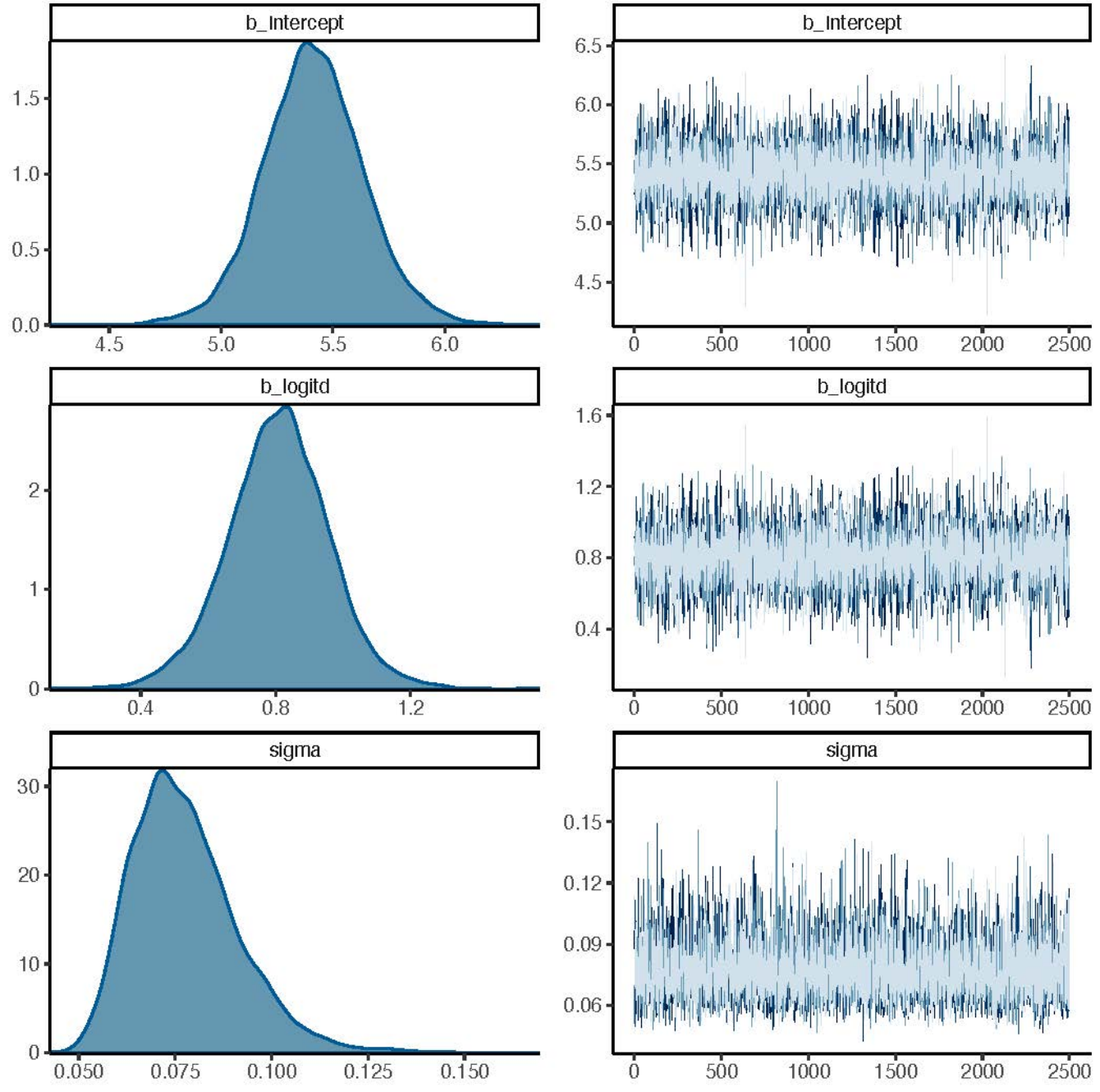

density
0
1
2
3
4
5
8.3
8.5
8.7
log Facet number
observed
modelled

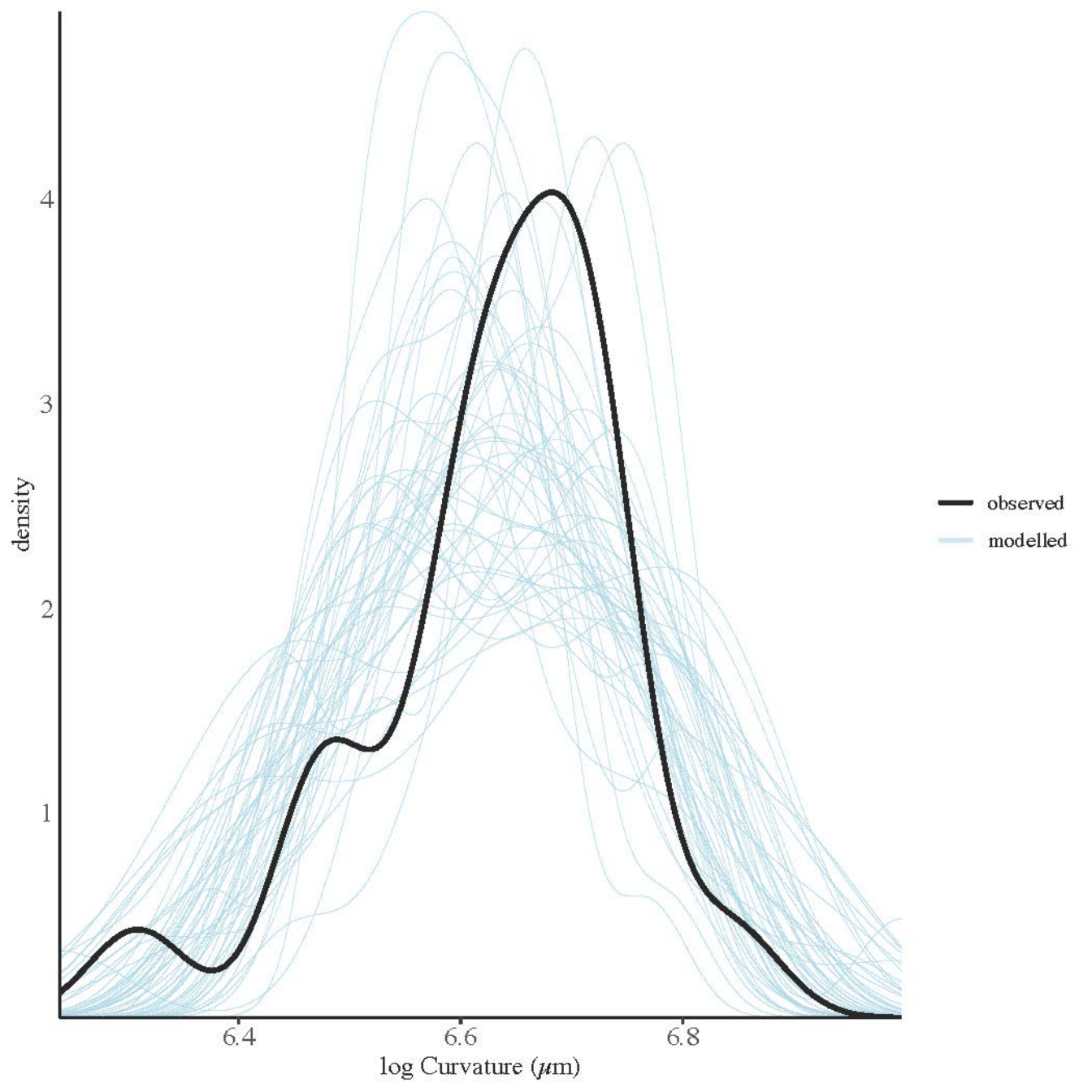
Eye parameter (μm.rad)


b_Intercept
b_Intercept
b_logitd
b_logitd
sigma
sigma

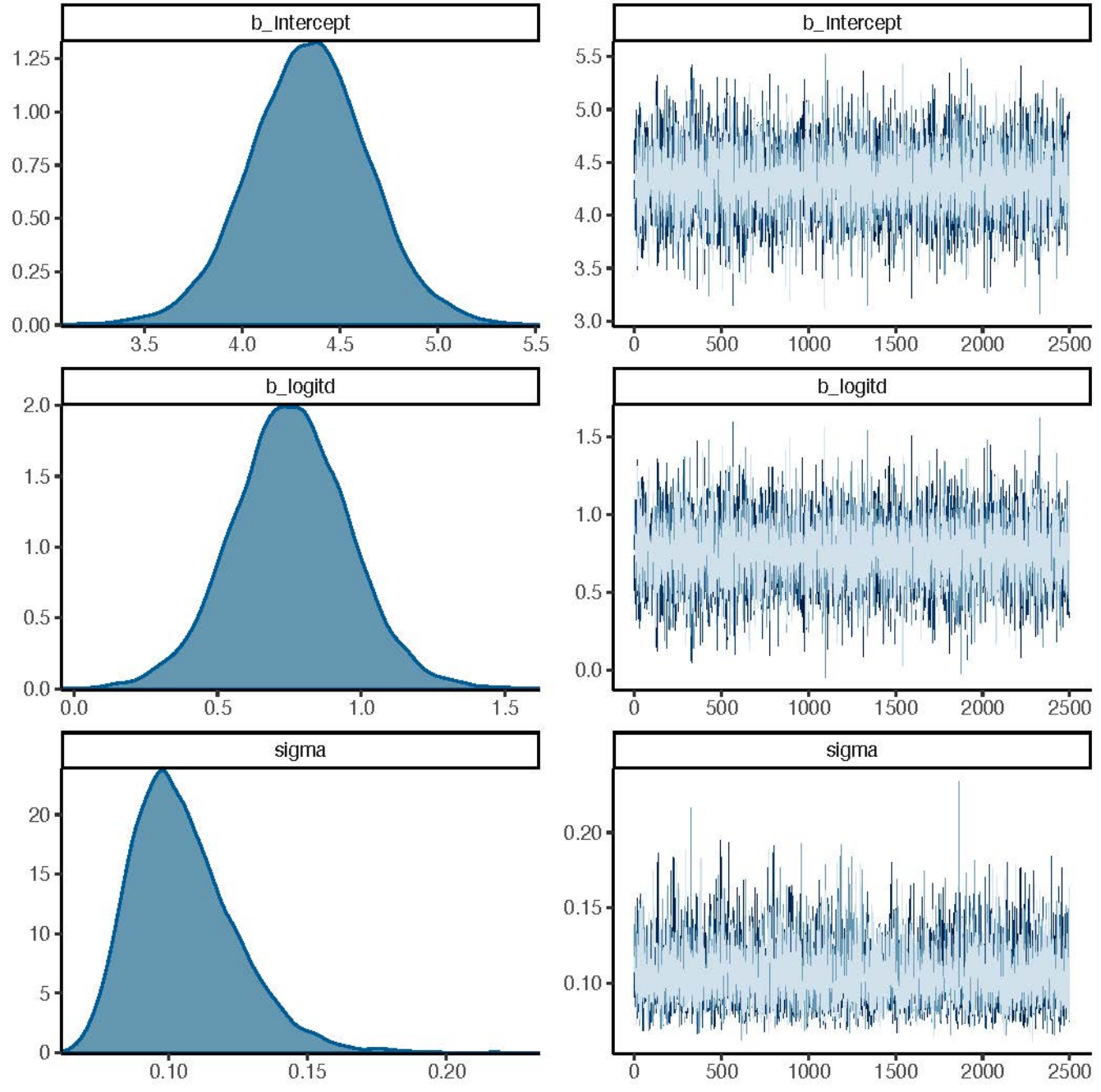

7.5
5.0
2.5
0.0
density
−0.6
−0.4
−0.2
0.0
log Eye parameter (μm.rad)
observed
modelled

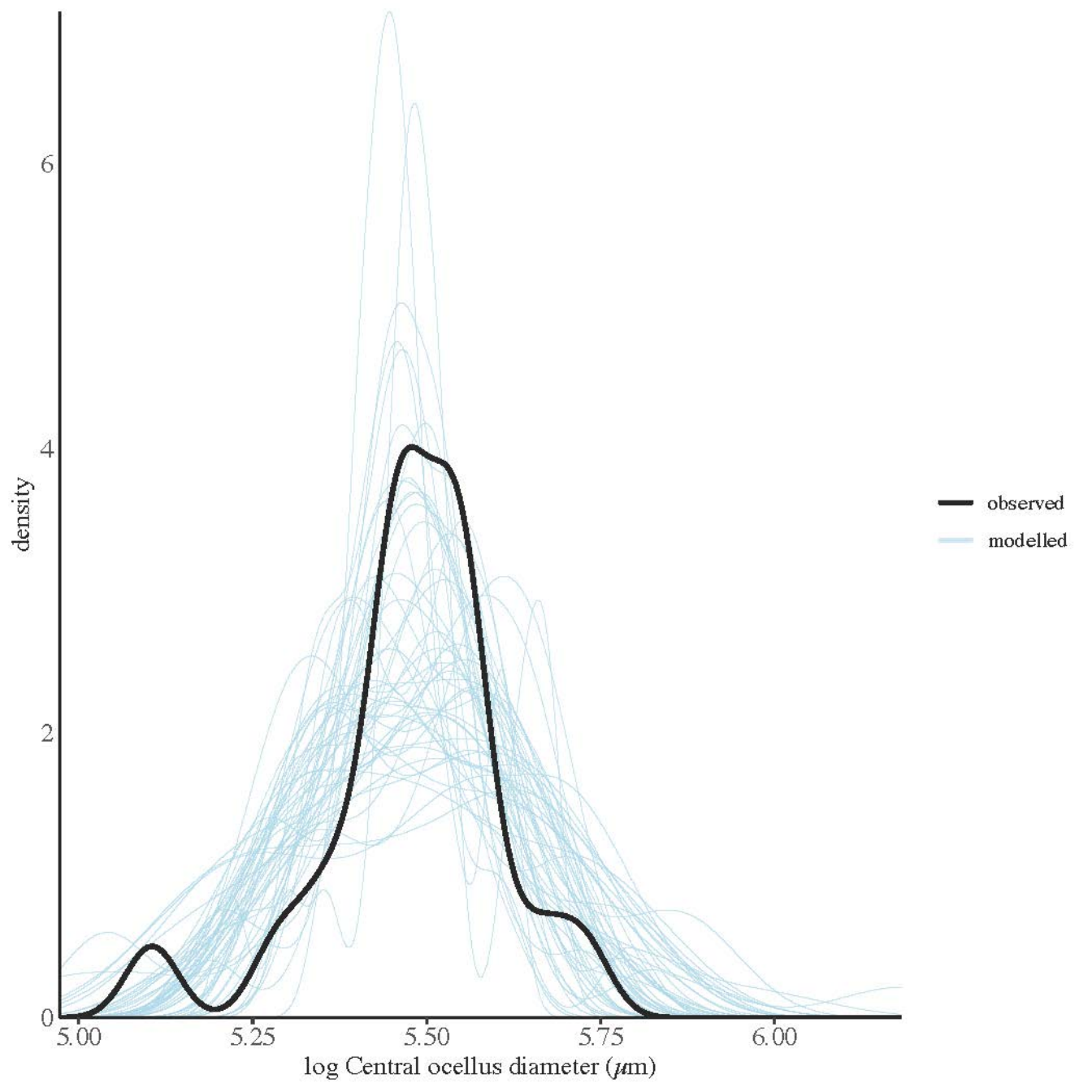
Curvature (μm)


b_Intercept
1.5
1.0
0.5
0.0
4.5
5.0
5.5
6.0
b_Intercept
6.5
6.0
5.5
5.0
4.5
0
500
1000
1500
2000
2500
b_logitd
2
1
0
0.4
0.8
1.2
b_logitd
1.6
1.2
0.8
0.4
0
500
1000
1500
2000
2500
sigma
30
20
10
0
0.050
0.075
0.100
0.125
0.150
sigma
0.15
0.12
0.09
0.06
0
500
1000
1500
2000
2500

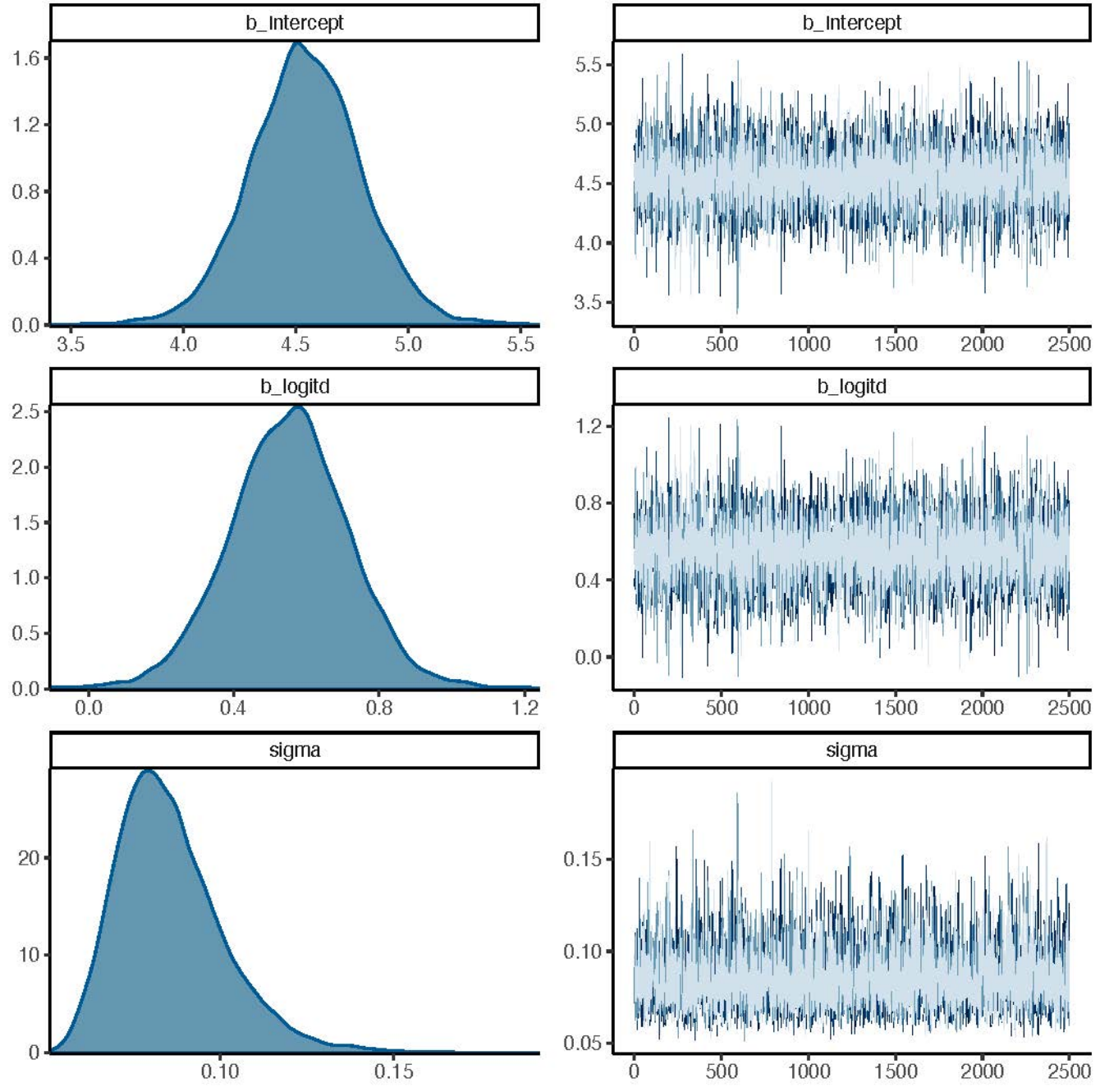

density
4
3
2
1
6.4
6.6
6.8
log Curvature (μm)
observed
modelled

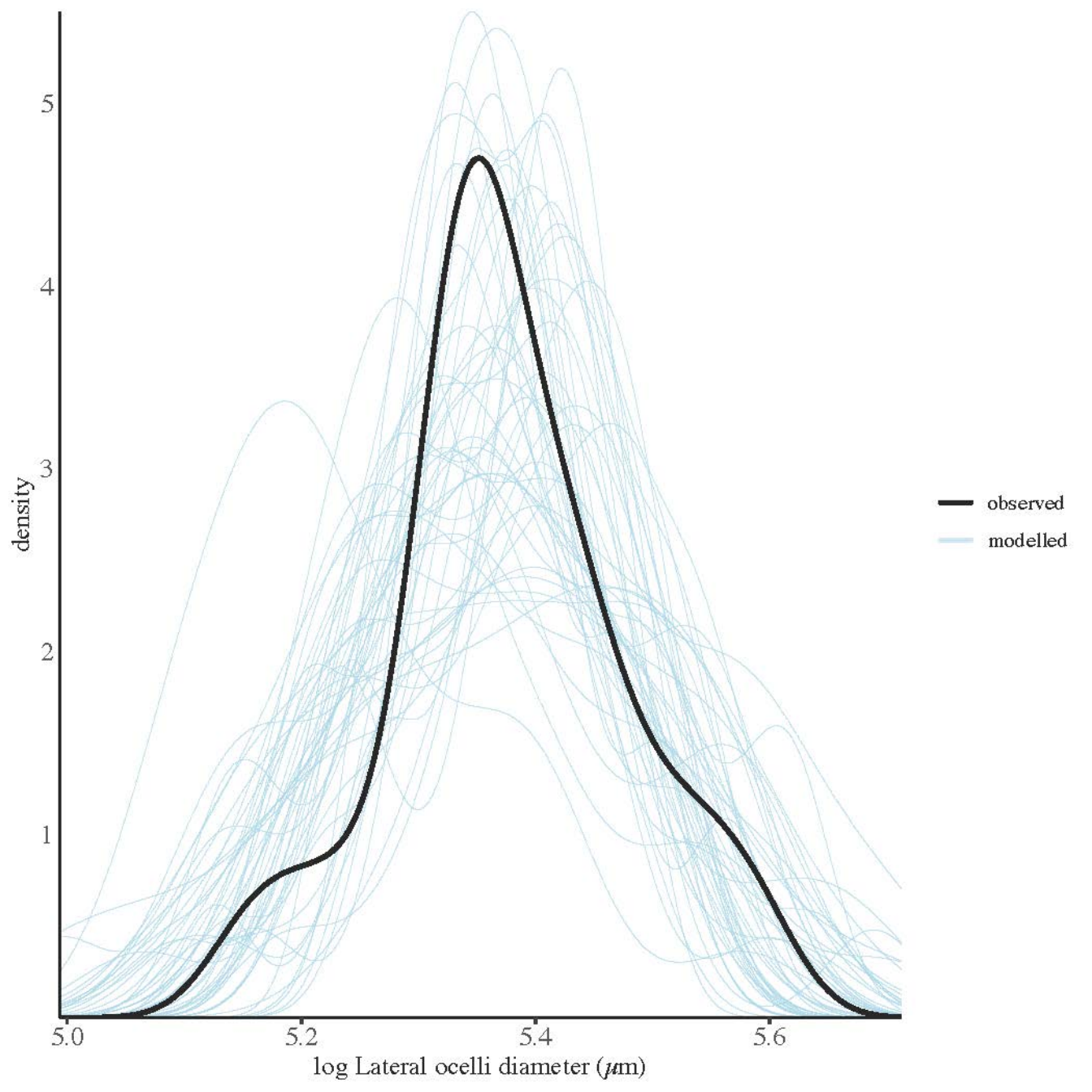
Central ocellus diameter (μm)


b_Intercept
b_Intercept
b_logitd
b_logitd
sigma
sigma

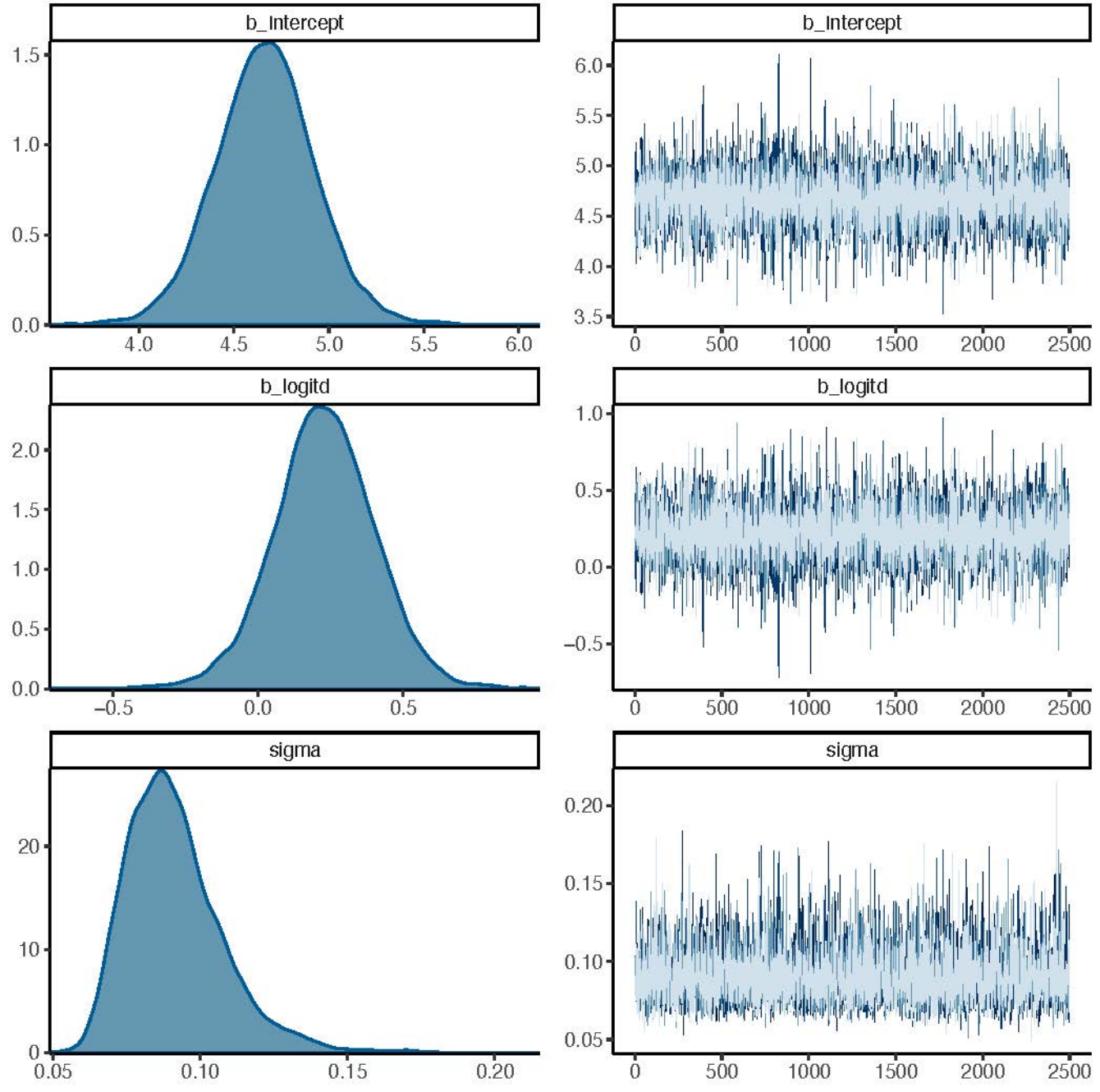

density
0
2
4
6
5.00
5.25
5.50
5.75
6.00
log Central ocellus diameter (μm)
observed
modelled

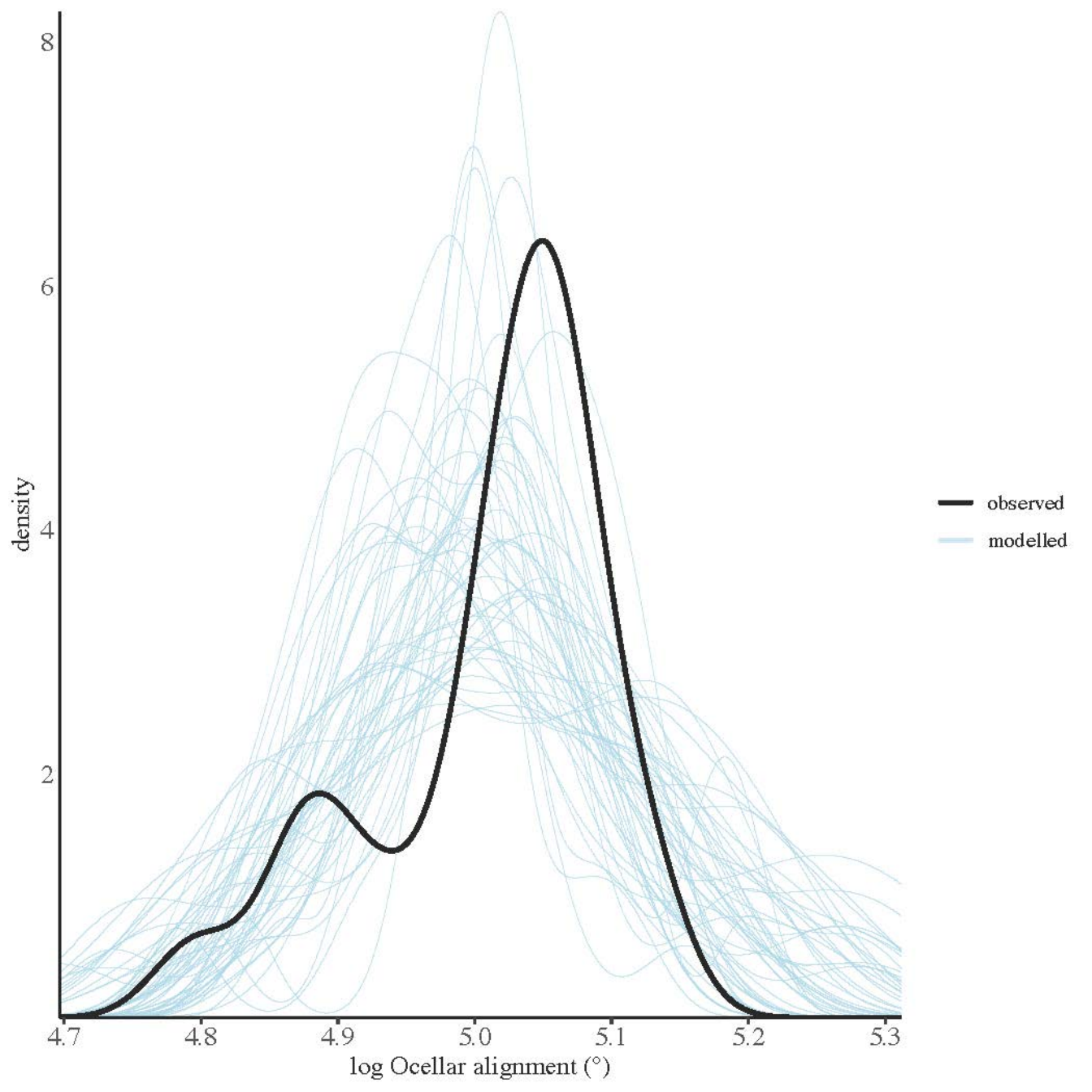
Lateral ocelli diameter (μm)


b_Intercept
b_Intercept
b_logitd
b_logitd
sigma
sigma

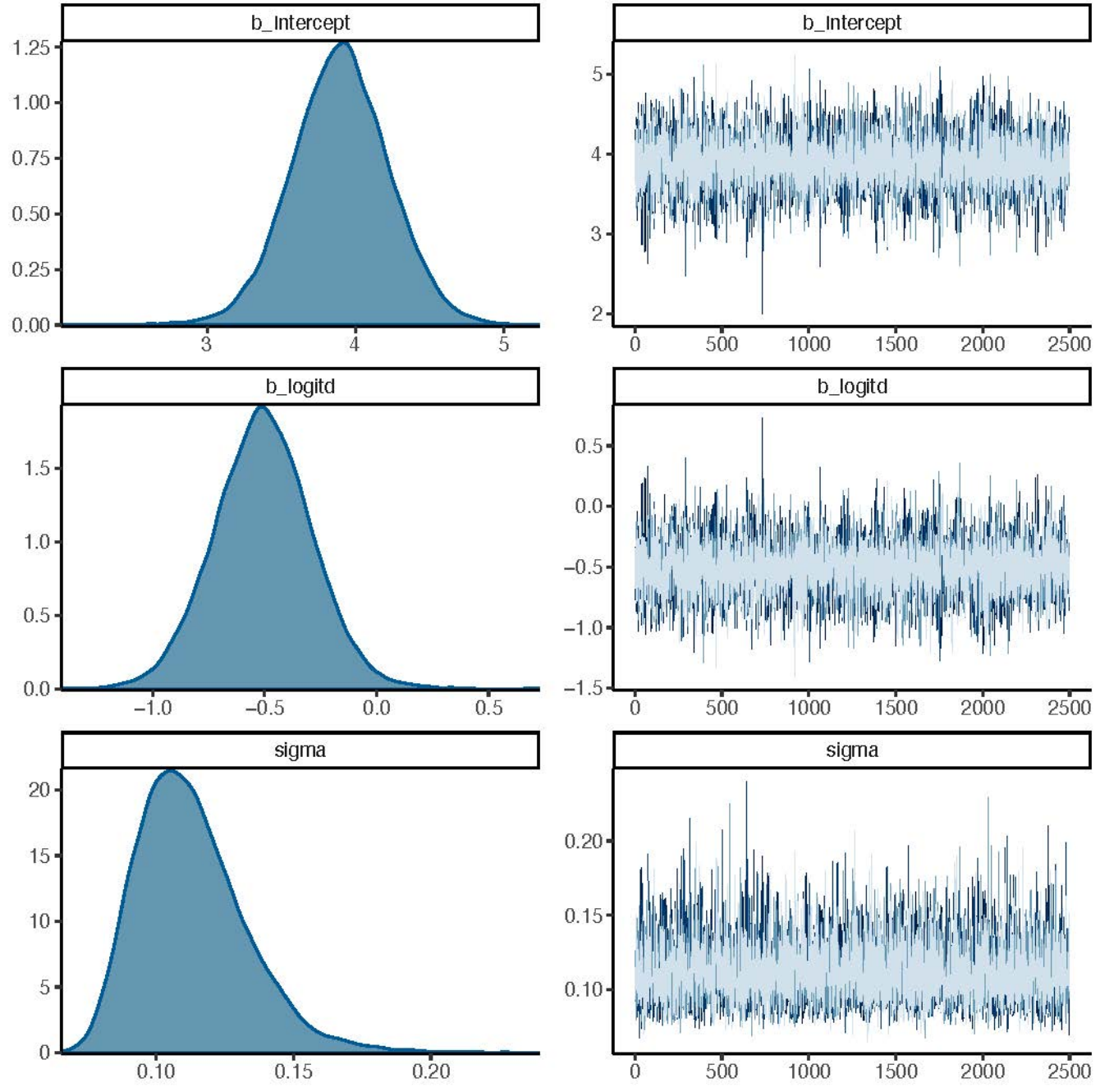

density
5
4
3
2
1
5.0
5.2
5.4
5.6
log Lateral ocelli diameter (μm)
observed
modelled

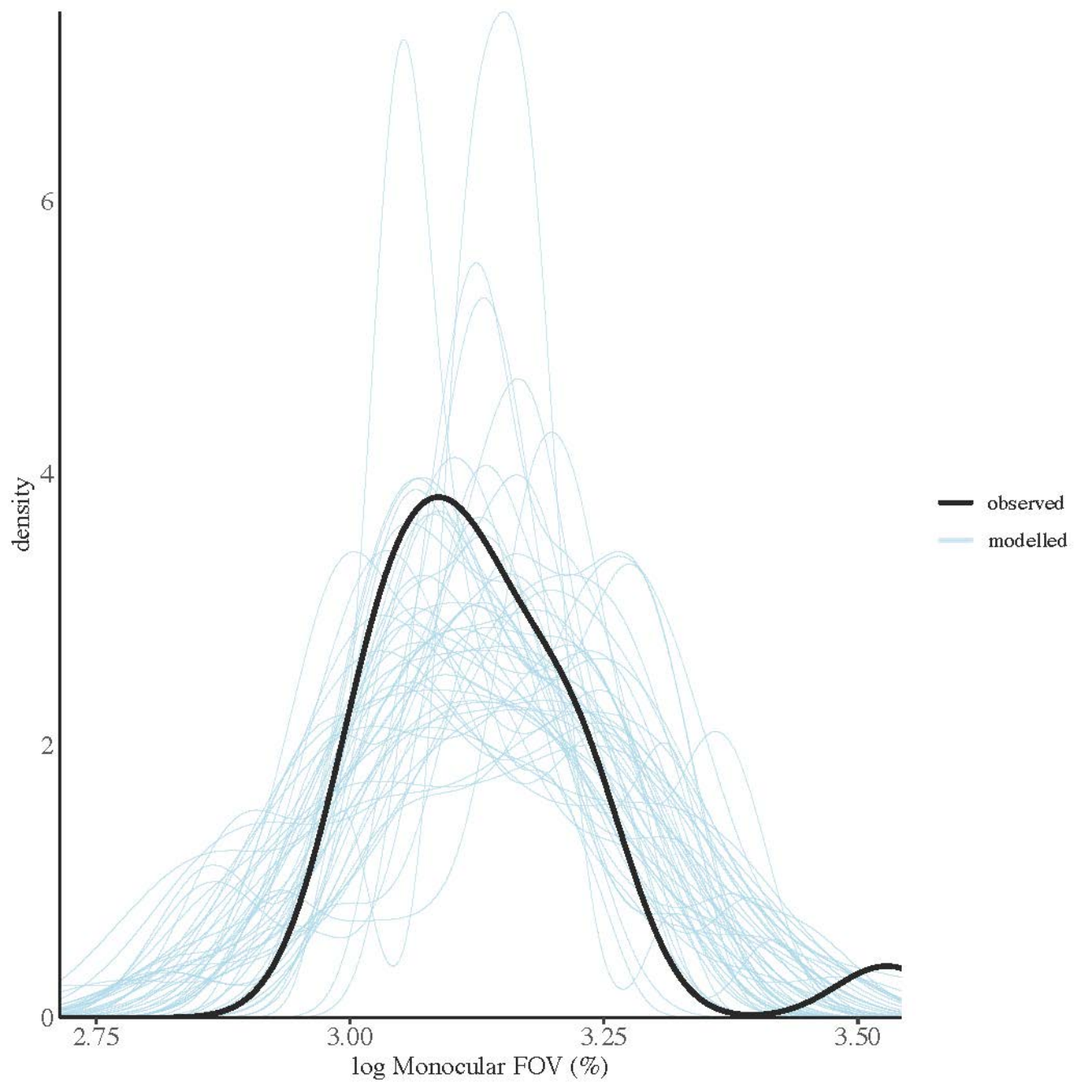
Ocellar alignment (°)


b_Intercept
b_Intercept
b_logitd
b_logitd
sigma
sigma

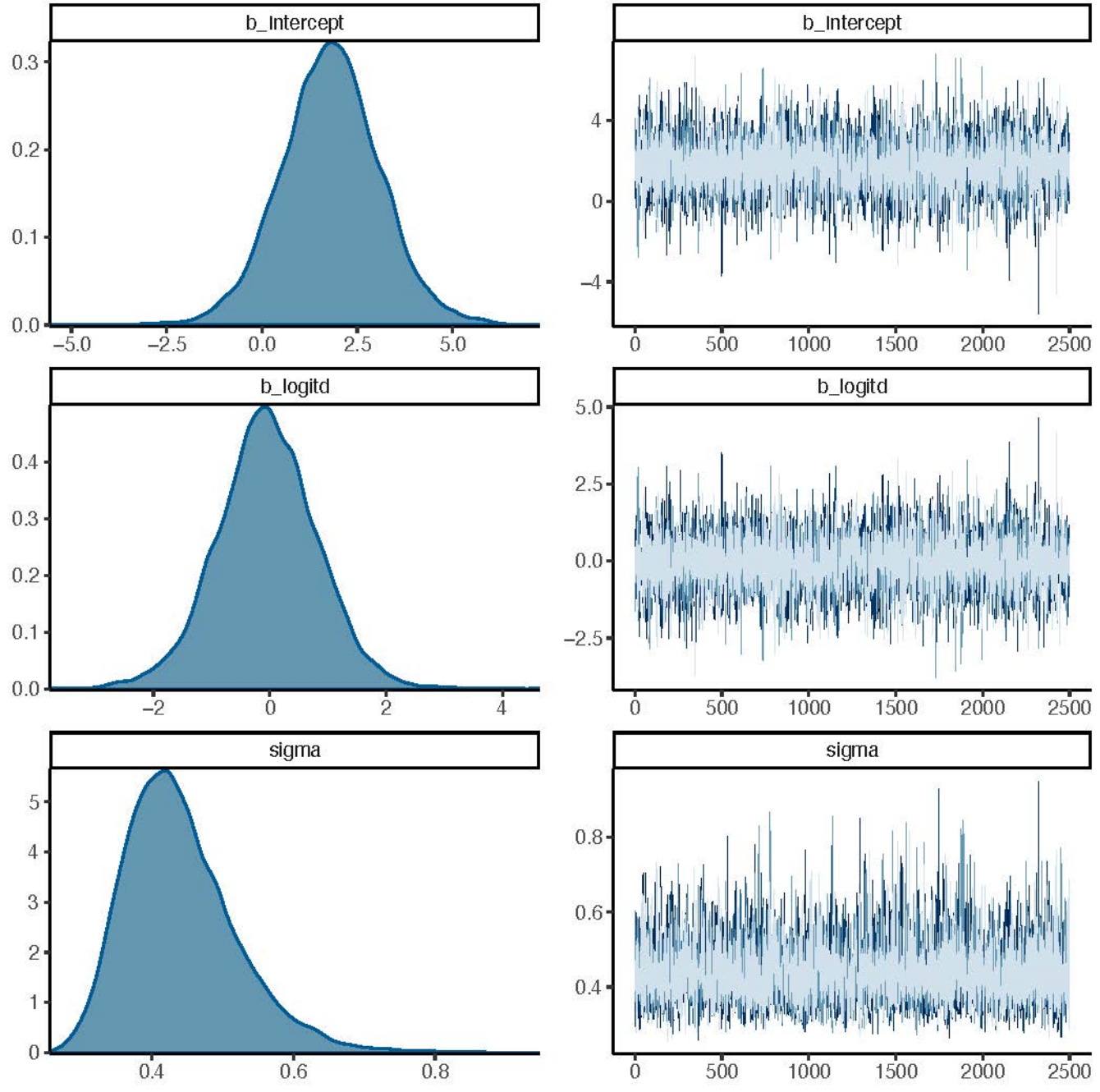

8
6
4
2
density
4.7
4.8
4.9
5.0
5.1
5.2
5.3
log Ocellar alignment (°)
observed
modelled

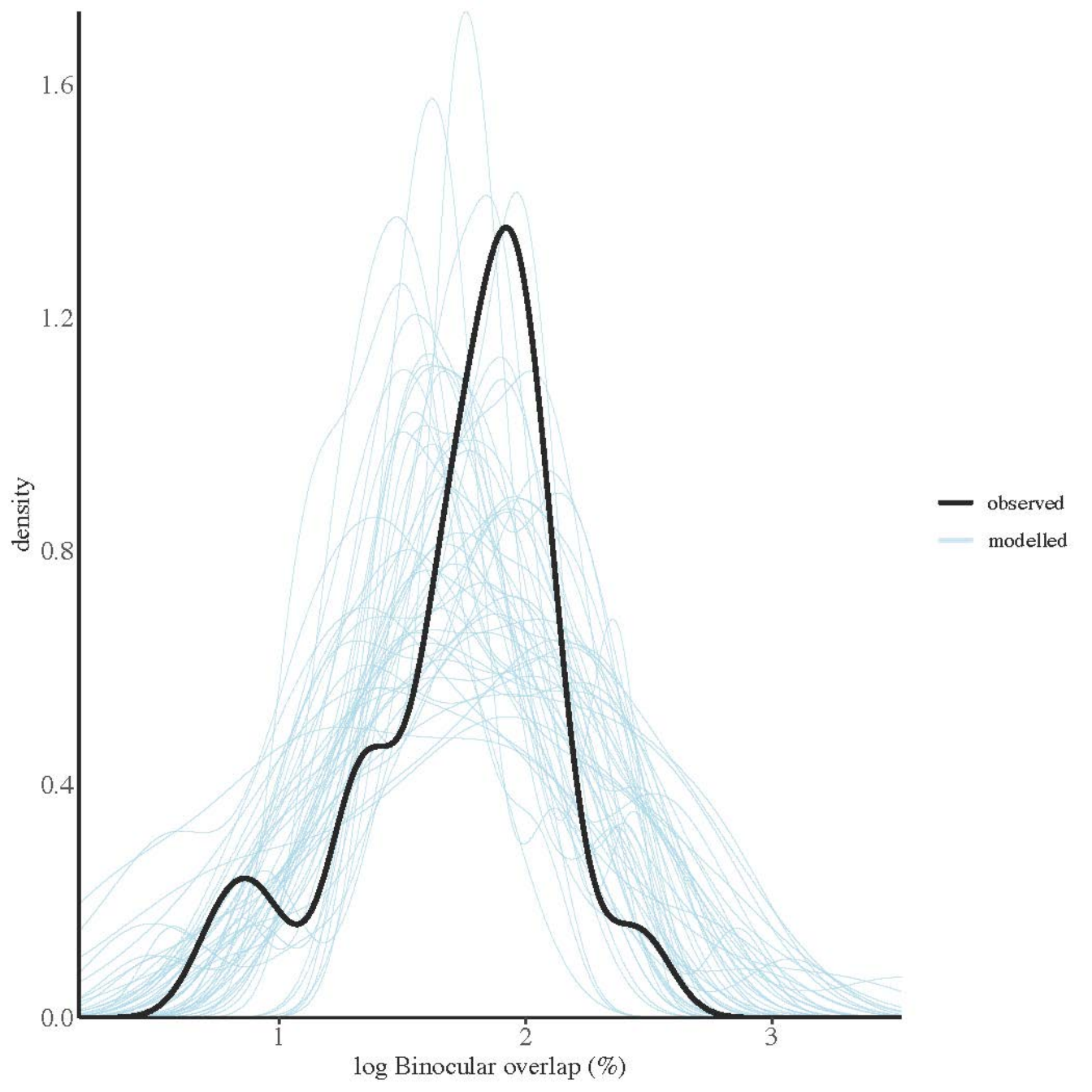
Monocular FOV (%)


b_Intercept
1.25
1.00
0.75
0.50
0.25
0.00
3
4
5
b_Intercept
5
4
3
2
0
500
1000
1500
2000
2500
b_logitd
1.5
1.0
0.5
0.0
−1.0
−0.5
0.0
0.5
b_logitd
0.5
0.0
−0.5
−1.0
−1.5
0
500
1000
1500
2000
2500
sigma
20
15
10
5
0
0.10
0.15
0.20
sigma
0.20
0.15
0.10
0
500
1000
1500
2000
2500


density
0
2
4
6
2.75
3.00
3.25
3.50
log Monocular FOV (%)
observed
modelled

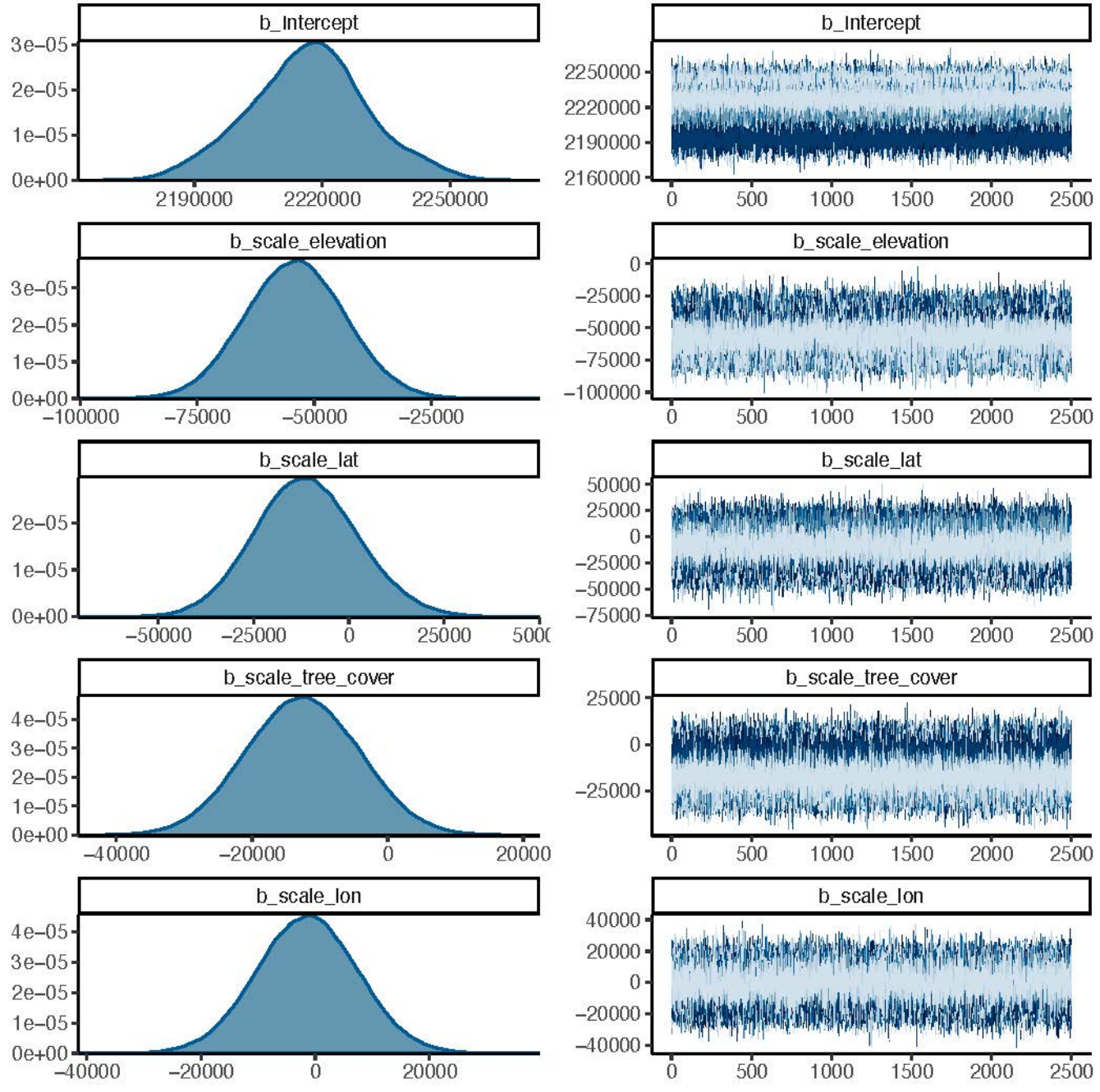
Binocular overlap (%)

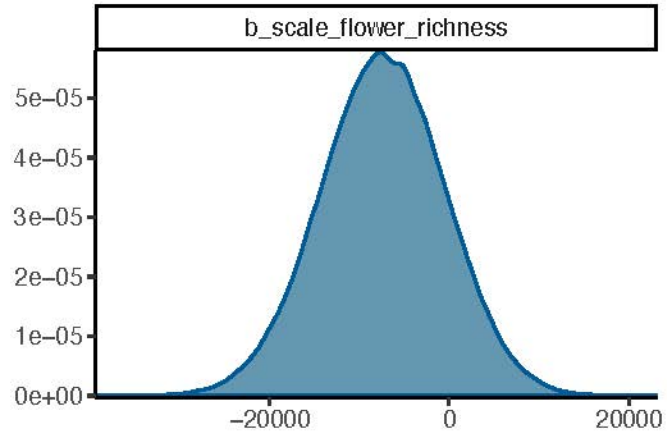

b_Intercept
b_Intercept
b_logitd
b_logitd
sigma
sigma

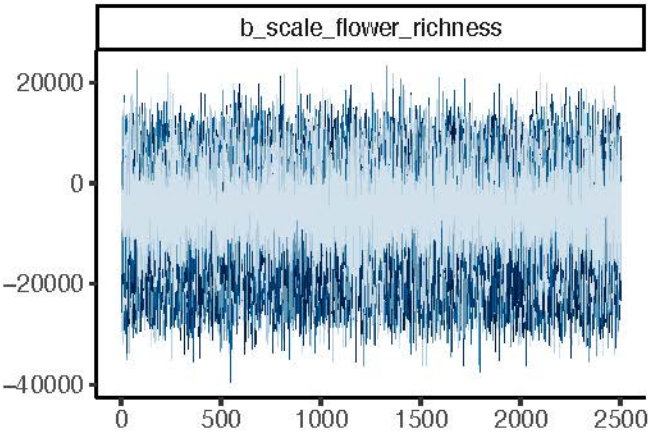

1.6
1.2
0.8
0.4
0.0
density
1
2
3
log Binocular overlap (%)
observed
modelled

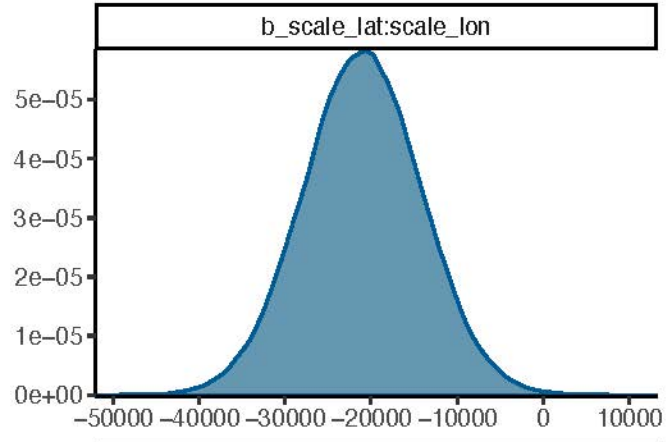
Effects of tree cover on the community weighted means of visual traits and ITD in bumblebee communities within grasslands across Sweden. Model traces and posterior predictive check for each visual trait modelled with Bayesian inference.

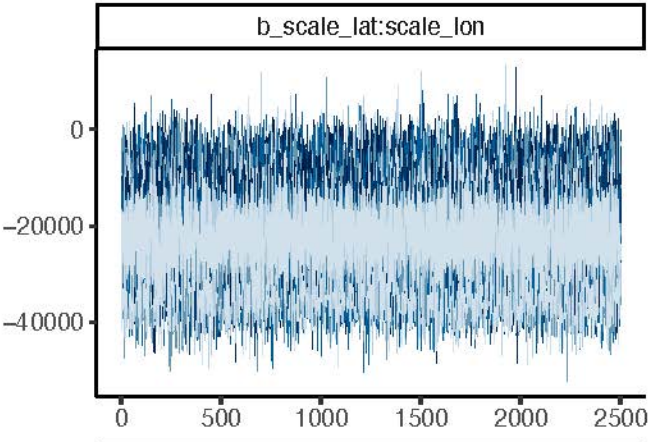
Eye surface (μm^2)

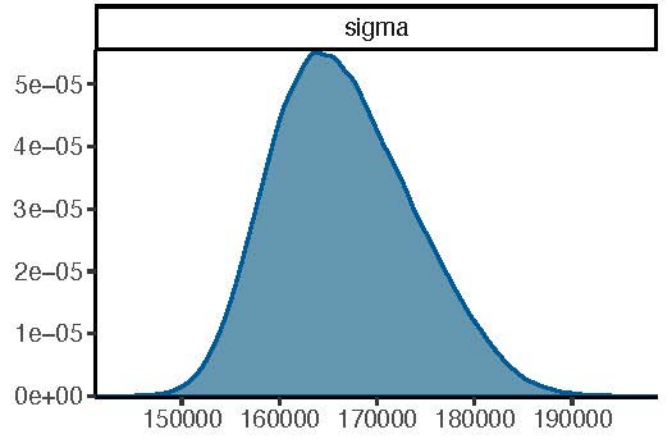

b_Intercept
3e−05
2e−05
1e−05
0e+00
2190000
2220000
2250000
b_Intercept
2250000
2220000
2190000
2160000
0
500
1000
1500
2000
2500
b_scale_elevation
3e−05
2e−05
1e−05
0e+00
−100000
−75000
−50000
−25000
b_scale_elevation
0
−25000
−50000
−75000
−100000
0
500
1000
1500
2000
2500
b_scale_lat
2e−05
1e−05
0e+00
−50000
−25000
0
25000
5000
b_scale_lat
50000
25000
0
−25000
−50000
−75000
0
500
1000
1500
2000
2500
b_scale_tree_cover
4e−05
3e−05
2e−05
1e−05
0e+00
−40000
−20000
0
20000
b_scale_tree_cover
25000
0
−25000
0
500
1000
1500
2000
2500
b_scale_lon
4e−05
3e−05
2e−05
1e−05
0e+00
−40000
−20000
0
20000
b_scale_lon
40000
20000
0
−20000
−40000
0
500
1000
1500
2000
2500

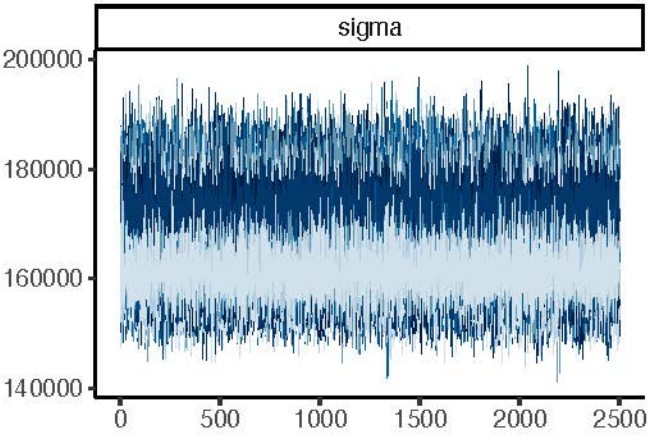

b_scale_flower_richness
5e−05
4e−05
3e−05
2e−05
1e−05
0e+00
−20000
0
20000

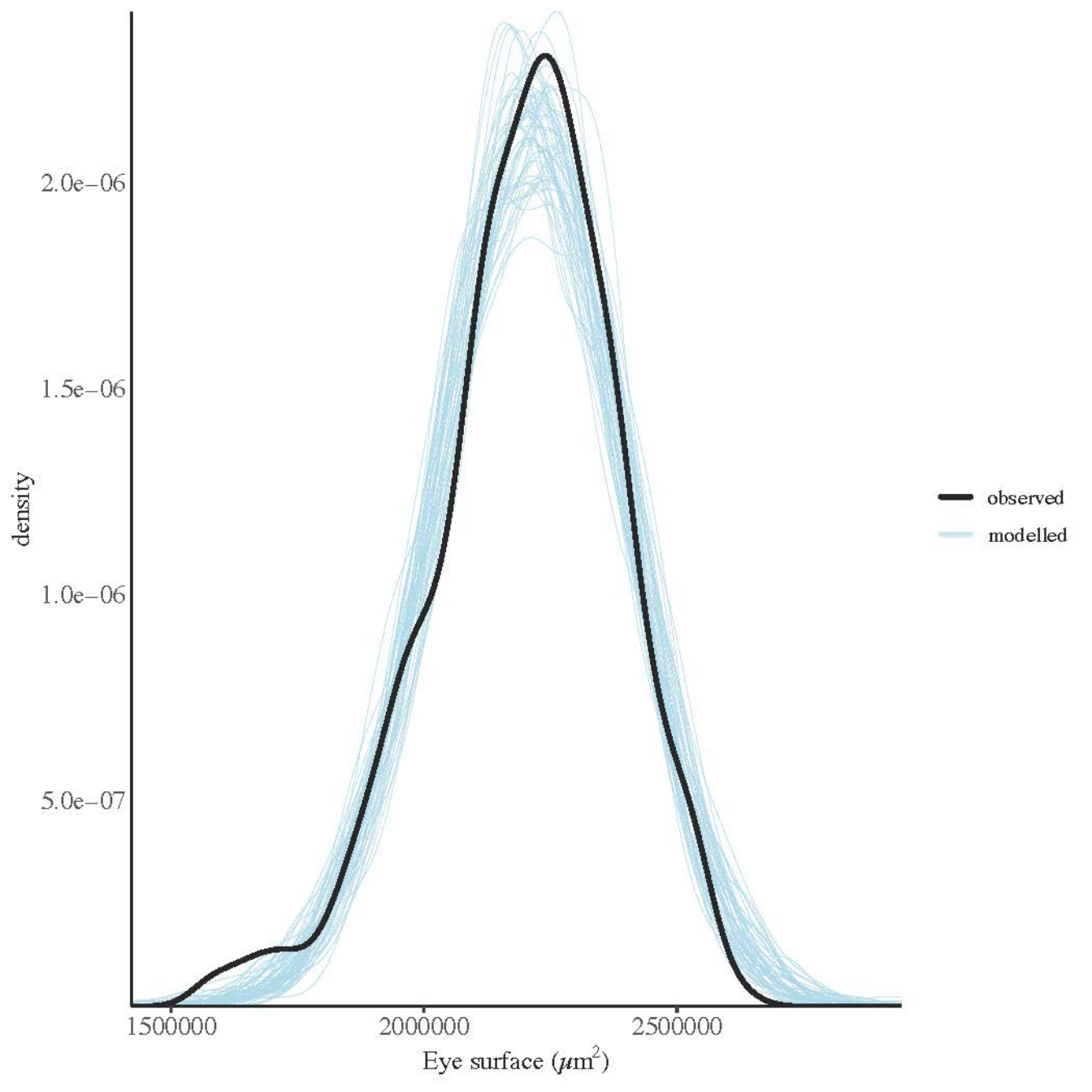

b_scale_flower_richness
20000
0
−20000
−40000
0
500
1000
1500
2000
2500


b_scale_lat:scale_lon
5e−05
4e−05
3e−05
2e−05
1e−05
0e+00
−50000
−40000
−30000
−20000
−10000
0
10000

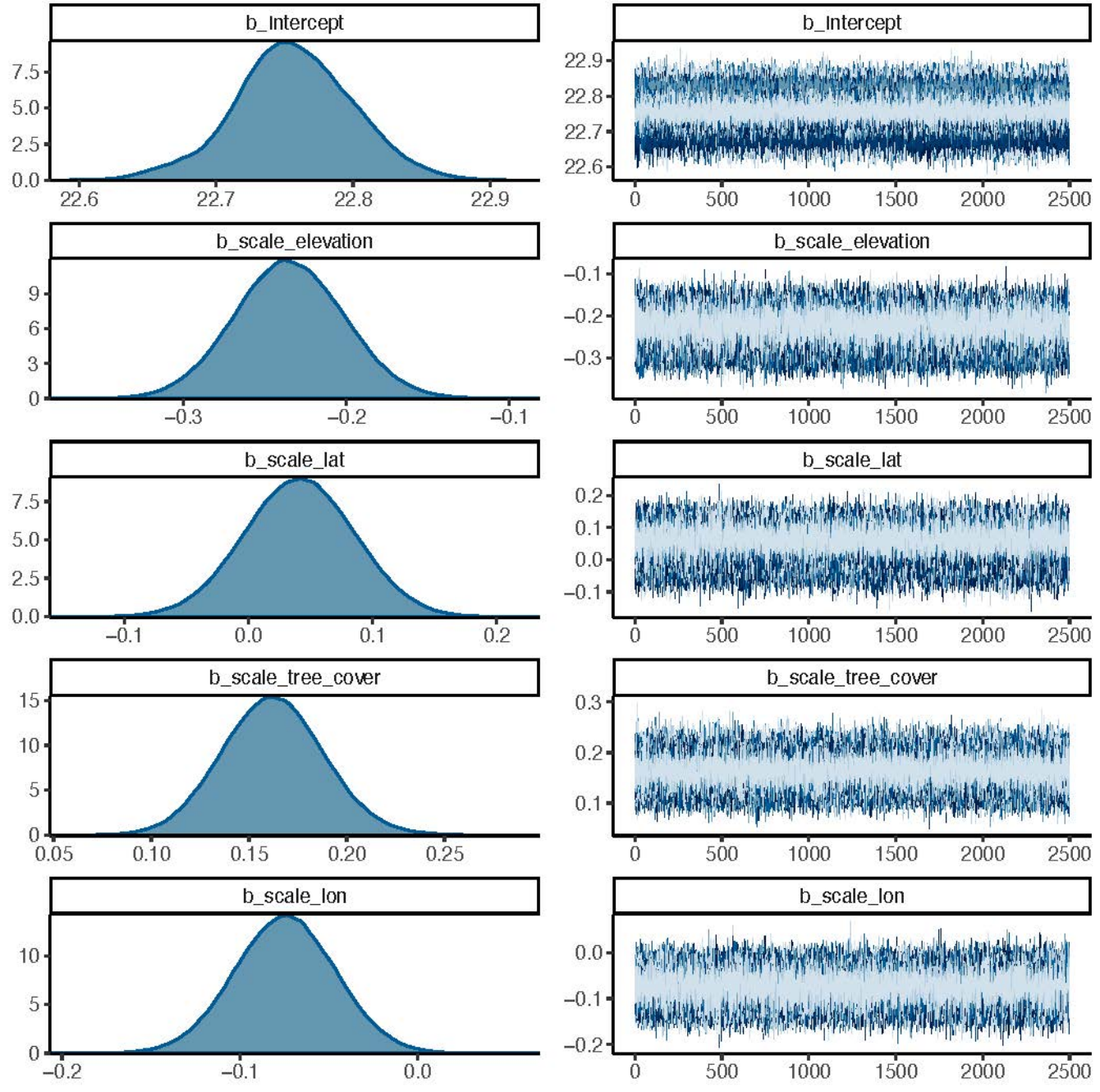

b_scale_lat:scale_lon
0
−20000
−40000
0
500
1000
1500
2000
2500

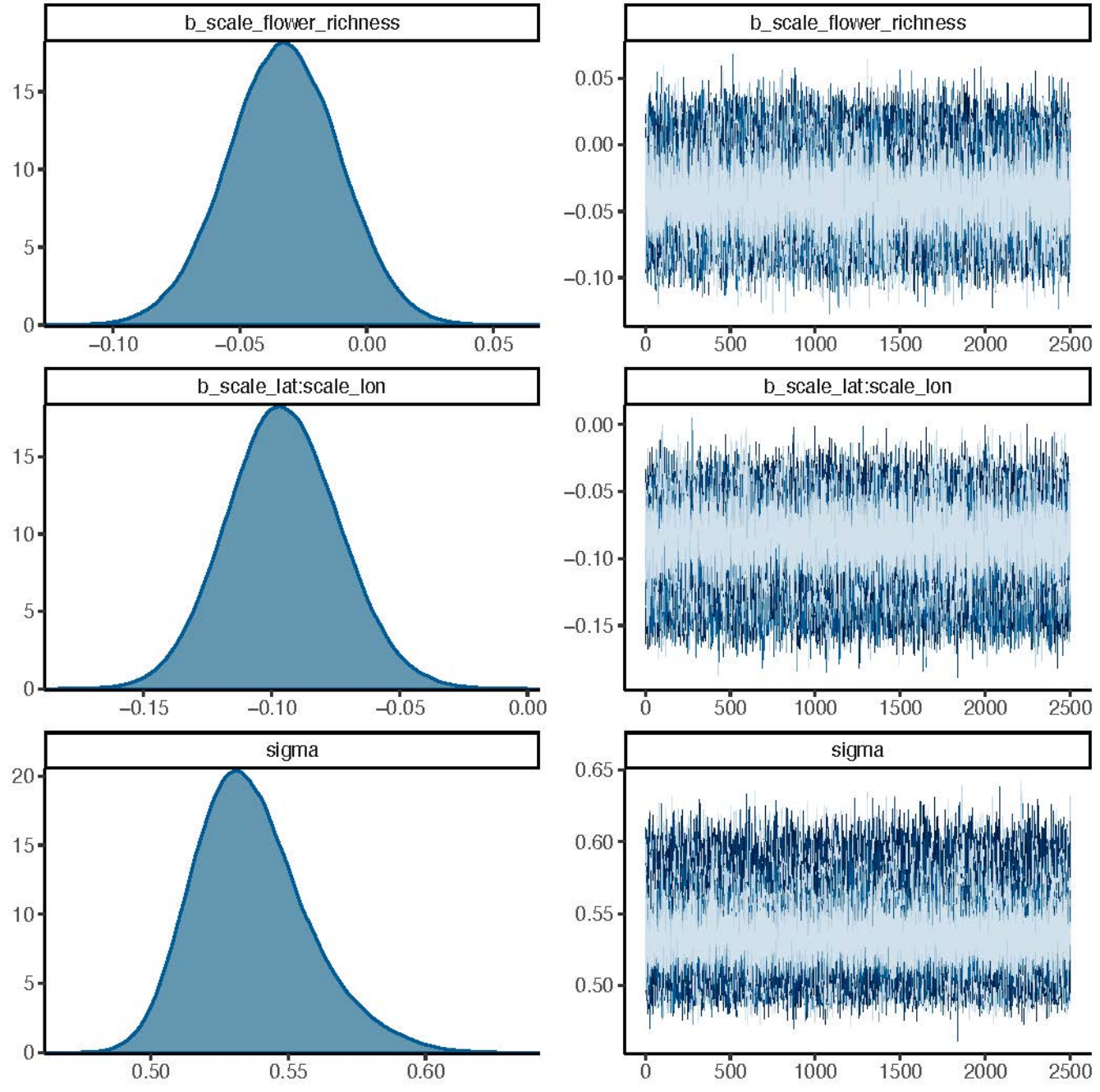

sigma
5e−05
4e−05
3e−05
2e−05
1e−05
0e+00
150000
160000
170000
180000
190000

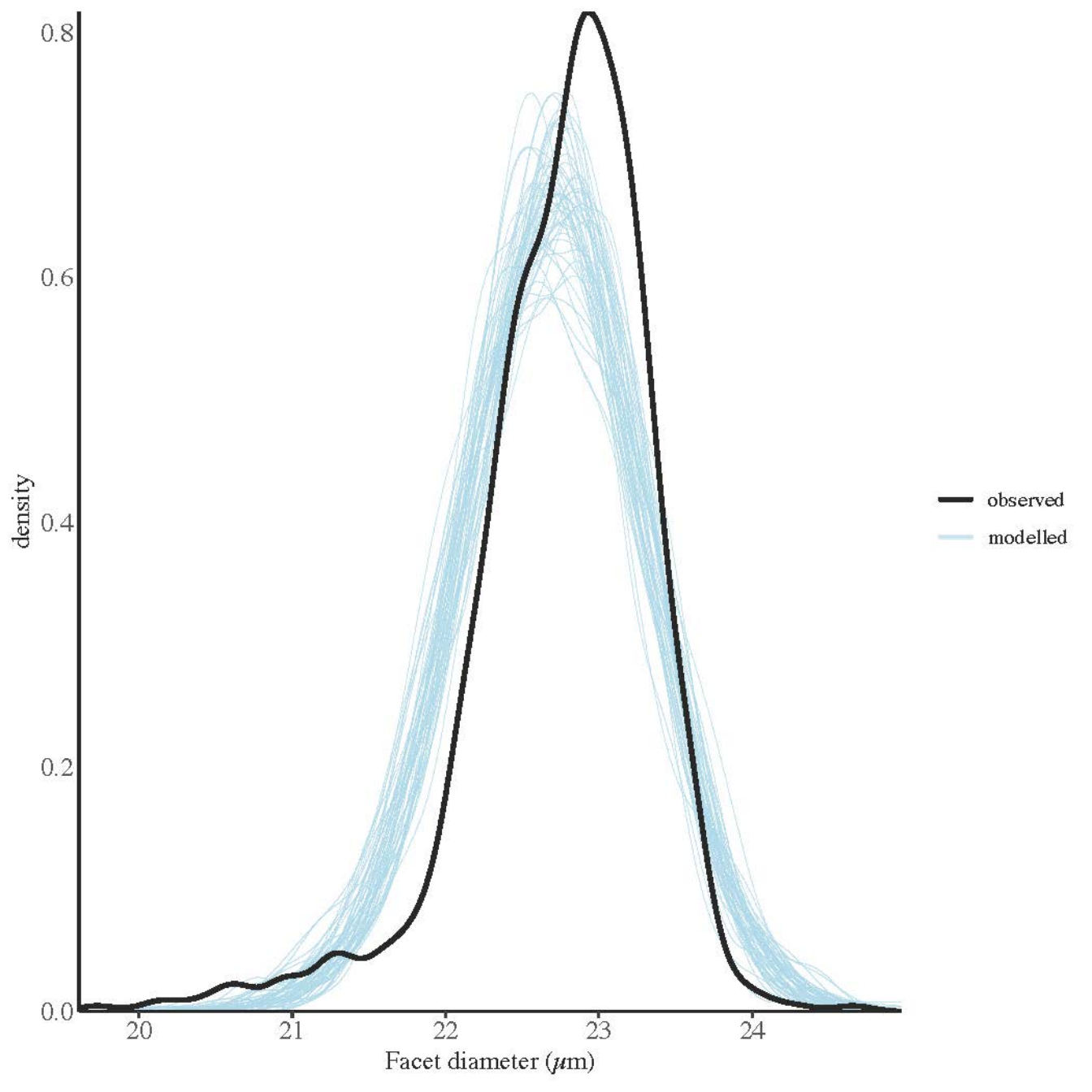

sigma
200000
180000
160000
140000
0
500
1000
1500
2000
2500


density
2.0e−06
1.5e−06
1.0e−06
5.0e−07
1500000
2000000
2500000
Eye surface (μm²)
observed
modelled

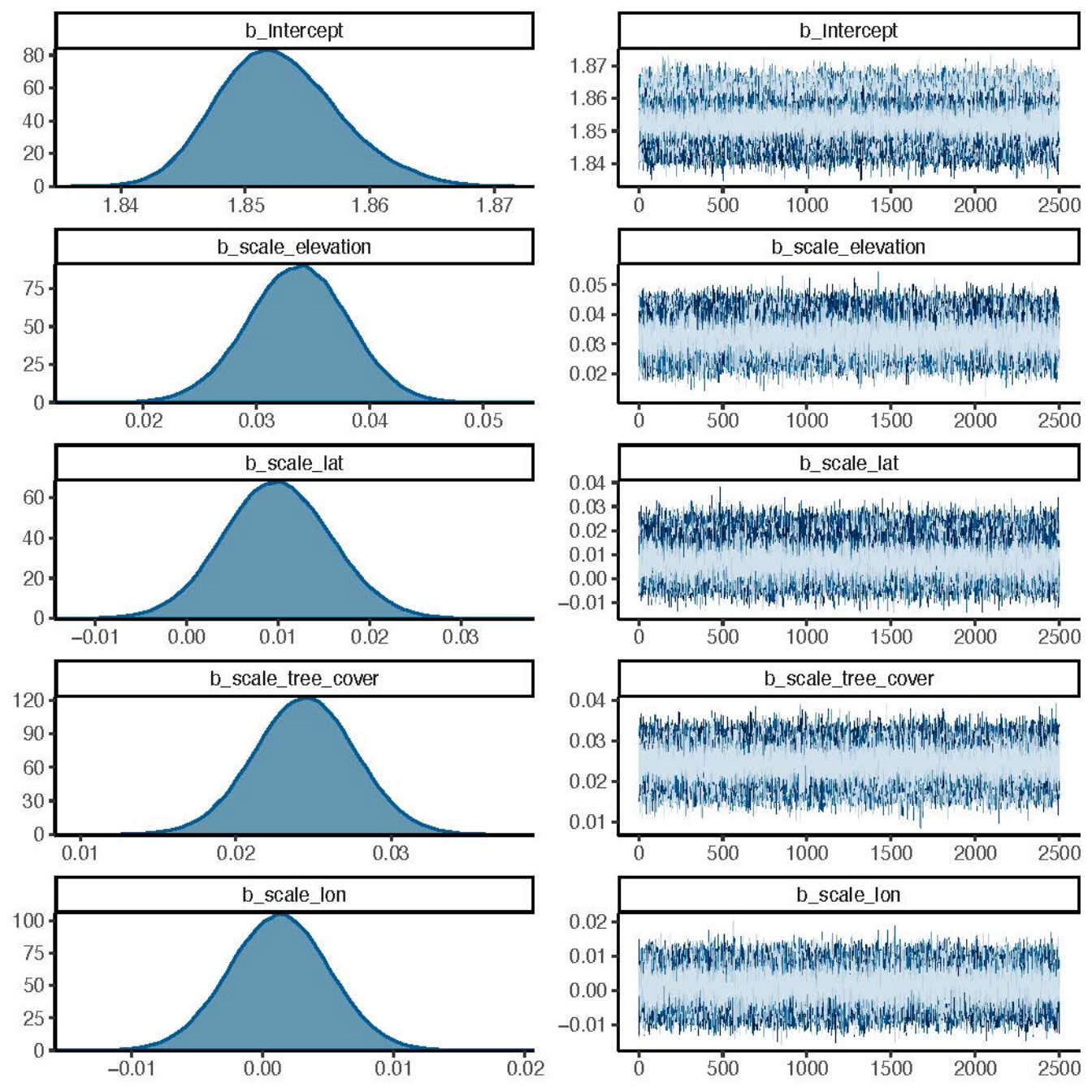
Facet diameter (μm)

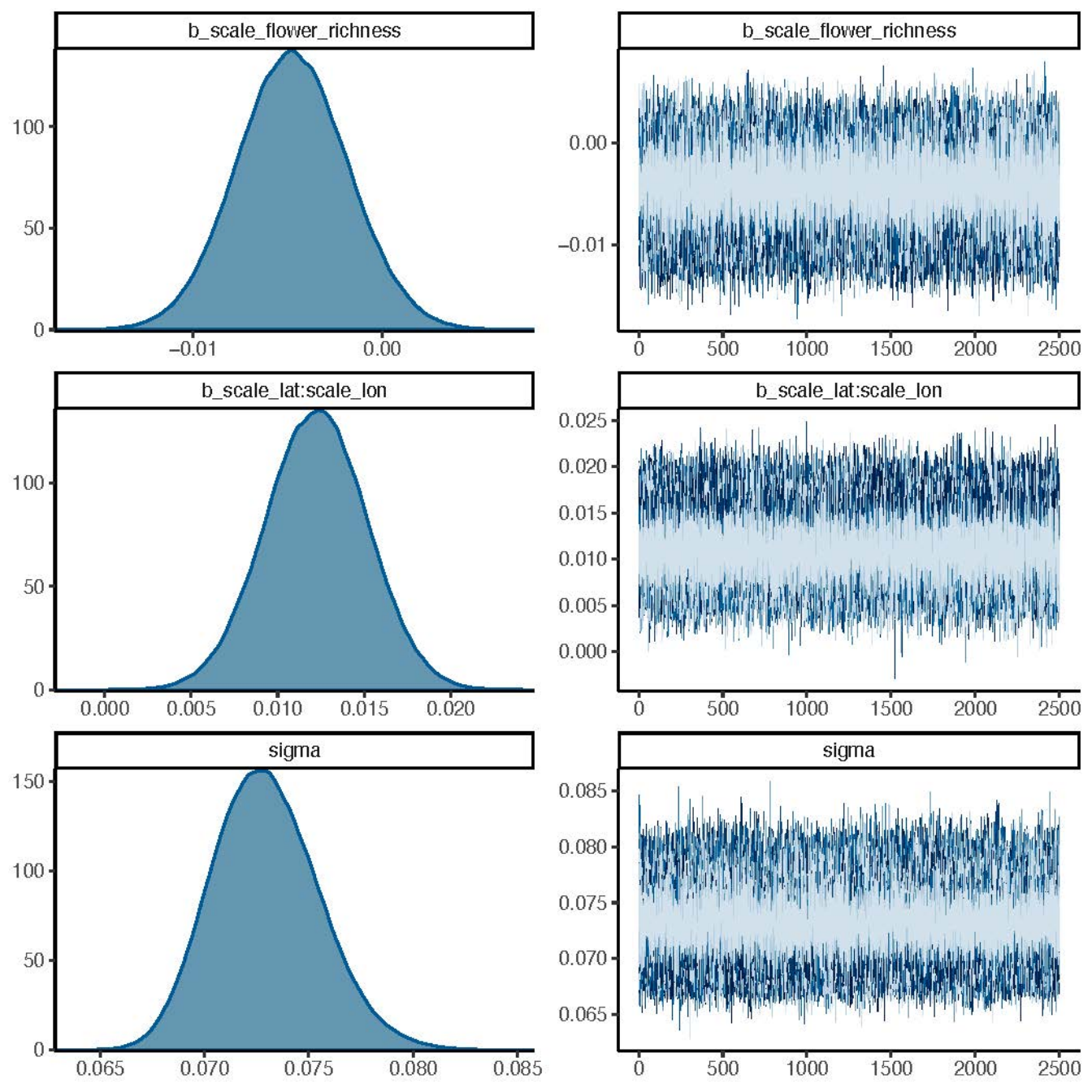

b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon

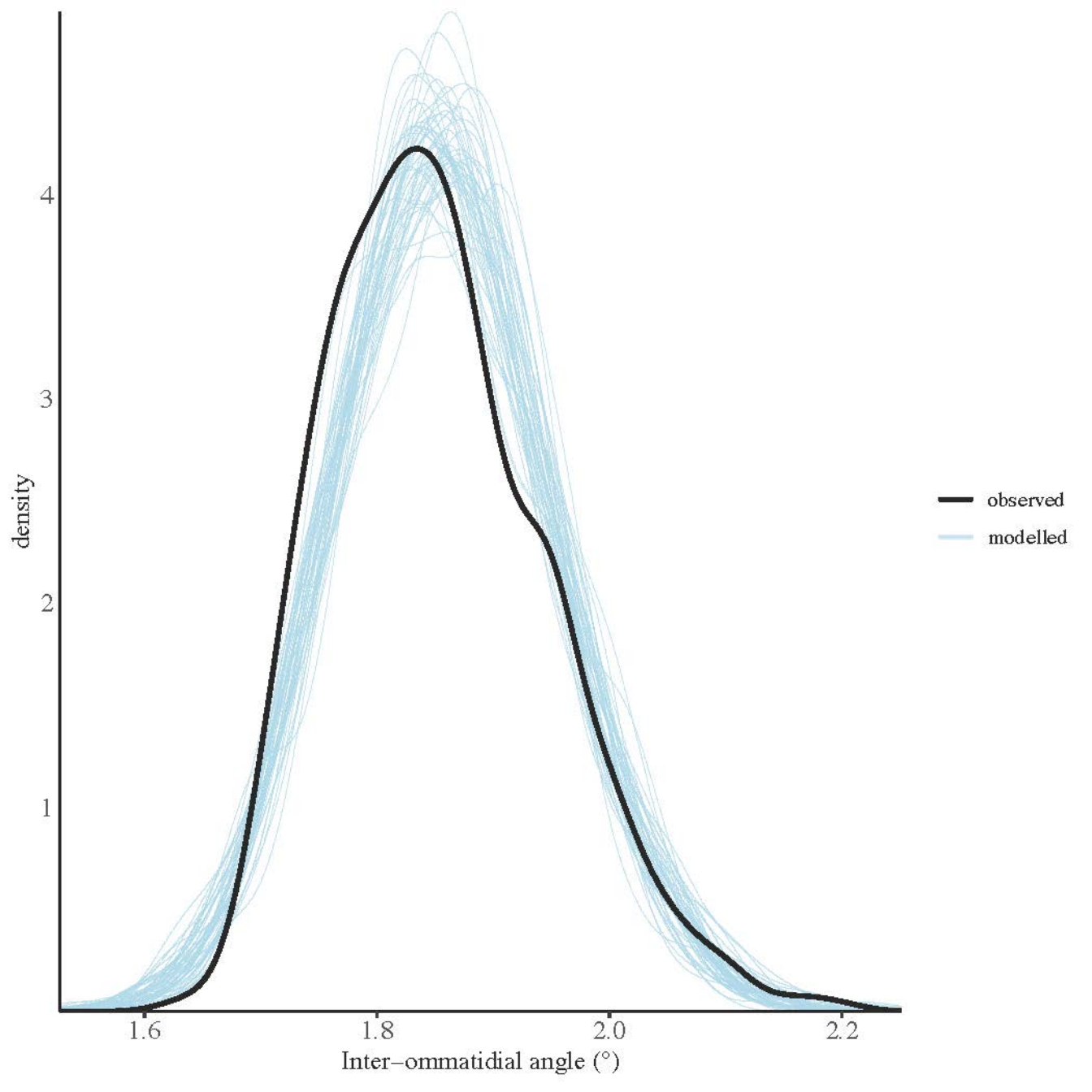

b_scale_flower_richness
b_scale_flower_richness
b_scale_lat:scale_lon
b_scale_lat:scale_lon
sigma
sigma


0.8
0.6
0.4
0.2
0.0
density
20
21
22
23
24
Facet diameter (μm)
observed
modelled

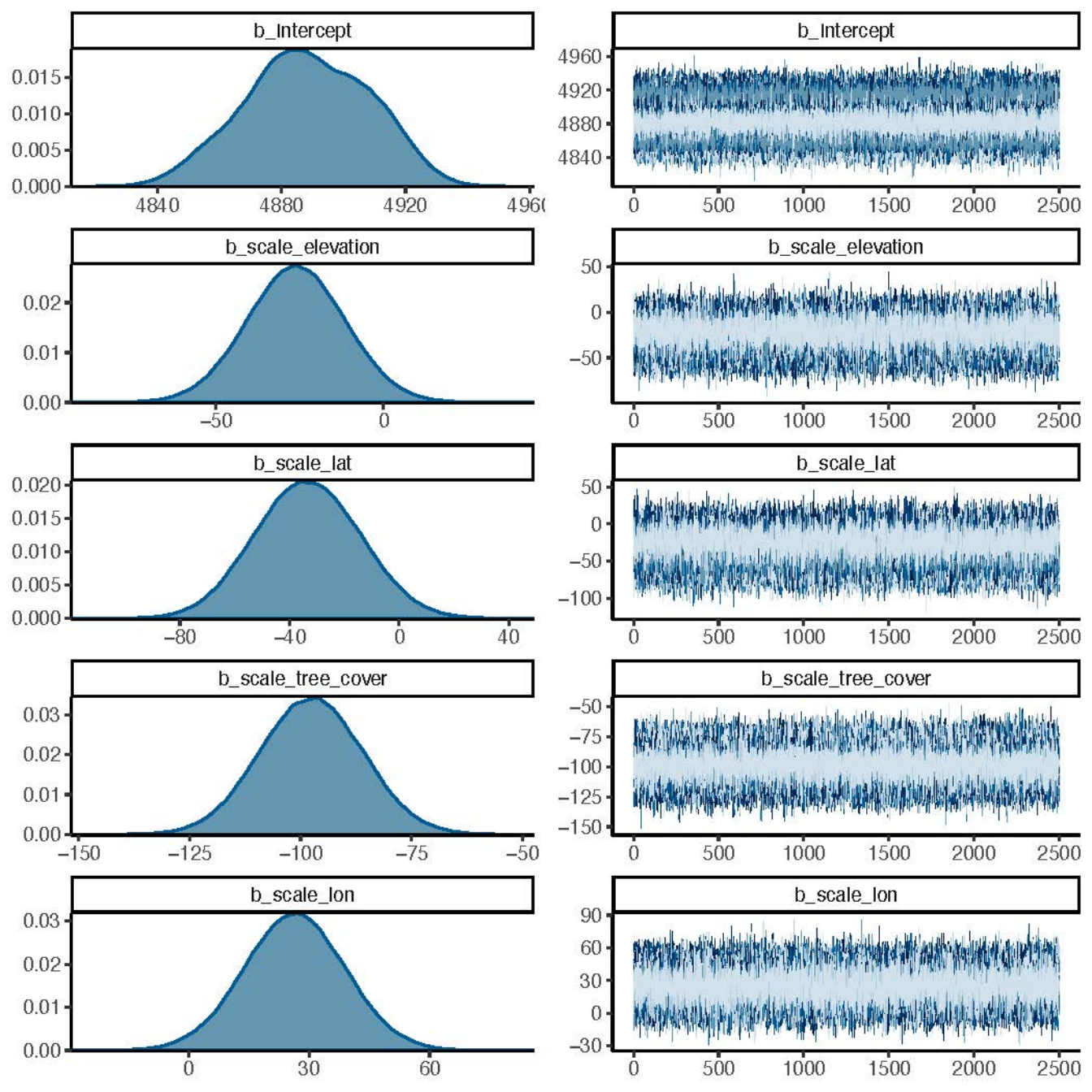
Inter–ommatidial angle (°)

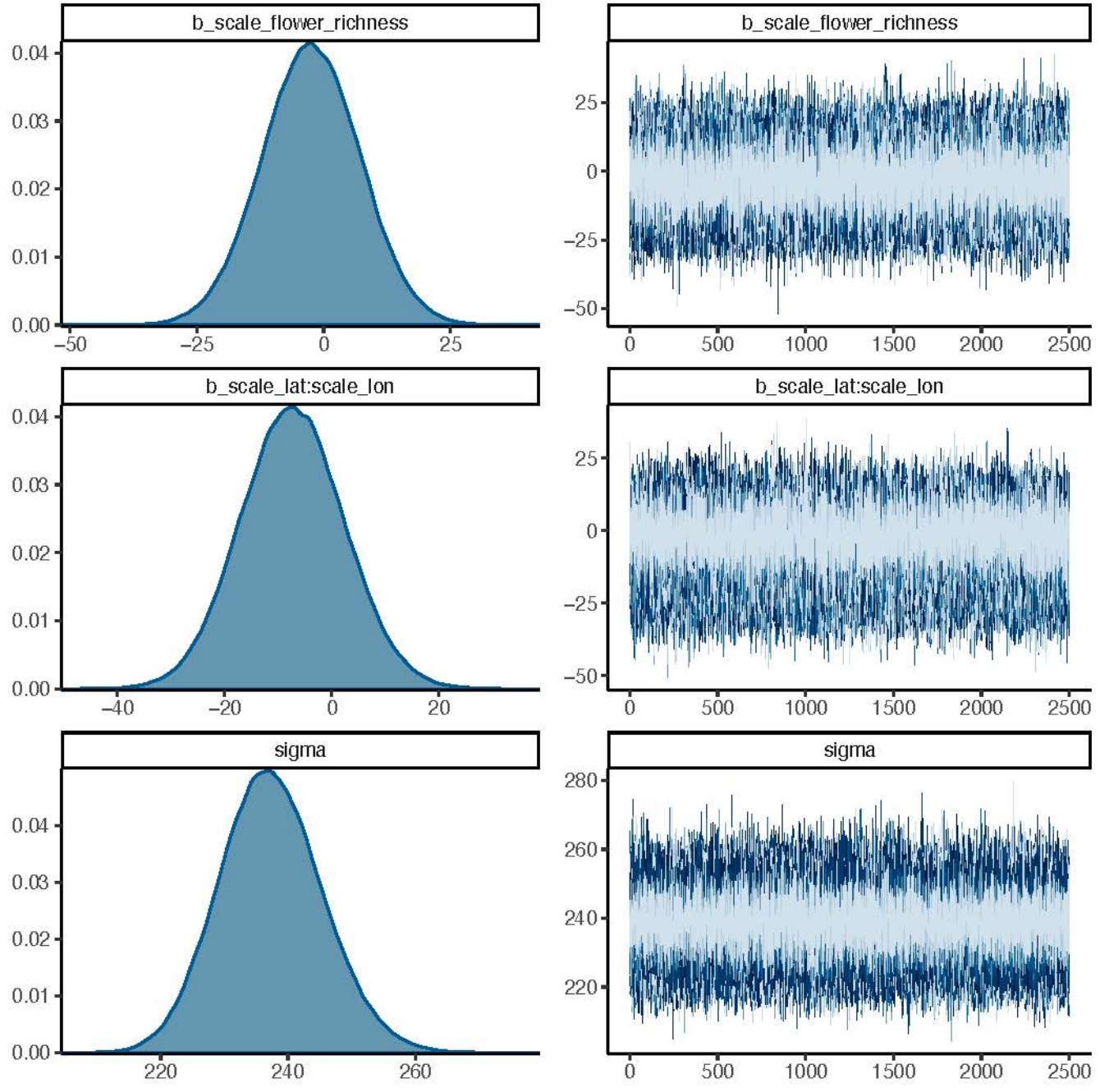

b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon

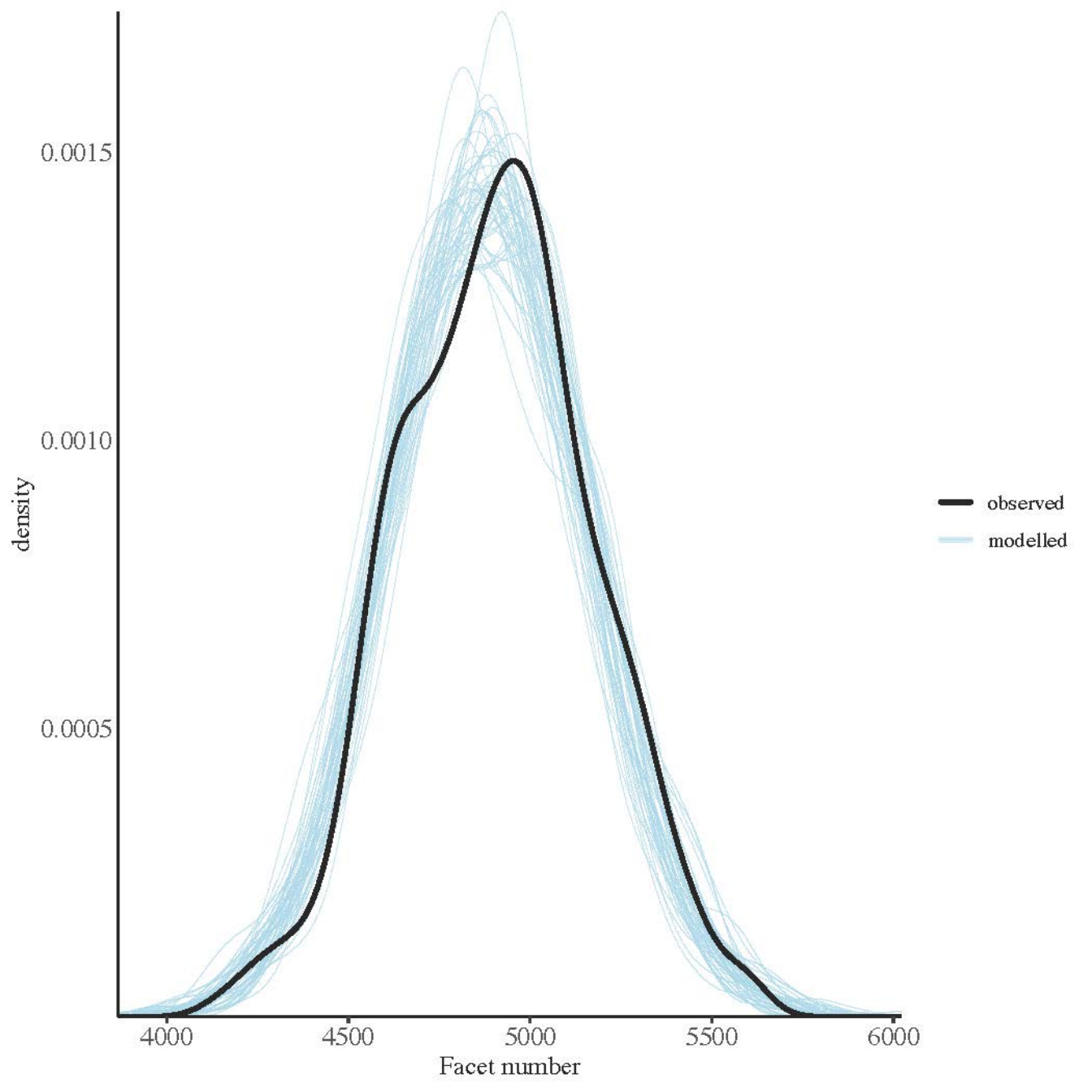

b_scale_flower_richness
100
50
0
−0.01
0.00
b_scale_flower_richness
0.00
−0.01
0
500
1000
1500
2000
2500
b_scale_lat:scale_lon
100
50
0
0.000
0.005
0.010
0.015
0.020
b_scale_lat:scale_lon
0.025
0.020
0.015
0.010
0.005
0.000
0
500
1000
1500
2000
2500
sigma
150
100
50
0
0.065
0.070
0.075
0.080
0.085
sigma
0.085
0.080
0.075
0.070
0.065
0
500
1000
1500
2000
2500


density
4
3
2
1
1.6
1.8
2.0
2.2
Inter−ommatidial angle (°)
observed
modelled

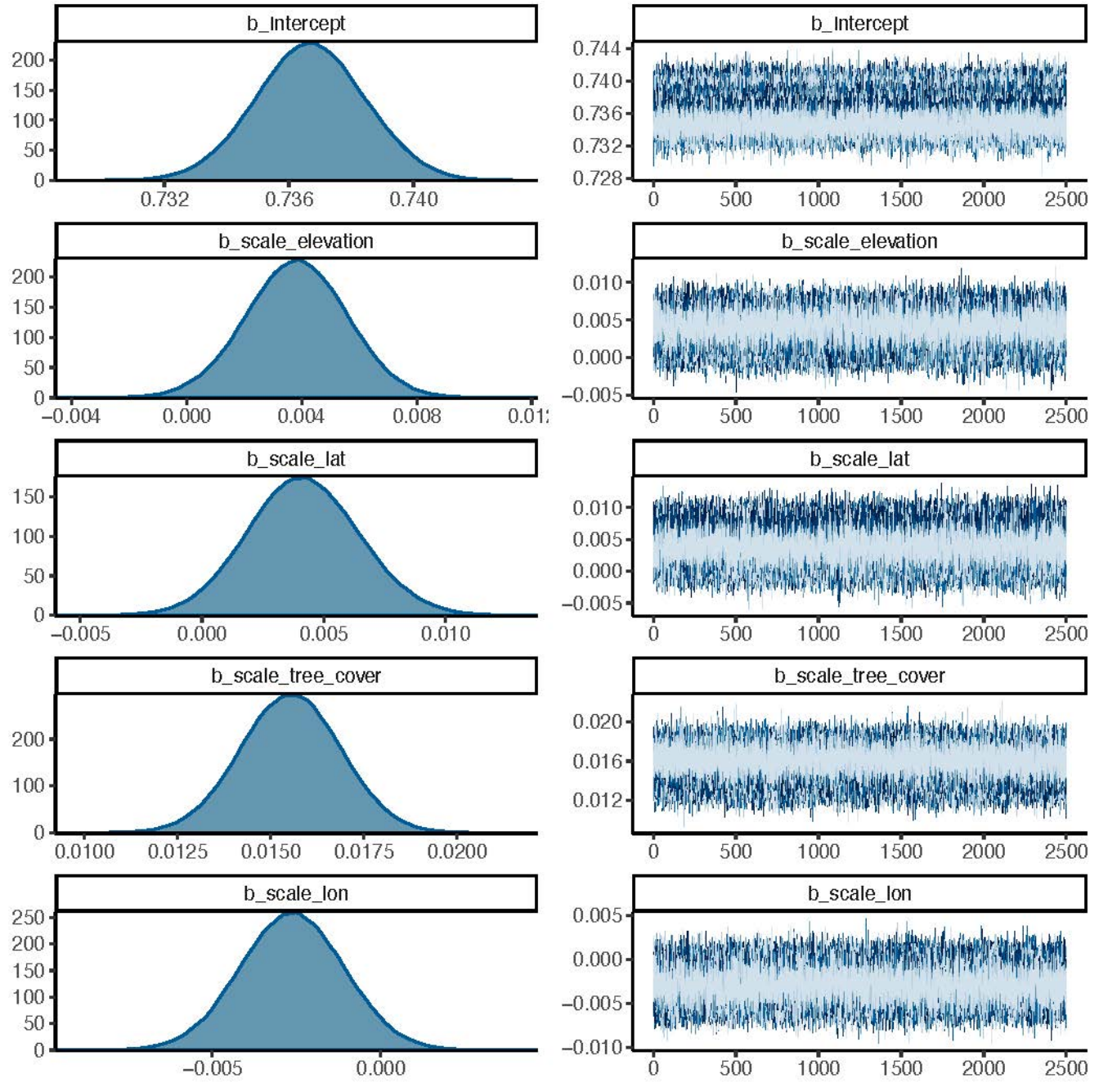
Facet number

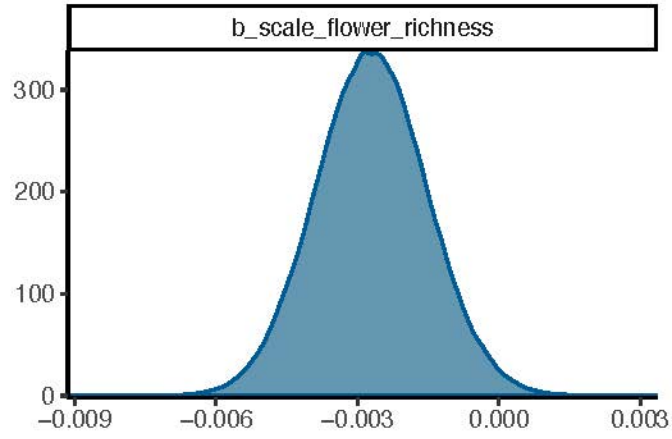

b_Intercept
b_scale_elevation
b_scale_lat
b_scale_tree_cover
b_scale_lon

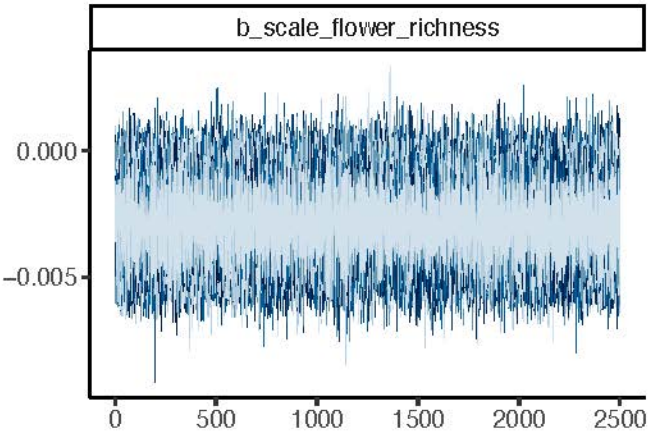

b_scale_flower_richness
0.04
0.03
0.02
0.01
0.00
−50
−25
0
25
b_scale_flower_richness
25
0
−25
−50
0
500
1000
1500
2000
2500
b_scale_lat:scale_lon
0.04
0.03
0.02
0.01
0.00
−40
−20
0
20
b_scale_lat:scale_lon
25
0
−25
−50
0
500
1000
1500
2000
2500
sigma
0.04
0.03
0.02
0.01
0.00
220
240
260
sigma
280
260
240
220
0
500
1000
1500
2000
2500

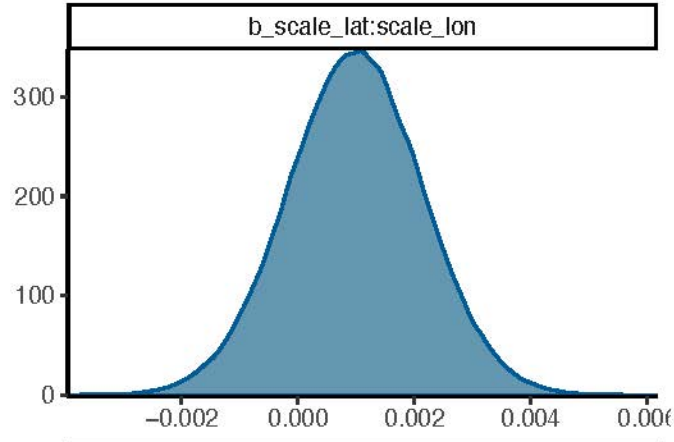

0.0015
0.0010
0.0005
density
4000
4500
5000
5500
6000
Facet number
observed
modelled

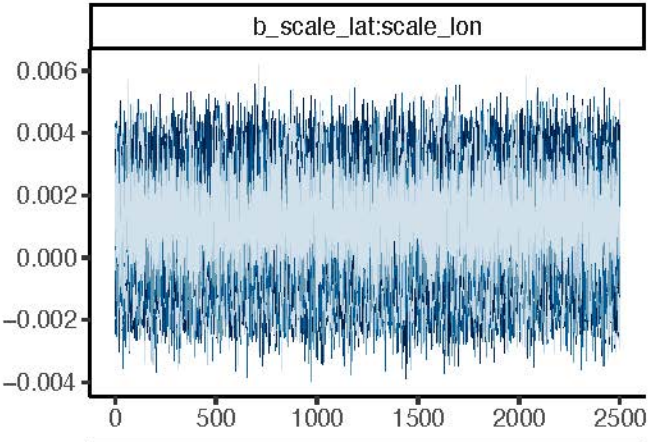
Eye parameter (μm.rad)

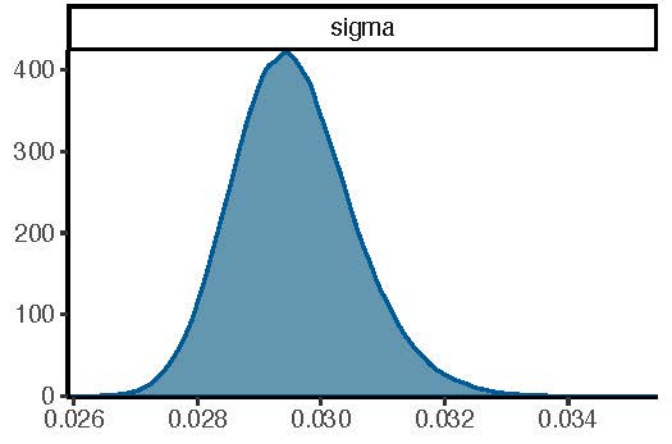

b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon

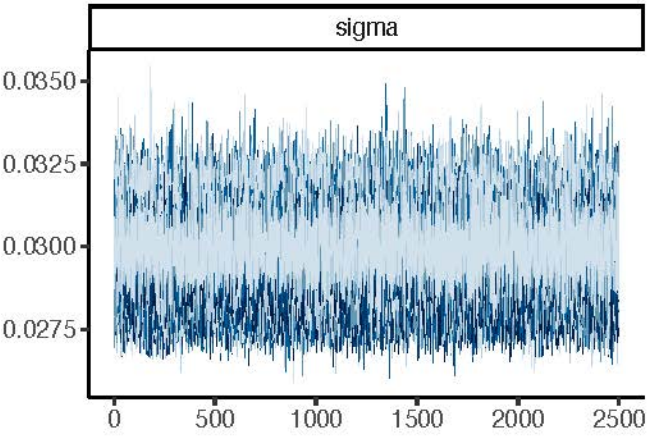

b_scale_flower_richness
300
200
100
0
−0.009
−0.006
−0.003
0.000
0.003

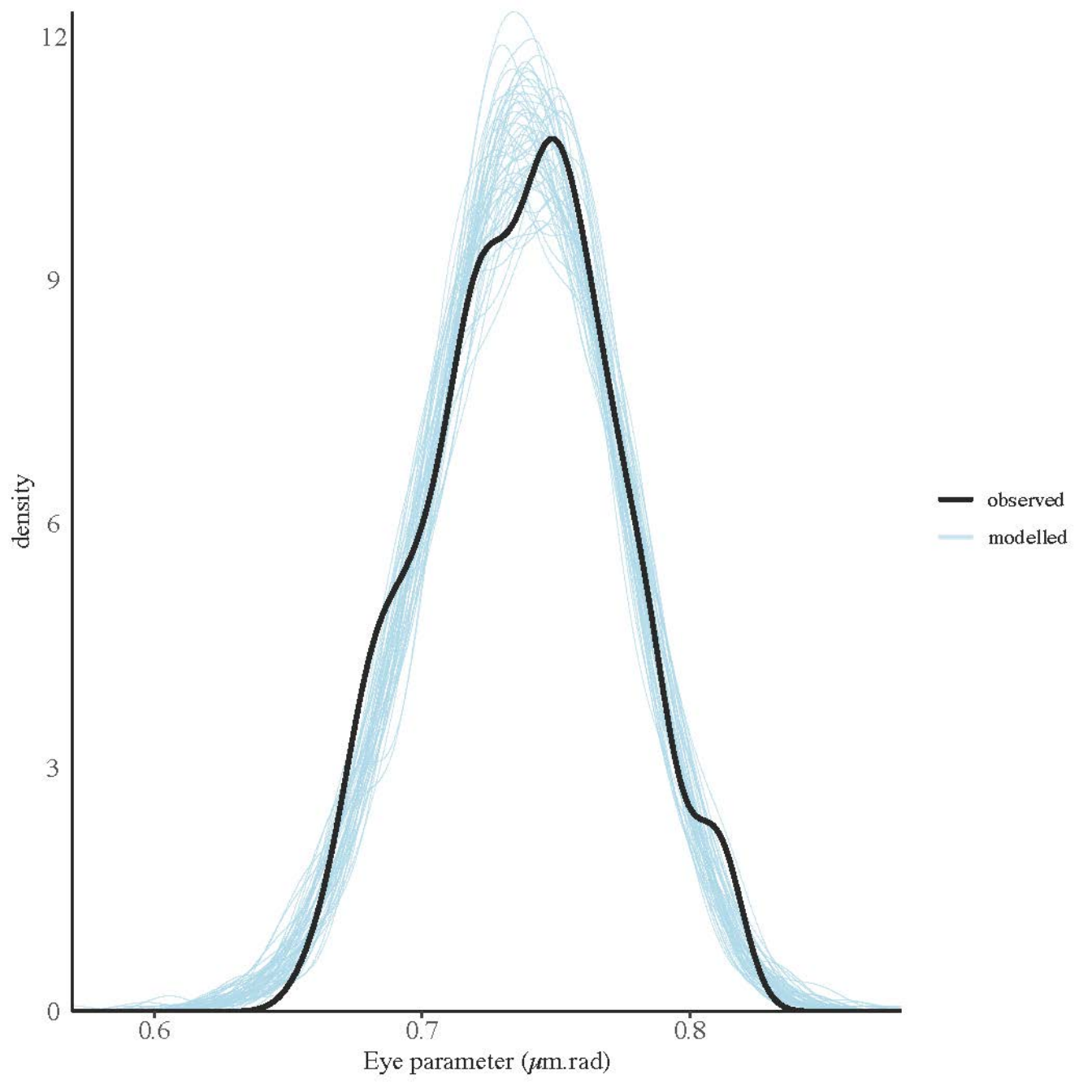

b_scale_flower_richness
0.000
−0.005
0
500
1000
1500
2000
2500


b_scale_lat:scale_lon
300
200
100
0
−0.002
0.000
0.002
0.004
0.006

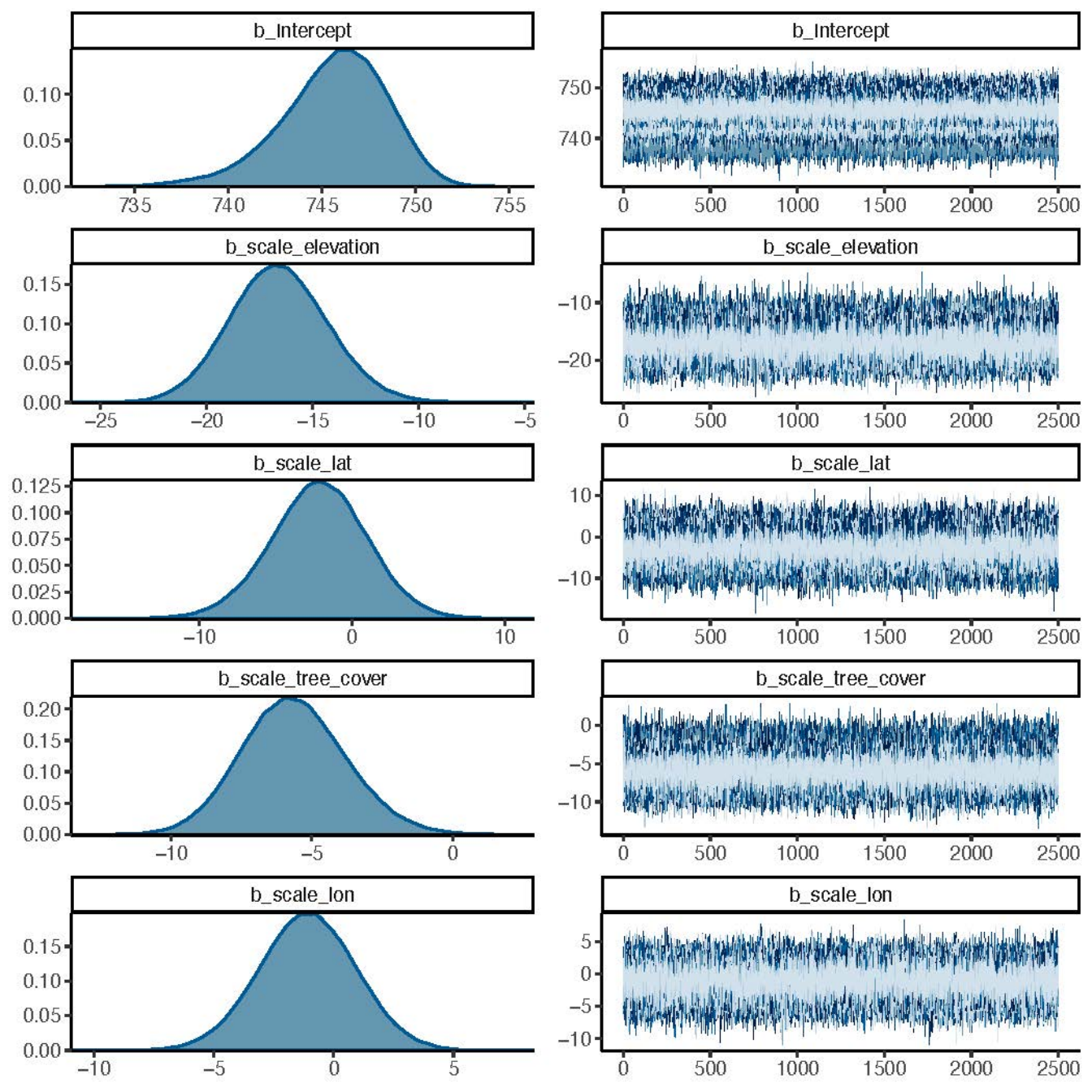

b_scale_lat:scale_lon
0.006
0.004
0.002
0.000
−0.002
−0.004
0
500
1000
1500
2000
2500

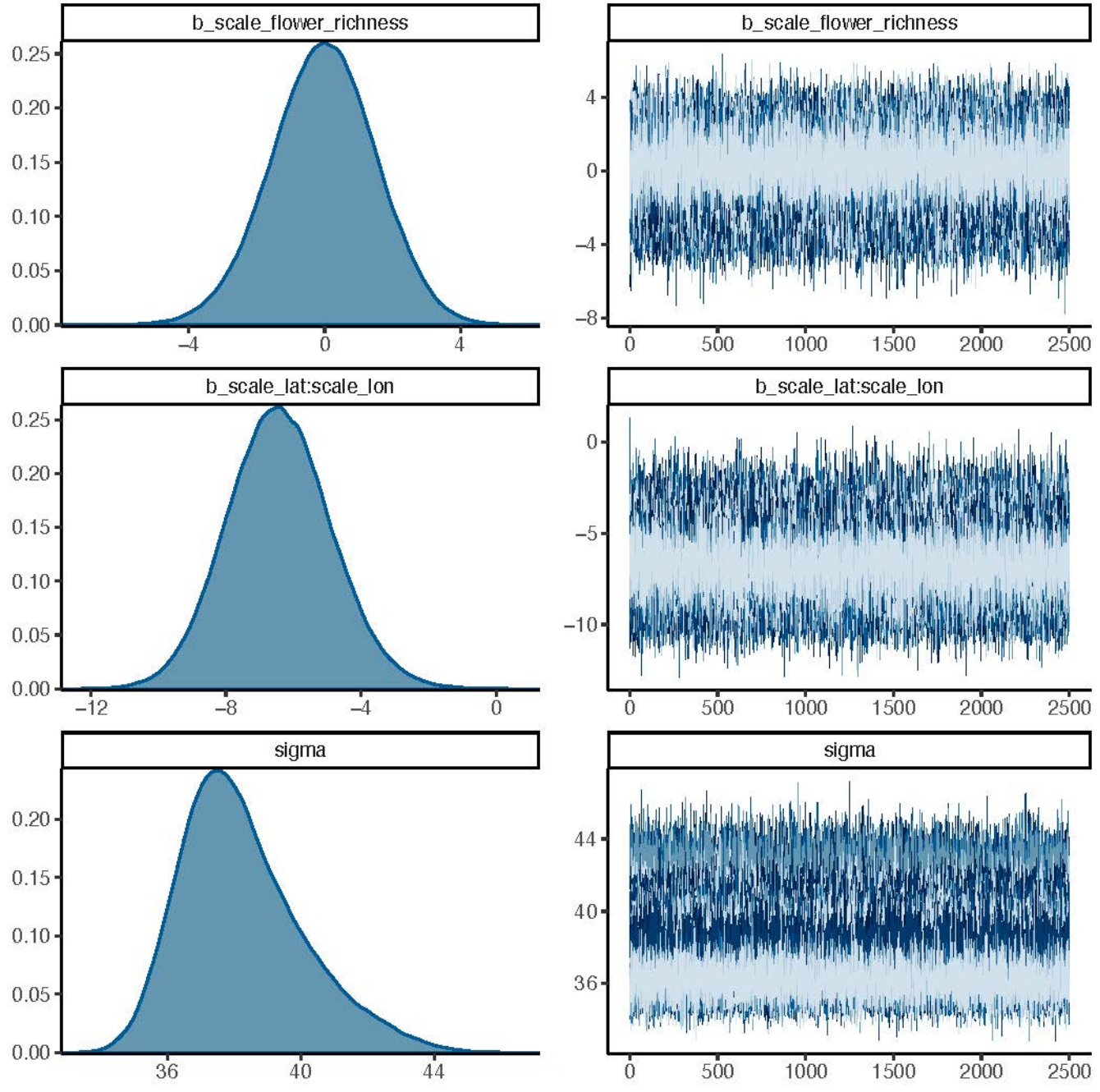

sigma
400
300
200
100
0
0.026
0.028
0.030
0.032
0.034

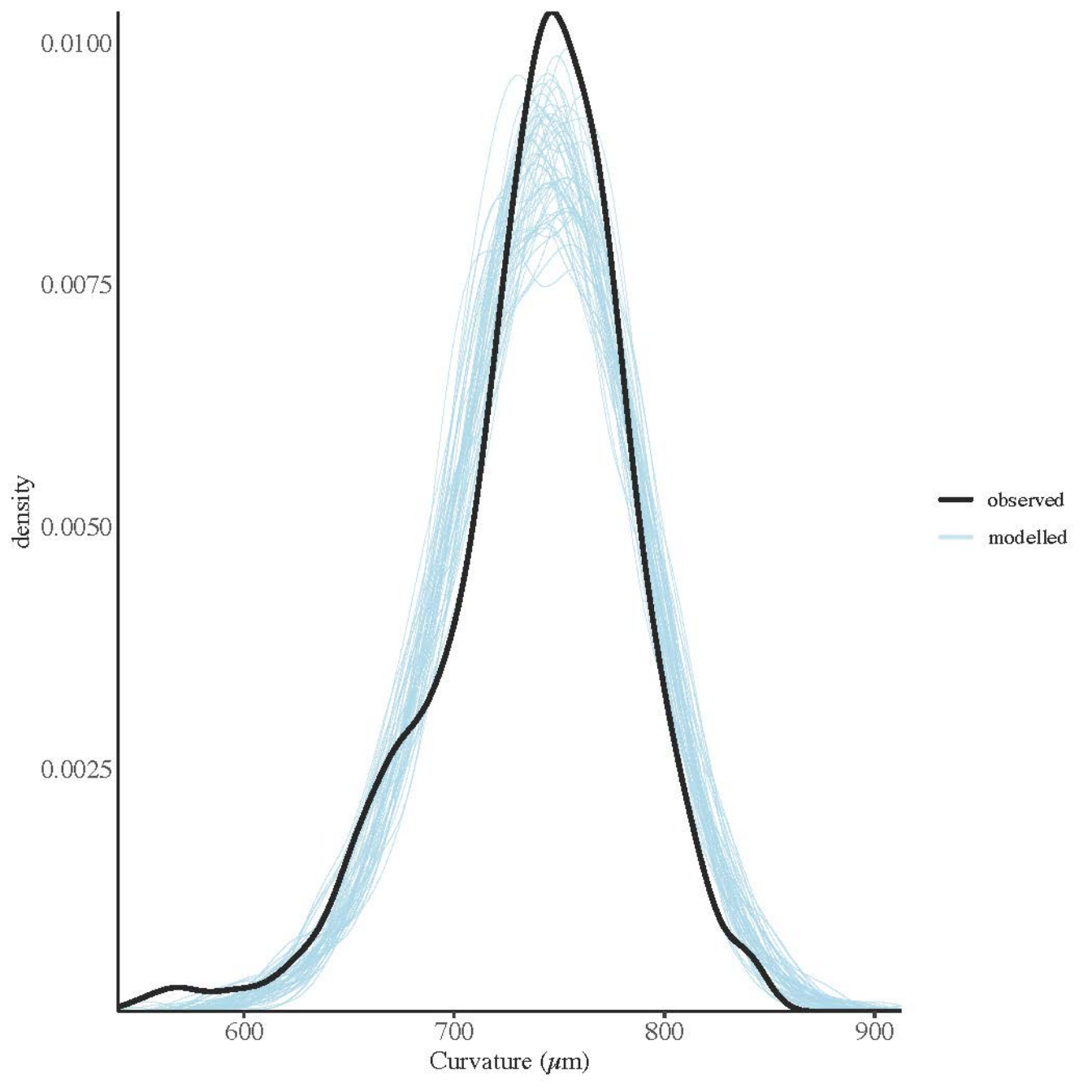

sigma
0.0350
0.0325
0.0300
0.0275
0
500
1000
1500
2000
2500


12
9
6
3
0
density
0.6
0.7
0.8
Eye parameter (μm.rad)
observed
modelled

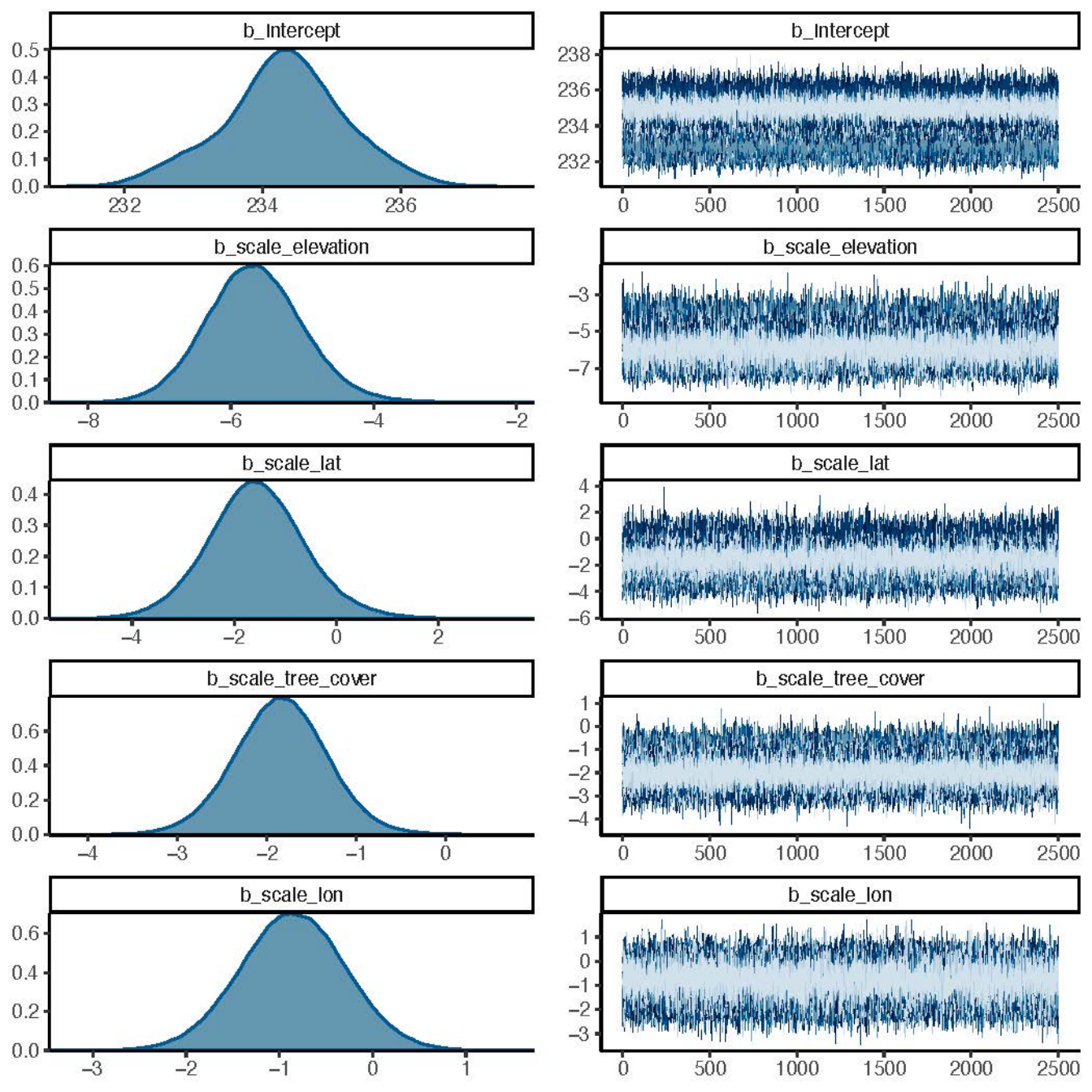
Curvature (μm)

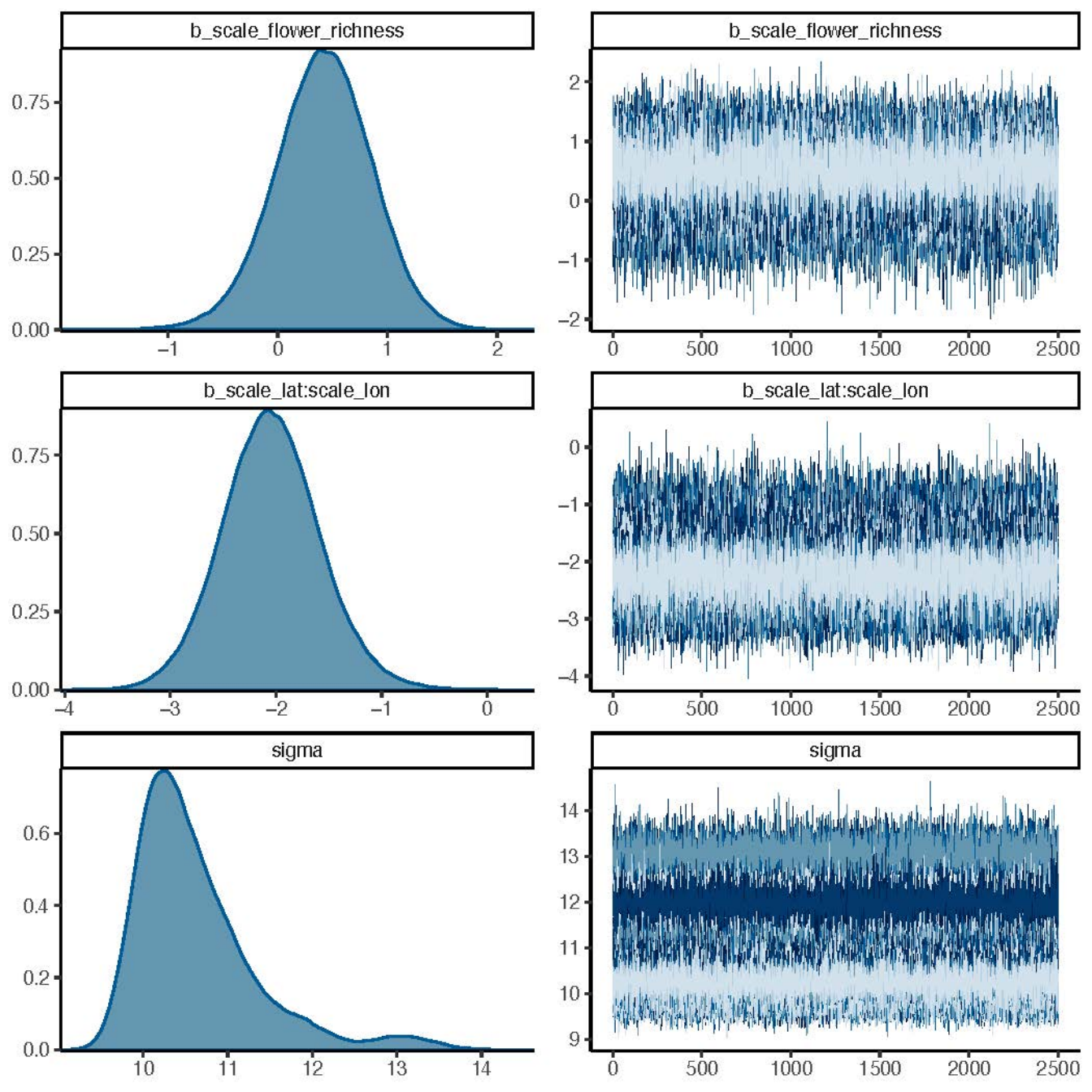

b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon

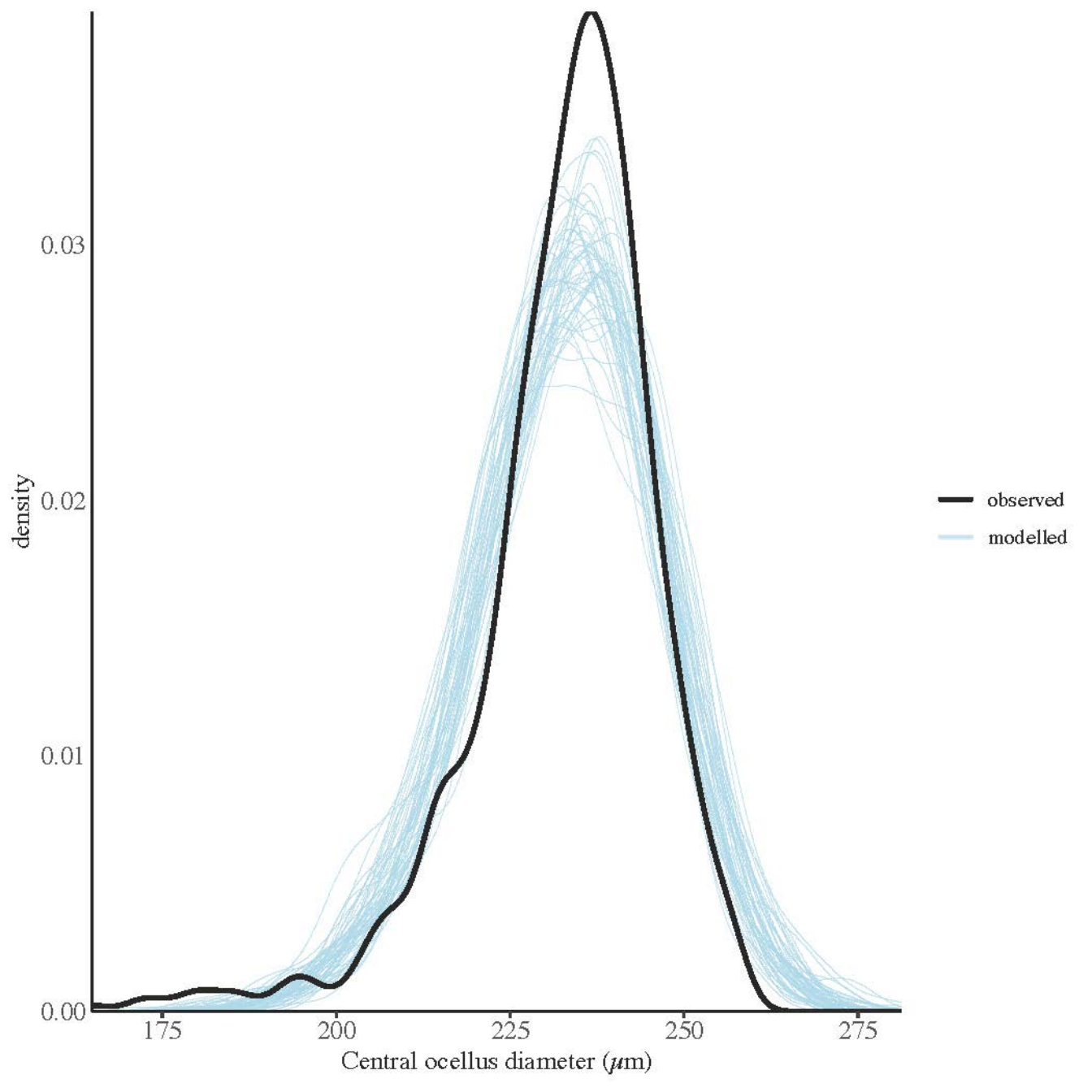

b_scale_flower_richness
0.25
0.20
0.15
0.10
0.05
0.00
−4
0
4
b_scale_flower_richness
4
0
−4
−8
0
500
1000
1500
2000
2500
b_scale_lat:scale_lon
0.25
0.20
0.15
0.10
0.05
0.00
−12
−8
−4
0
b_scale_lat:scale_lon
0
−5
−10
0
500
1000
1500
2000
2500
sigma
0.20
0.15
0.10
0.05
0.00
36
40
44
sigma
44
40
36
0
500
1000
1500
2000
2500


0.0100
0.0075
0.0050
0.0025
density
600
700
800
900
Curvature (μm)
observed
modelled

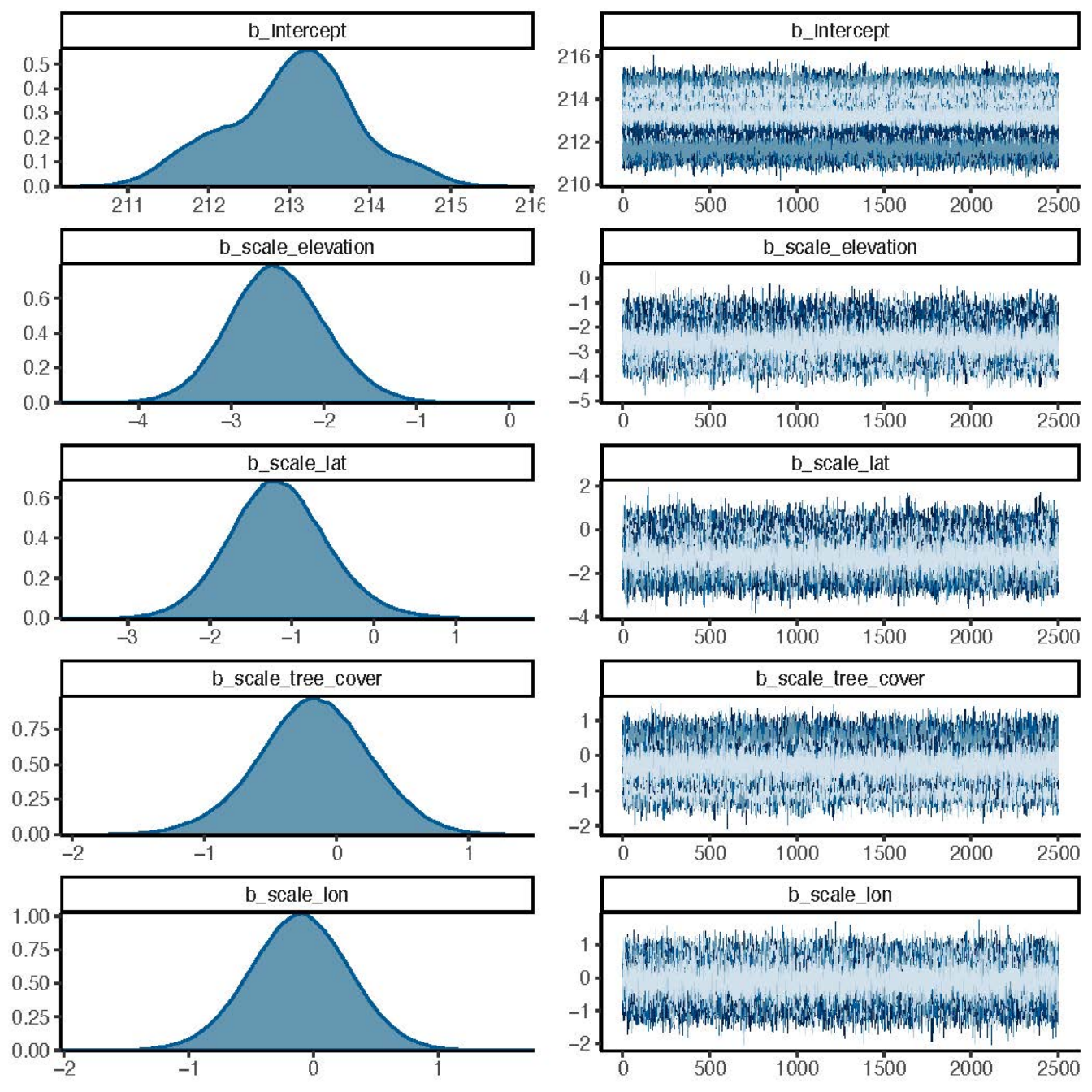
Central ocellus diameter (μm)

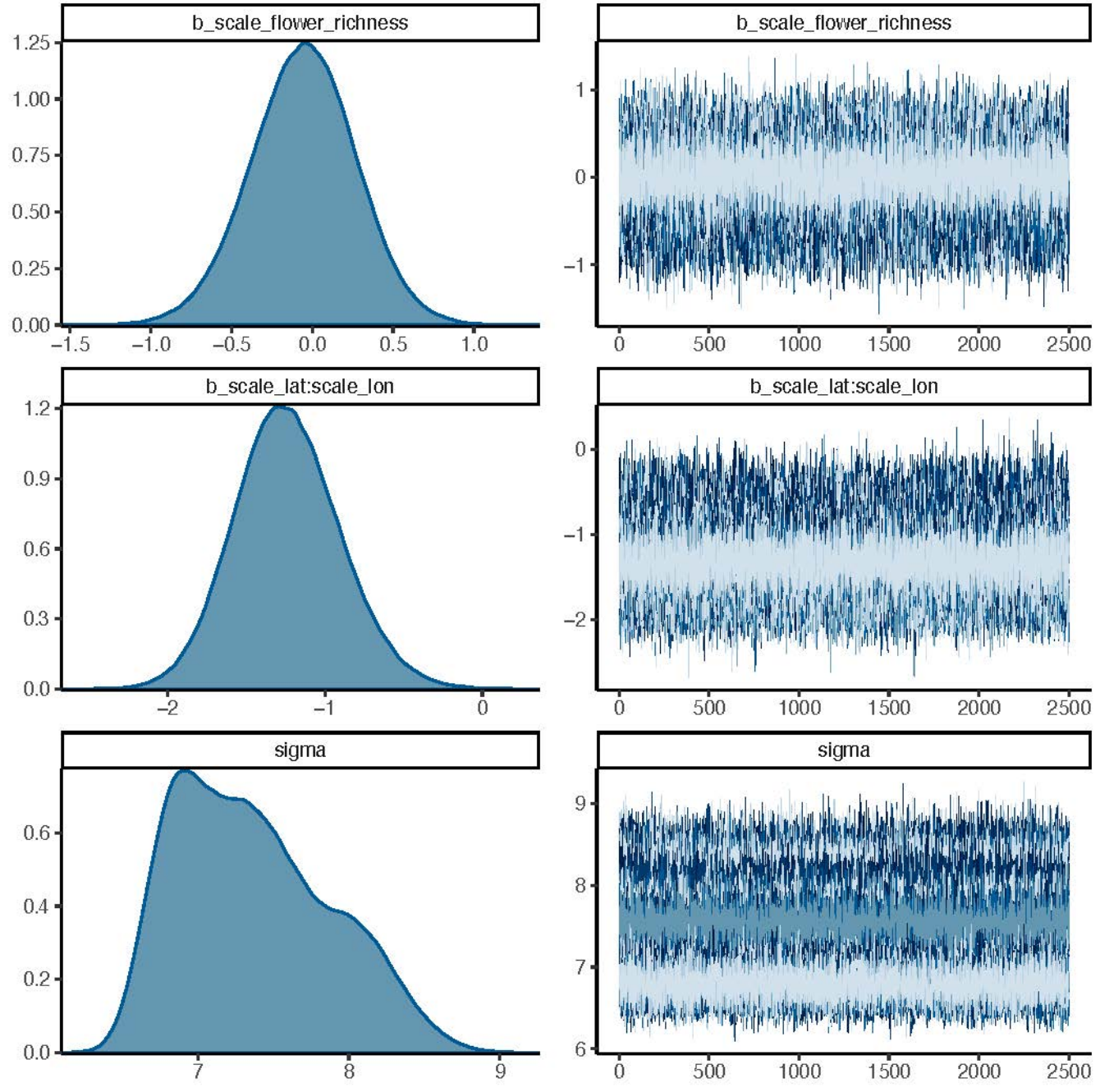

b_Intercept
b_scale_elevation
b_scale_lat
b_scale_tree_cover
b_scale_lon

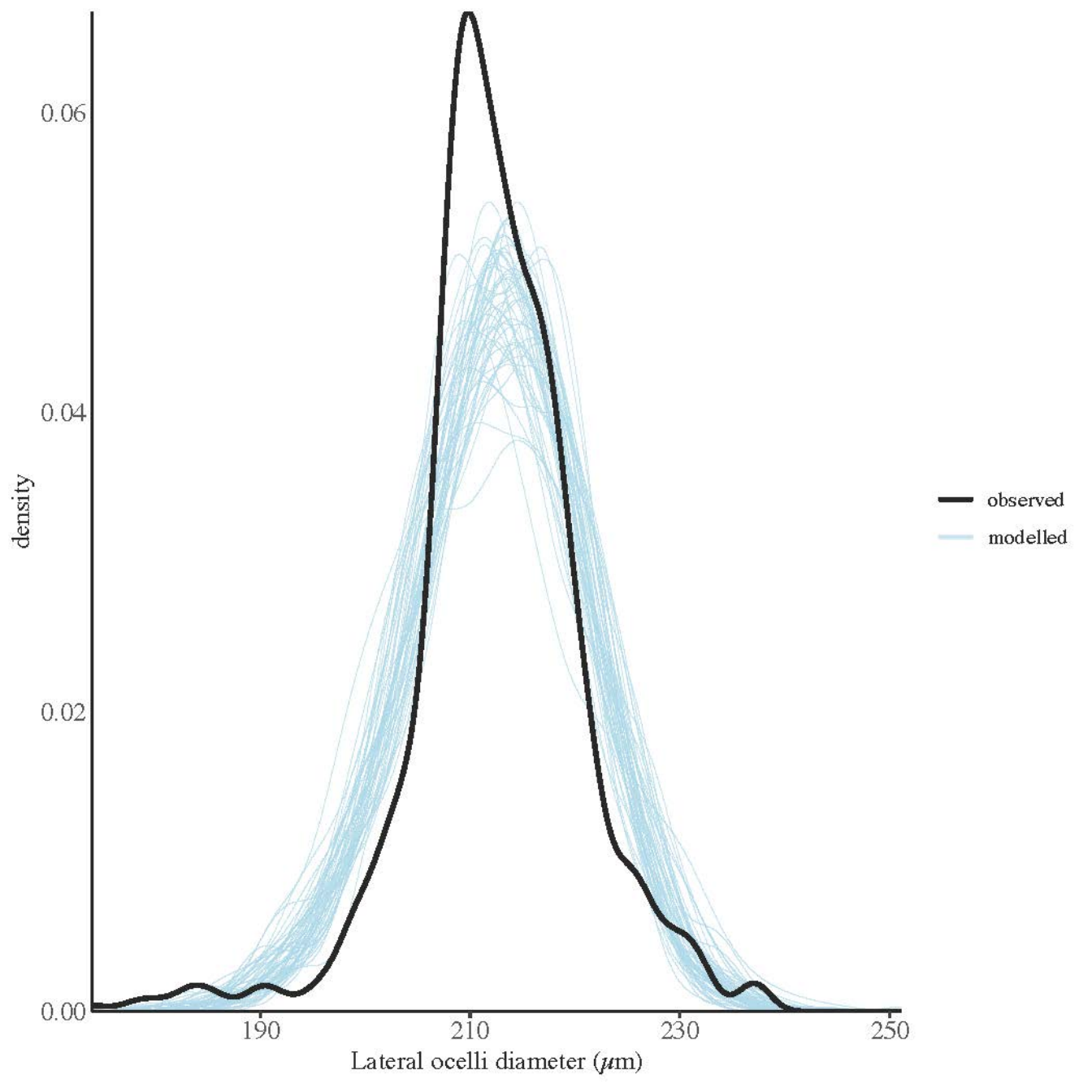

b_scale_flower_richness
b_scale_flower_richness
b_scale_lat:scale_lon
b_scale_lat:scale_lon
sigma
sigma


density
0.03
0.02
0.01
0.00
175
200
225
250
275
Central ocellus diameter (μm)
observed
modelled

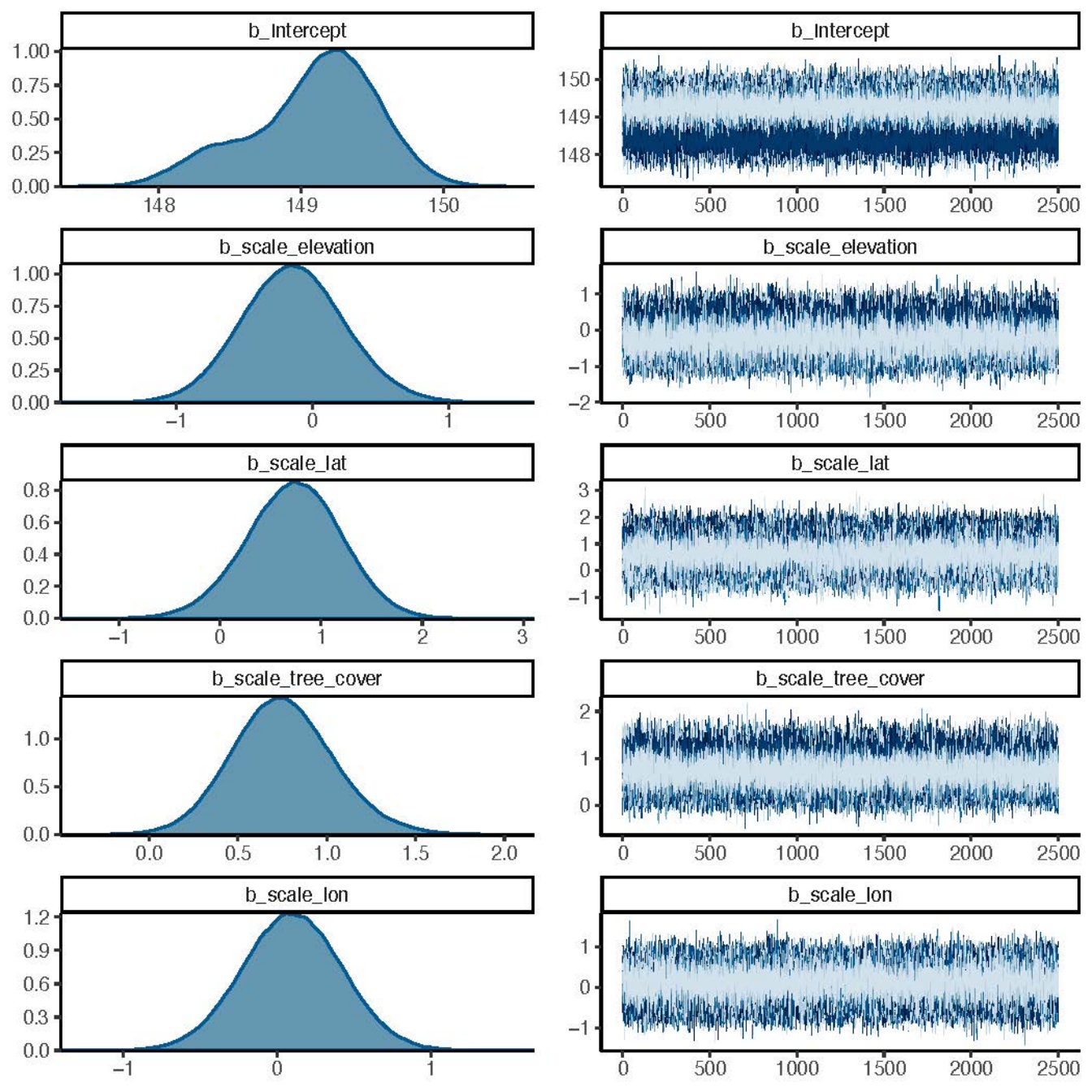
Lateral ocelli diameter (μm)

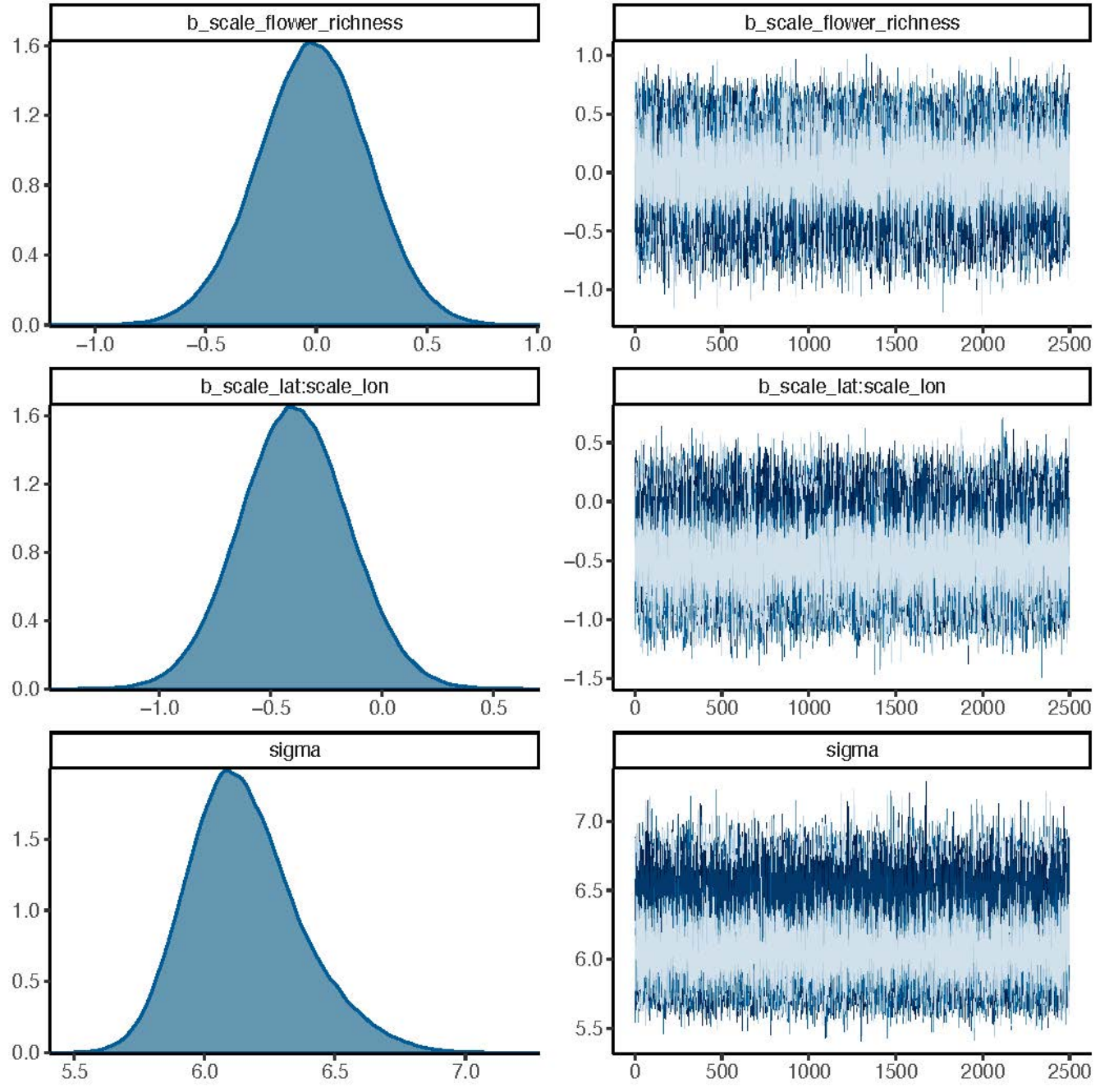

b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon

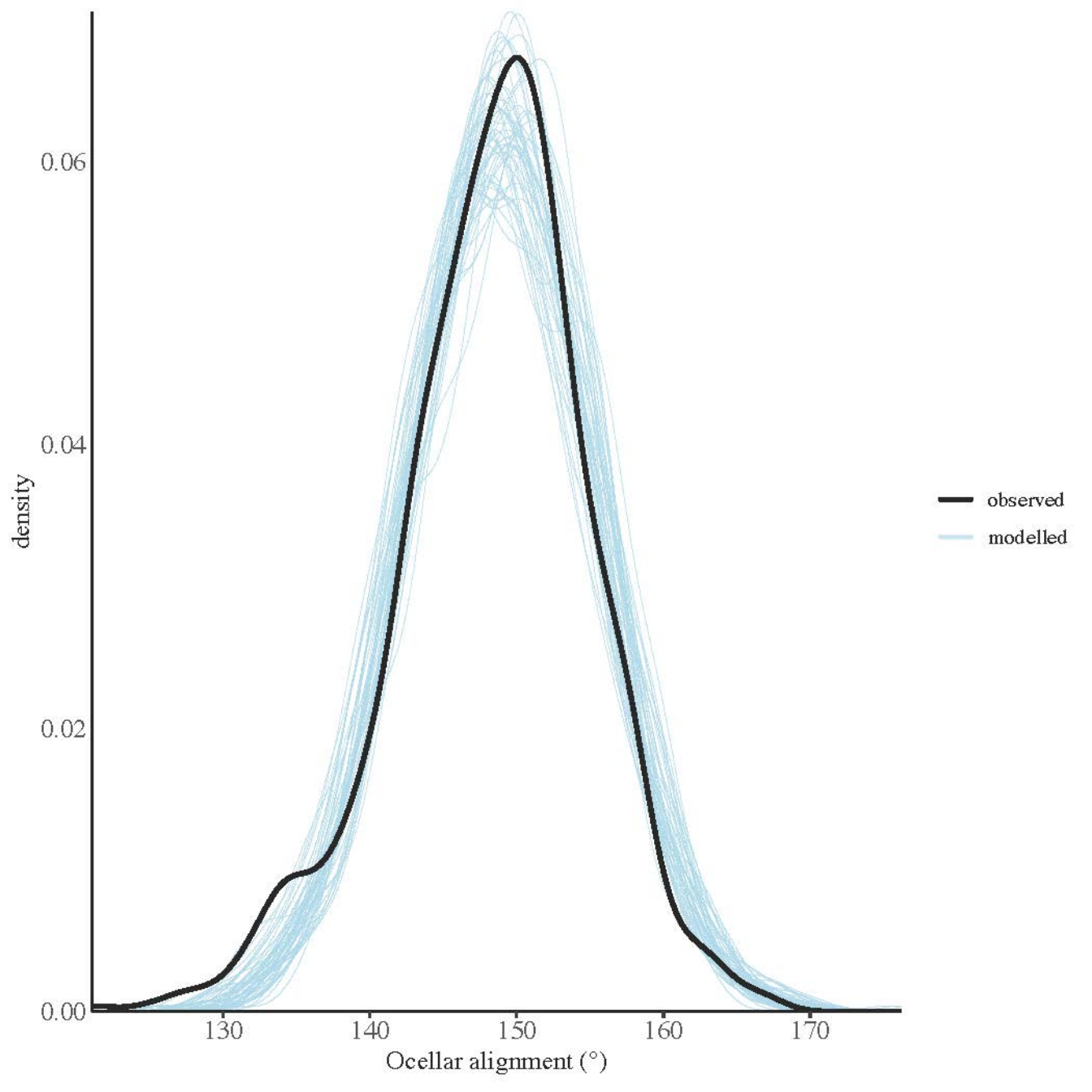

b_scale_flower_richness
1.25
1.00
0.75
0.50
0.25
0.00
−1.5
−1.0
−0.5
0.0
0.5
1.0
b_scale_flower_richness
1
0
−1
0
500
1000
1500
2000
2500
b_scale_lat:scale_lon
1.2
0.9
0.6
0.3
0.0
−2
−1
0
b_scale_lat:scale_lon
0
−1
−2
0
500
1000
1500
2000
2500
sigma
0.6
0.4
0.2
0.0
7
8
9
sigma
9
8
7
6
0
500
1000
1500
2000
2500


0.06
0.04
0.02
0.00
density
190
210
230
250
Lateral ocelli diameter (μm)
observed
modelled

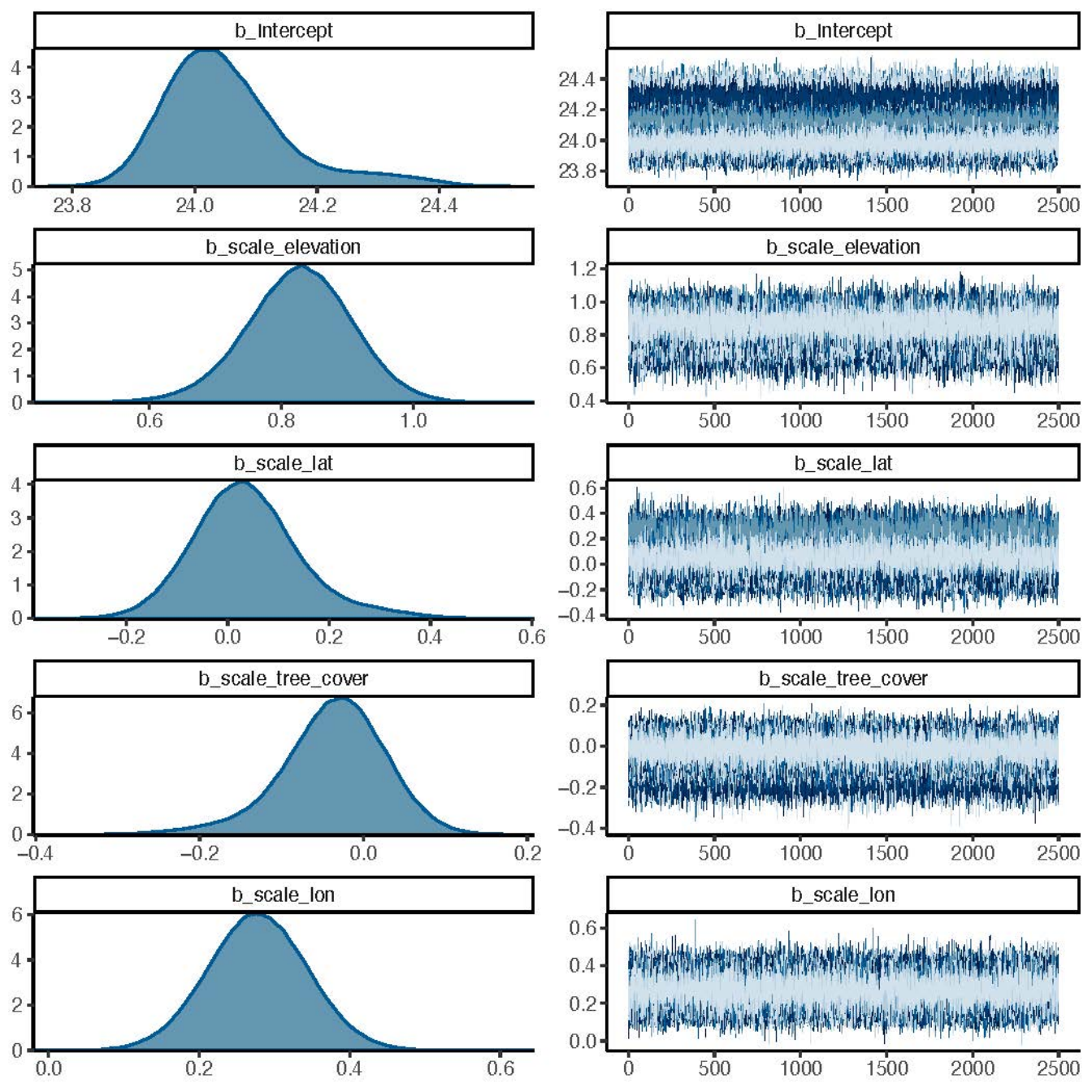
Ocellar alignment (°)

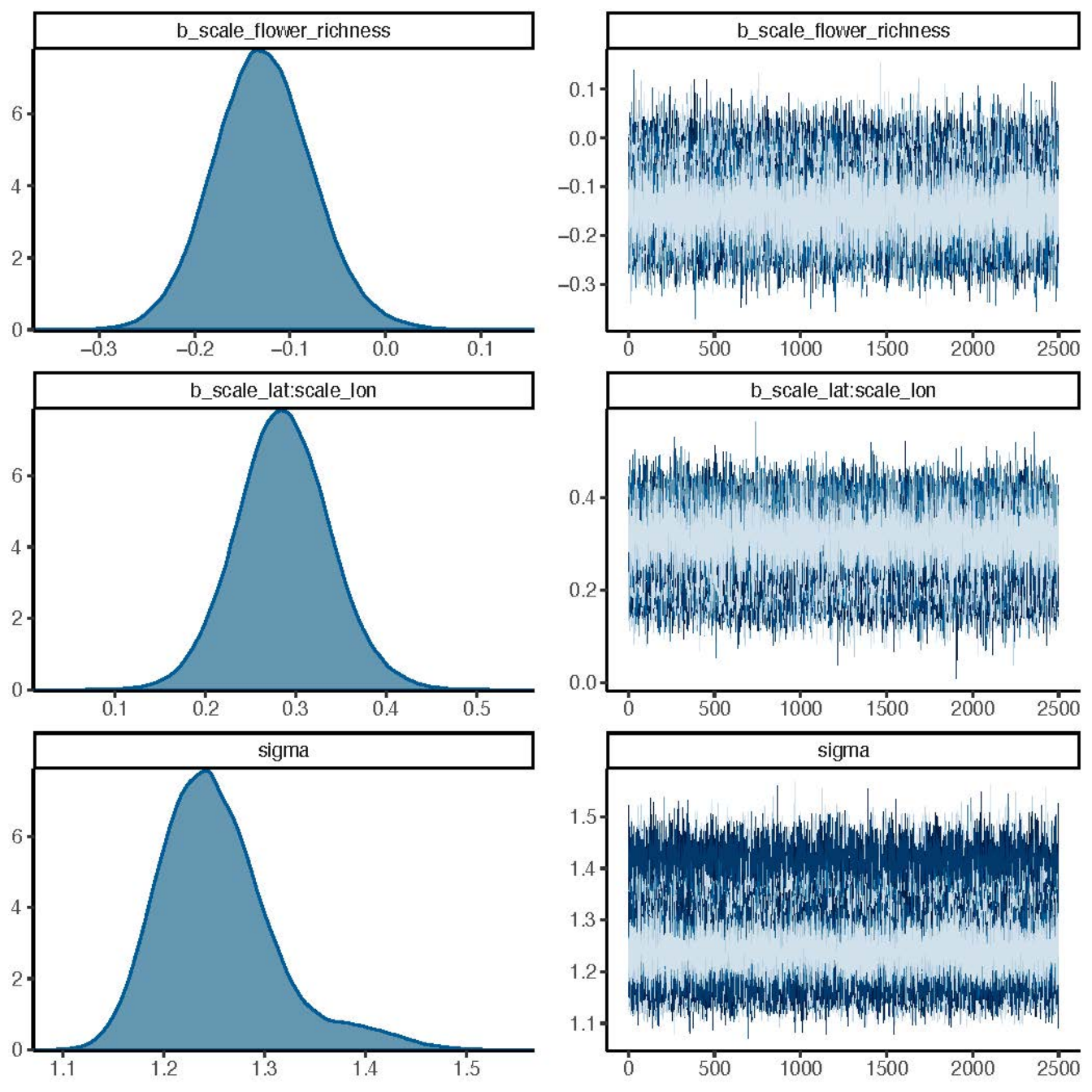

b_Intercept
b_scale_elevation
b_scale_lat
b_scale_tree_cover
b_scale_lon

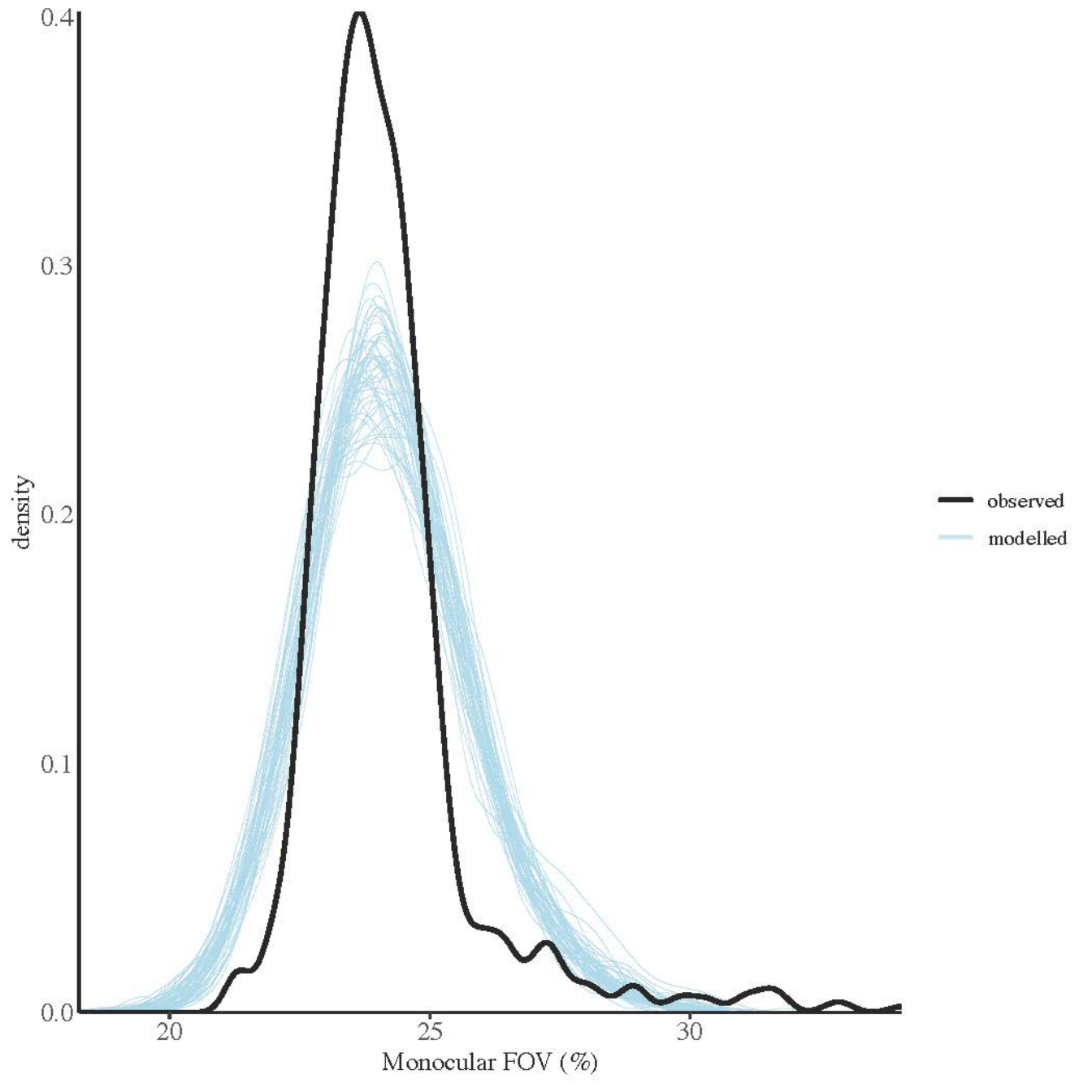

b_scale_flower_richness
b_scale_flower_richness
b_scale_lat:scale_lon
b_scale_lat:scale_lon
sigma
sigma


0.06
0.04
0.02
0.00
density
130
140
150
160
170
Ocellar alignment (°)
observed
modelled

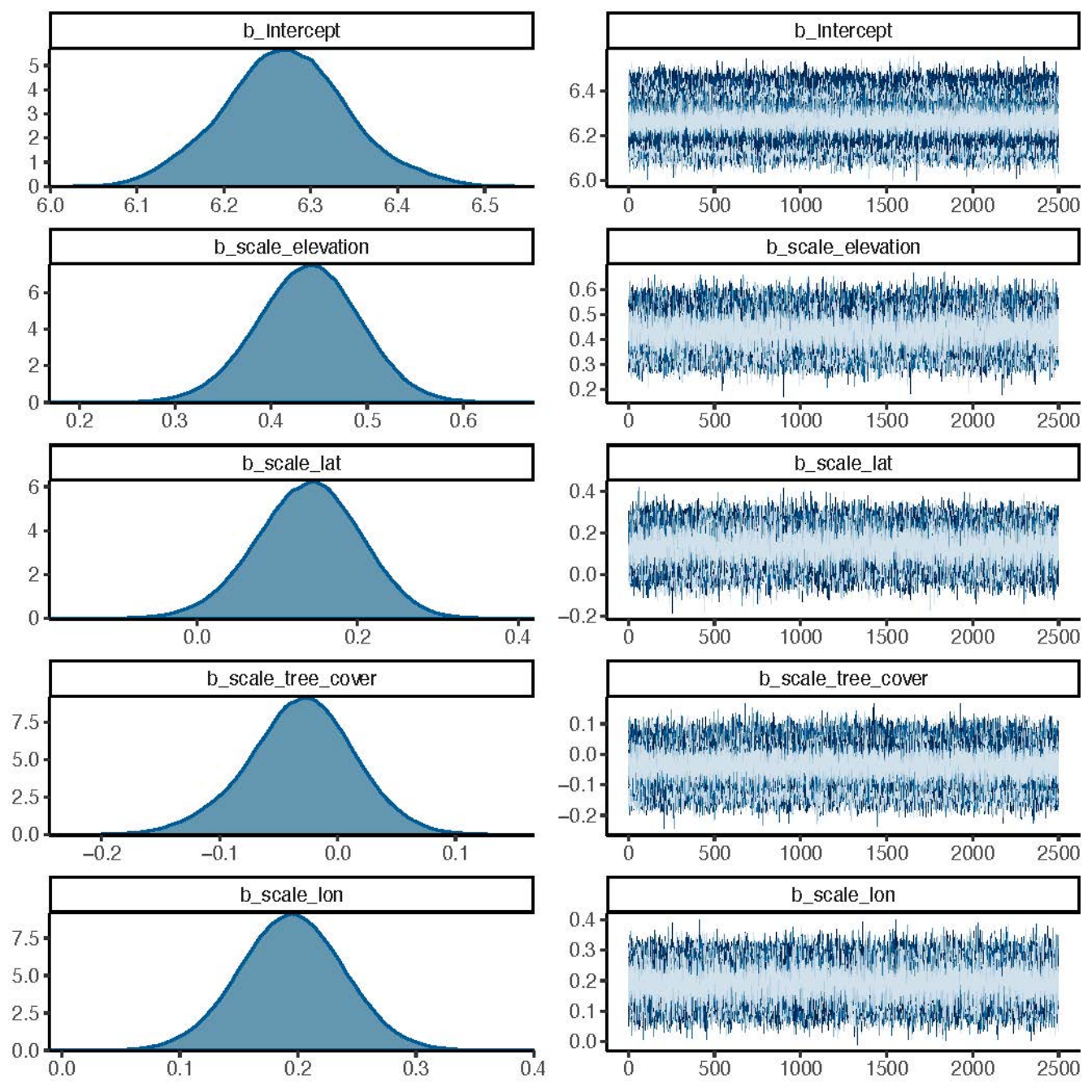
Monocular FOV (%)

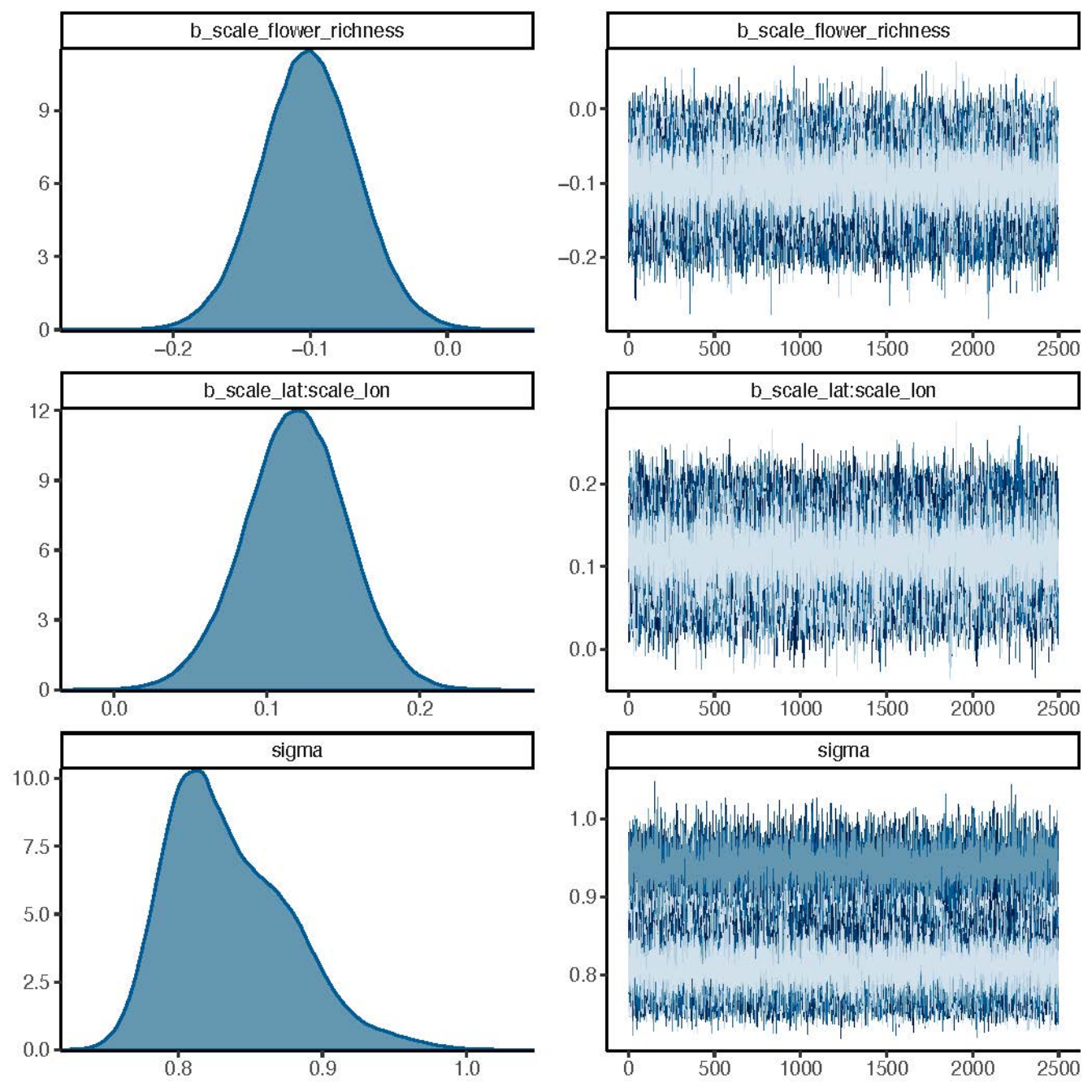

b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon

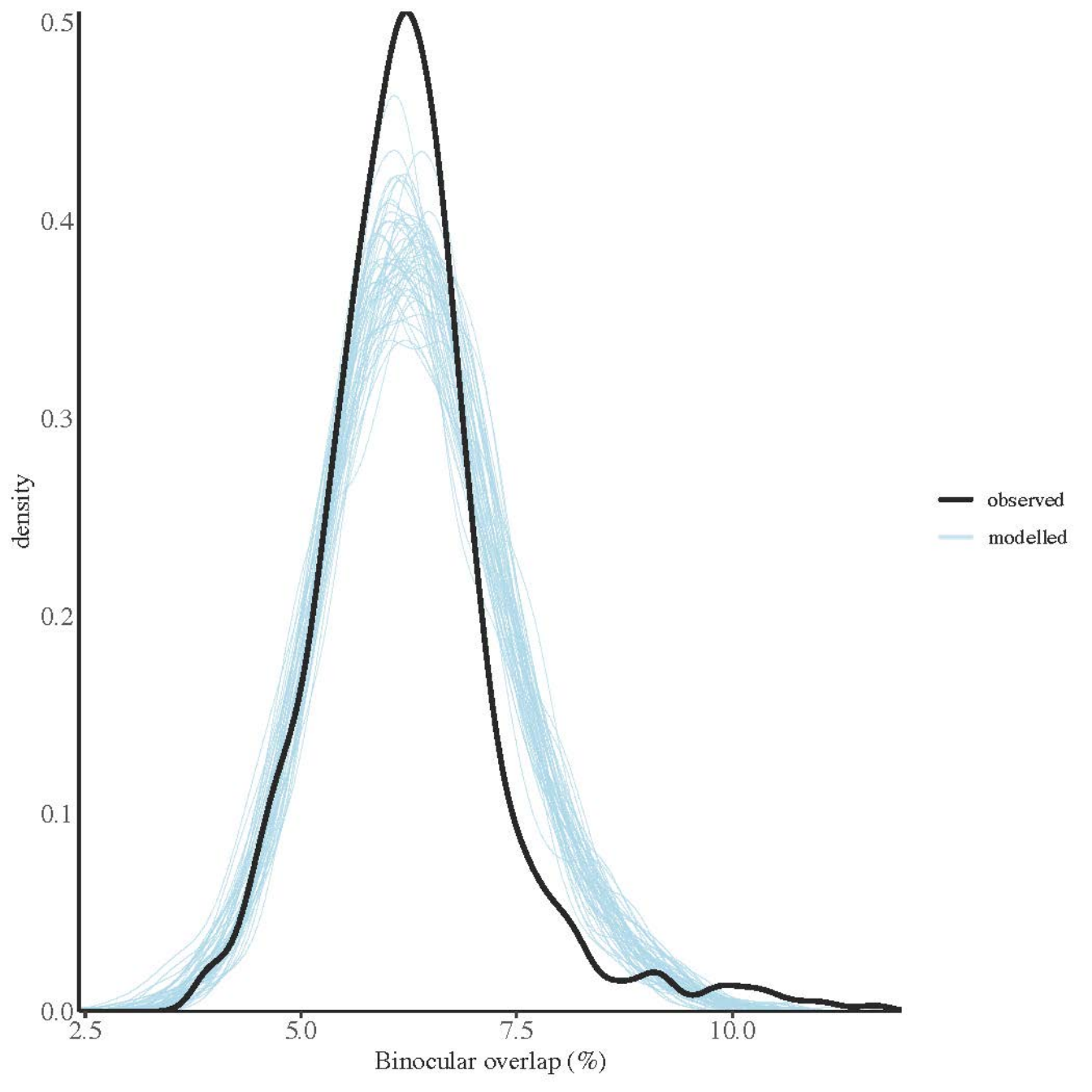

b_scale_flower_richness
b_scale_flower_richness
b_scale_lat:scale_lon
b_scale_lat:scale_lon
sigma
sigma


0.4
0.3
0.2
0.1
0.0
density
20
25
30
Monocular FOV (%)
observed
modelled

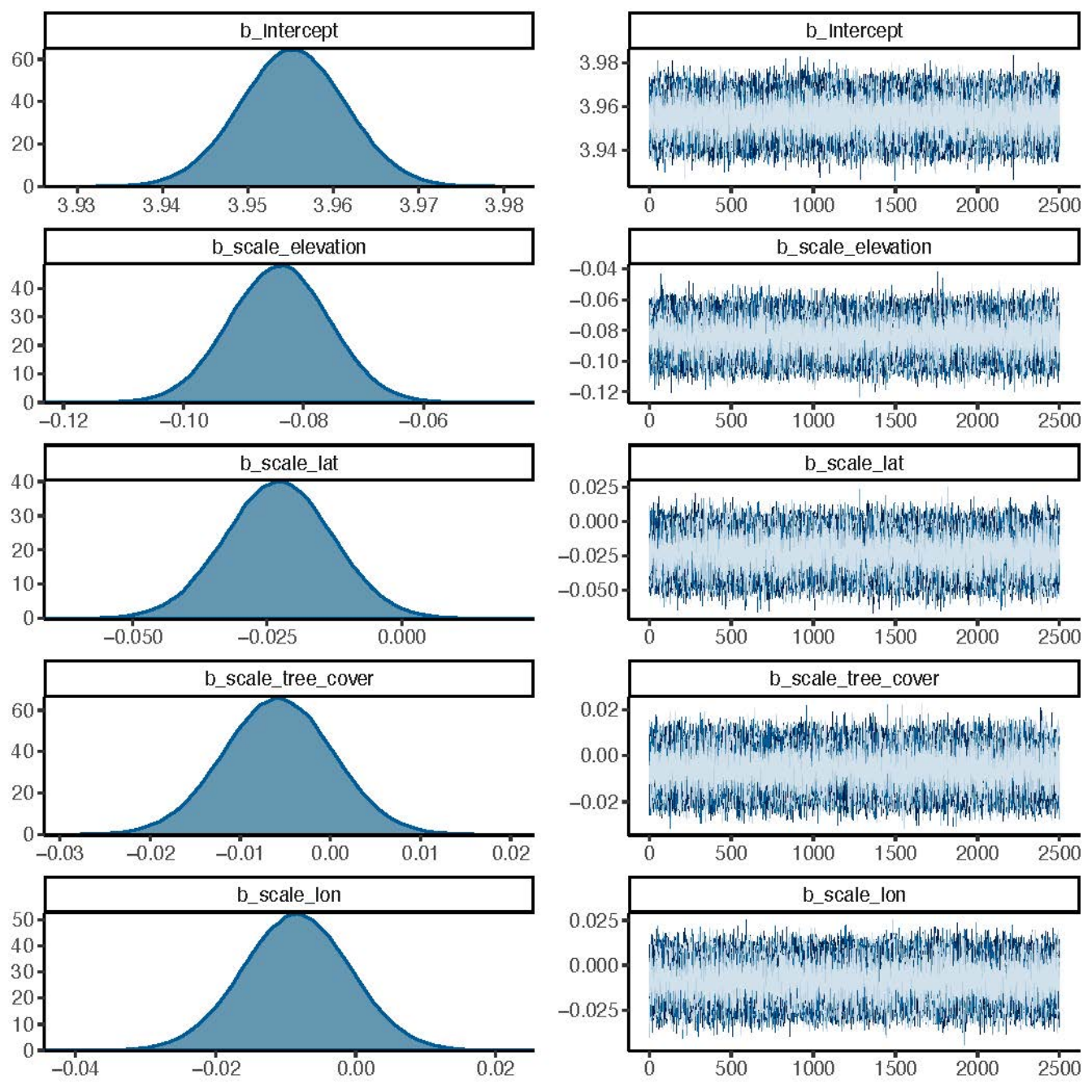
Binocular overlap (%)

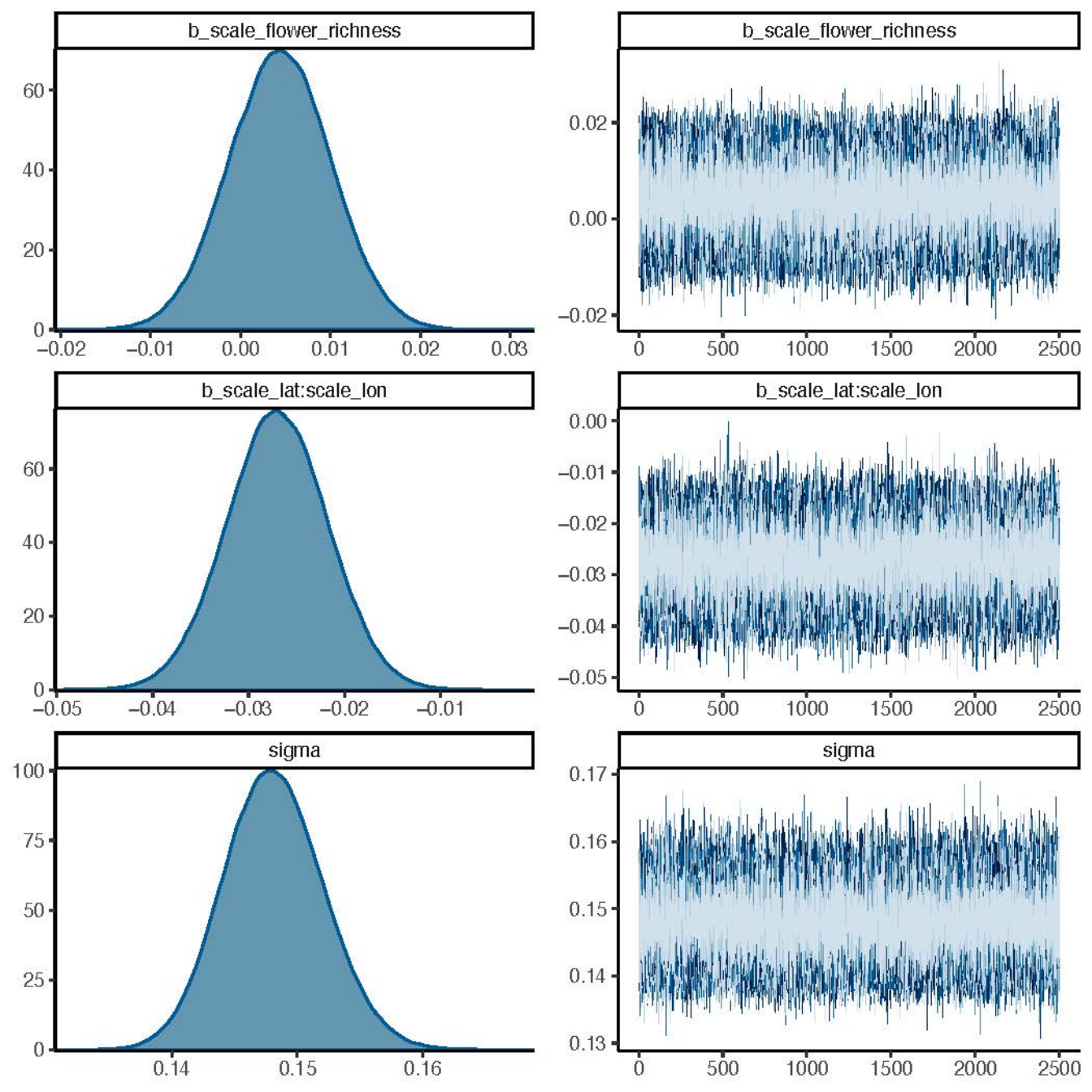

b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon

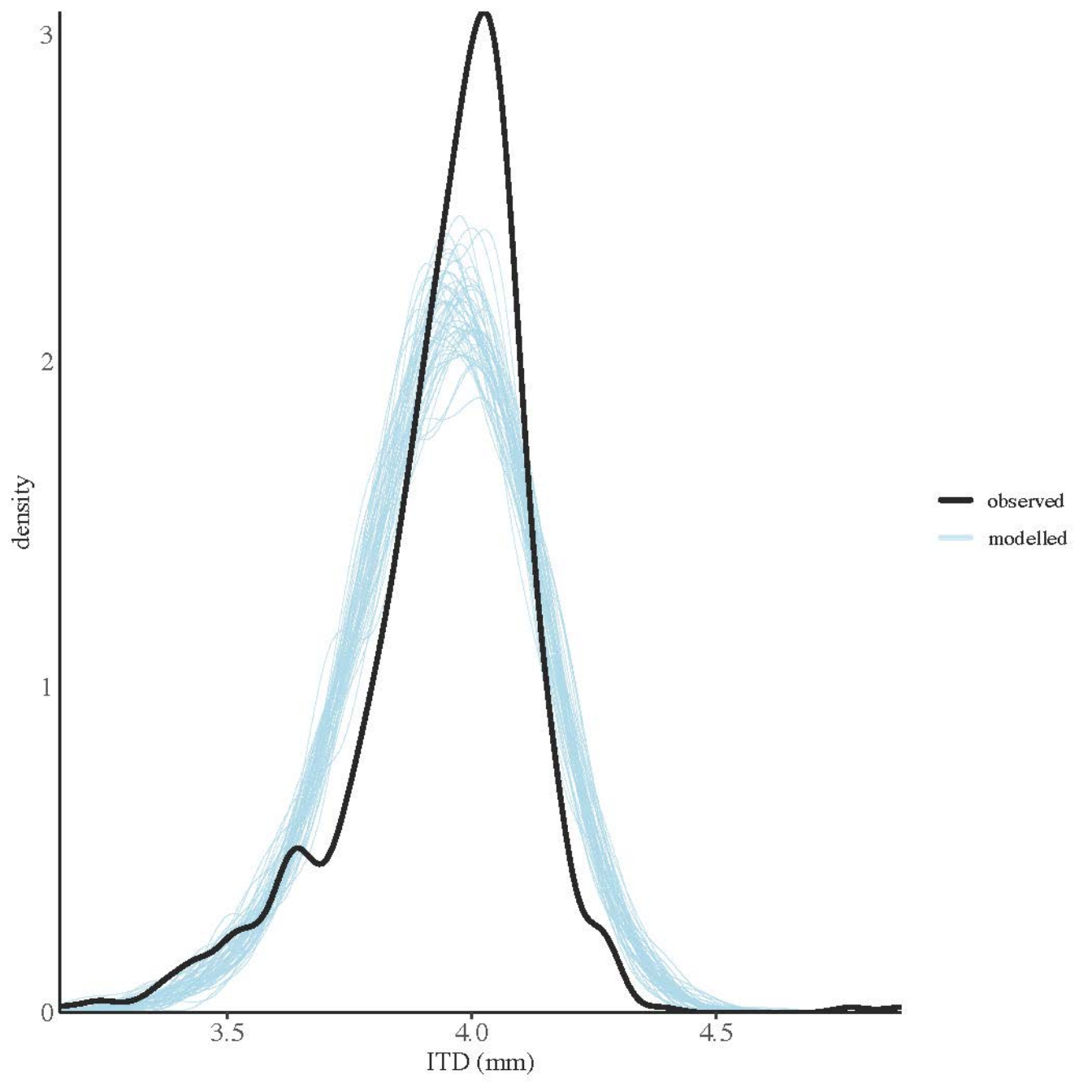

b_scale_flower_richness
b_scale_flower_richness
b_scale_lat:scale_lon
b_scale_lat:scale_lon
sigma
sigma


0.5
0.4
0.3
0.2
0.1
0.0
density
2.5
5.0
7.5
10.0
Binocular overlap (%)
observed
modelled

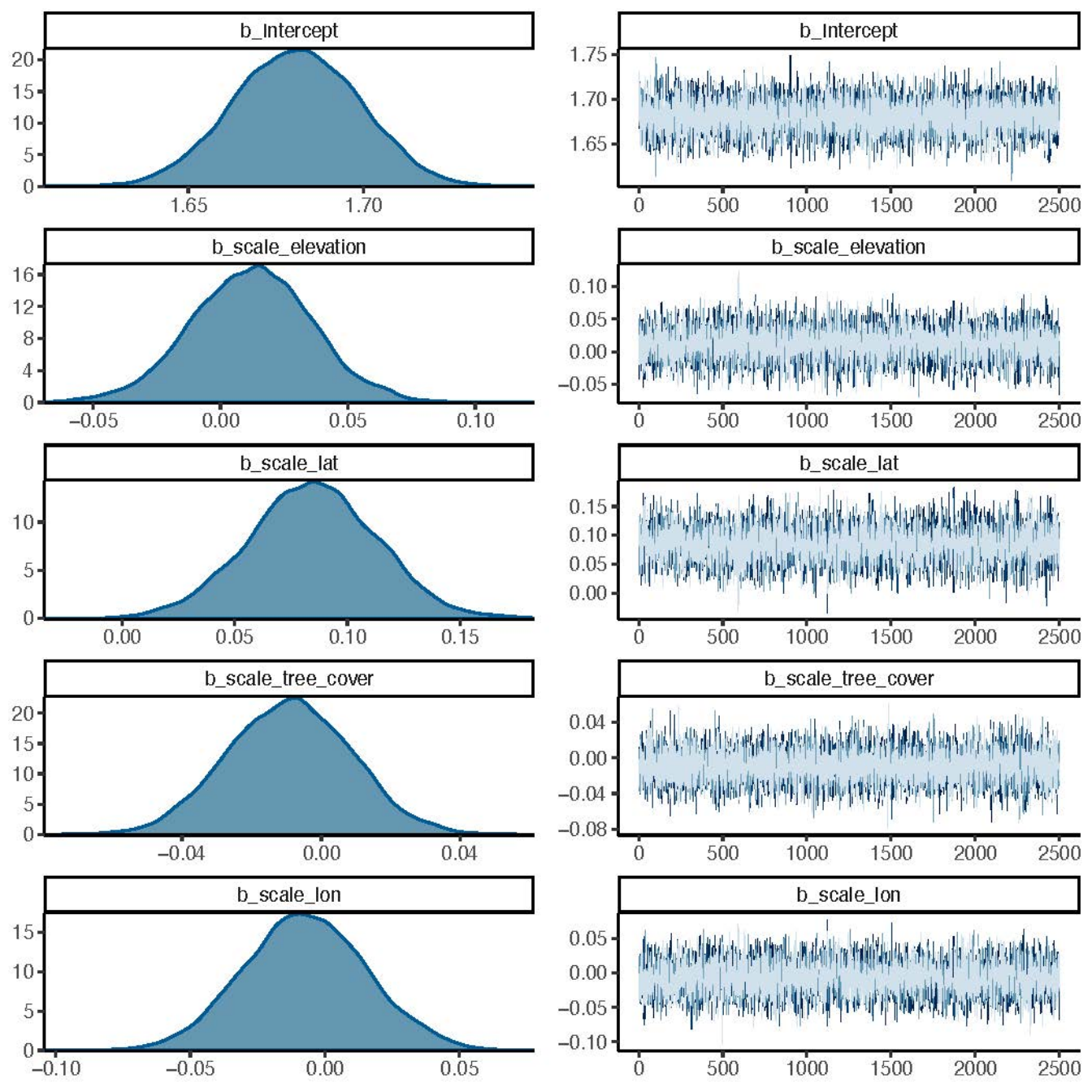
ITD (mm)

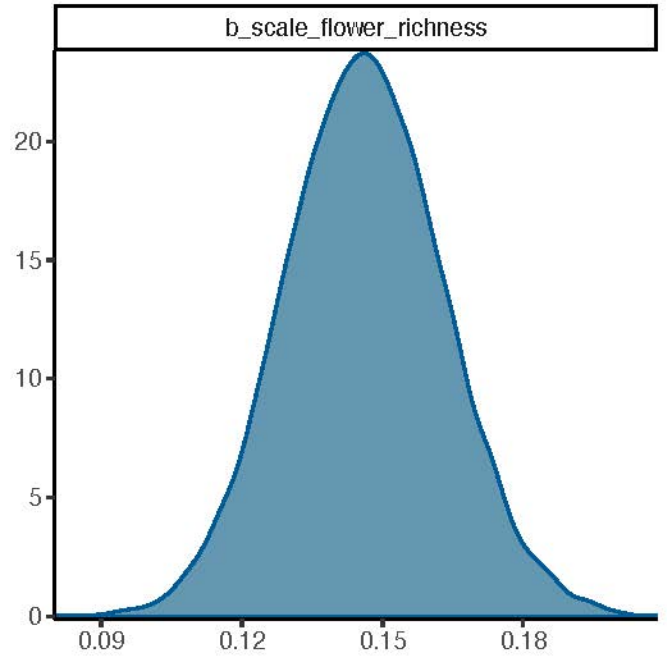

b_Intercept
b_scale_elevation
b_scale_lat
b_scale_tree_cover
b_scale_lon


b_scale_flower_richness
b_scale_flower_richness
b_scale_lat:scale_lon
b_scale_lat:scale_lon
sigma
sigma


3
2
1
0
density
3.5
4.0
4.5
ITD (mm)
observed
modelled

Effects of tree cover on the observed number of bumblebee species in communities within grasslands across Sweden. Model traces and posterior predictive check for each visual trait modelled with Bayesian inference.


b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon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10
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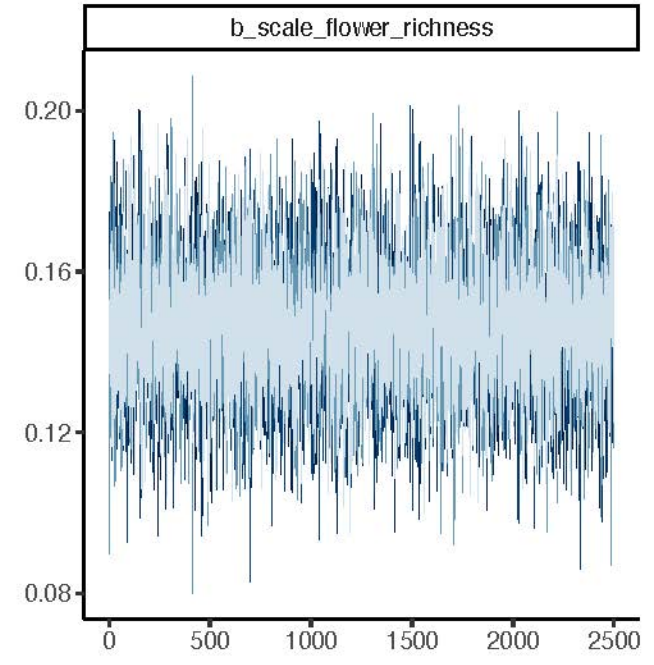
0.12
0.15
0.18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0.08
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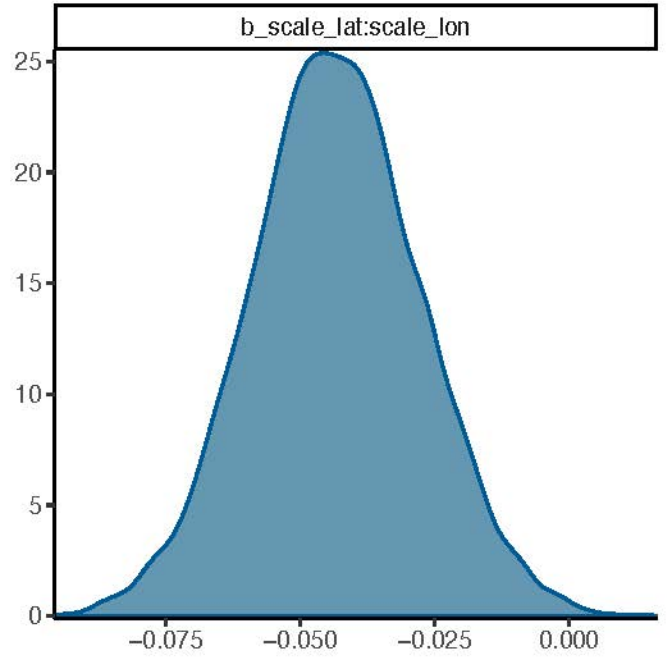
1000
1500
2000
2500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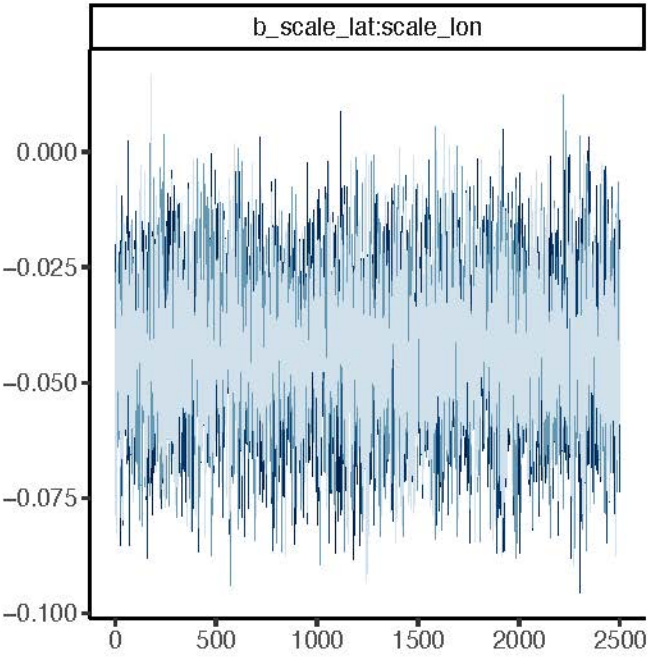
−0.025
0.000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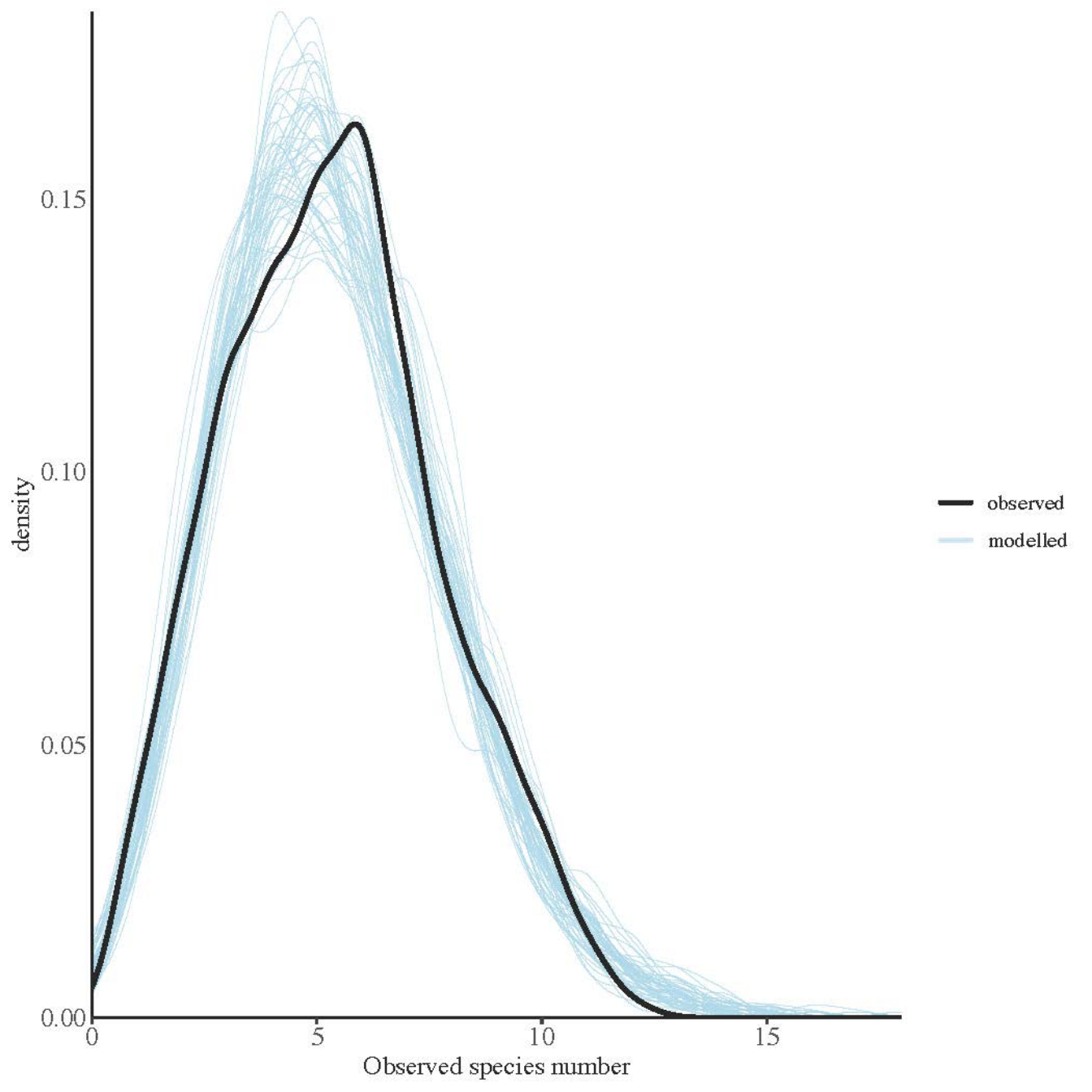
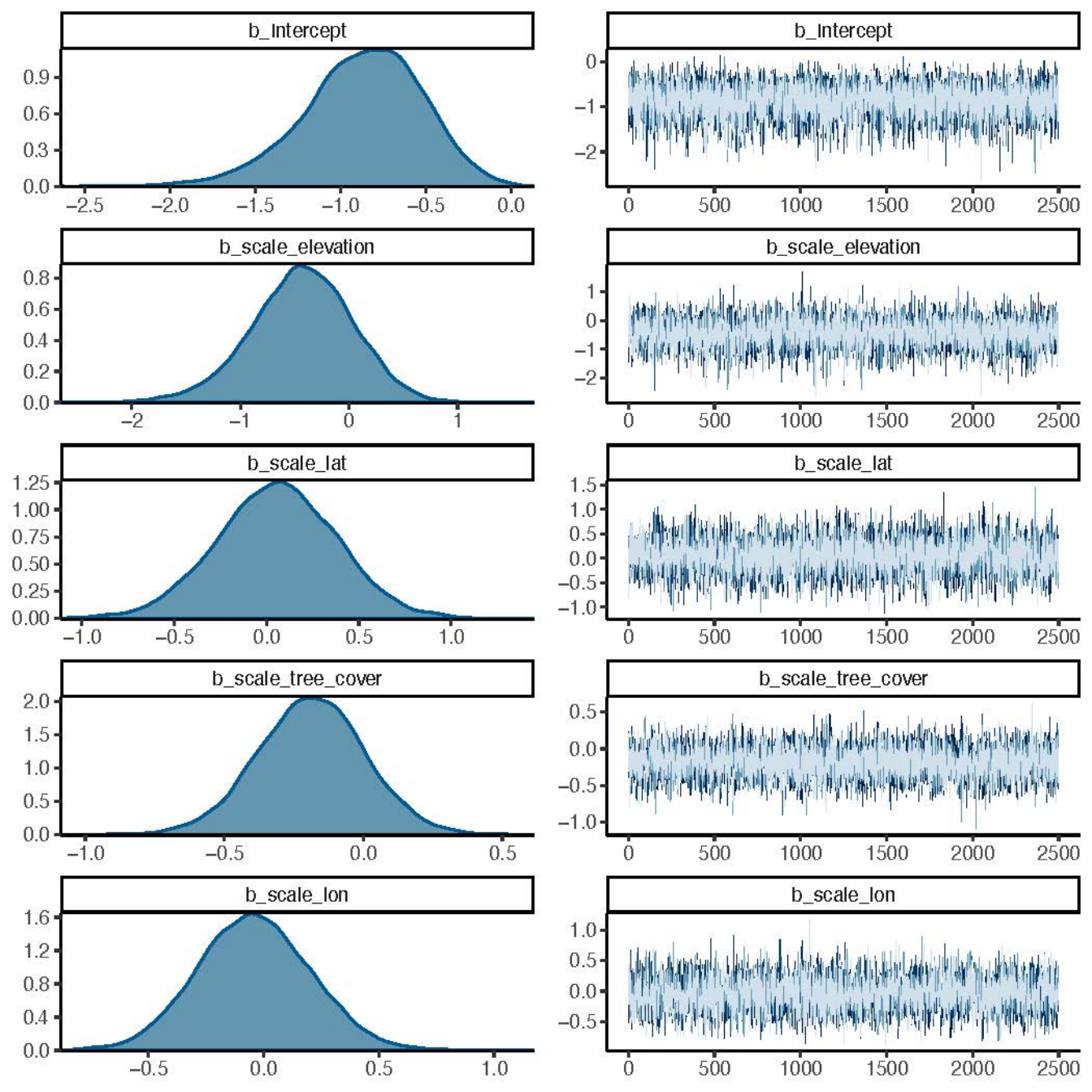
−0.100
0
500
1000
1500
2000
2500


0.15
0.10
0.05
0.00
density
0
5
10
15
Observed species number
observed
modelled

Effects of tree cover on the abundance of the twelve most common species in communities within grasslands across Sweden. Model traces and posterior predictive check for each visual trait modelled with Bayesian inference.

ruderariu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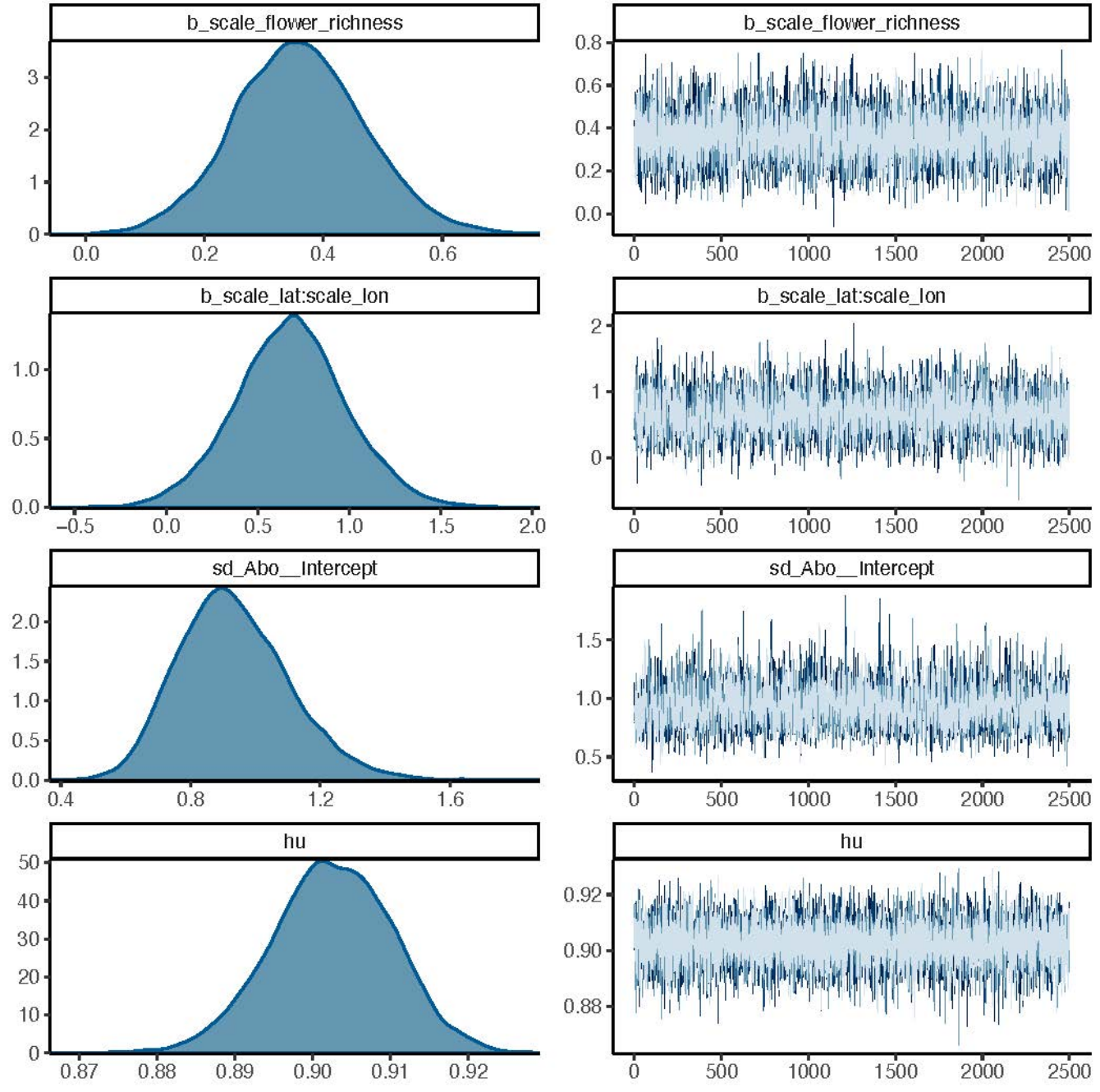
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon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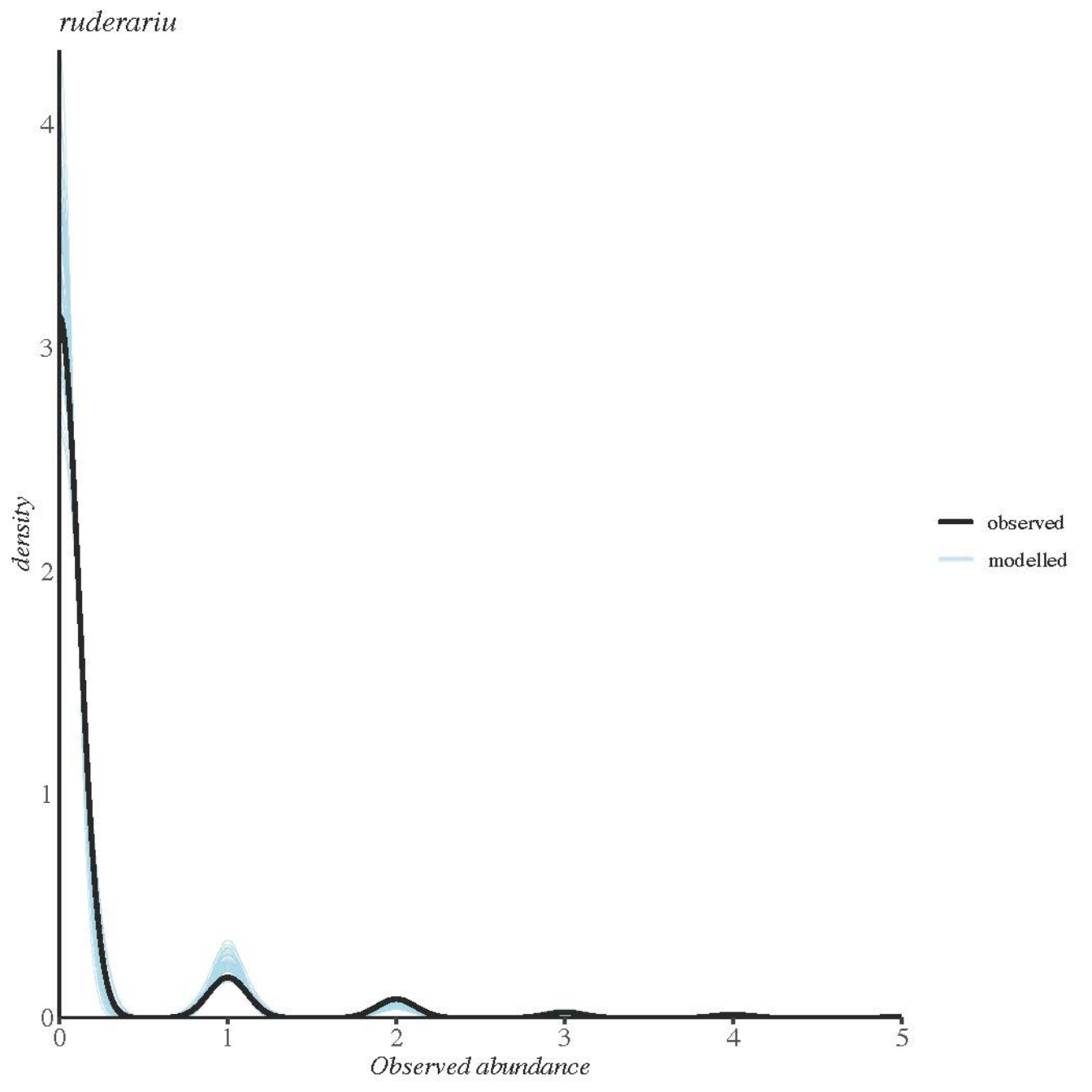
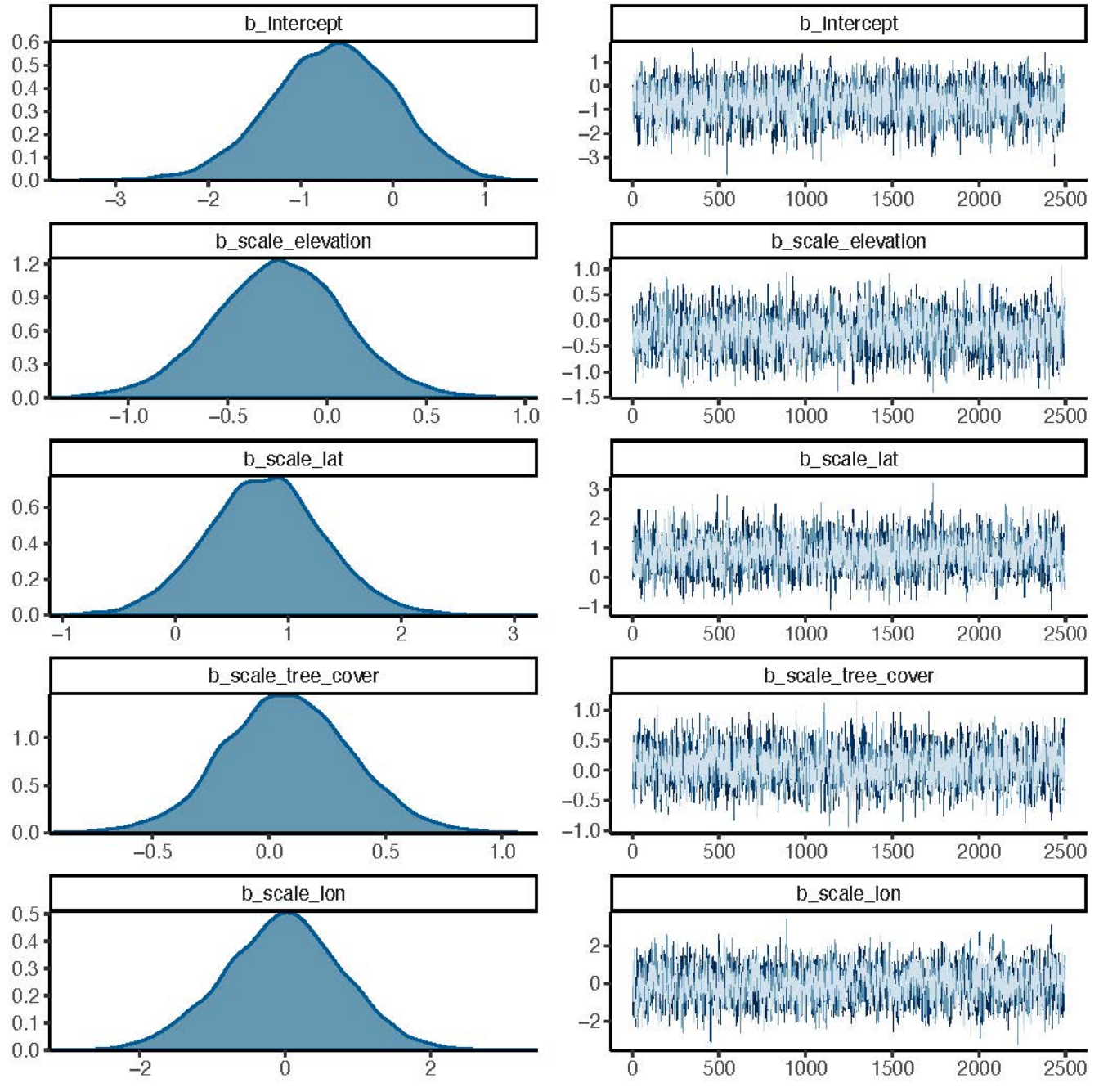
sd_Abo__Intercept
sd_Abo__Intercept
hu
hu


ruderariu
density
Observed abundance
observed
modelled
0
1
2
3
4
5

sporadicu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b_Intercept
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b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
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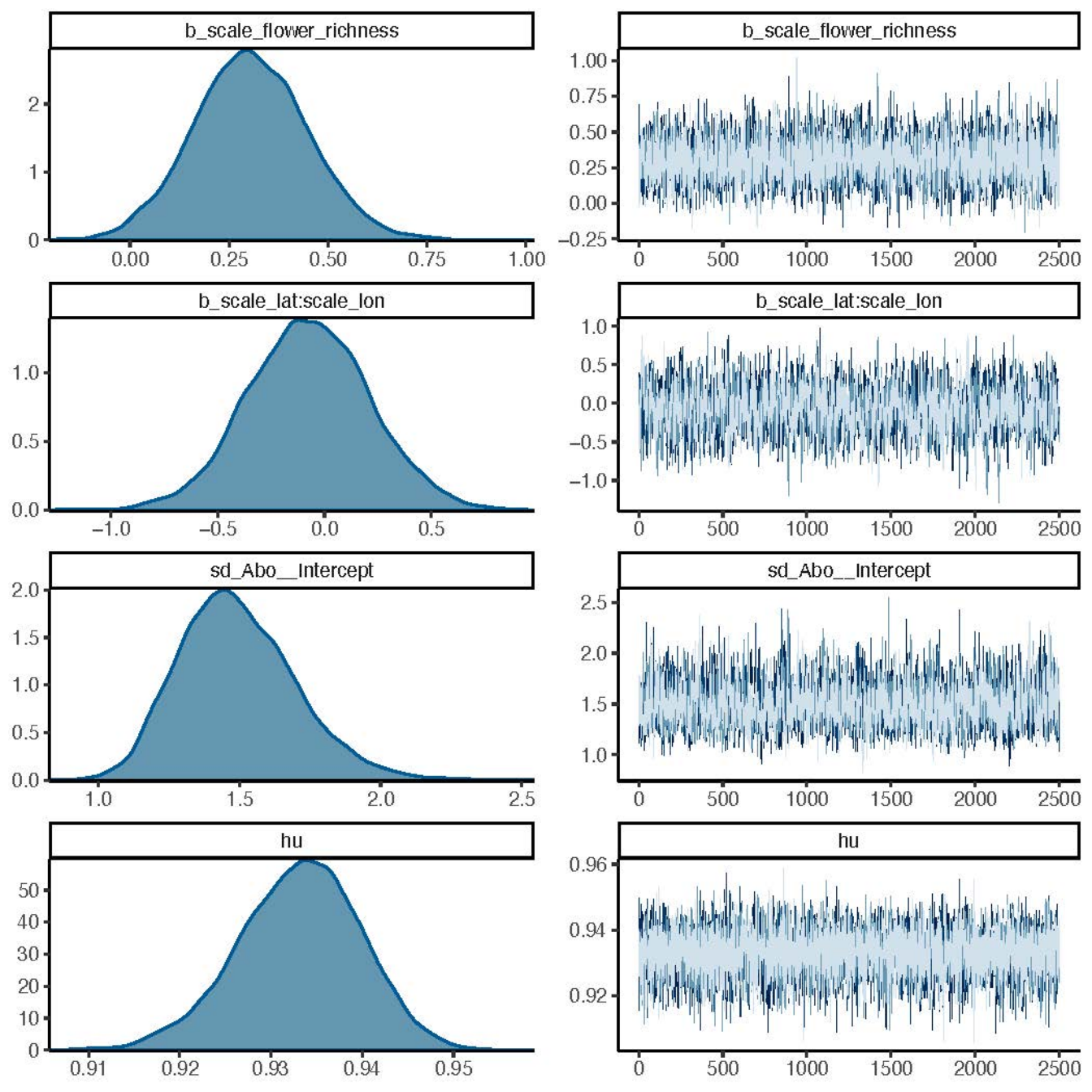
b_scale_lon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b_scale_lat:scale_lon
sd_Abo__Intercept
sd_Abo__Intercept
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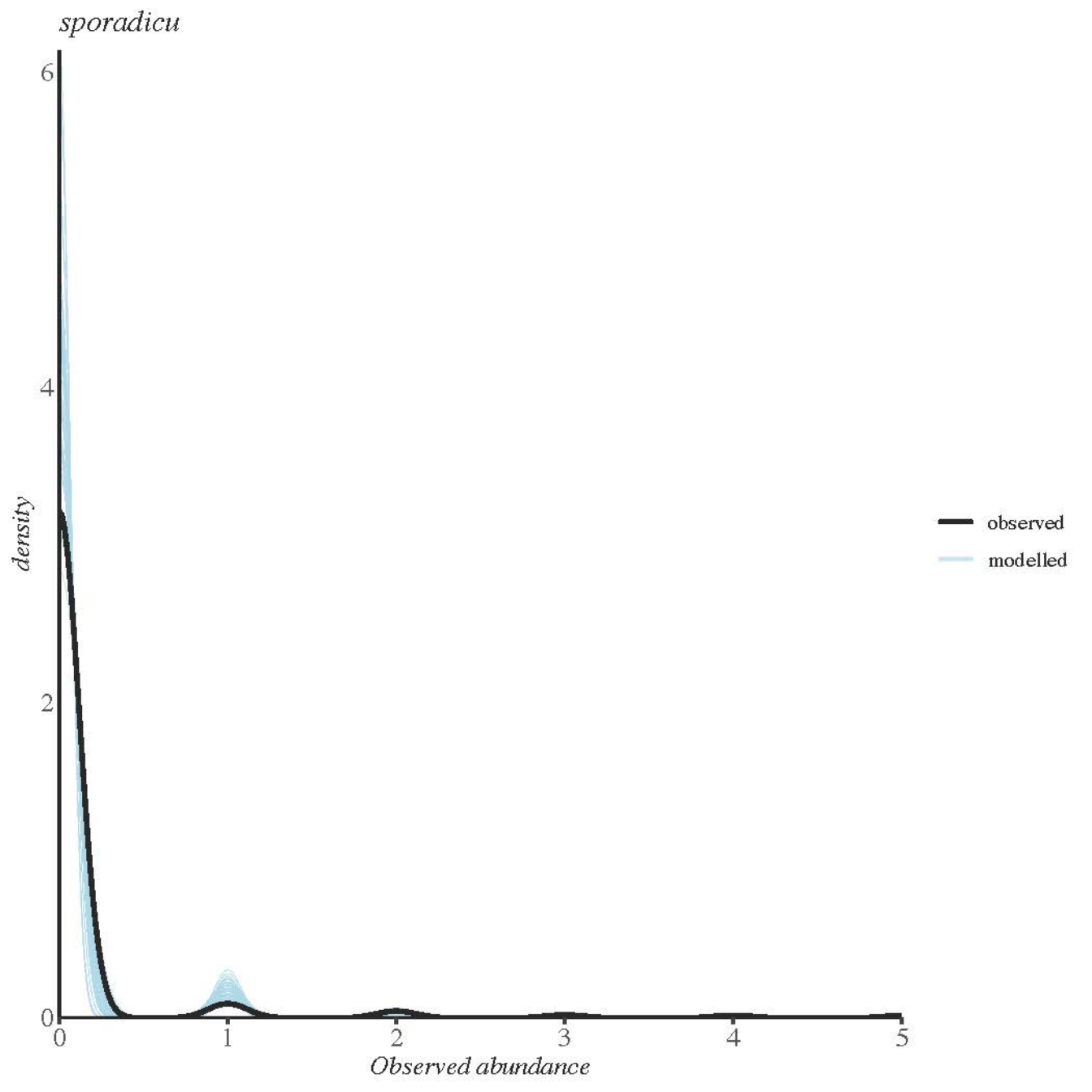
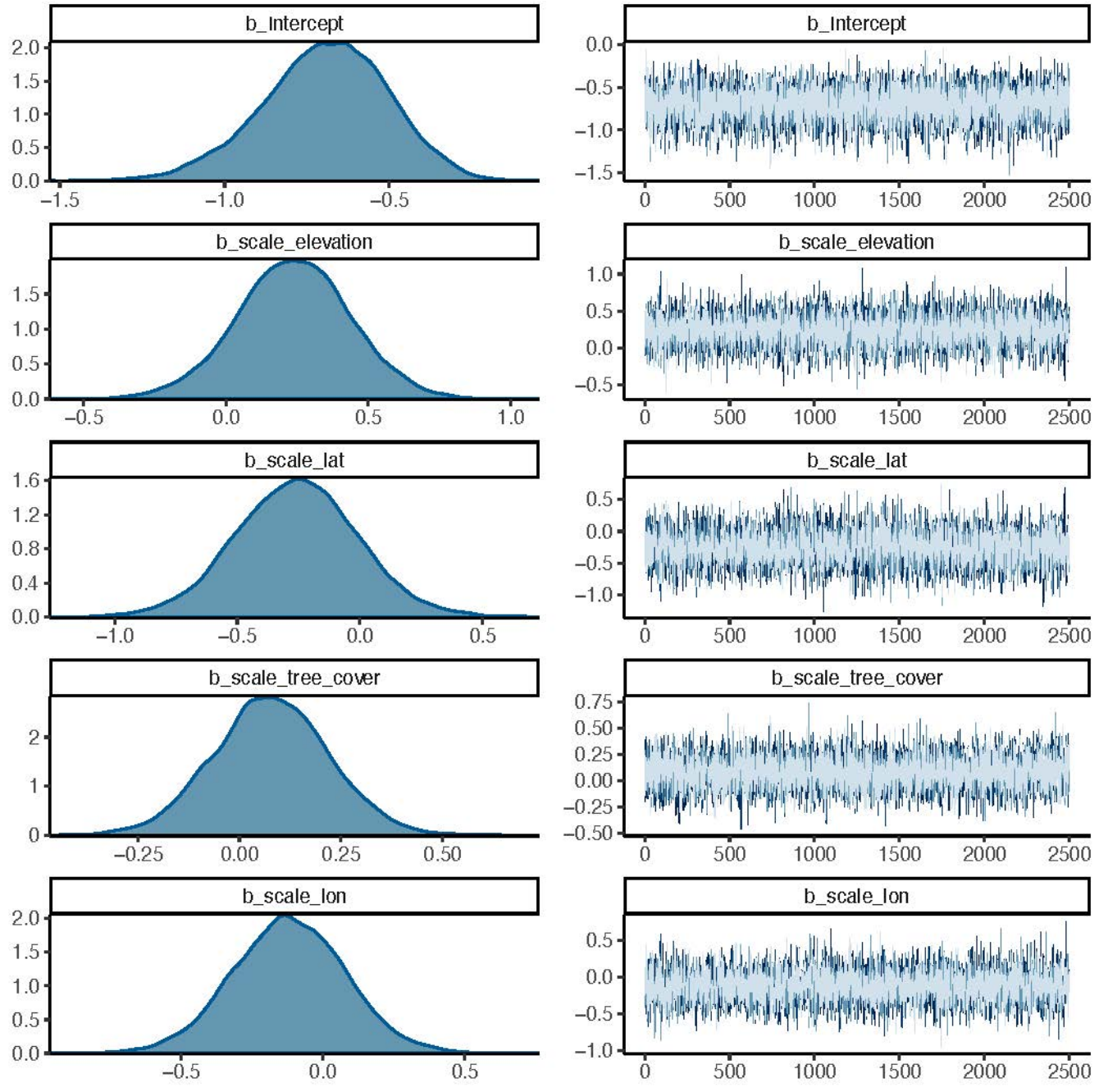

sporadicu
6
4
2
0
density
0
1
2
3
4
5
Observed abundance
observed
modelled

hortorum


b_Intercept
b_Intercept
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b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
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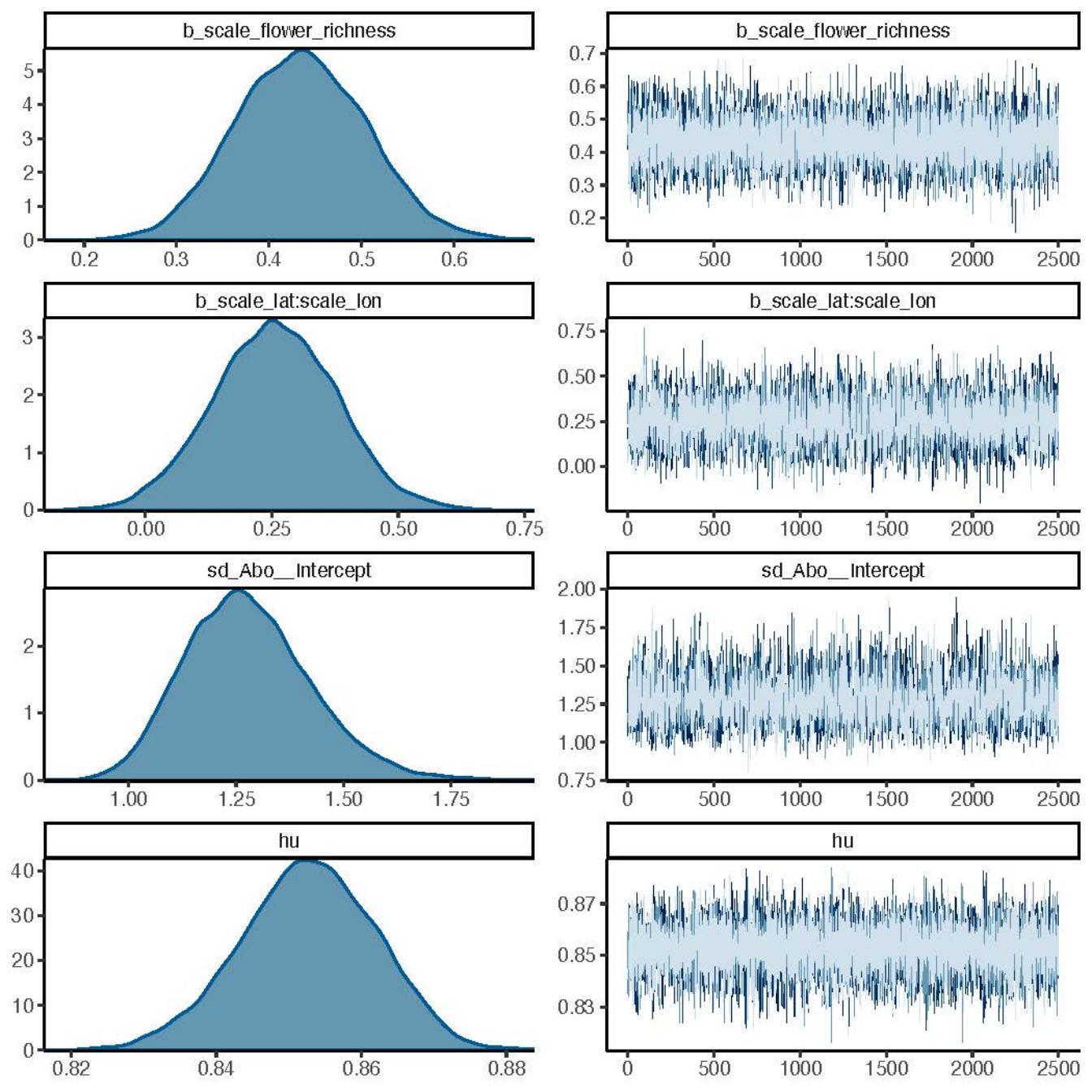
b_scale_lon


b_scale_flower_richness
b_scale_flower_richness
b_scale_lat:scale_lon
b_scale_lat:scale_lon
sd_Abo__Intercept
sd_Abo__Intercept
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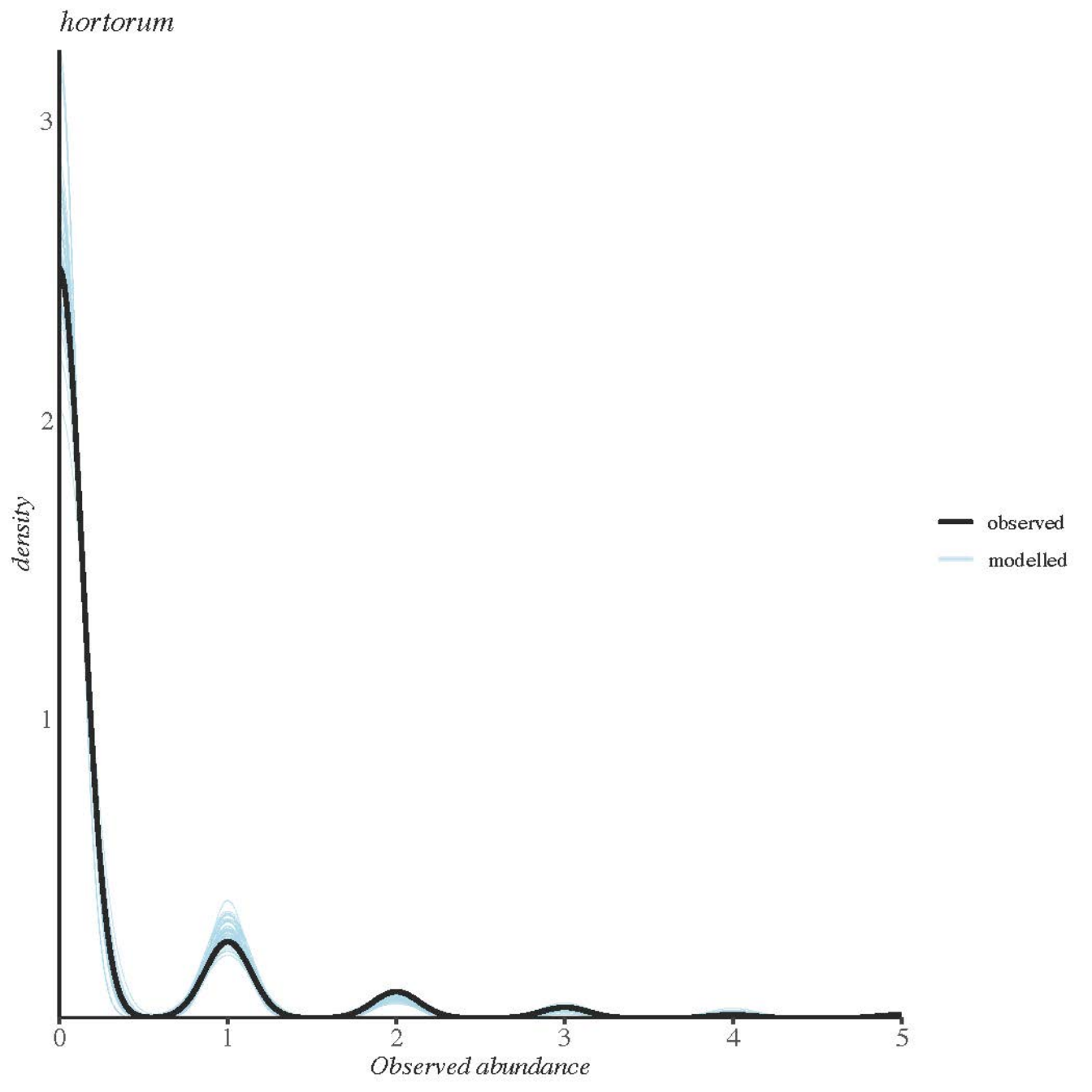
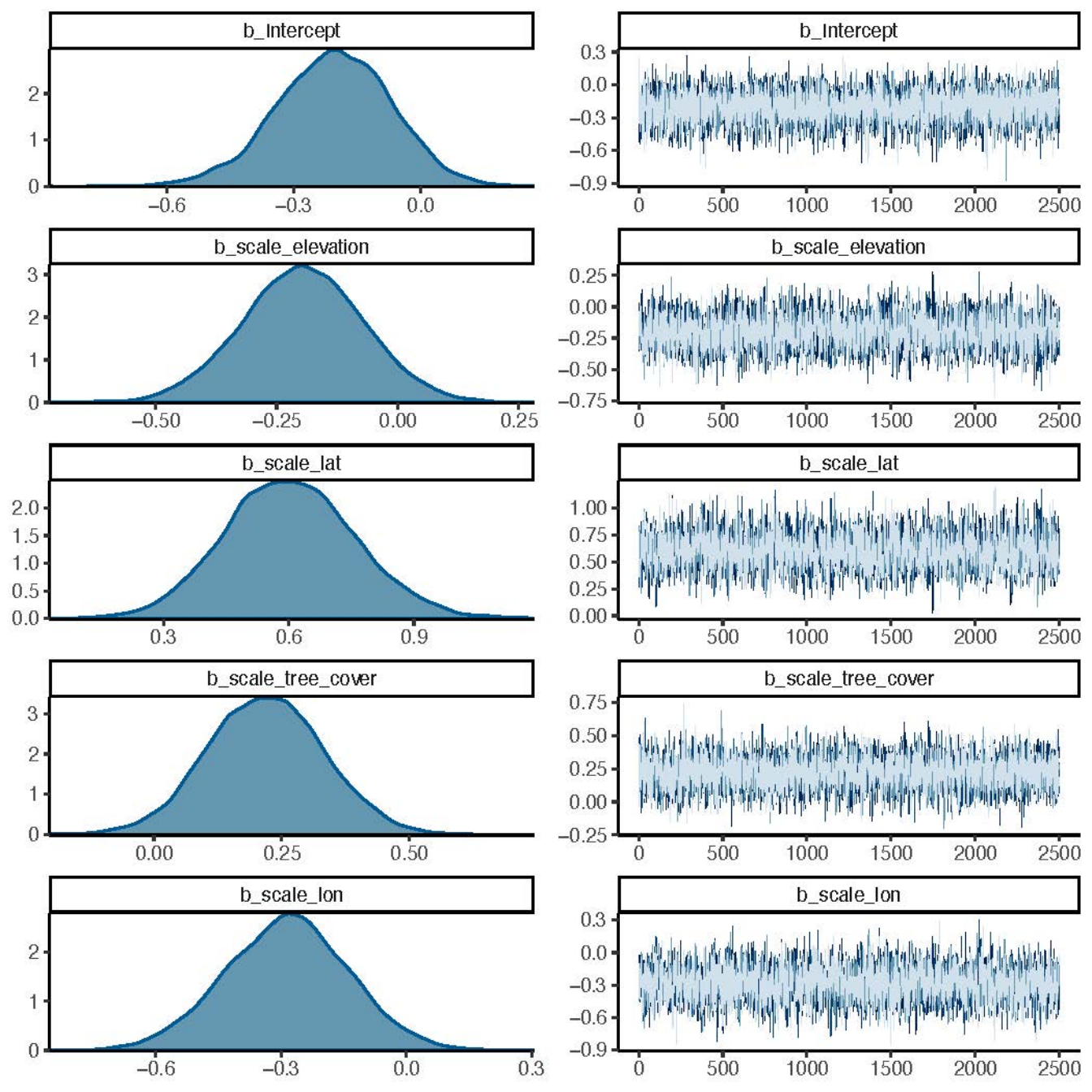

hortorum
3
2
1
density
observed
modelled
0
1
2
3
4
5
Observed abundance

hypnorum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b_Intercept
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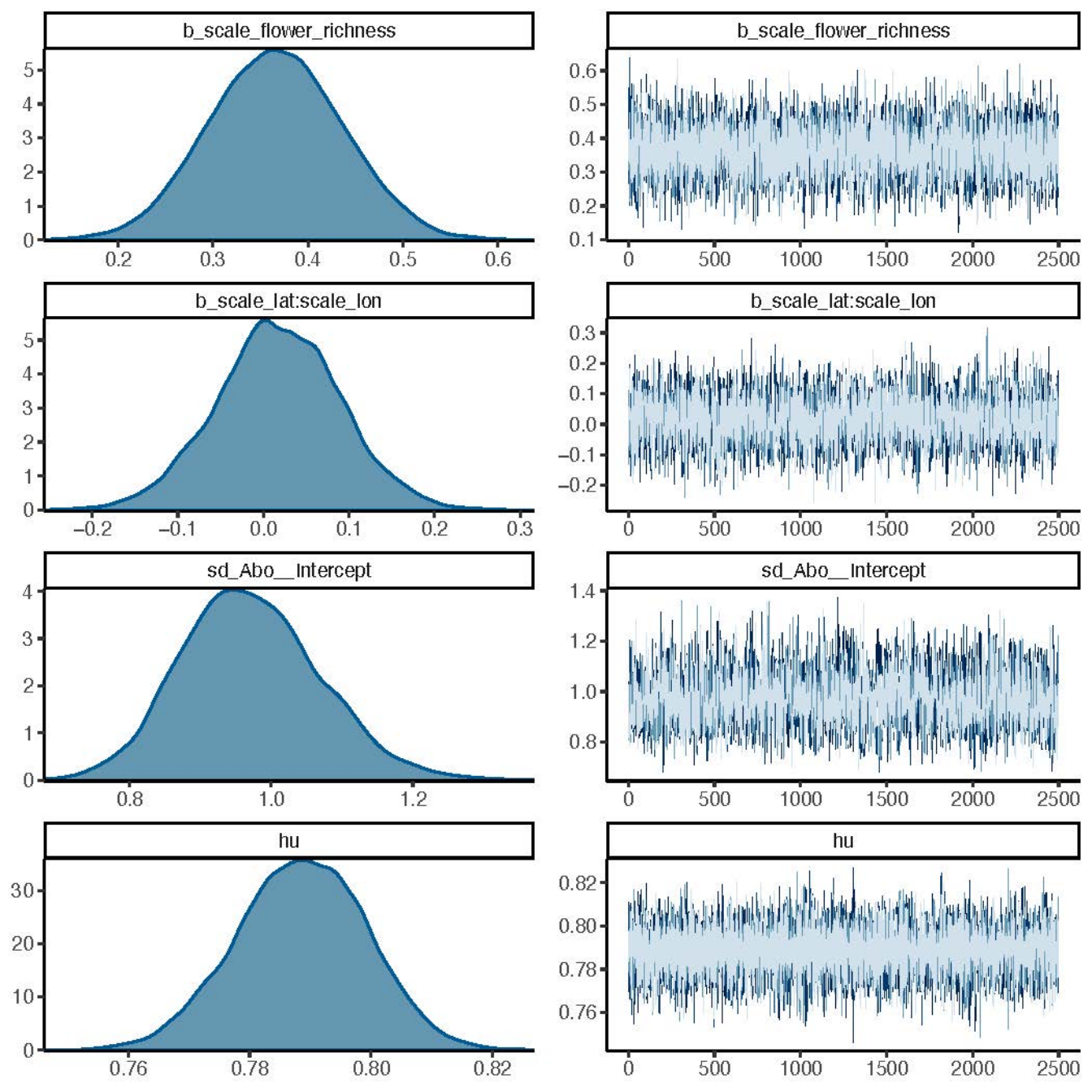
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon


b_scale_flower_richness
b_scale_flower_richness
b_scale_lat:scale_lon
b_scale_lat:scale_lon
sd_Abo__Intercept
sd_Abo__Intercept
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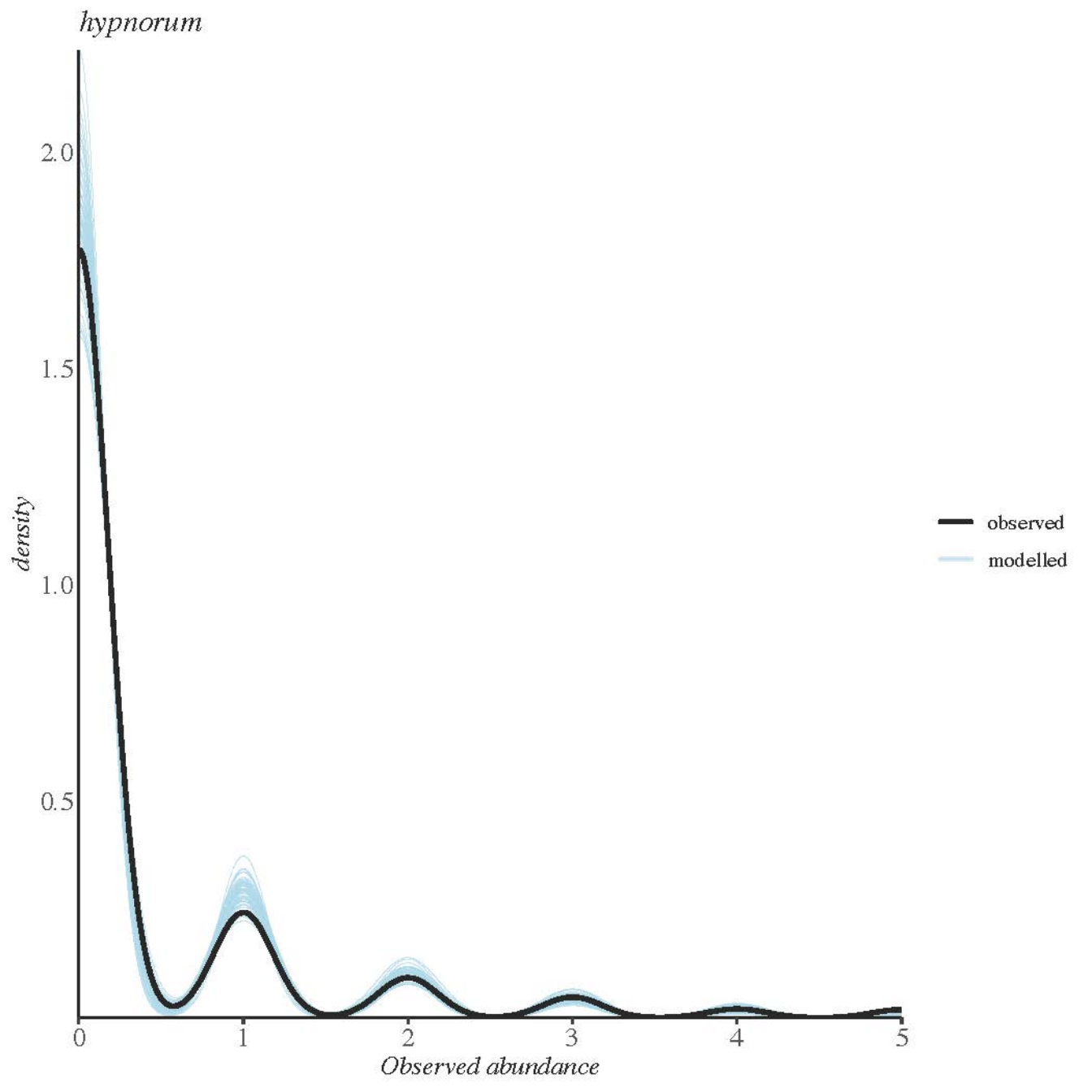
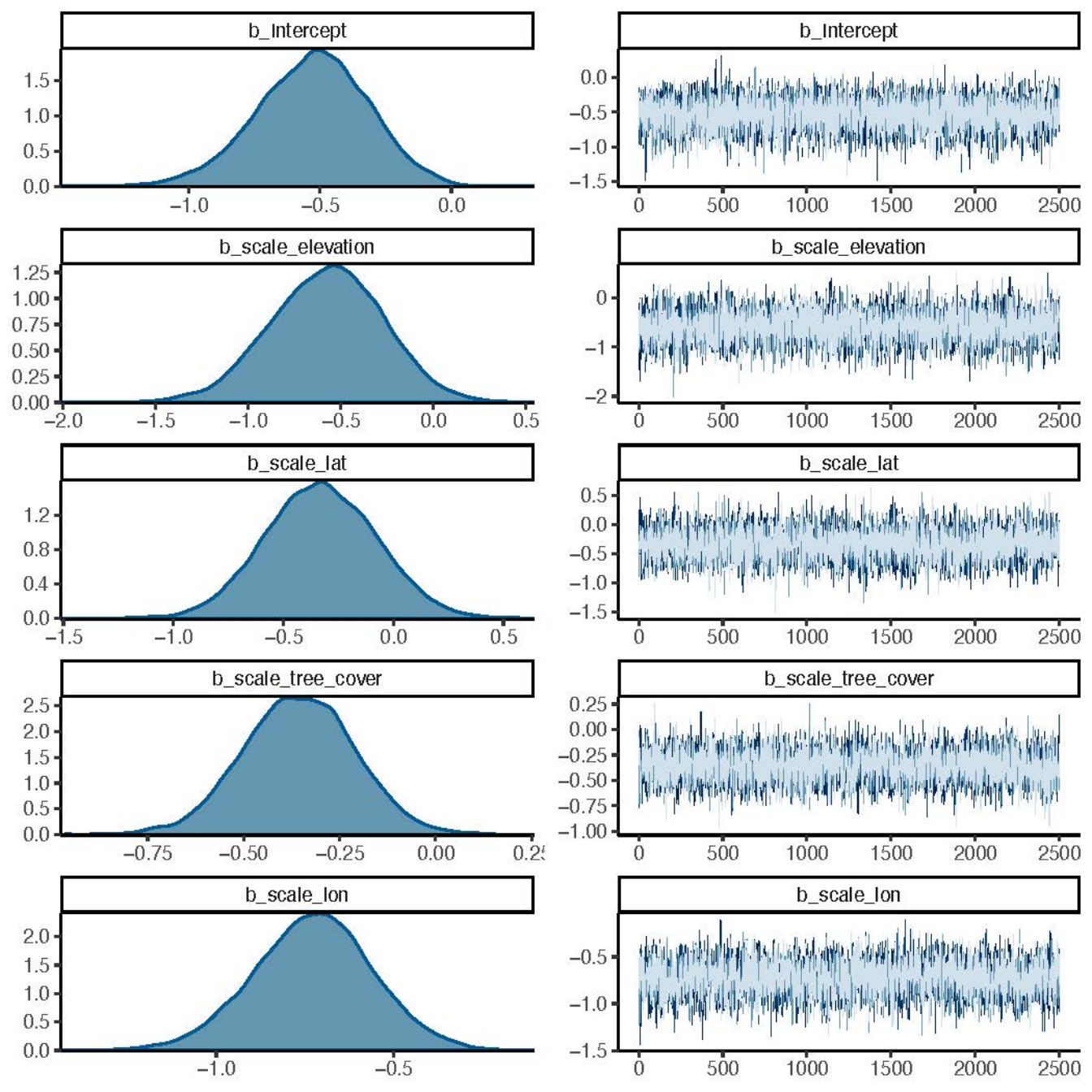

hypnorum
2.0
1.5
1.0
0.5
density
0
1
2
3
4
5
Observed abundance
observed
modelled

sylvarum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b_Intercept
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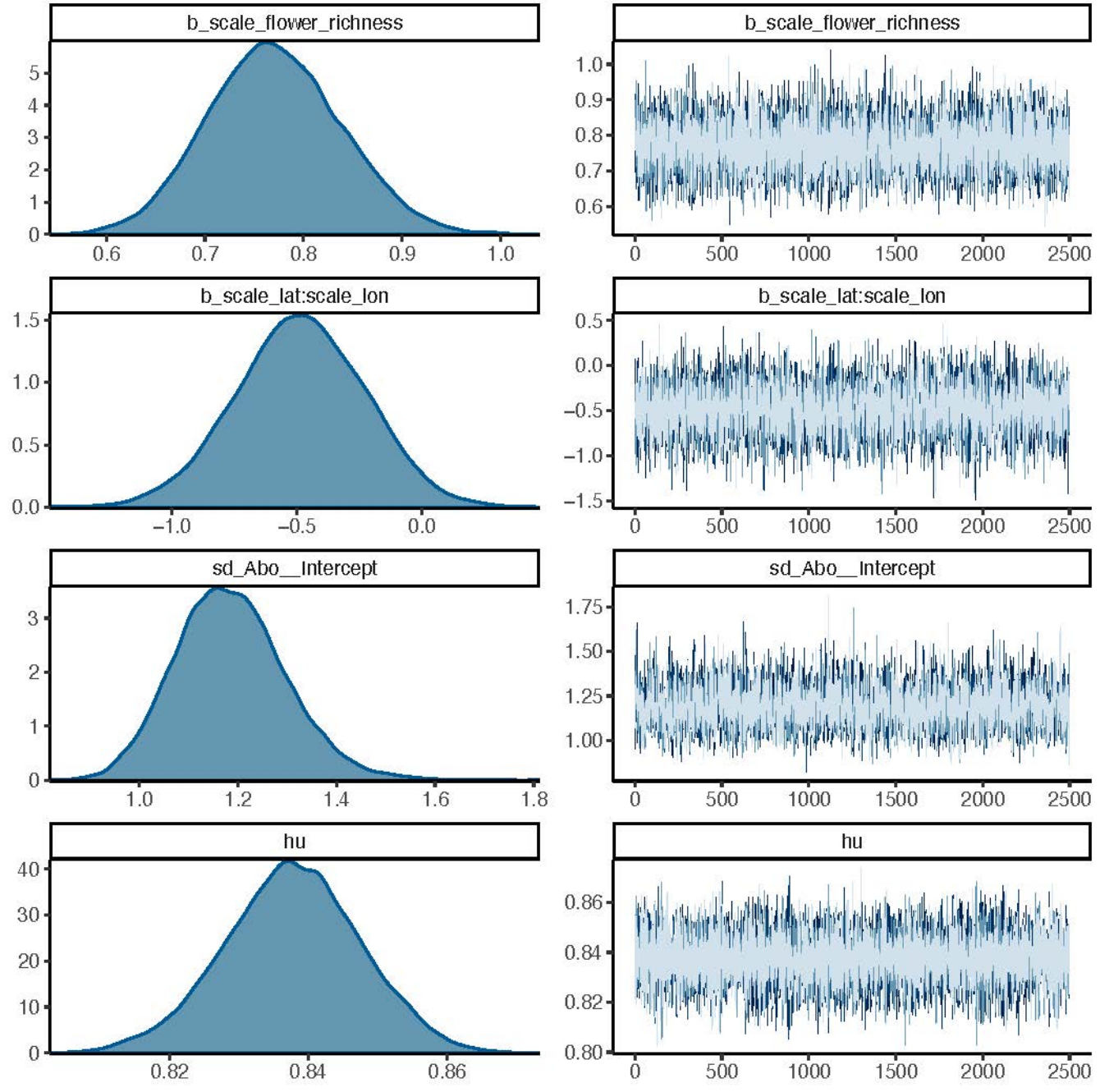
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon


b_scale_flower_richness
b_scale_flower_richness
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b_scale_lat:scale_lon
sd_Abo__Intercept
sd_Abo__Intercept
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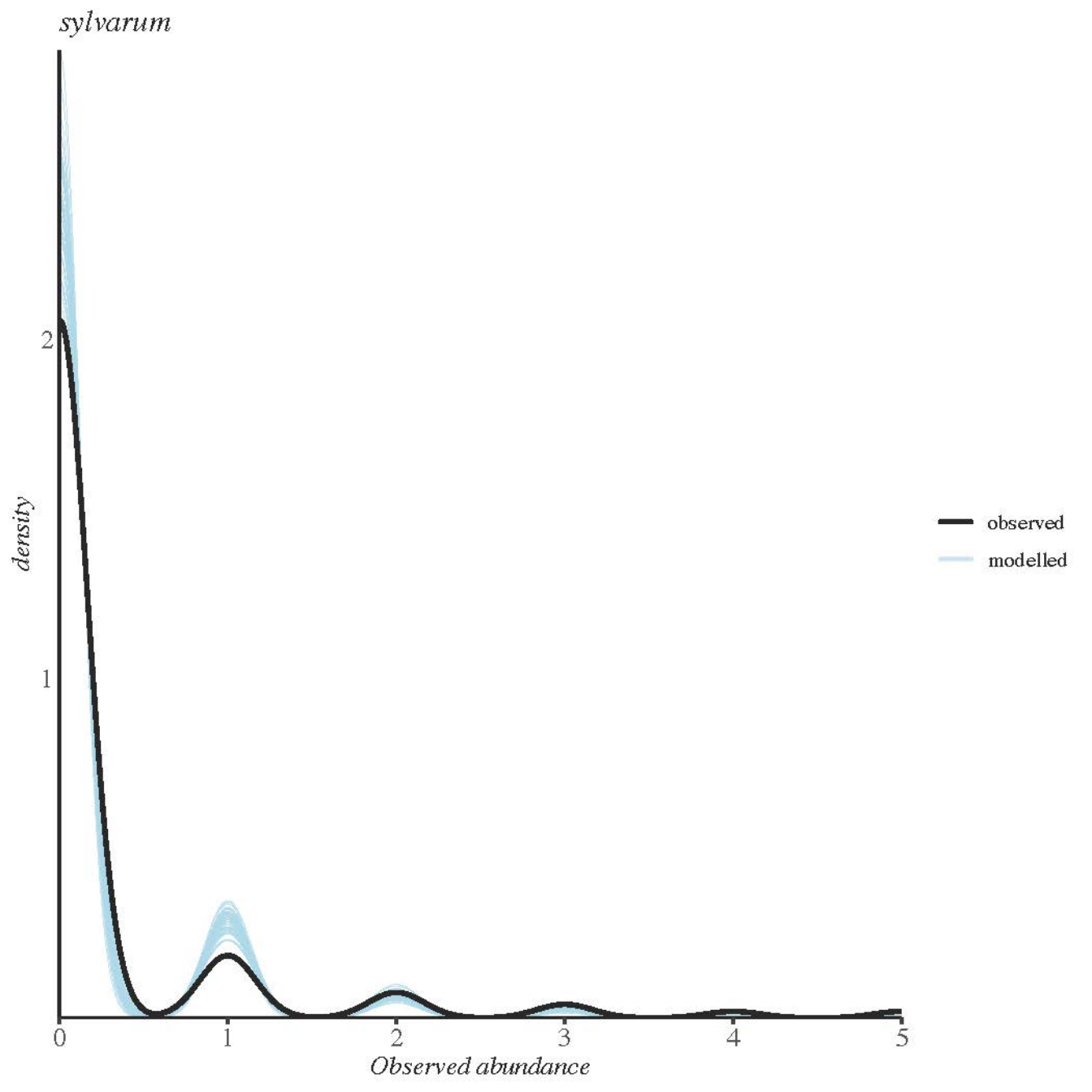
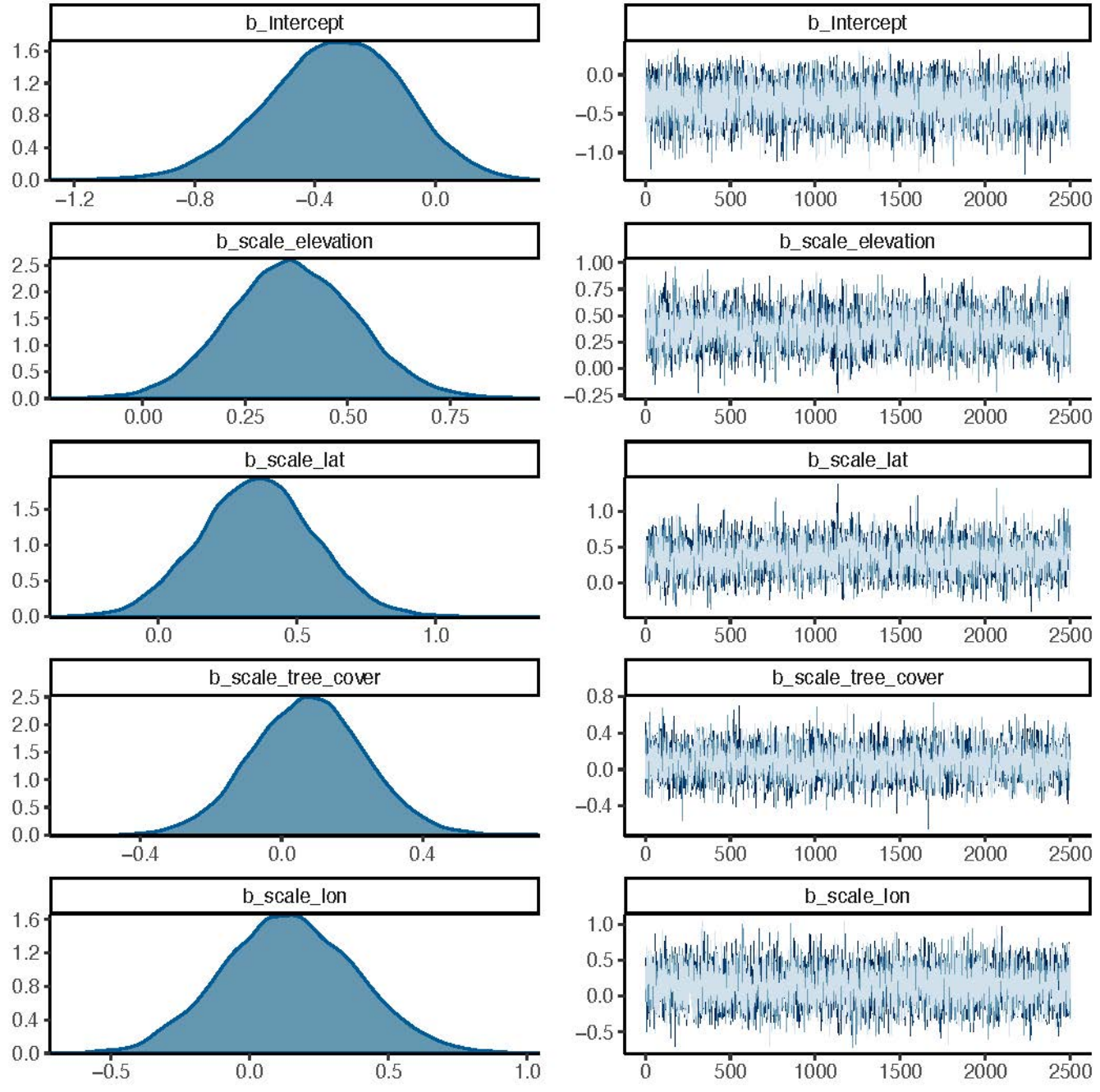

sylvarum
density
2
1
0
1
2
3
4
5
Observed abundance
observed
modelled

jonellus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b_Intercept
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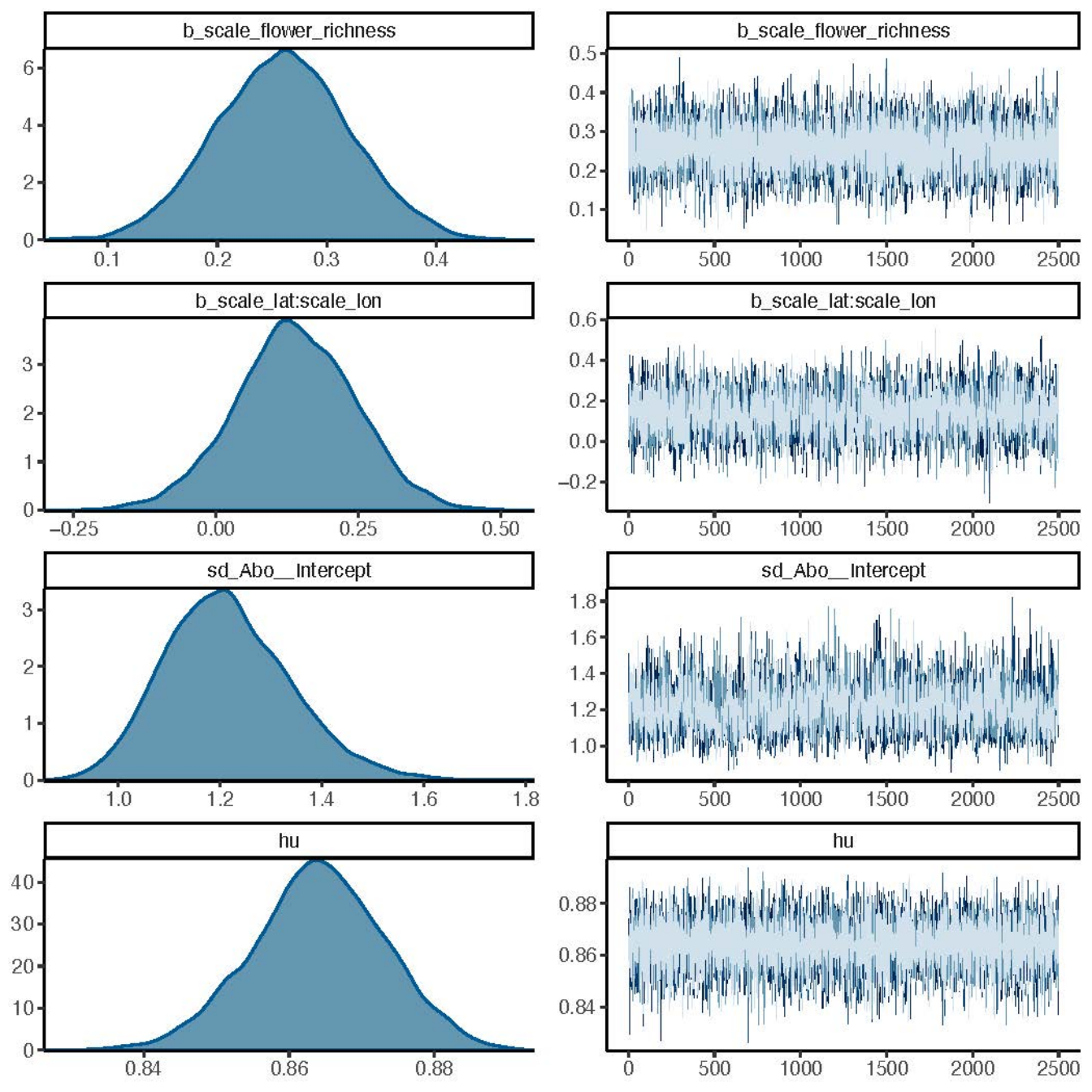
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon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b_scale_flower_richness
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b_scale_lat:scale_lon
sd_Abo__Intercept
sd_Abo__Intercept
hu
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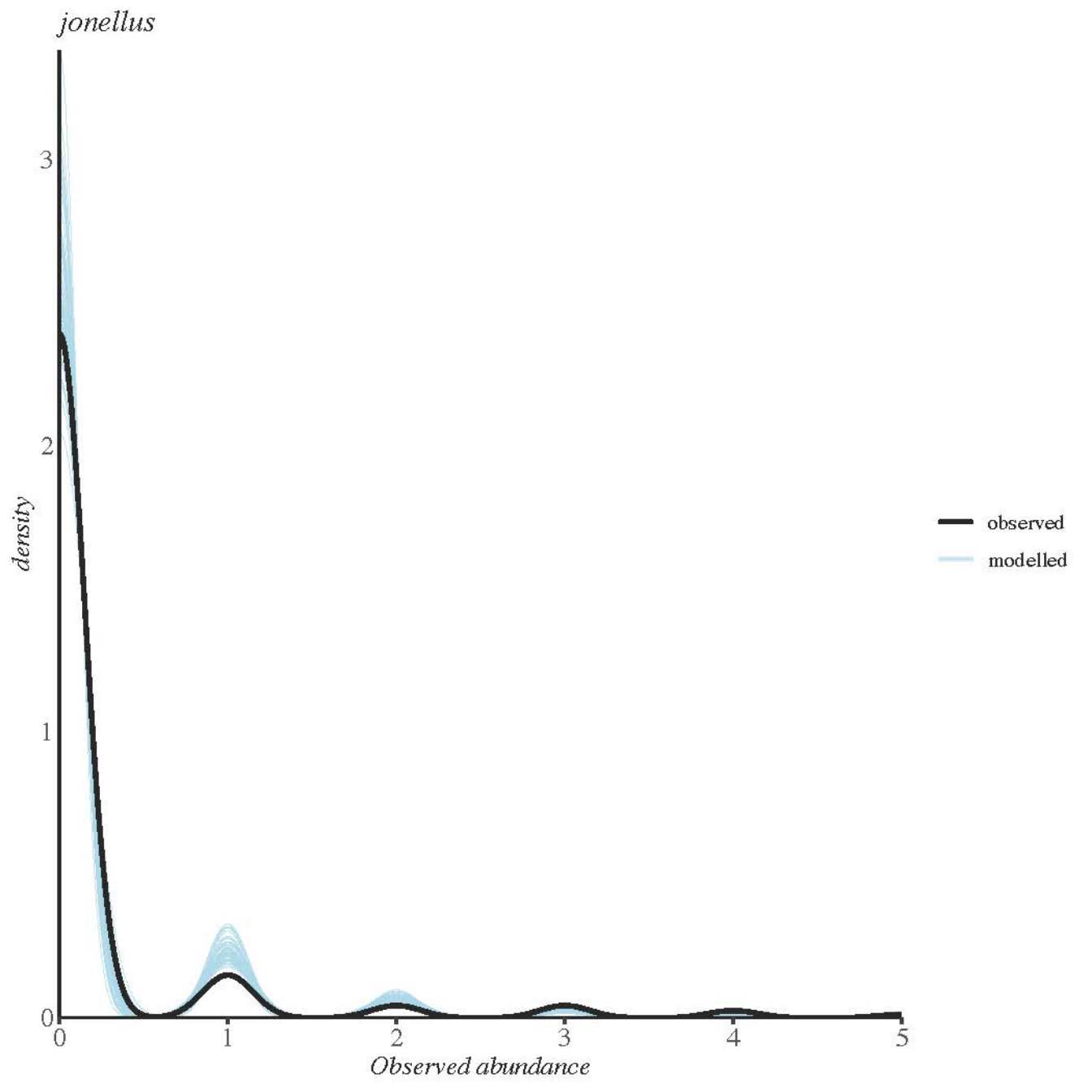
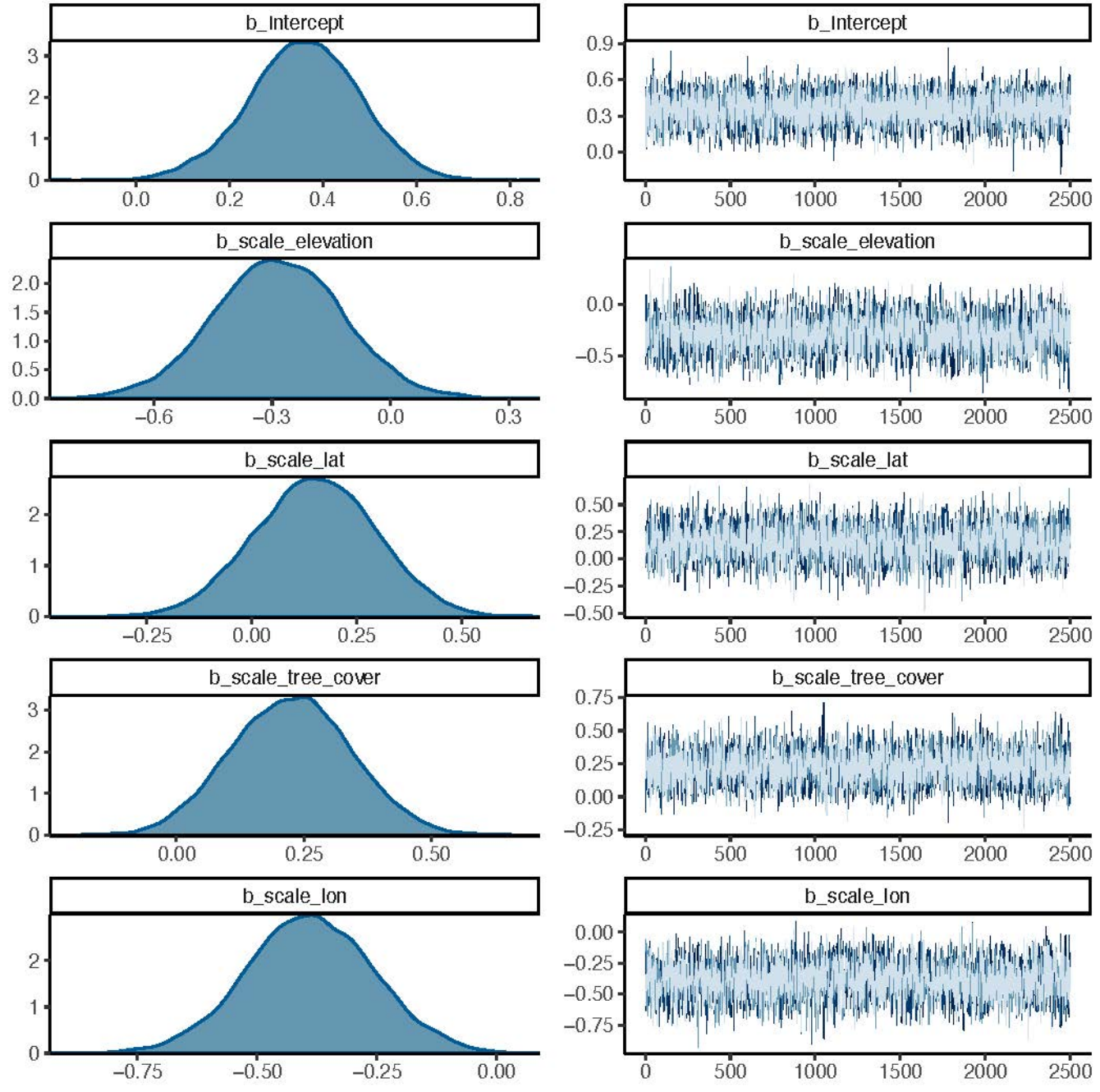

jonellus
density
Observed abundance
0
1
2
3
4
5
observed
modelled

soroeensi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b_Intercept
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b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
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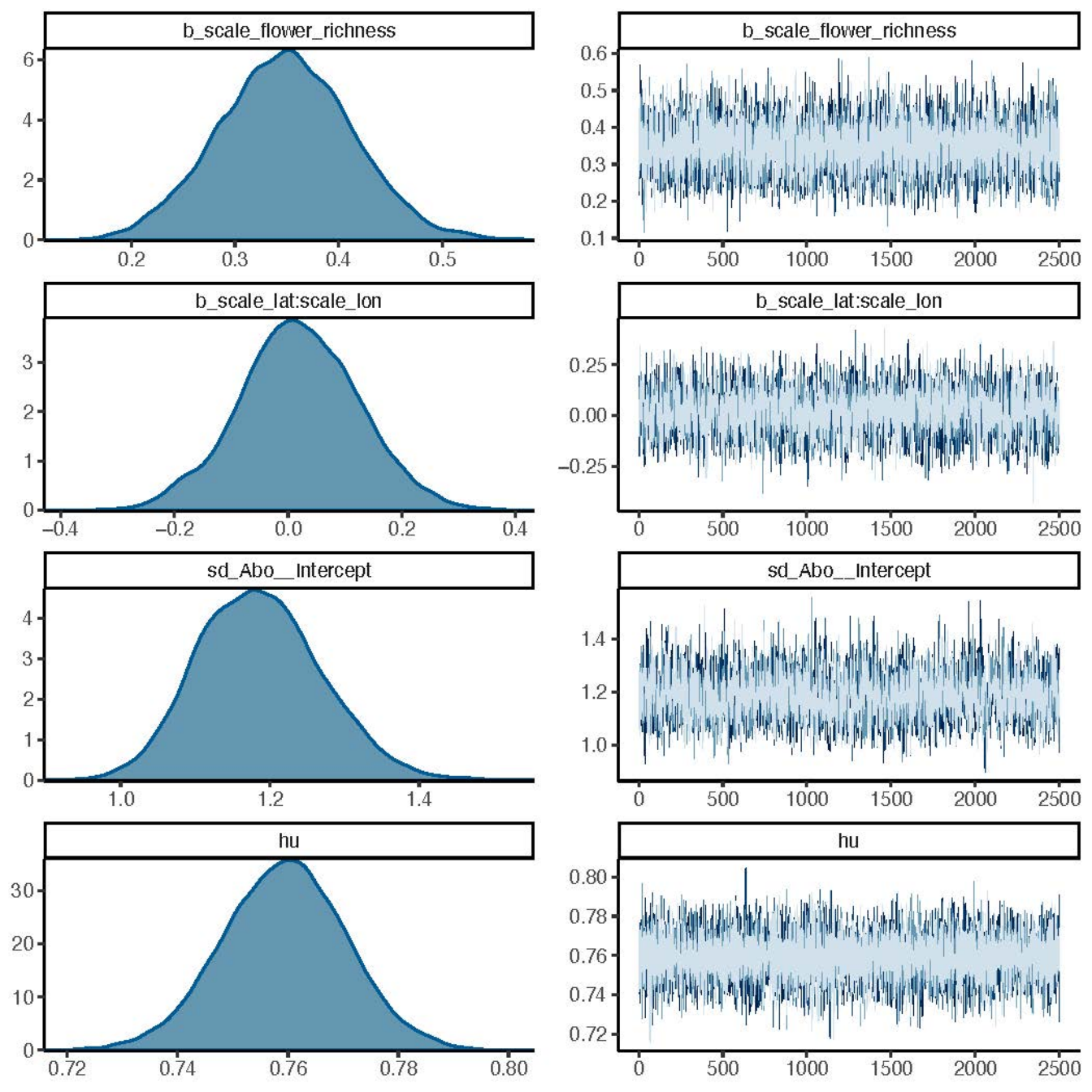
b_scale_lon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sd_Abo__Intercept
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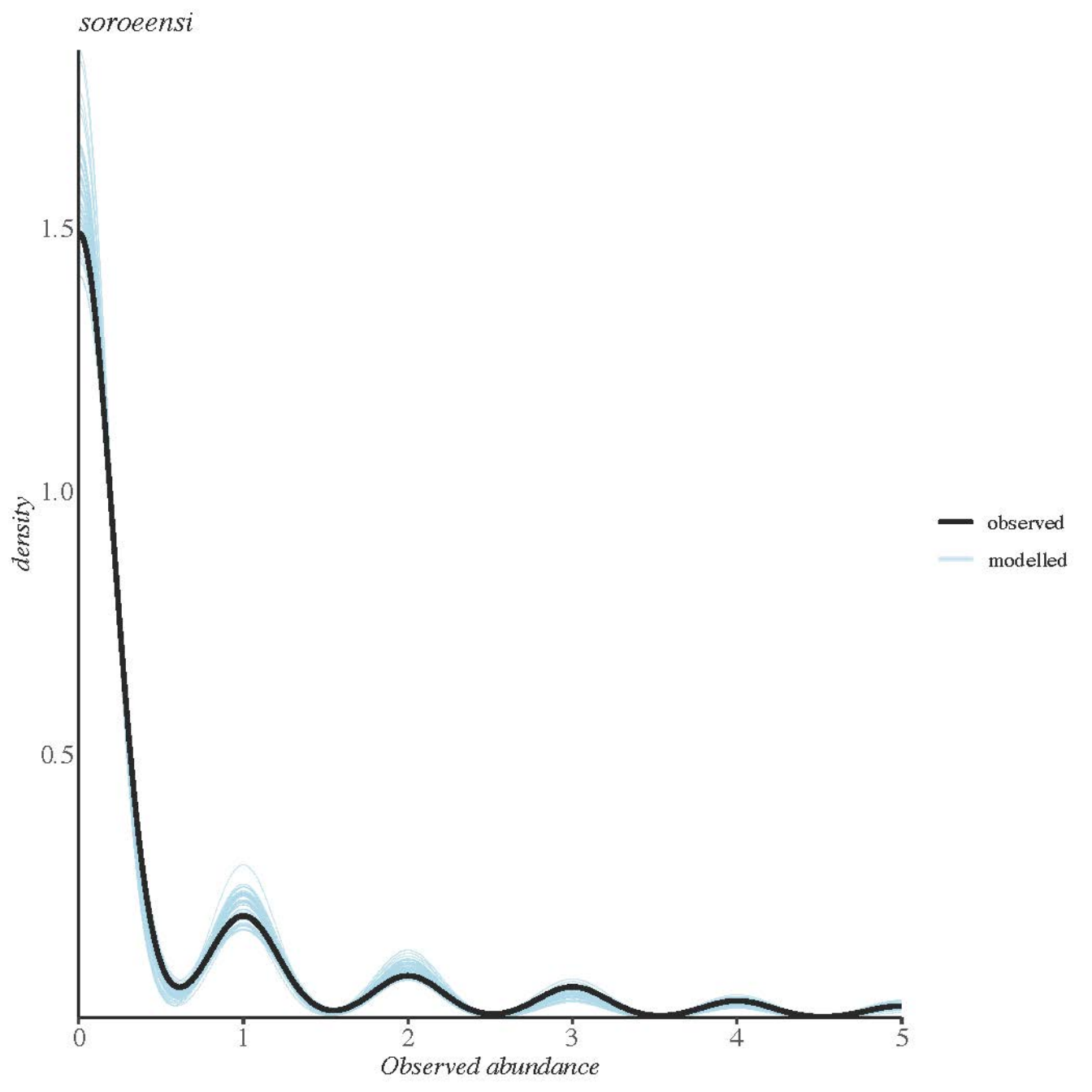
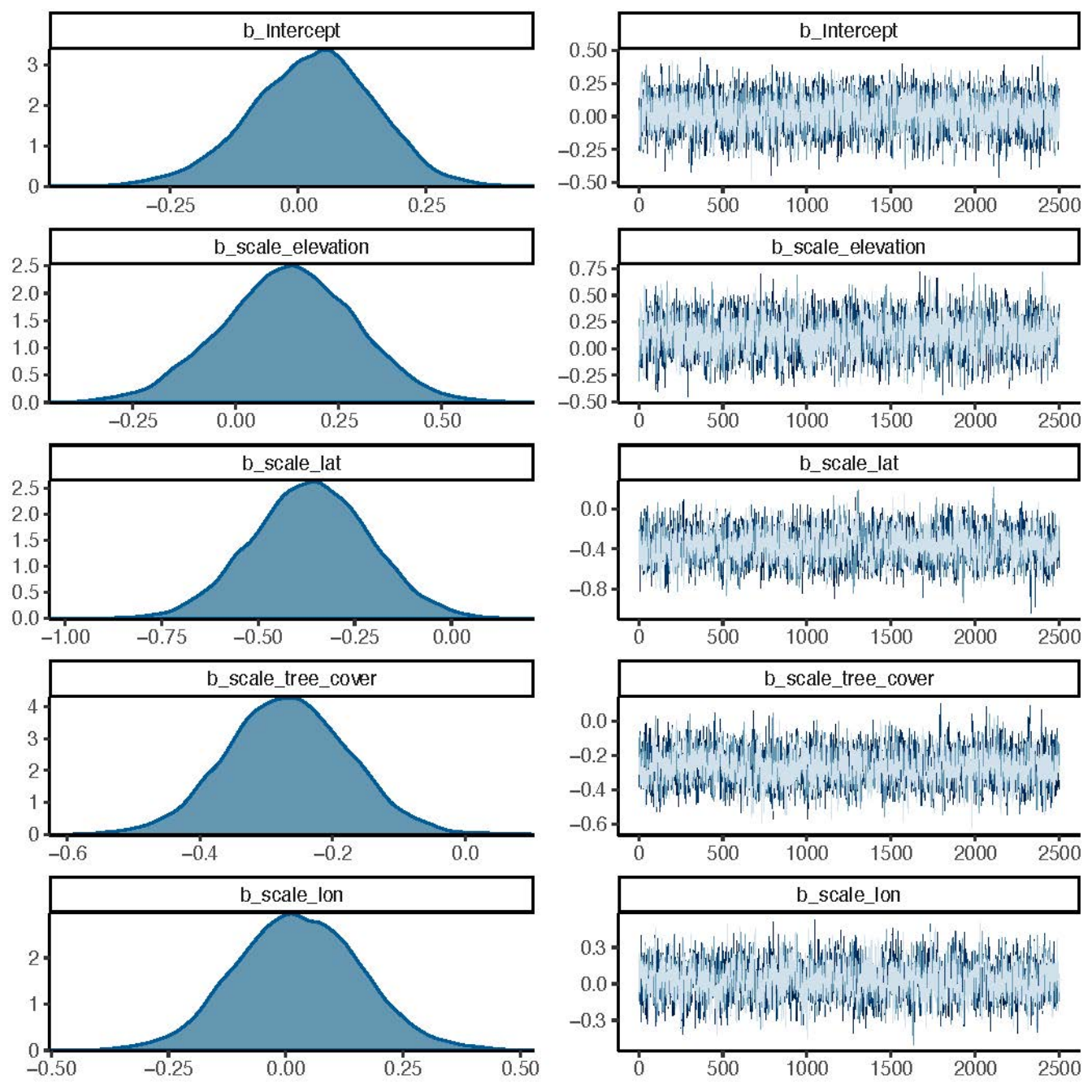

soroeensi
1.5
1.0
0.5
density
0
1
2
3
4
5
Observed abundance
observed
modelled

lapidariu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b_Intercept
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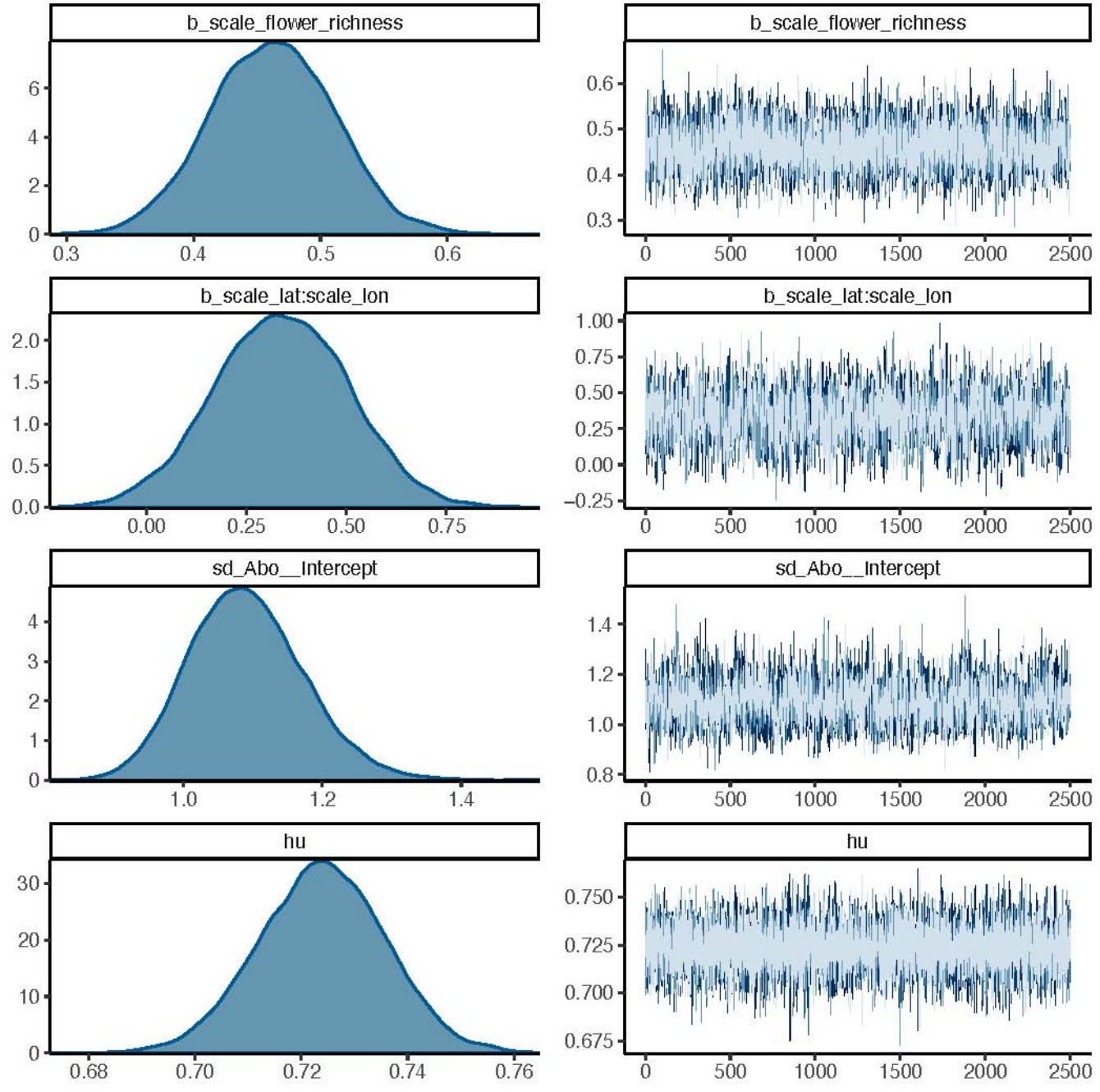
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon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b_scale_flower_richness
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sd_Abo__Intercept
sd_Abo__Intercept
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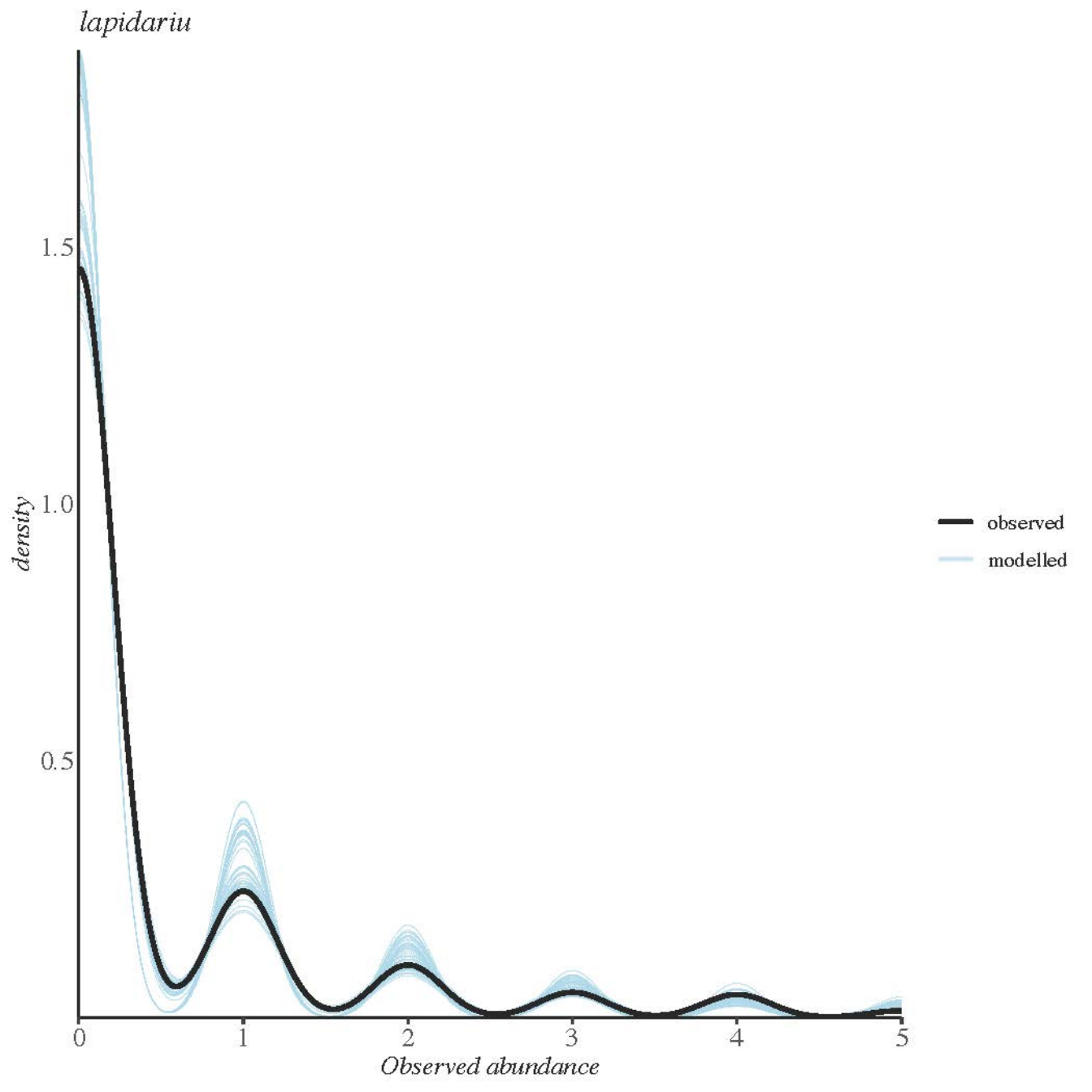
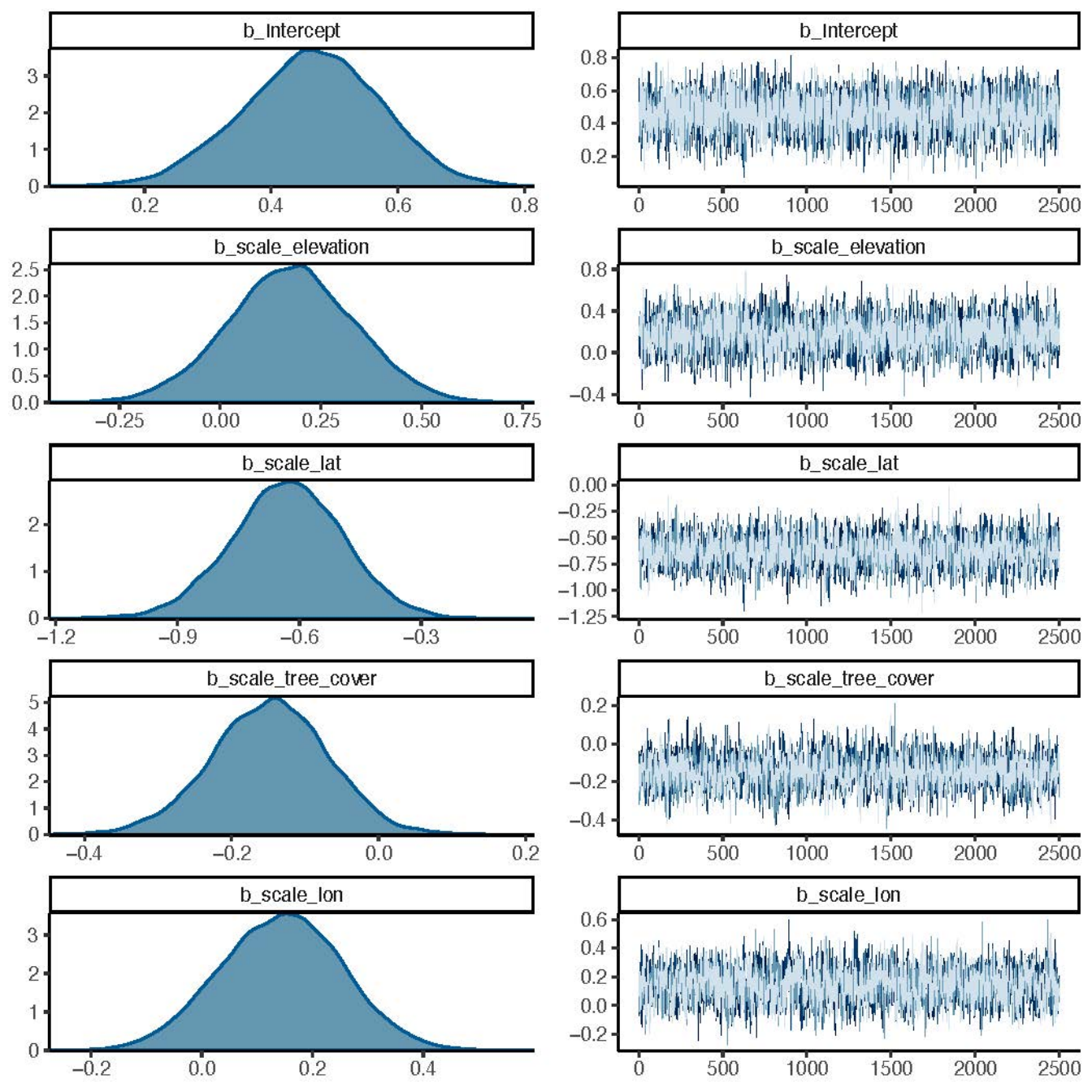

lapidariu
1.5
1.0
0.5
density
0
1
2
3
4
5
Observed abundance
observed
modelled

terrestri


b_Intercept
b_Intercept
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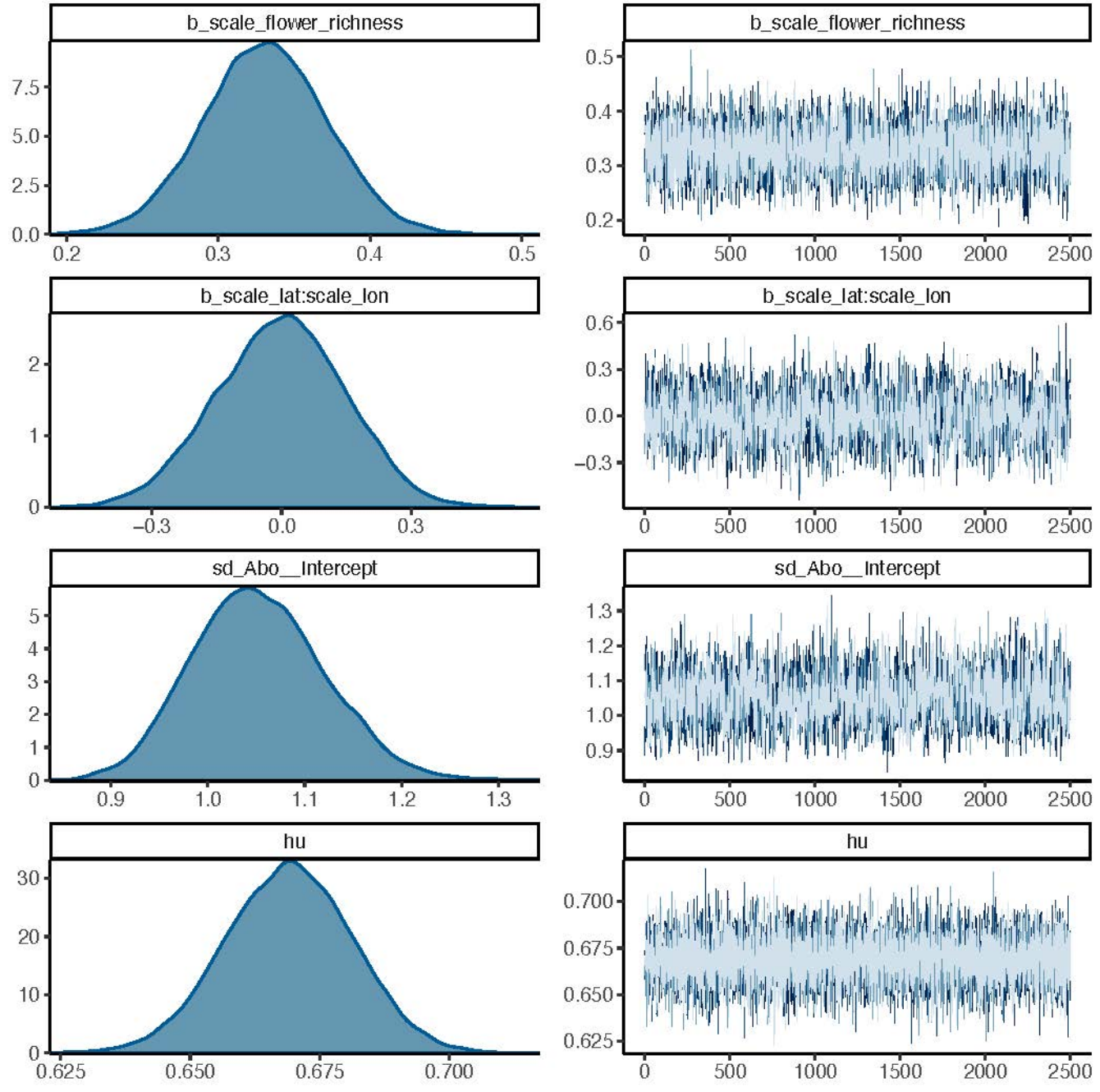
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon


b_scale_flower_richness
b_scale_flower_richness
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b_scale_lat:scale_lon
sd_Abo__Intercept
sd_Abo__Intercept
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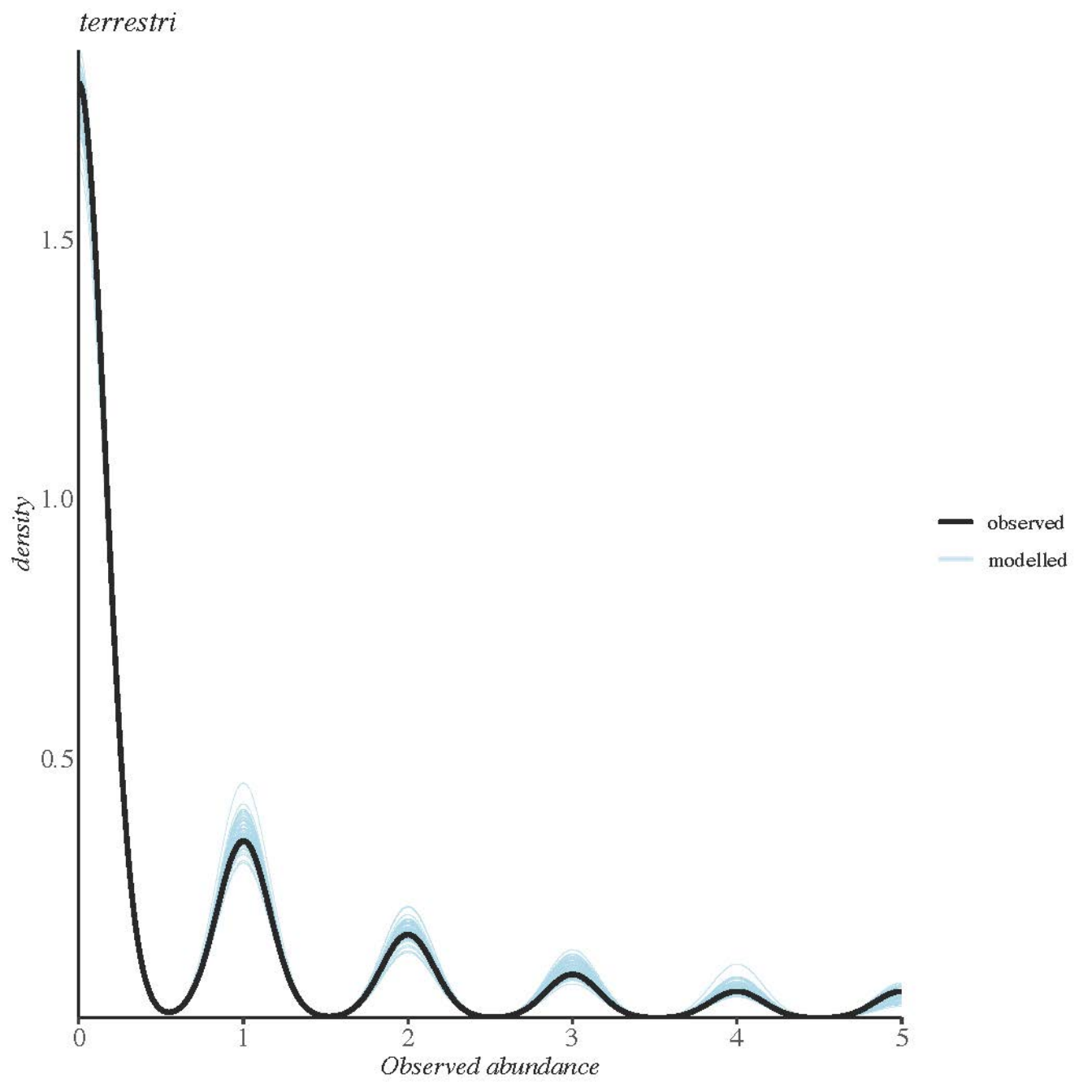
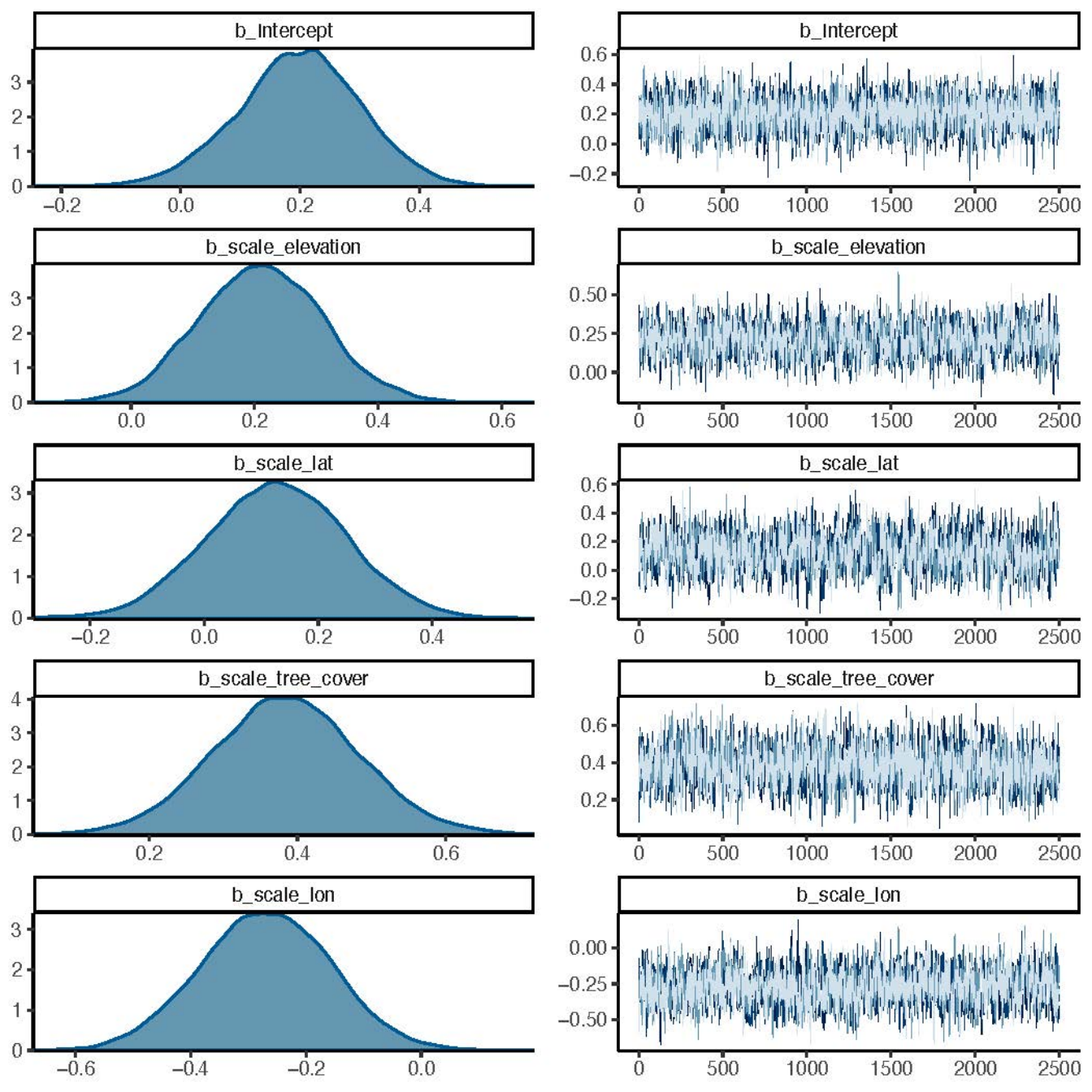

terrestri
1.5
1.0
0.5
density
0
1
2
3
4
5
Observed abundance
observed
modelled

pratorum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b_Intercept
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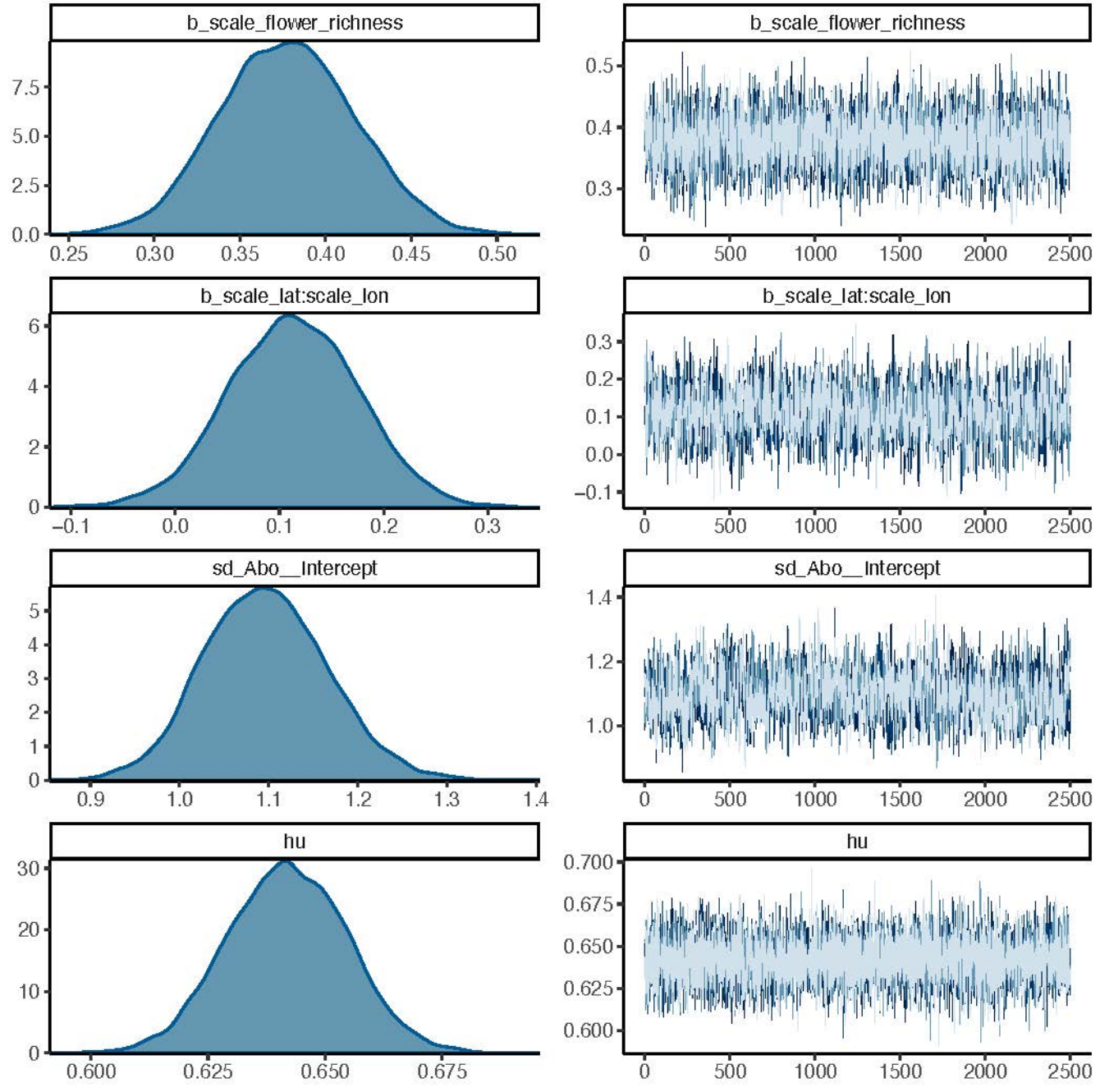
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon


b_scale_flower_richness
b_scale_flower_richness
b_scale_lat:scale_lon
b_scale_lat:scale_lon
sd_Abo__Intercept
sd_Abo__Intercept
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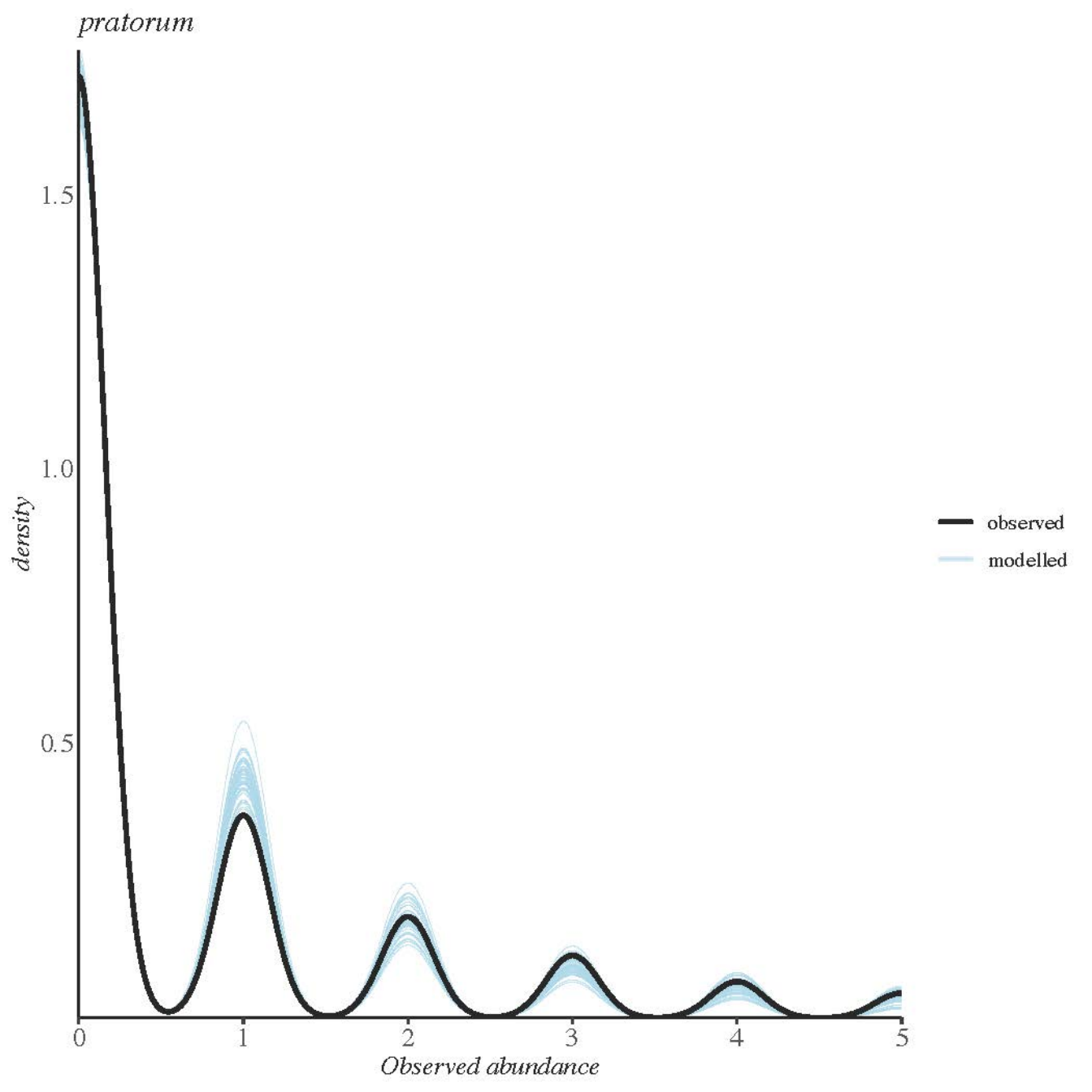
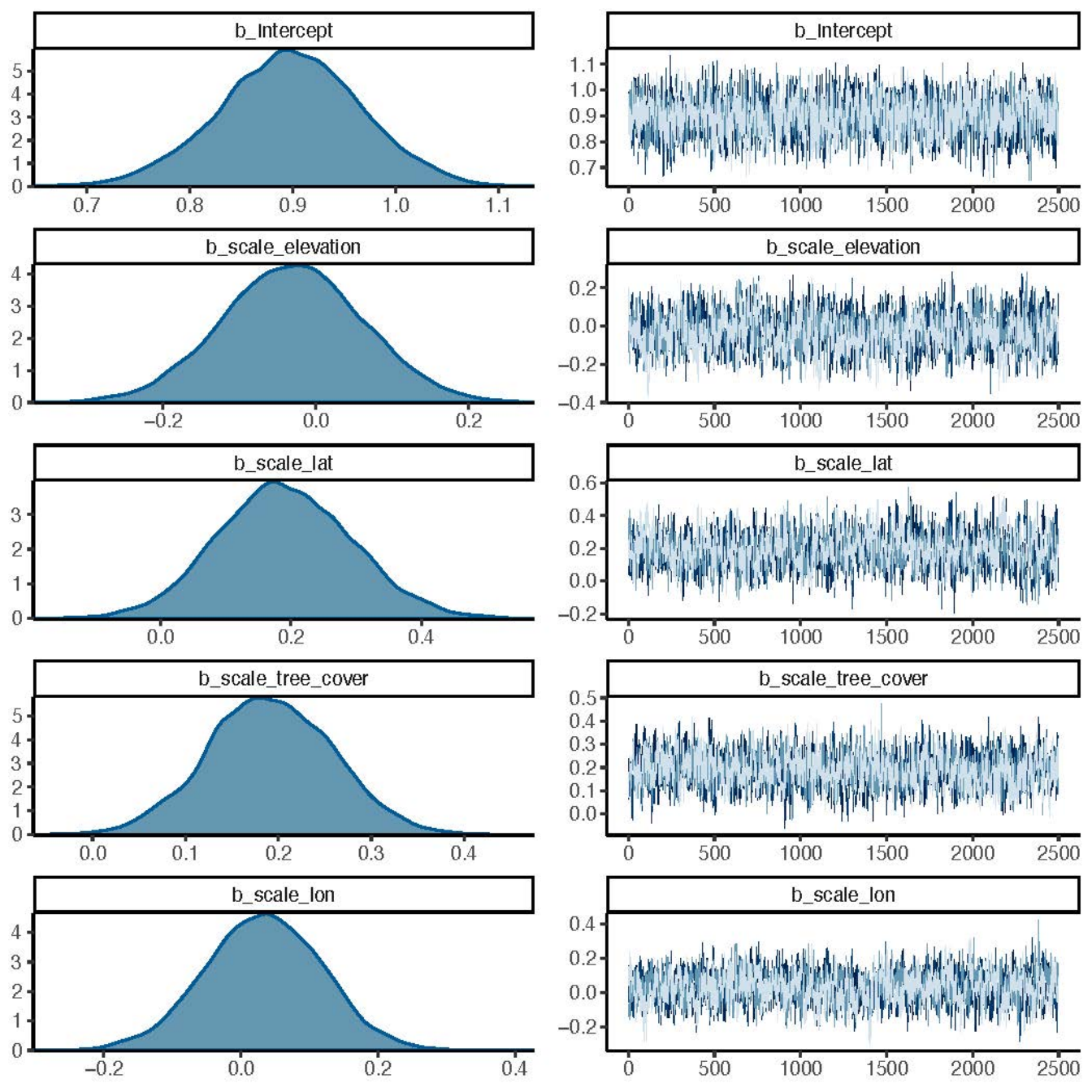

pratorum
1.5
1.0
0.5
density
observed
modelled
0
1
2
3
4
5
Observed abundance

lucorum


b_Intercept
b_Intercept
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b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
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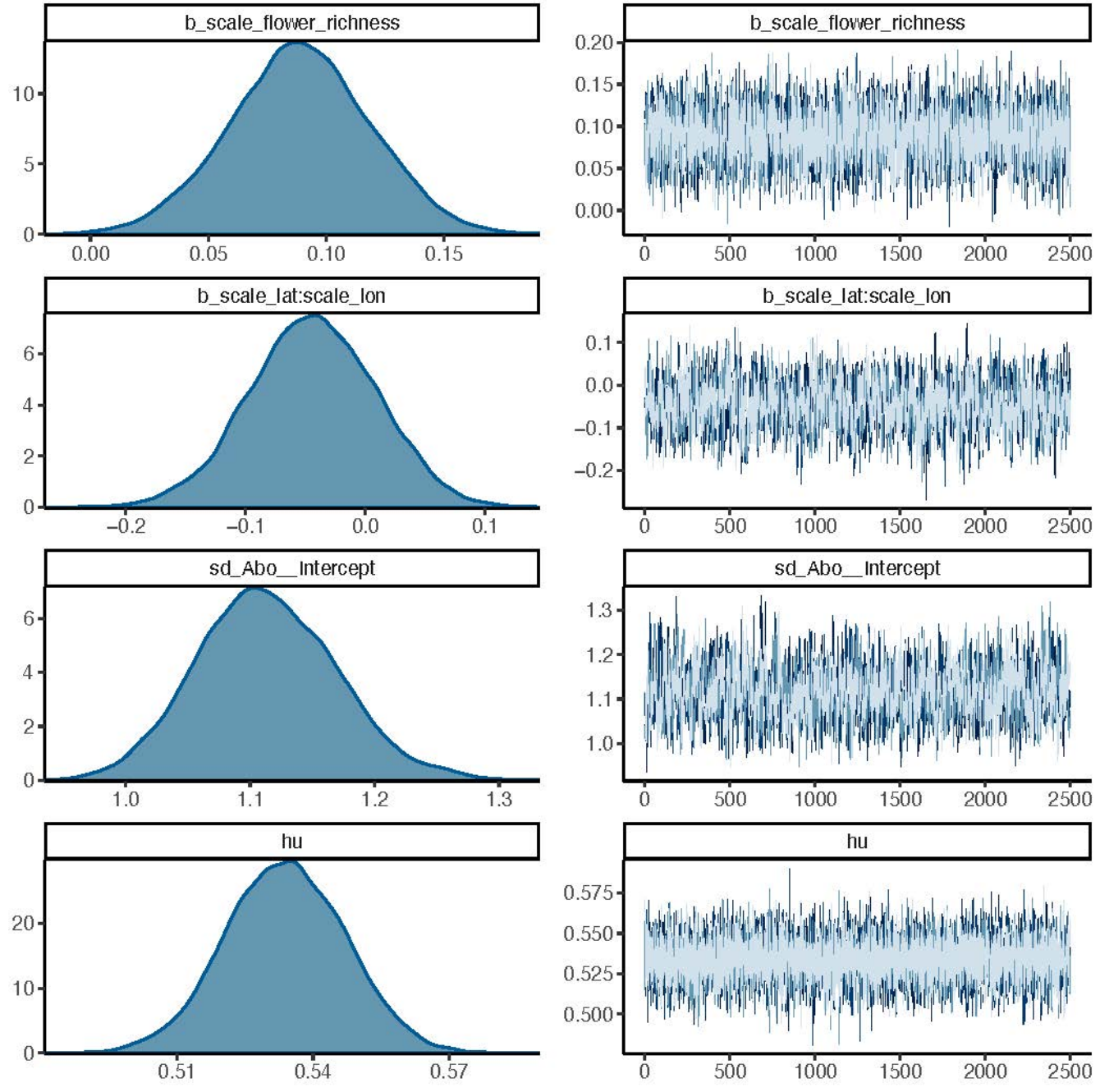
b_scale_lon


b_scale_flower_richness
b_scale_flower_richness
b_scale_lat:scale_lon
b_scale_lat:scale_lon
sd_Abo__Intercept
sd_Abo__Intercept
hu
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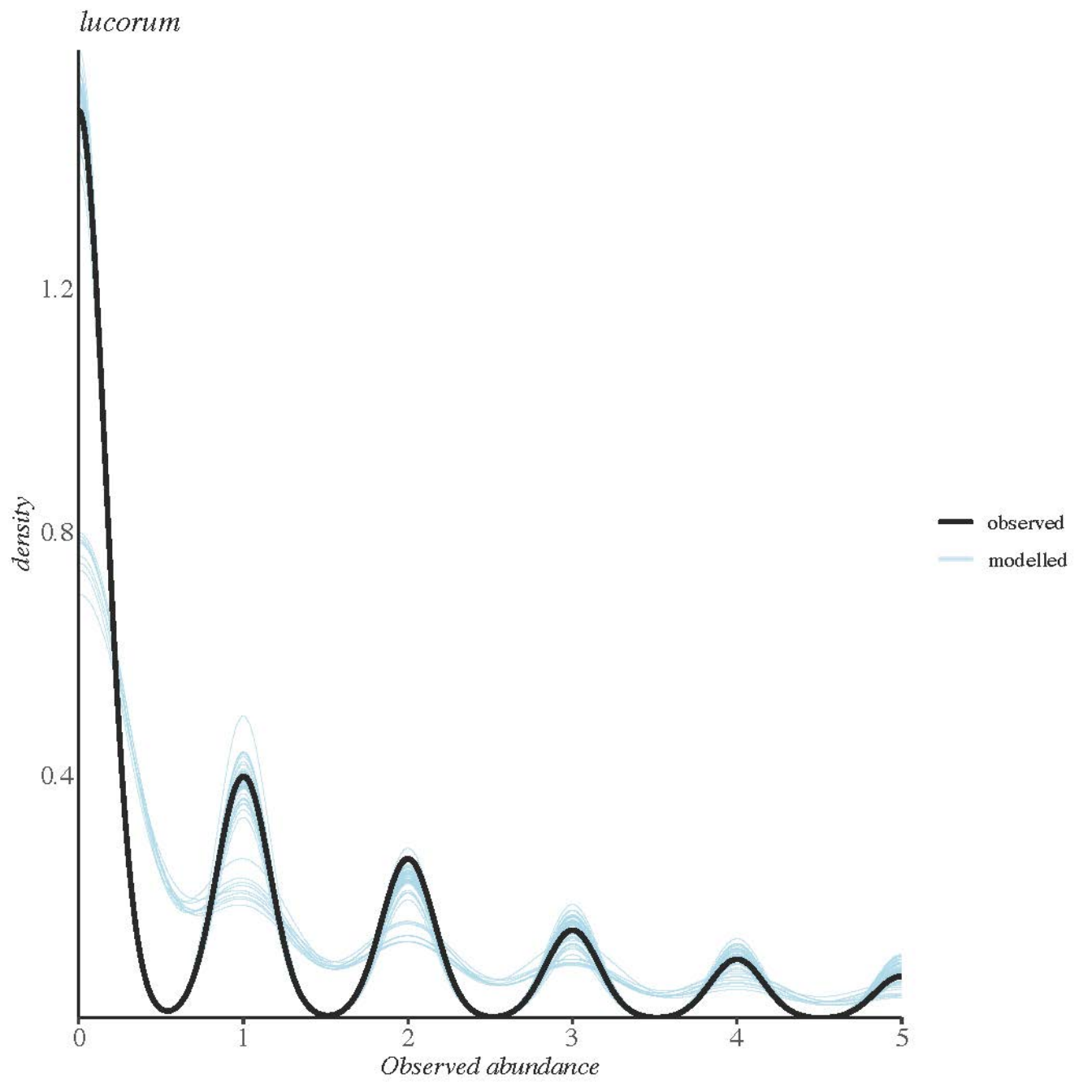
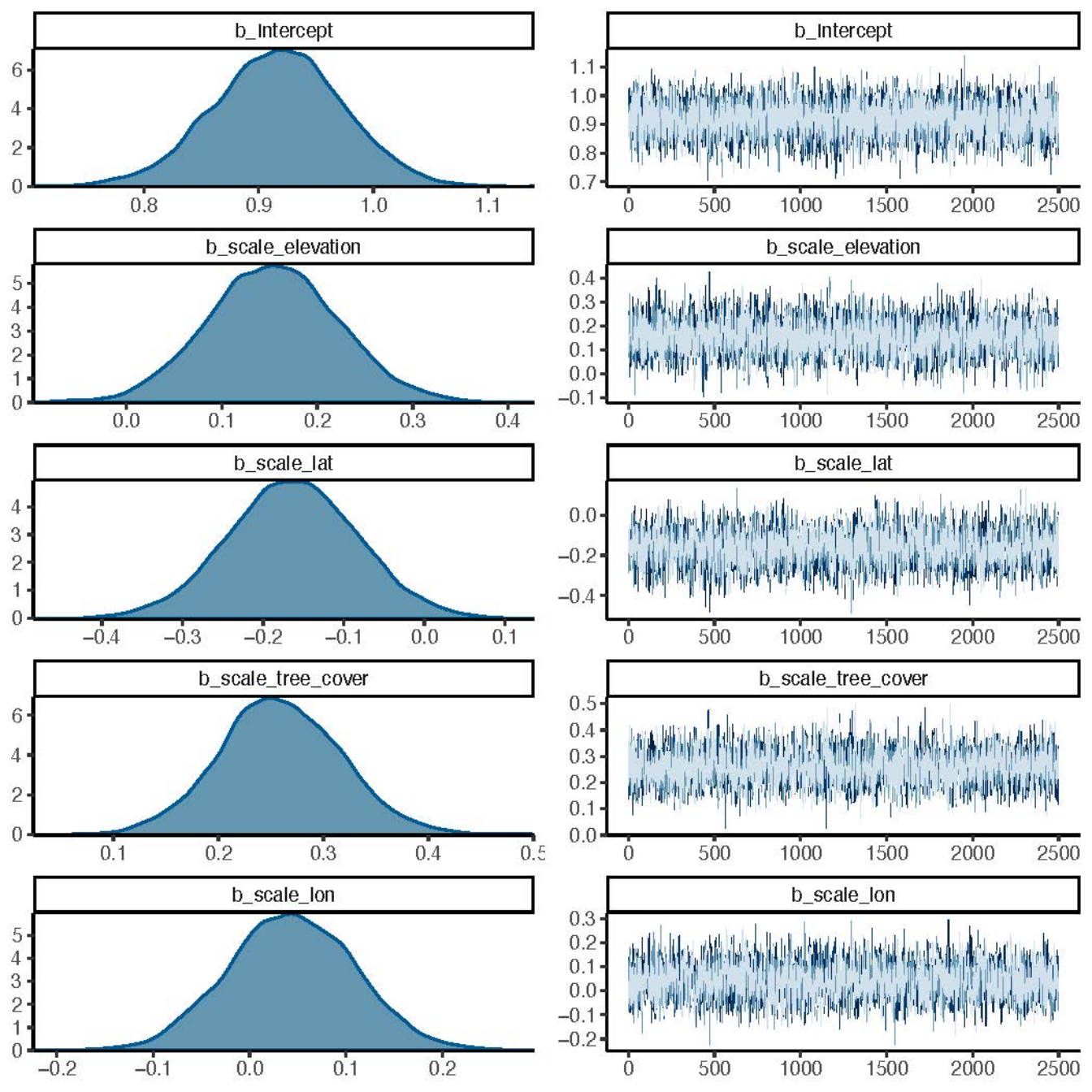

lucorum
1.2
0.8
0.4
density
0
1
2
3
4
5
Observed abundance
observed
modelled

pascuorum


b_Intercept
b_Intercept
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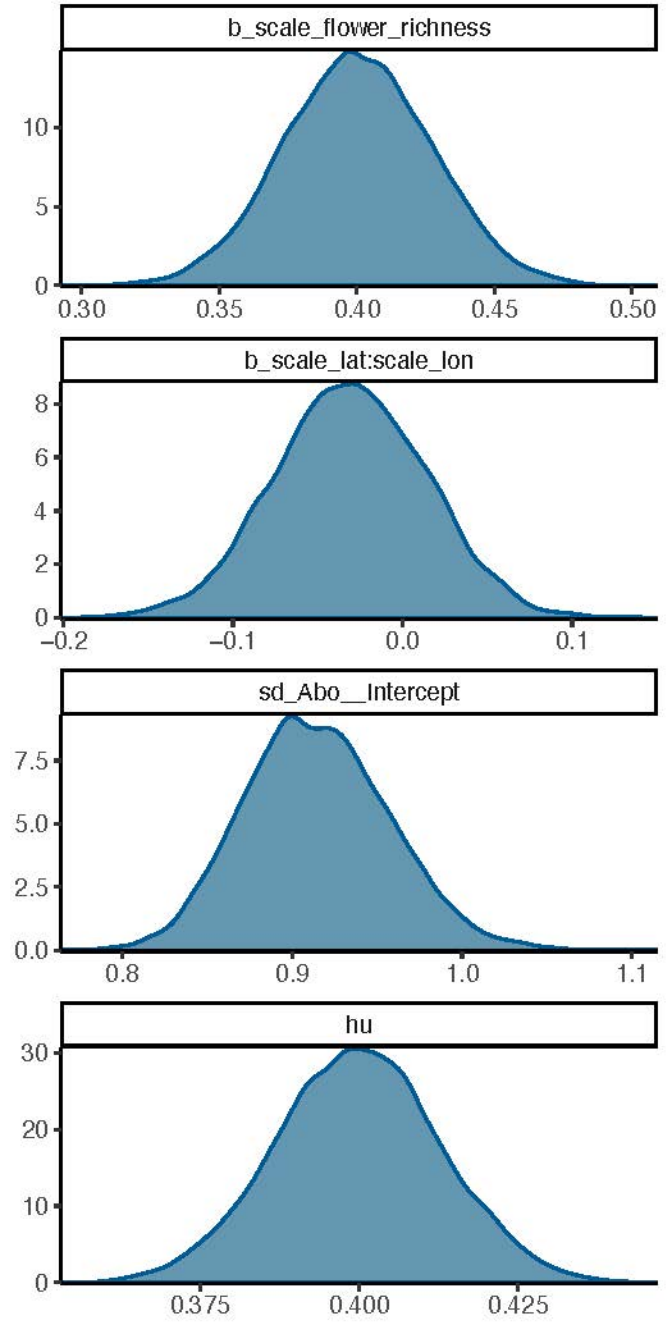
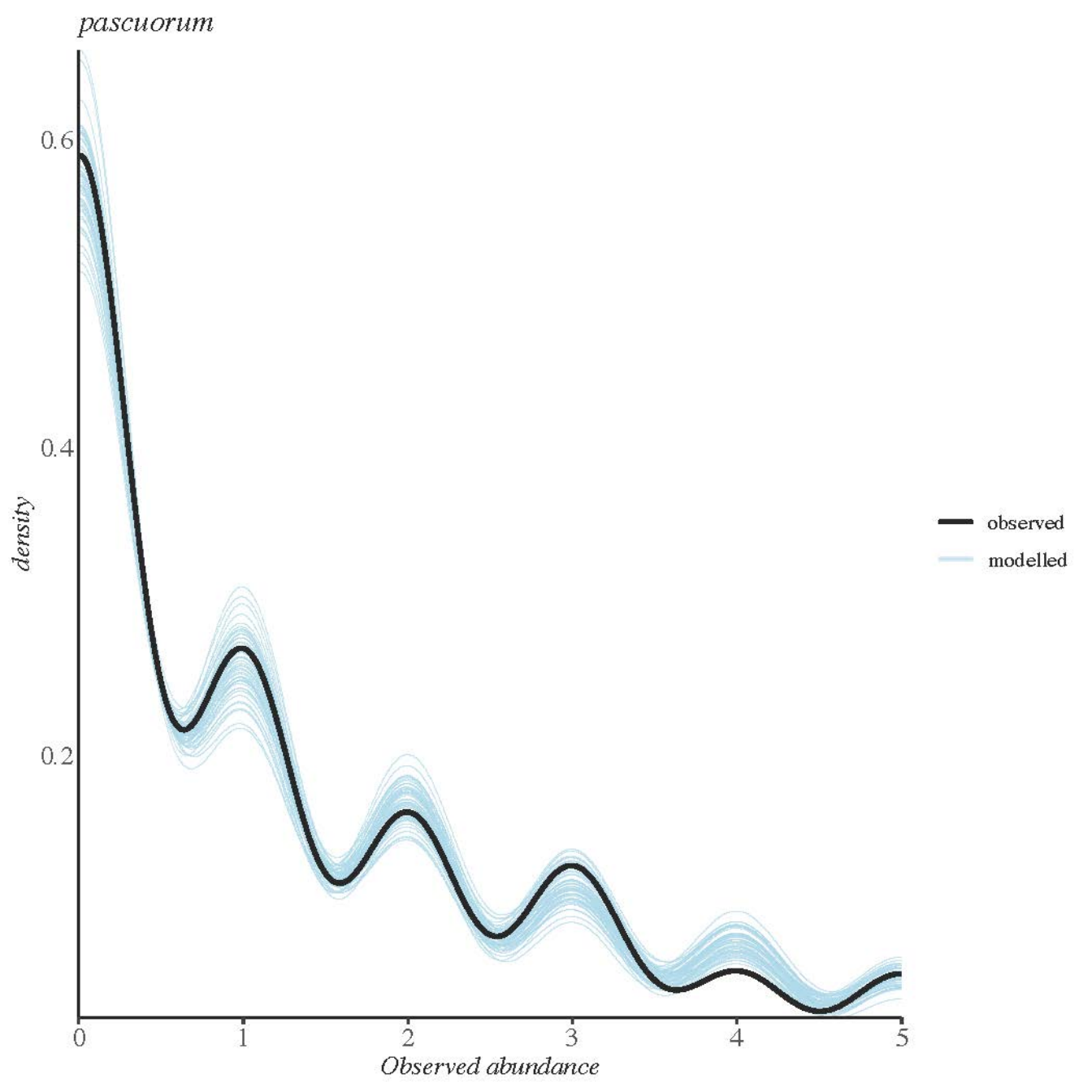
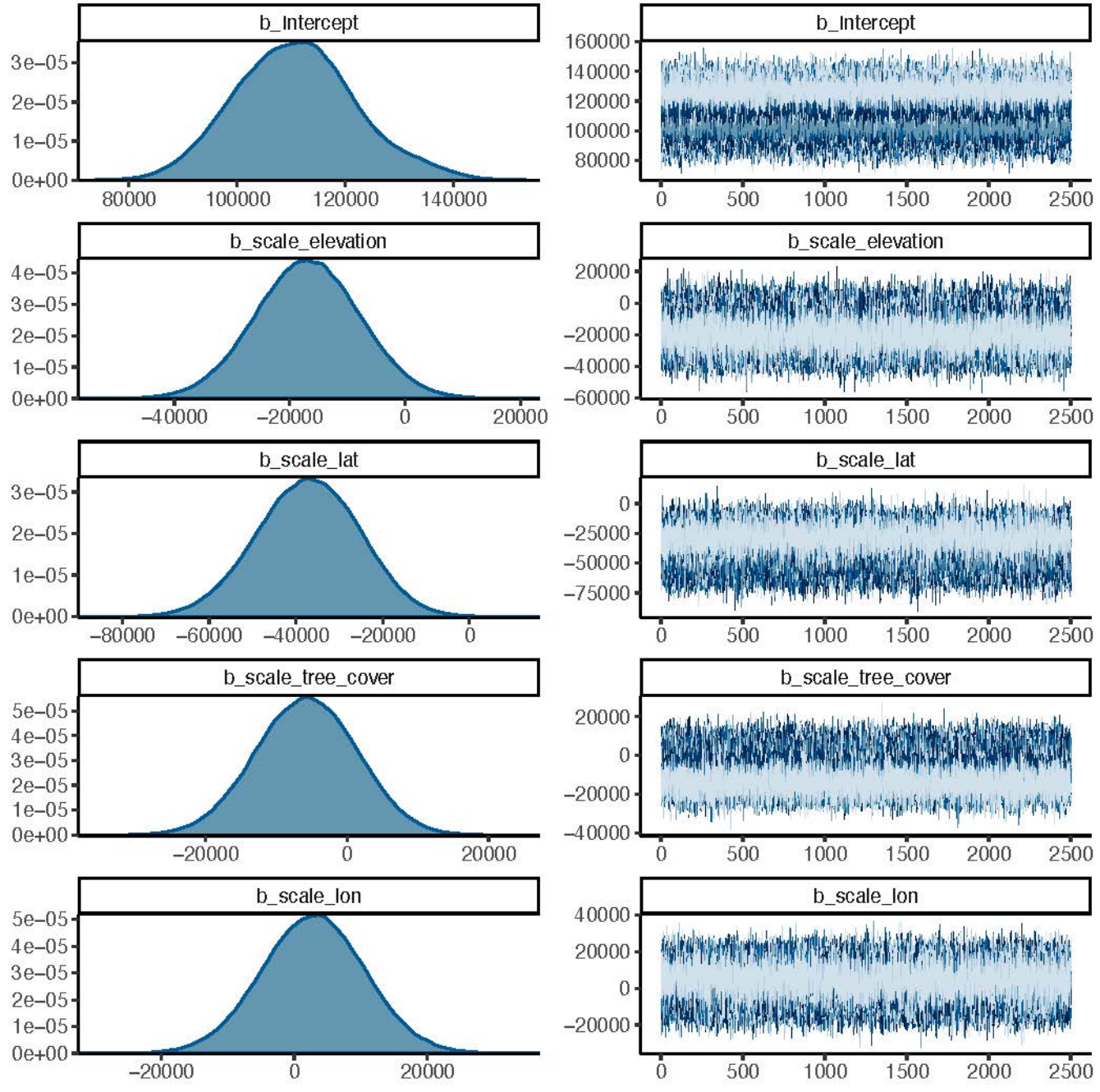
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon

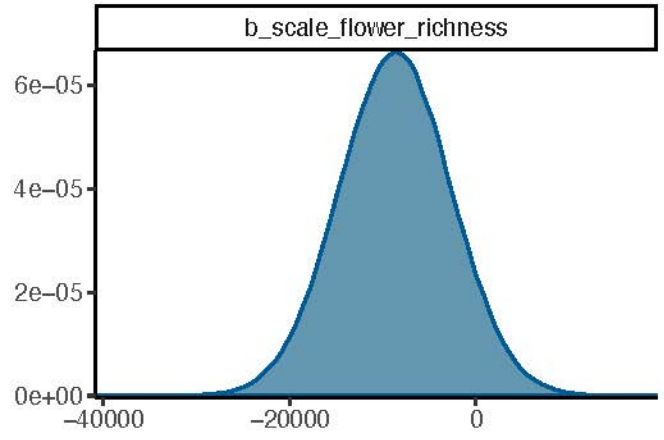

b_scale_flower_richness
b_scale_flower_richness
b_scale_lat:scale_lon
b_scale_lat:scale_lon
sd_Abo__Intercept
sd_Abo__Intercept
hu
hu

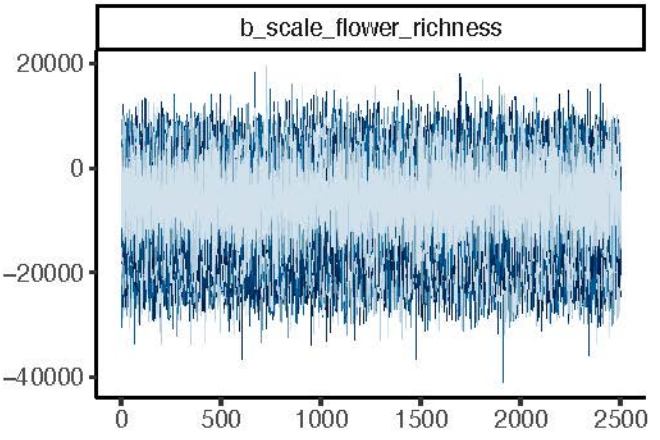

pascuorum
0.6
0.4
0.2
density
0
1
2
3
4
5
Observed abundance
observed
modelled

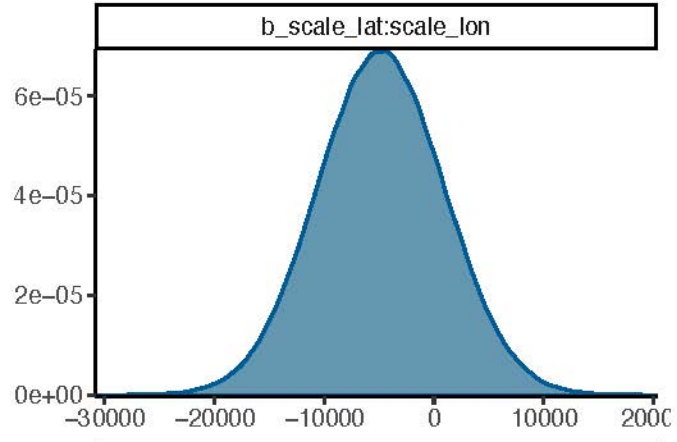
Effects of tree cover on the community weighted means of visual traits relative to body size in bumblebee communities within grasslands across Sweden. Model traces and posterior predictive check for each visual trait modelled with Bayesian inference.

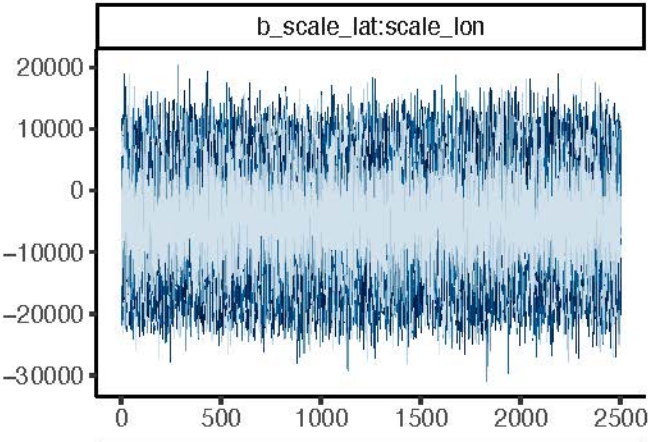
Eye surface (μm^2)

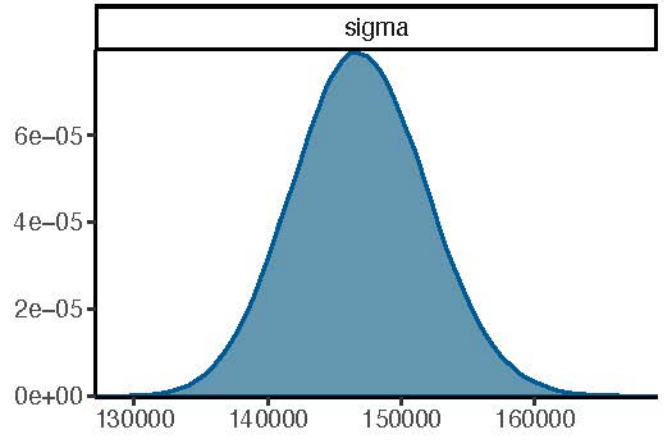

b_Intercept
3e−05
2e−05
1e−05
0e+00
80000
100000
120000
140000
b_Intercept
160000
140000
120000
100000
80000
0
500
1000
1500
2000
2500
b_scale_elevation
4e−05
3e−05
2e−05
1e−05
0e+00
−40000
−20000
0
20000
b_scale_elevation
20000
0
−20000
−40000
−60000
0
500
1000
1500
2000
2500
b_scale_lat
3e−05
2e−05
1e−05
0e+00
−80000
−60000
−40000
−20000
0
b_scale_lat
0
−25000
−50000
−75000
0
500
1000
1500
2000
2500
b_scale_tree_cover
5e−05
4e−05
3e−05
2e−05
1e−05
0e+00
−20000
0
20000
b_scale_tree_cover
20000
0
−20000
−40000
0
500
1000
1500
2000
2500
b_scale_lon
5e−05
4e−05
3e−05
2e−05
1e−05
0e+00
−20000
0
20000
b_scale_lon
40000
20000
0
−20000
0
500
1000
1500
2000
2500

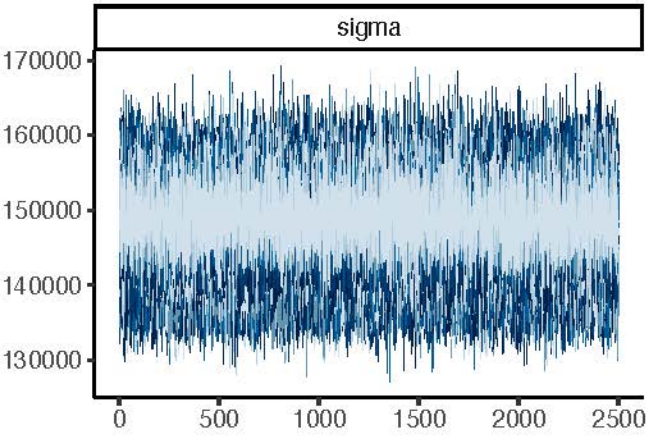

b_scale_flower_richness
6e−05
4e−05
2e−05
0e+00
−40000
−20000
0

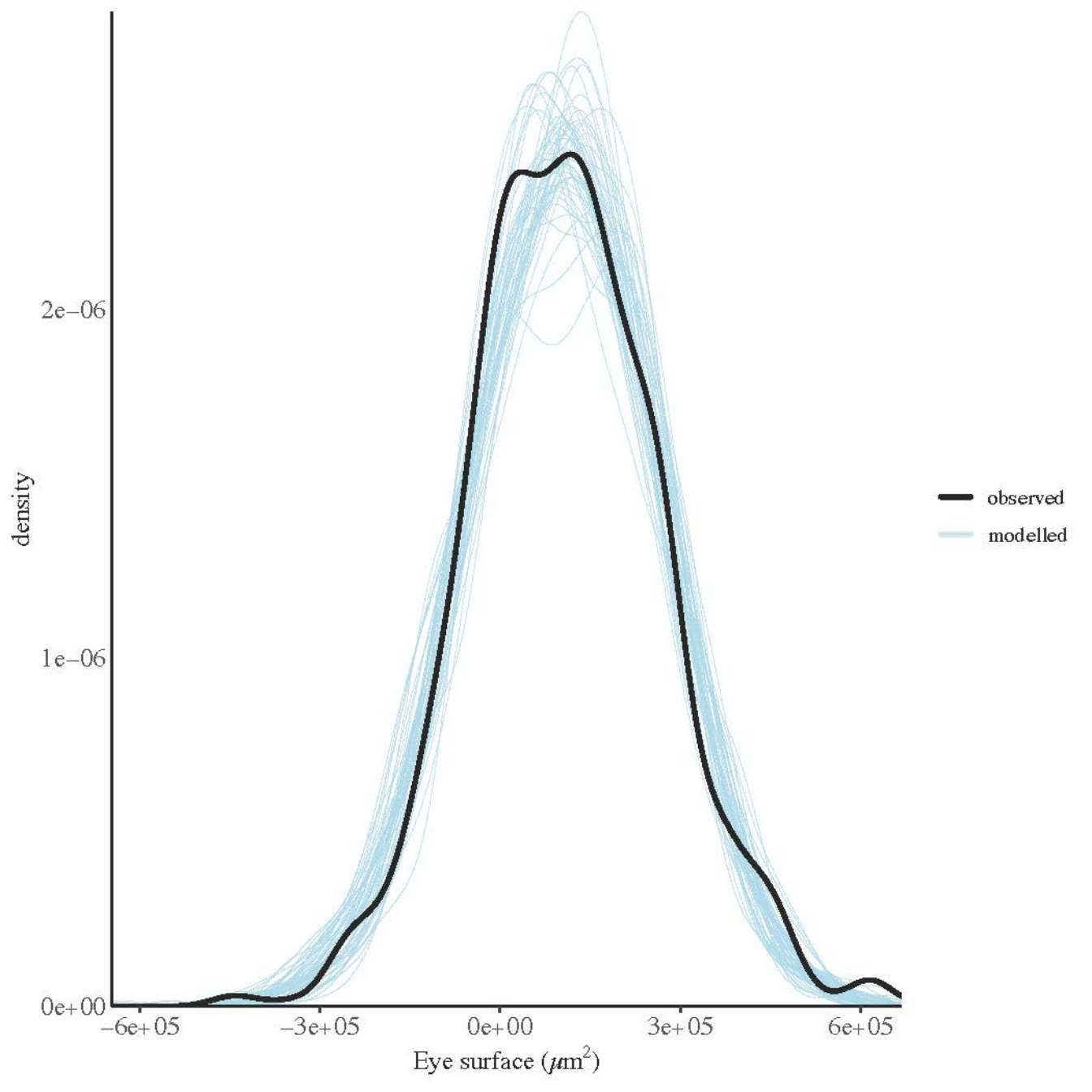

b_scale_flower_richness
20000
0
−20000
−40000
0
500
1000
1500
2000
2500


b_scale_lat:scale_lon
6e−05
4e−05
2e−05
0e+00
−30000
−20000
−10000
0
10000
2000

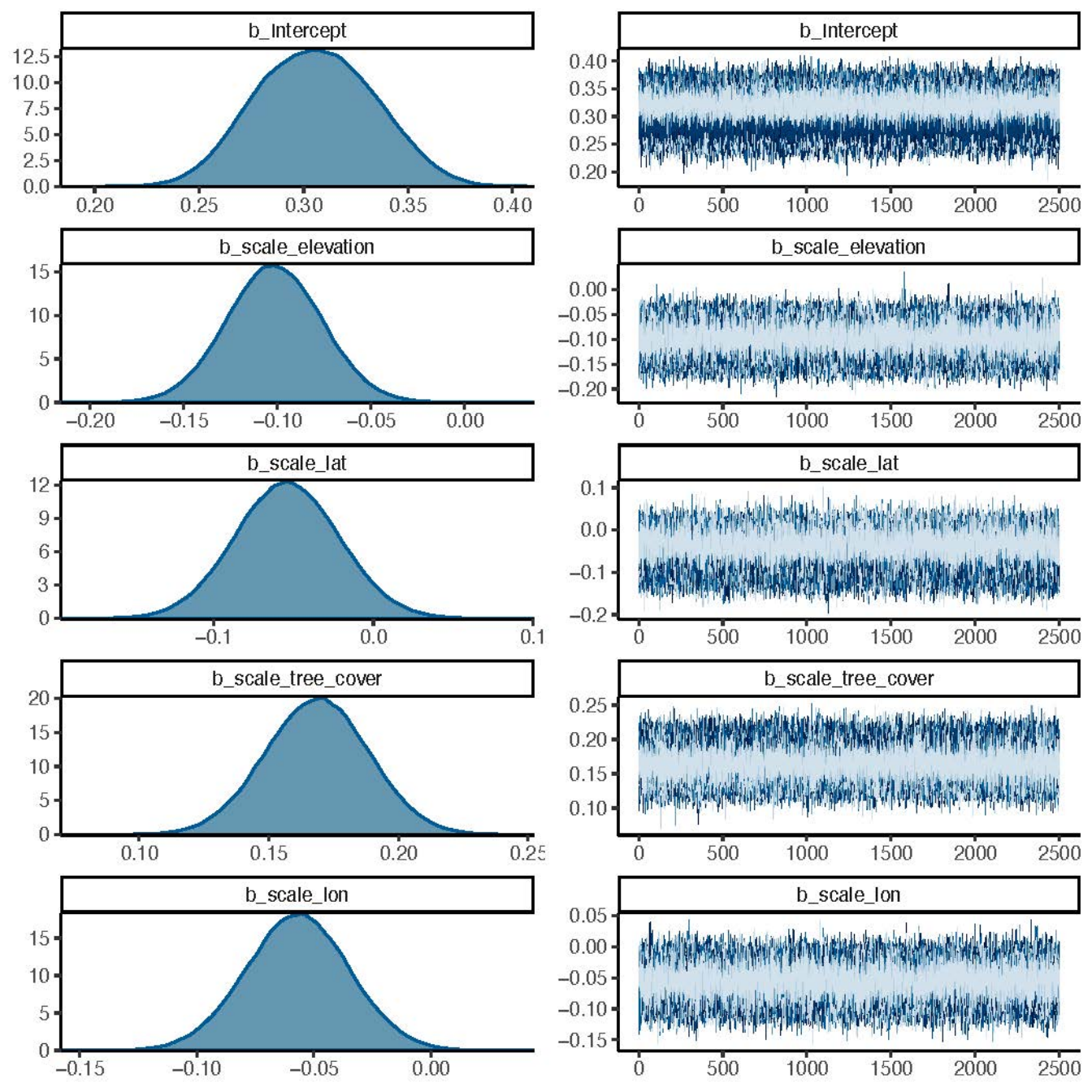

b_scale_lat:scale_lon
20000
10000
0
−10000
−20000
−30000
0
500
1000
1500
2000
2500

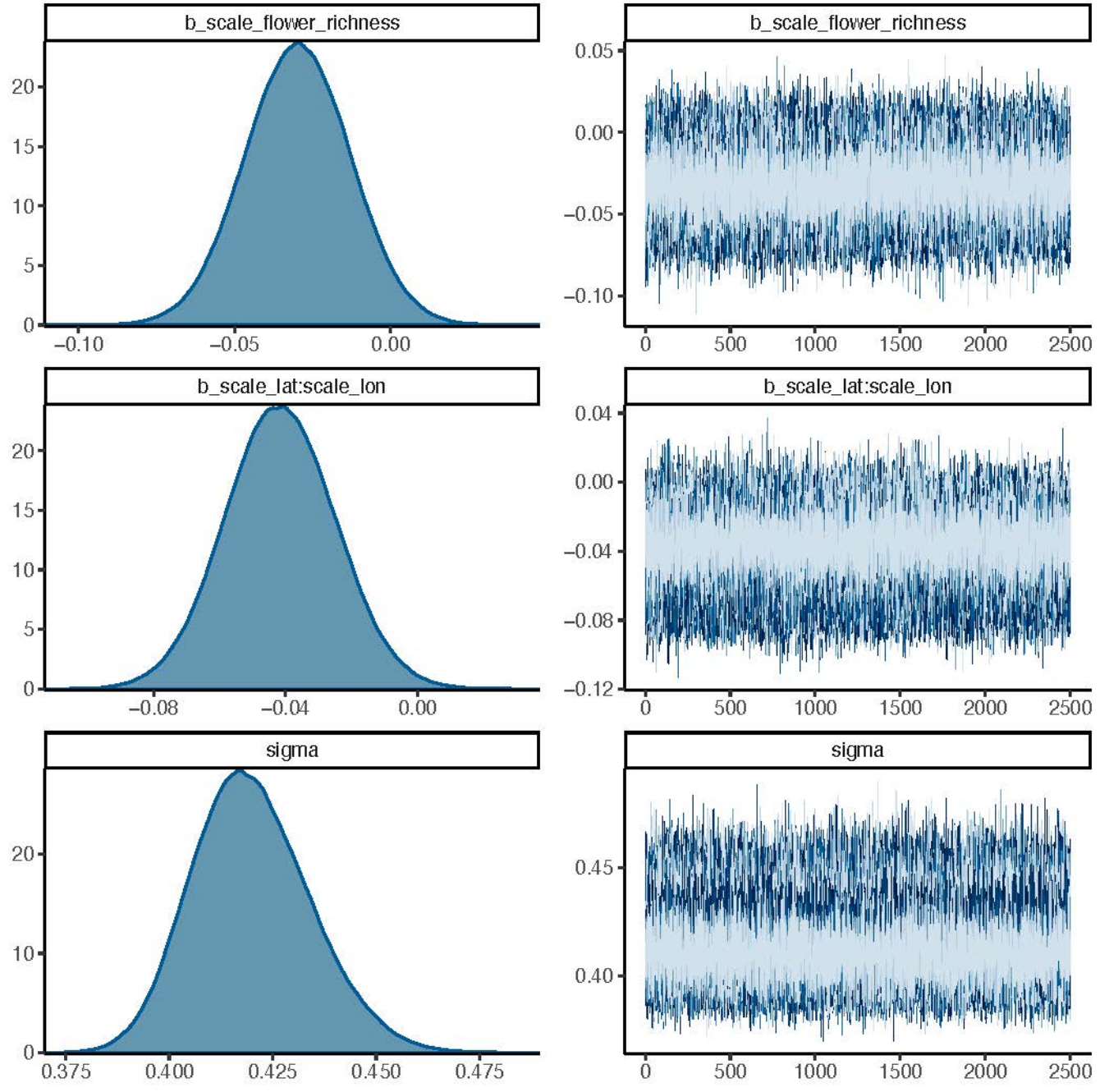

sigma
6e−05
4e−05
2e−05
0e+00
130000
140000
150000
160000

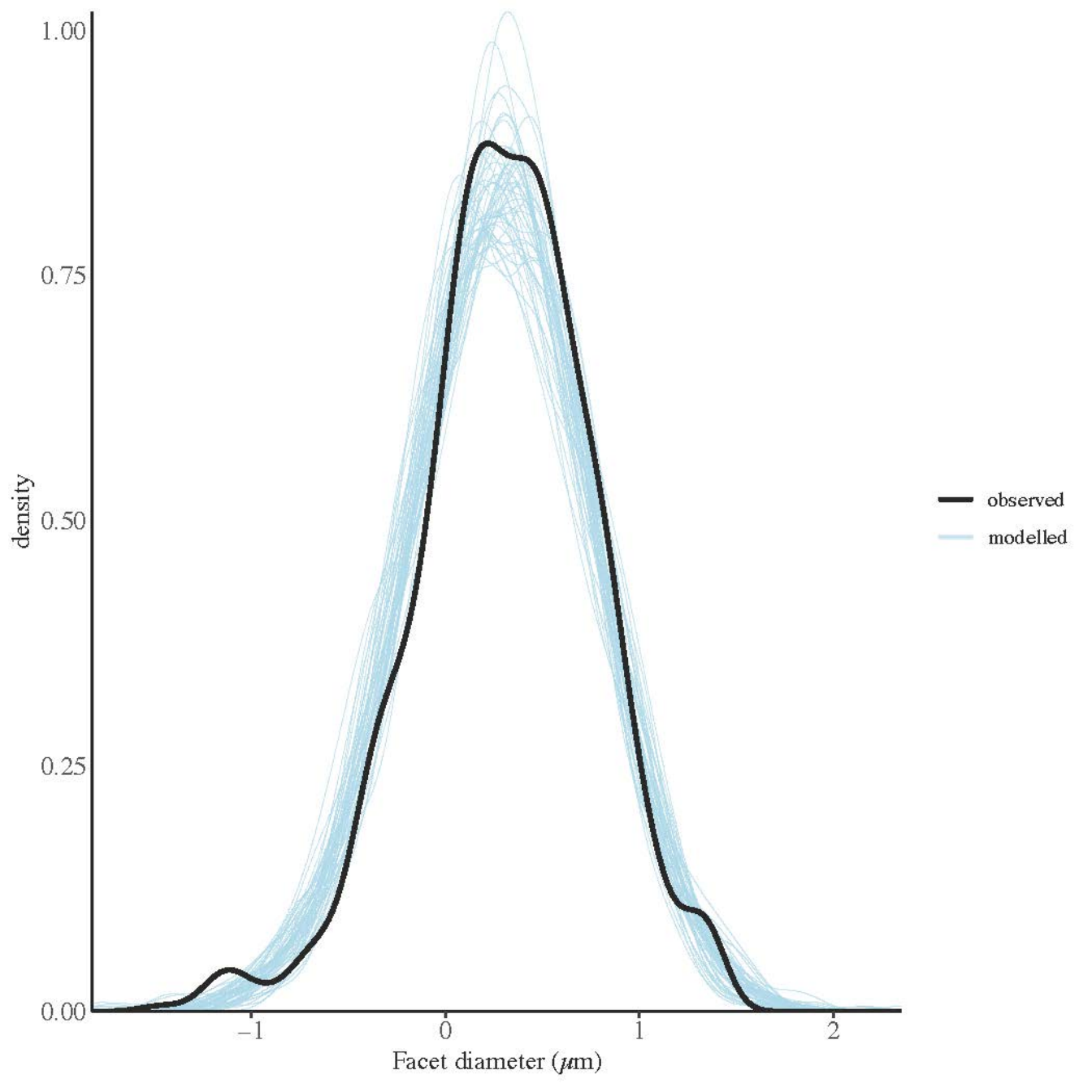

sigma
170000
160000
150000
140000
130000
0
500
1000
1500
2000
2500


density
2e−06
1e−06
0e+00
−6e+05
−3e+05
0e+00
3e+05
6e+05
Eye surface (μm²)
observed
modelled

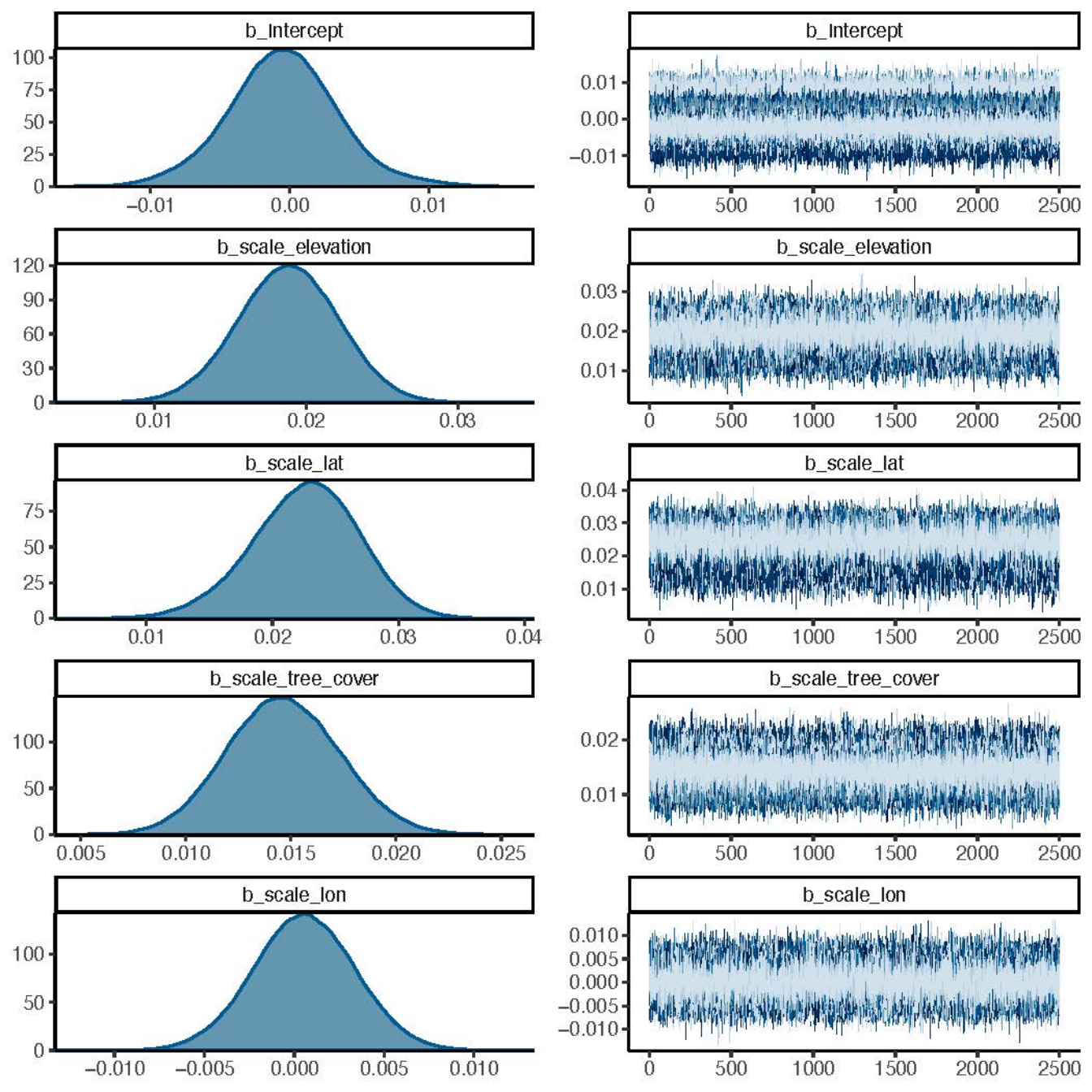
Facet diameter (μm)

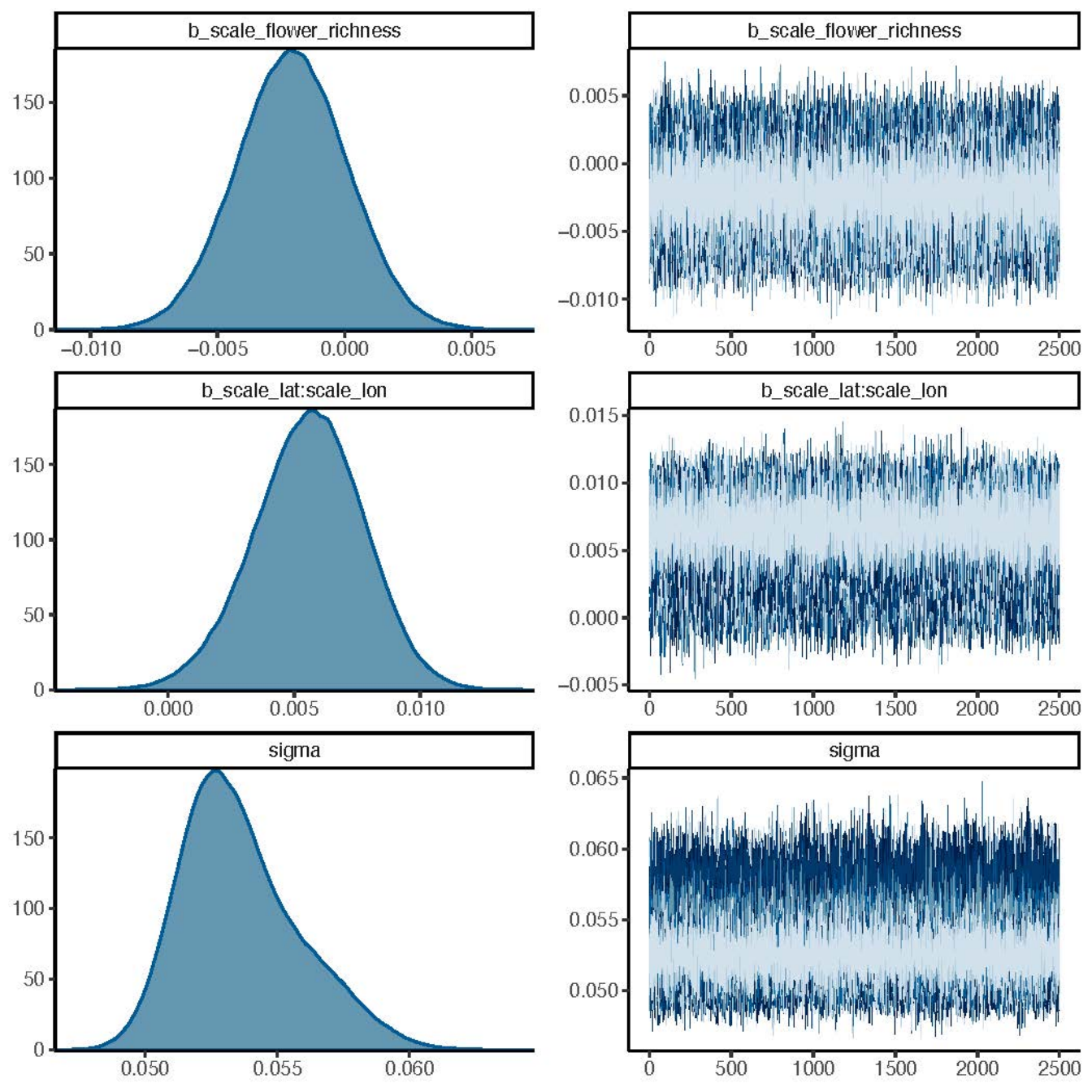

b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon

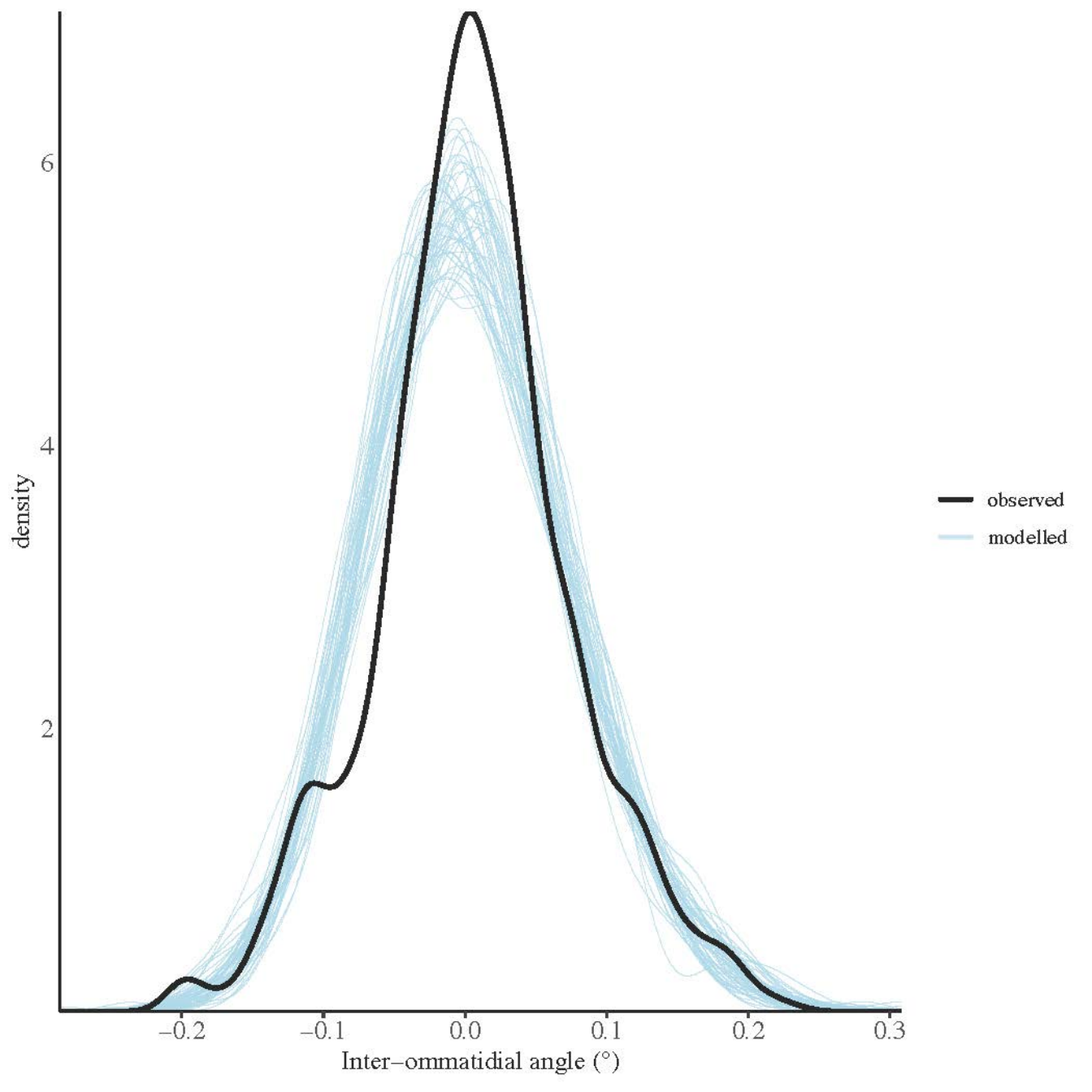

b_scale_flower_richness
b_scale_flower_richness
b_scale_lat:scale_lon
b_scale_lat:scale_lon
sigma
sigma


1.00
0.75
0.50
0.25
0.00
density
−1
0
1
2
Facet diameter (μm)
observed
modelled

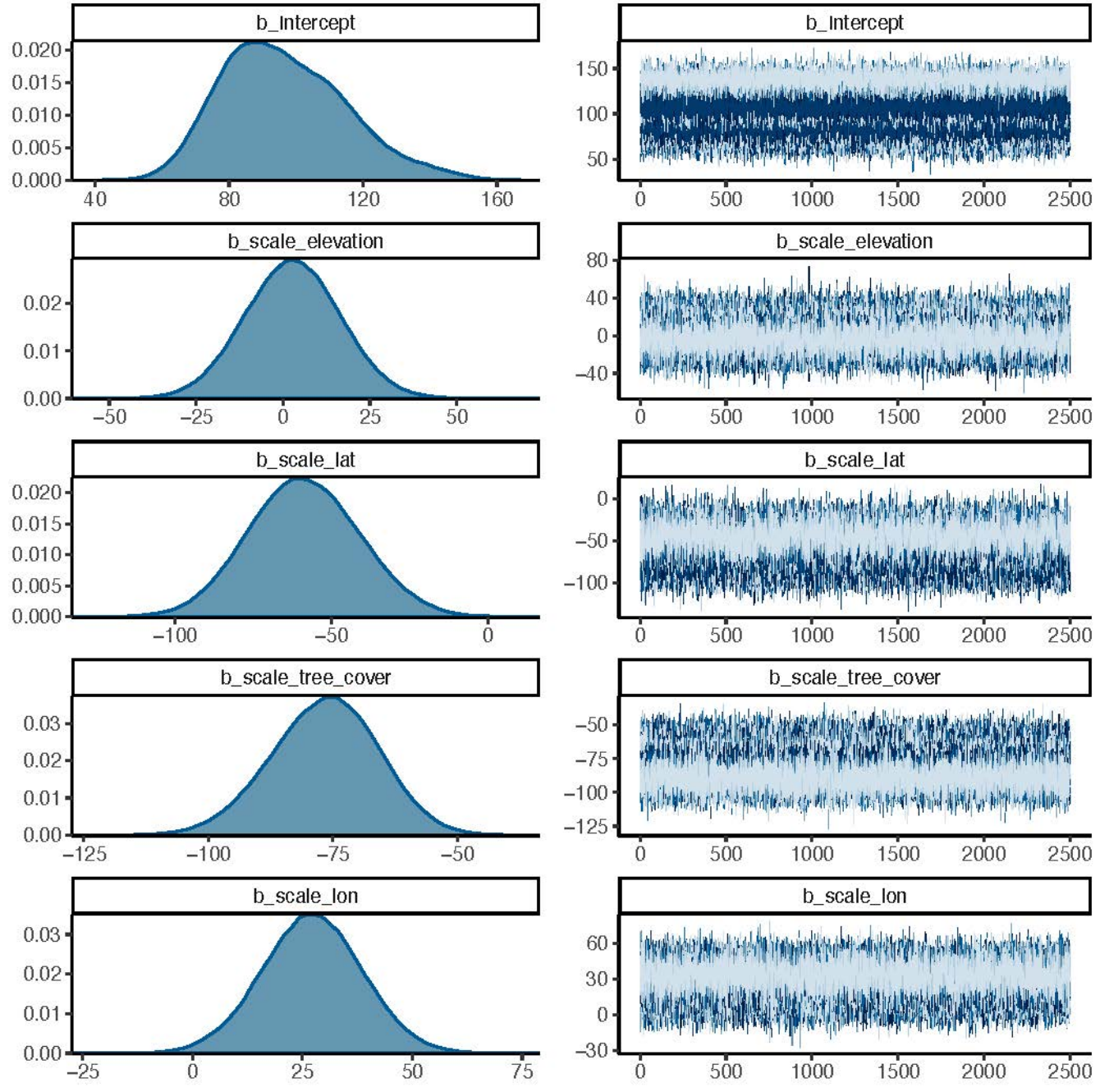
Inter–ommatidial angle (°)

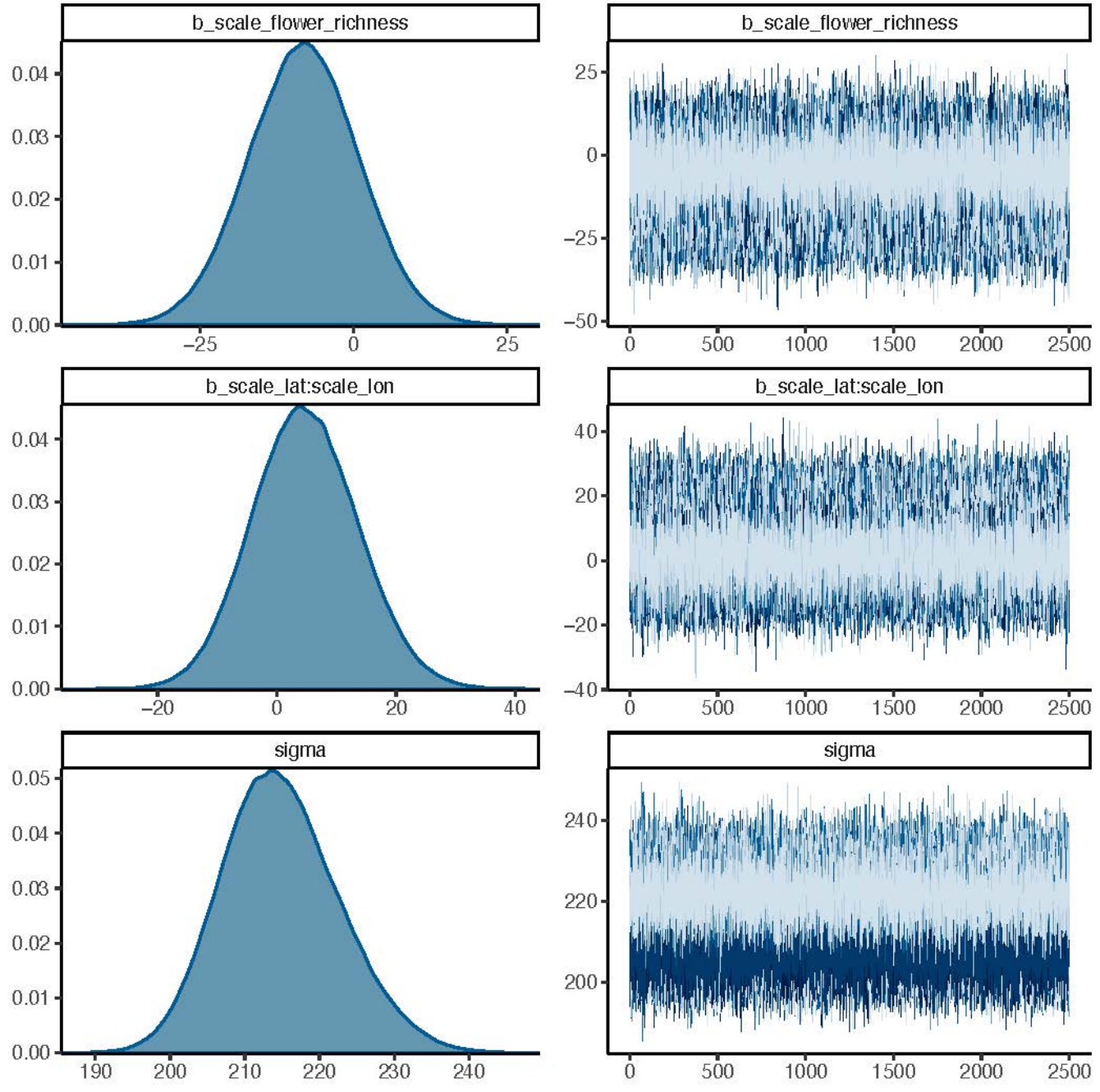

b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon

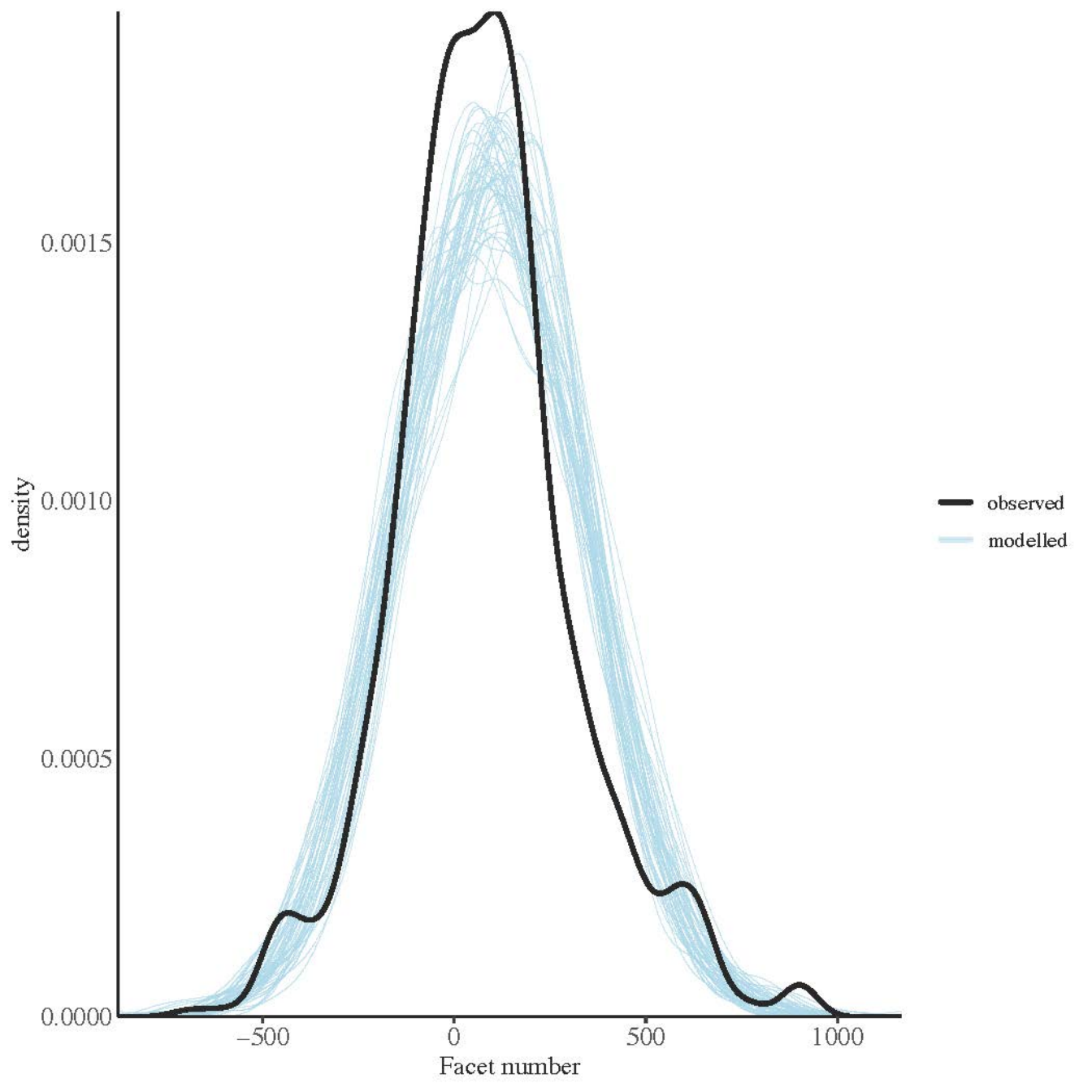

b_scale_flower_richness
150
100
50
0
−0.010
−0.005
0.000
0.005
b_scale_flower_richness
0.005
0.000
−0.005
−0.010
0
500
1000
1500
2000
2500
b_scale_lat:scale_lon
150
100
50
0
0.000
0.005
0.010
b_scale_lat:scale_lon
0.015
0.010
0.005
0.000
−0.005
0
500
1000
1500
2000
2500
sigma
150
100
50
0
0.050
0.055
0.060
sigma
0.065
0.060
0.055
0.050
0
500
1000
1500
2000
2500


6
4
2
density
−0.2
−0.1
0.0
0.1
0.2
0.3
Inter−ommatidial angle (°)
observed
modelled

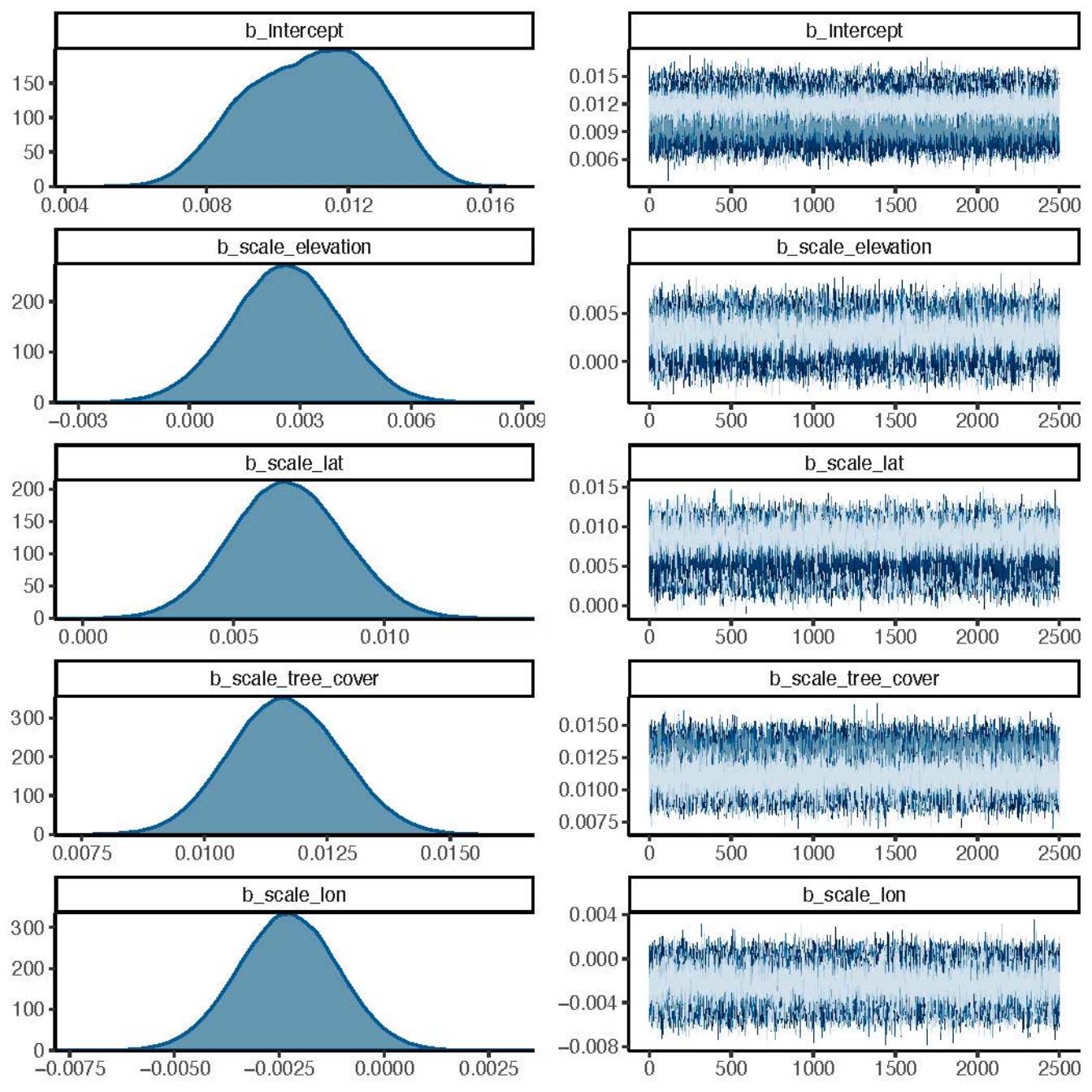
Facet number

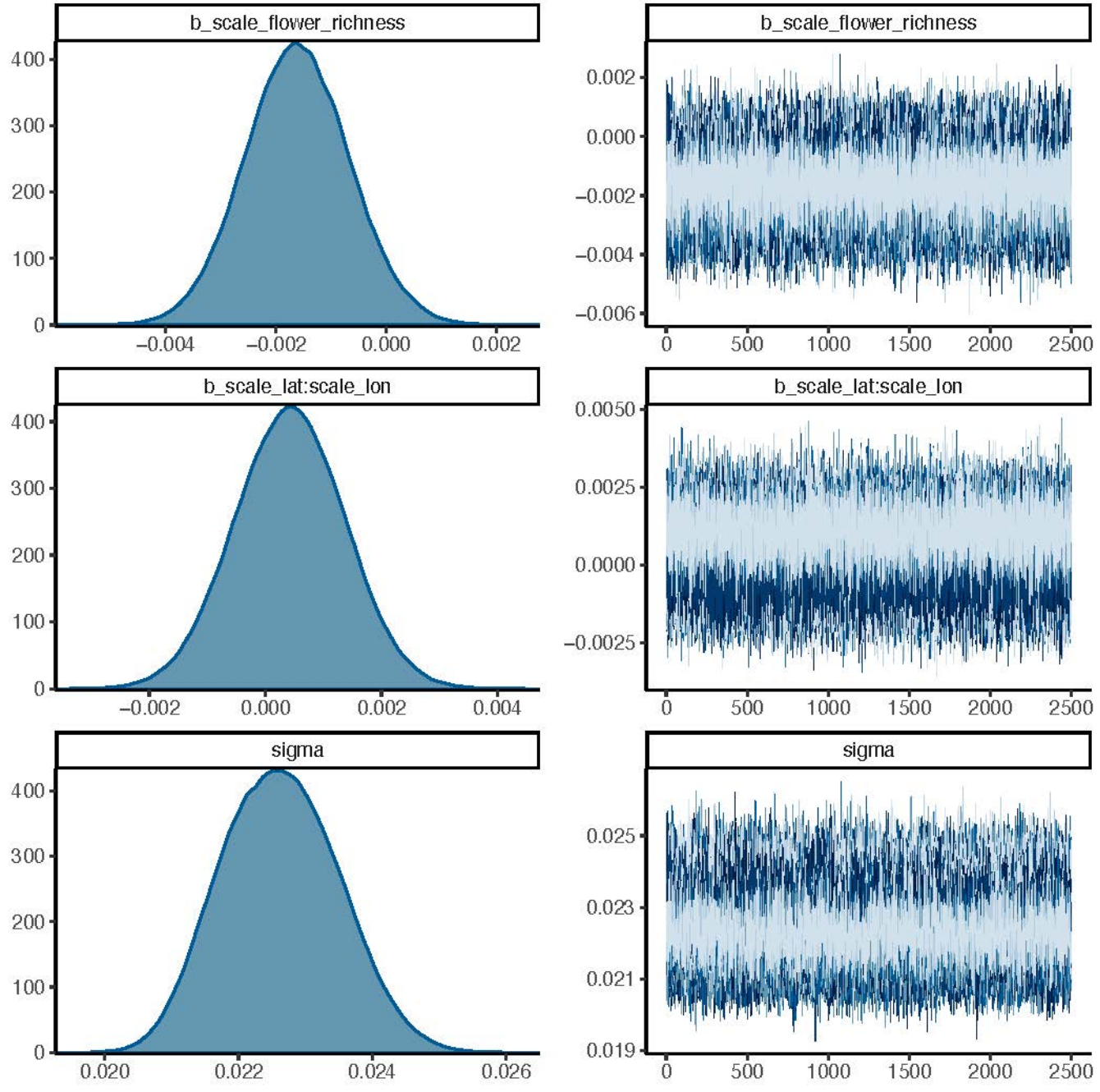

b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon

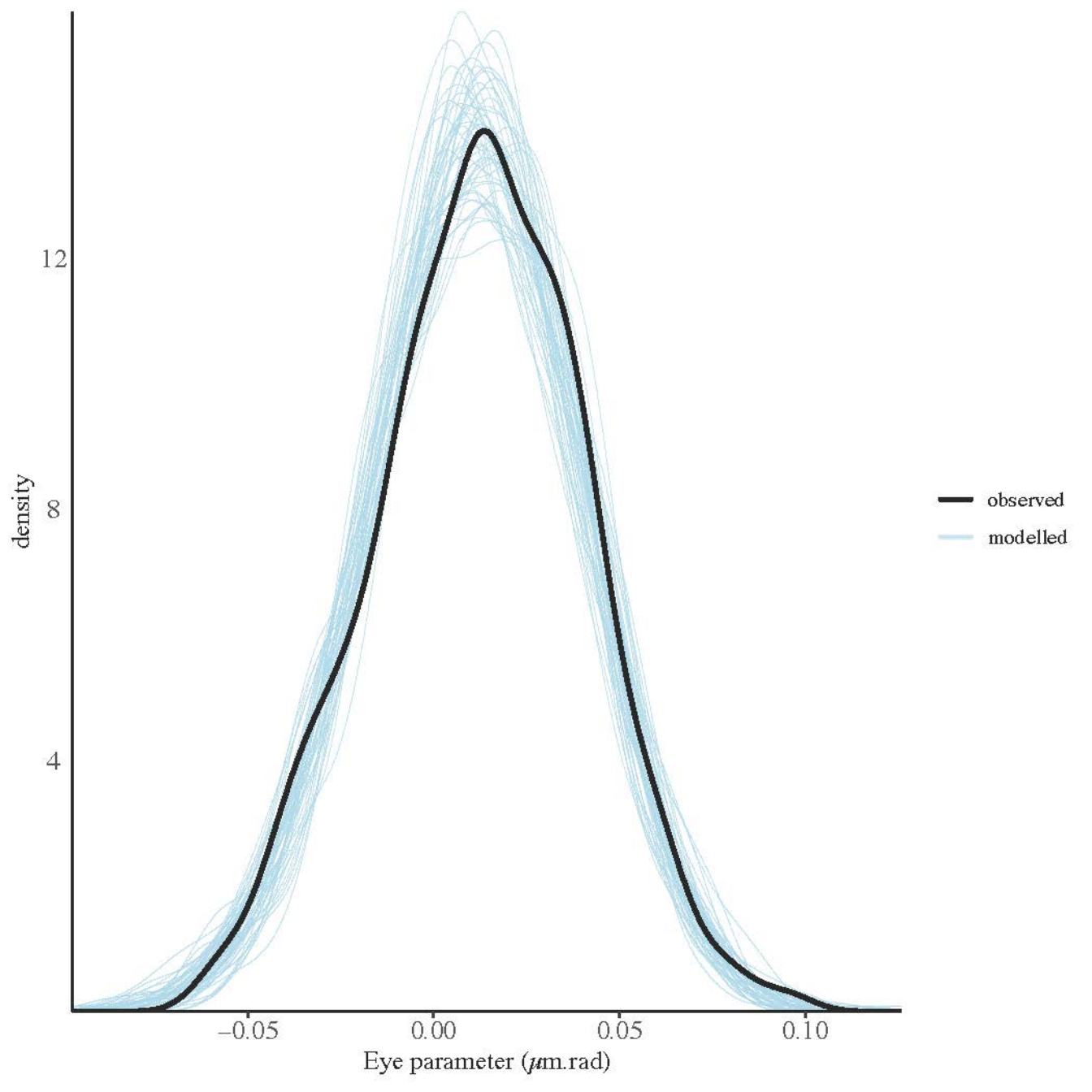

b_scale_flower_richness
0.04
0.03
0.02
0.01
0.00
−25
0
25
b_scale_flower_richness
25
0
−25
−50
0
500
1000
1500
2000
2500
b_scale_lat:scale_lon
0.04
0.03
0.02
0.01
0.00
−20
0
20
40
b_scale_lat:scale_lon
40
20
0
−20
−40
0
500
1000
1500
2000
2500
sigma
0.05
0.04
0.03
0.02
0.01
0.00
190
200
210
220
230
240
sigma
240
220
200
0
500
1000
1500
2000
2500


0.0015
0.0010
0.0005
0.0000
density
−500
0
500
1000
Facet number
observed
modelled

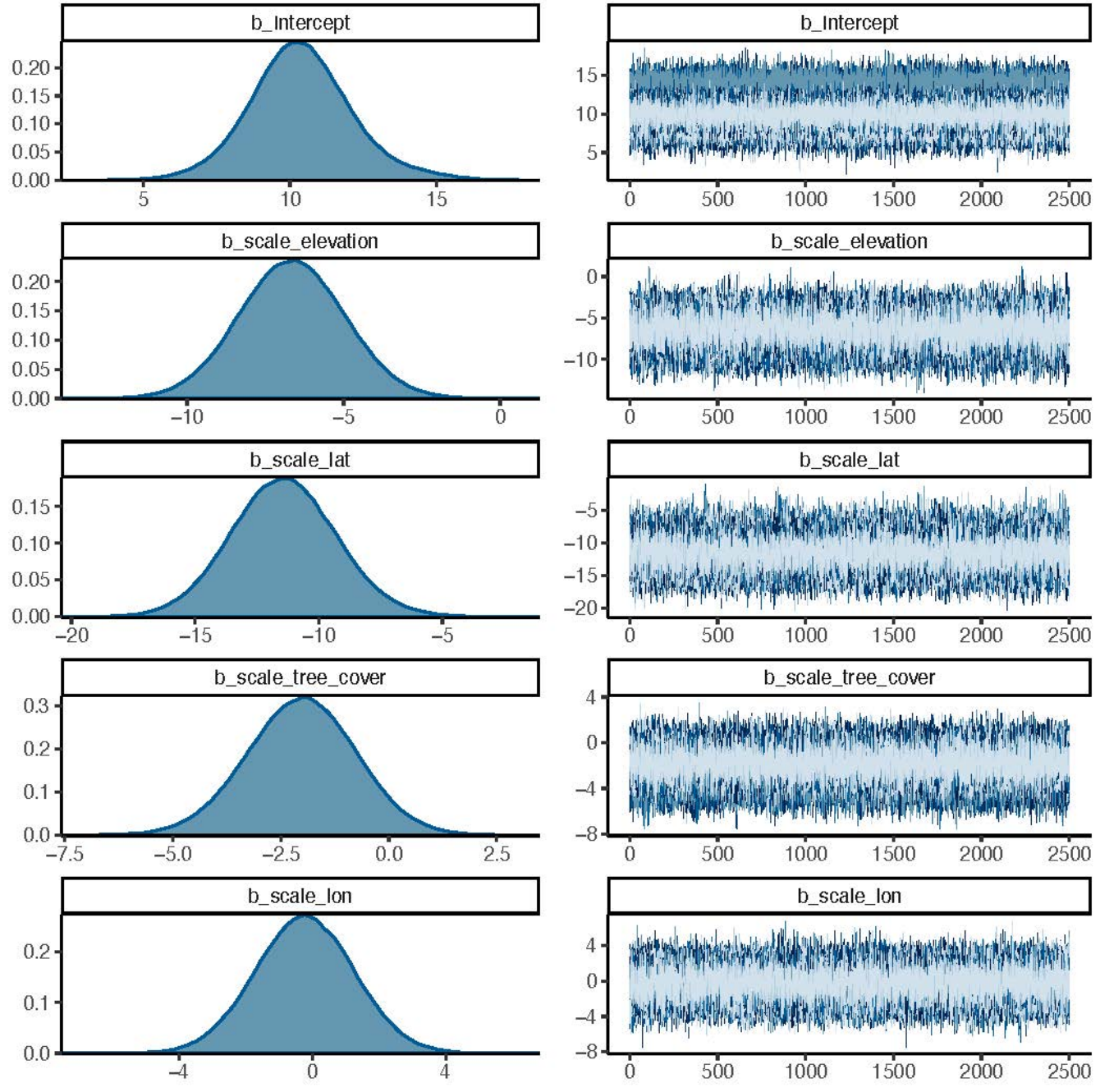
Eye parameter (μm.rad)

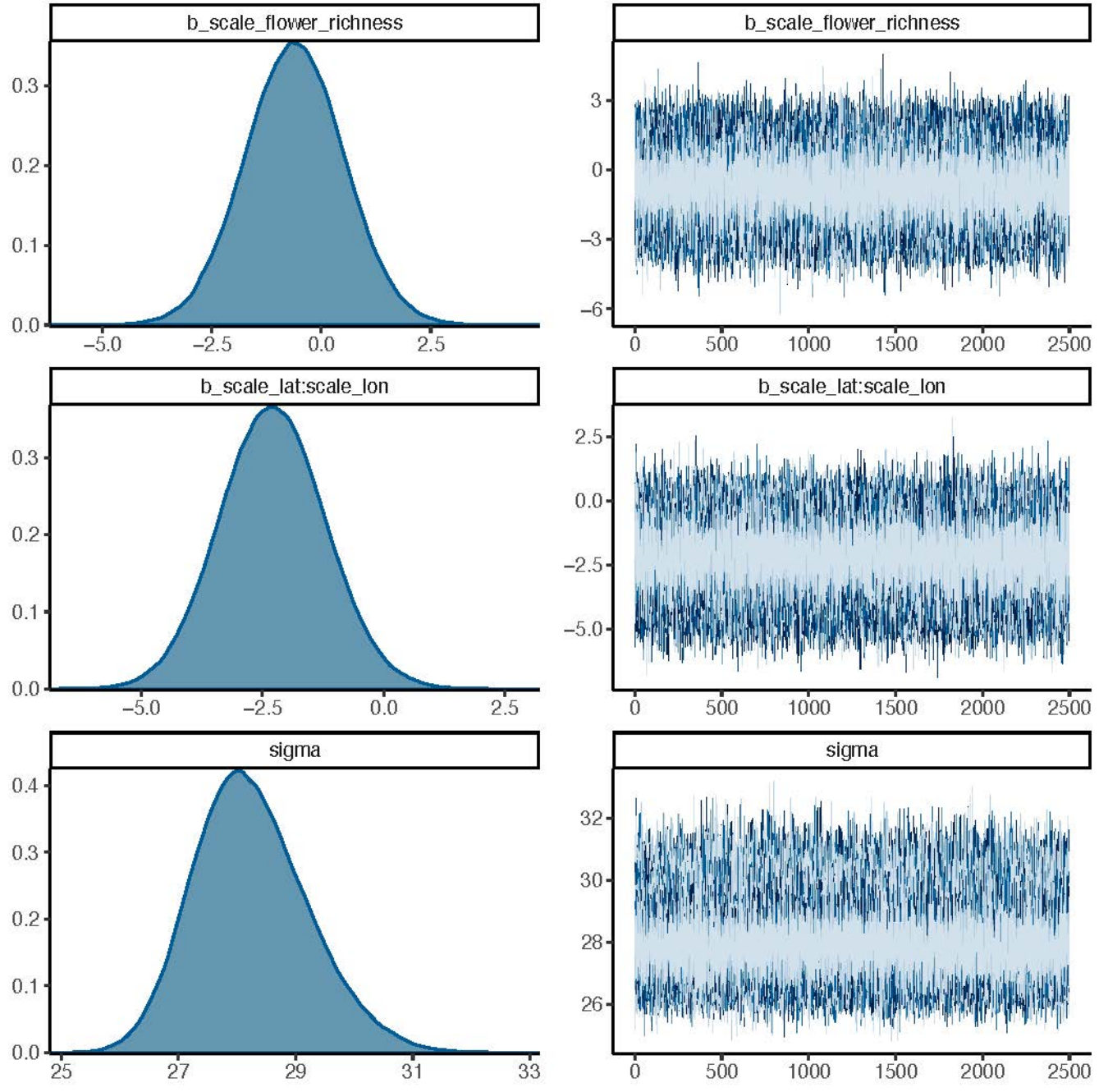

b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon

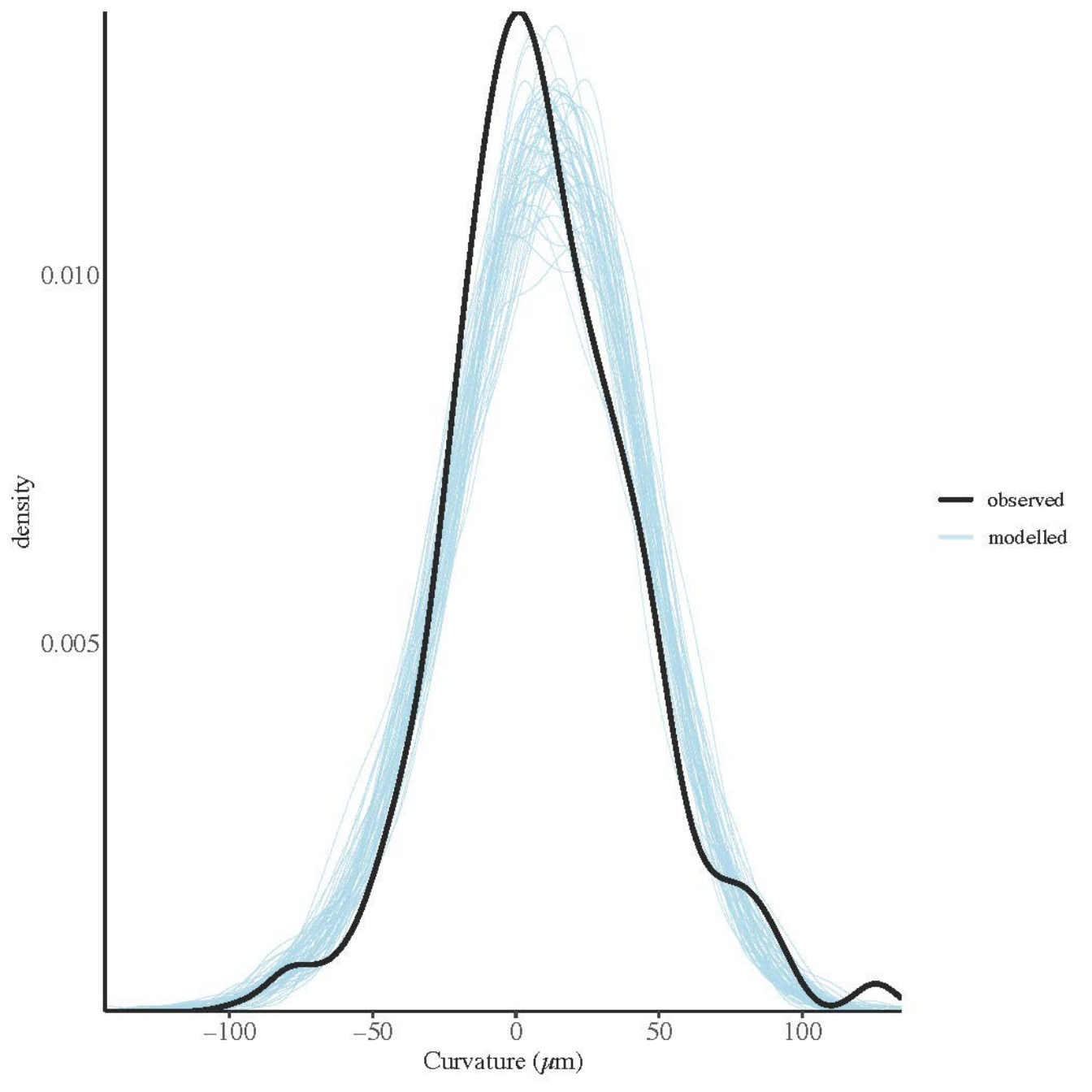

b_scale_flower_richness
400
300
200
100
0
−0.004
−0.002
0.000
0.002
b_scale_flower_richness
0.002
0.000
−0.002
−0.004
−0.006
0
500
1000
1500
2000
2500
b_scale_lat:scale_lon
400
300
200
100
0
−0.002
0.000
0.002
0.004
b_scale_lat:scale_lon
0.0050
0.0025
0.0000
−0.0025
0
500
1000
1500
2000
2500
sigma
400
300
200
100
0
0.020
0.022
0.024
0.026
sigma
0.025
0.023
0.021
0.019
0
500
1000
1500
2000
2500


density
12
8
4
−0.05
0.00
0.05
0.10
Eye parameter (μm.rad)
observed
modelled

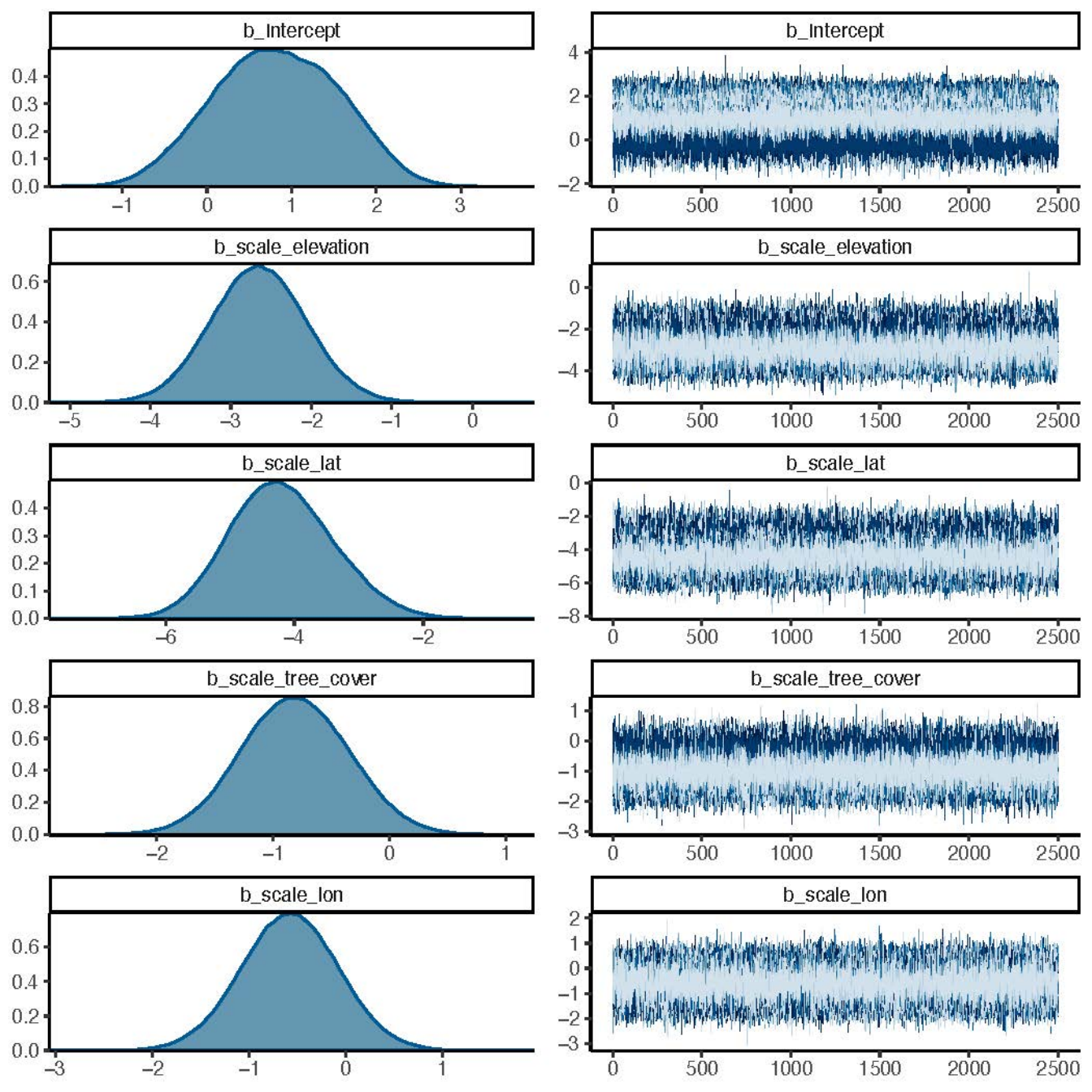
Curvature (μm)

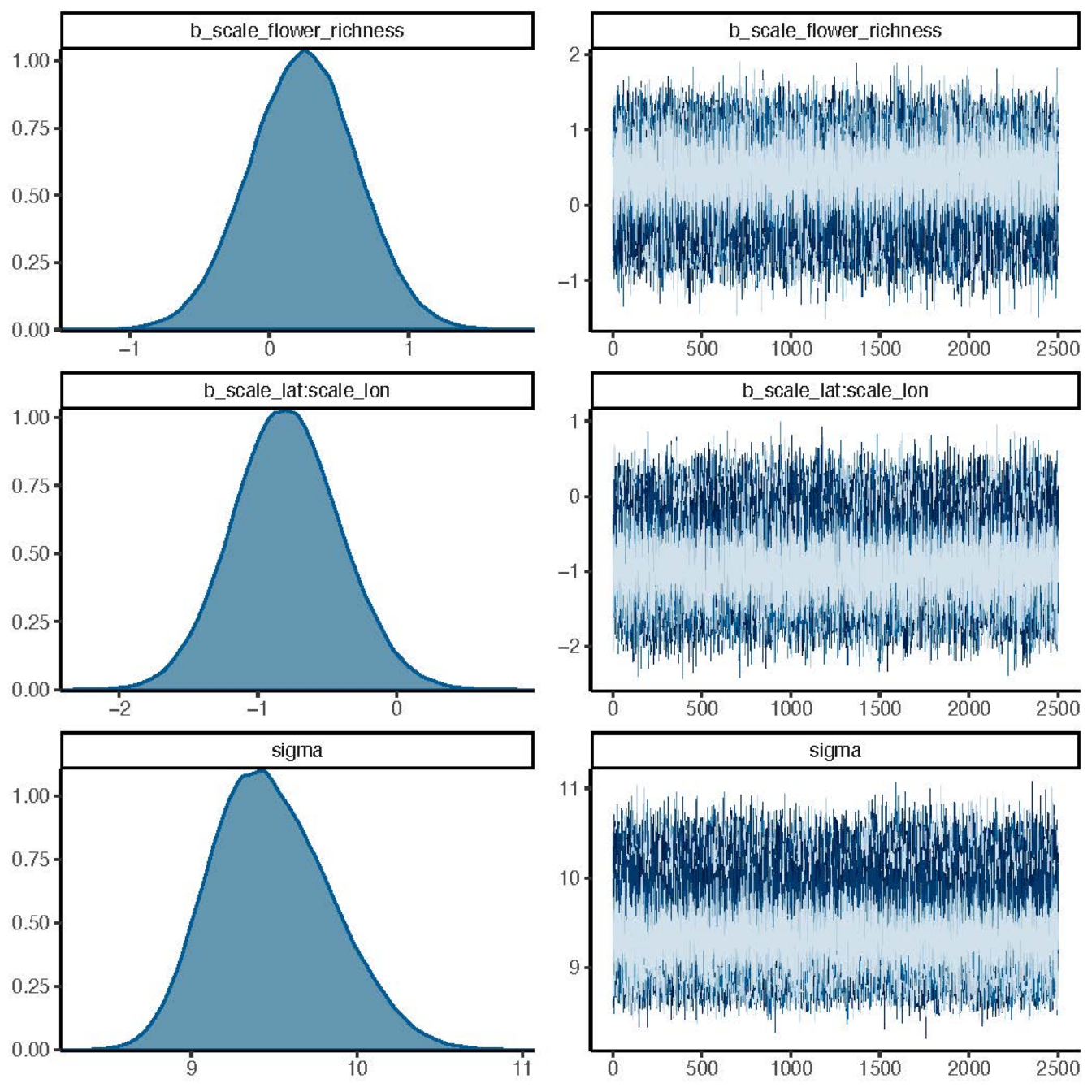

b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon

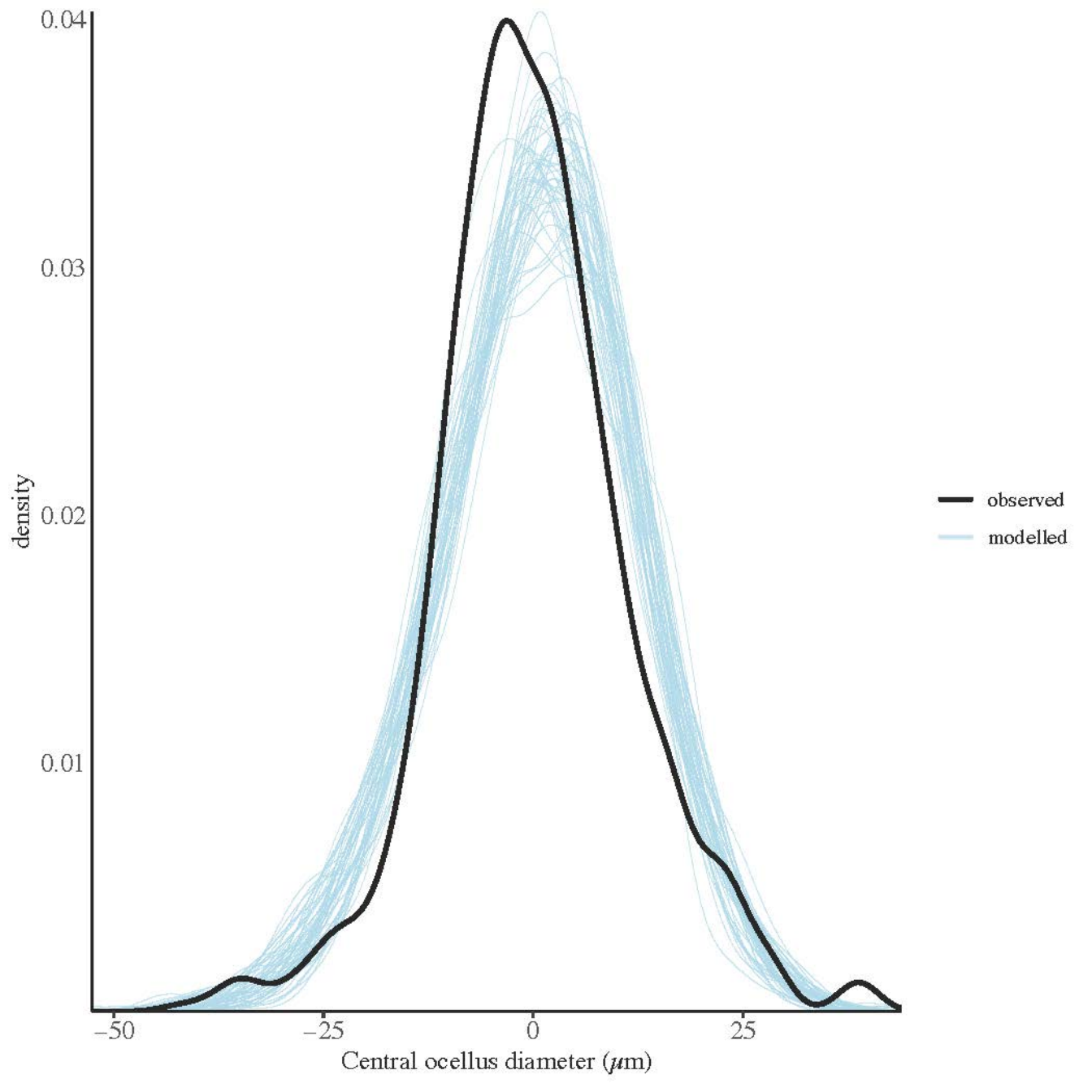

b_scale_flower_richness
b_scale_flower_richness
b_scale_lat:scale_lon
b_scale_lat:scale_lon
sigma
sigma


0.010
0.005
density
−100
−50
0
50
100
Curvature (μm)
observed
modelled

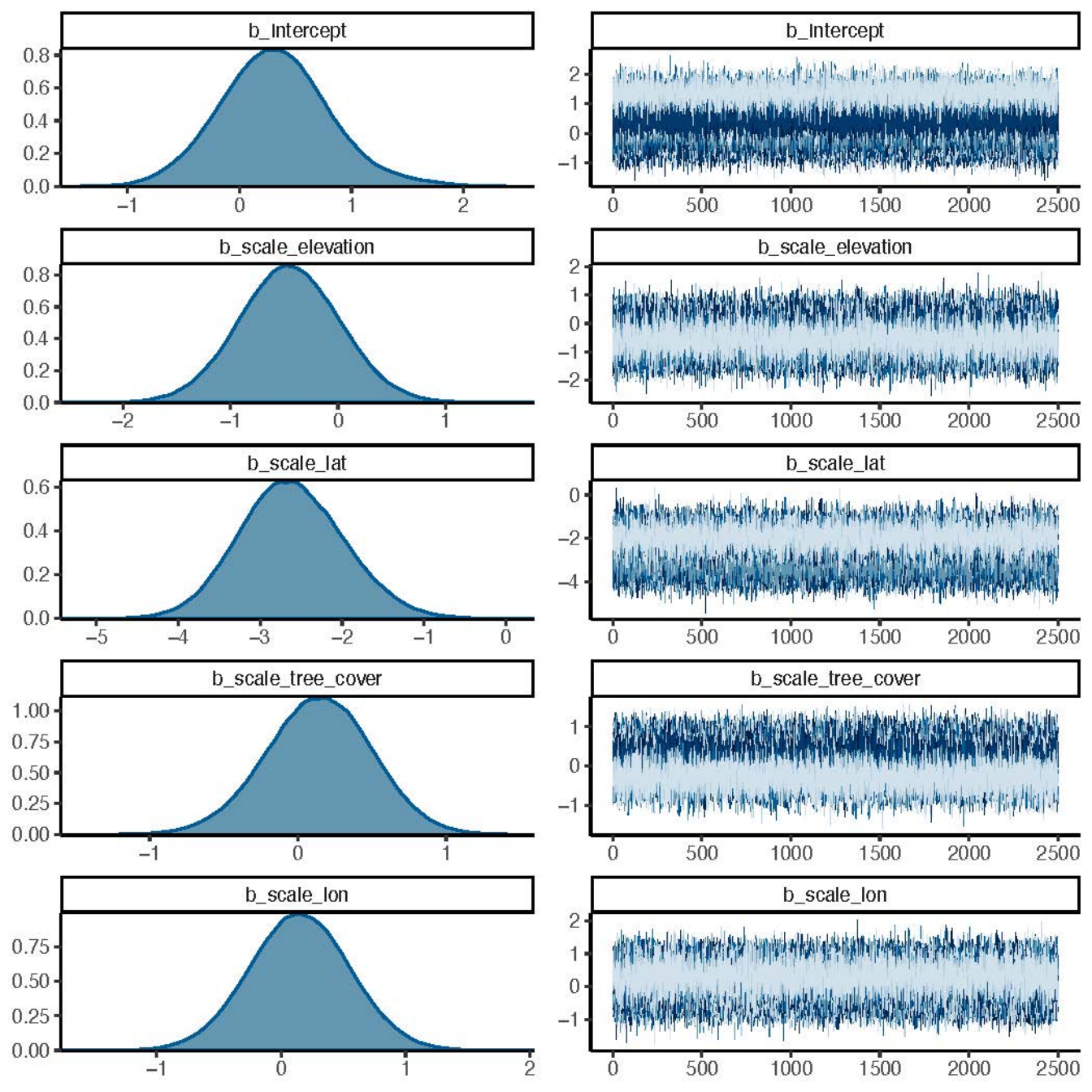
Central ocellus diameter (μm)

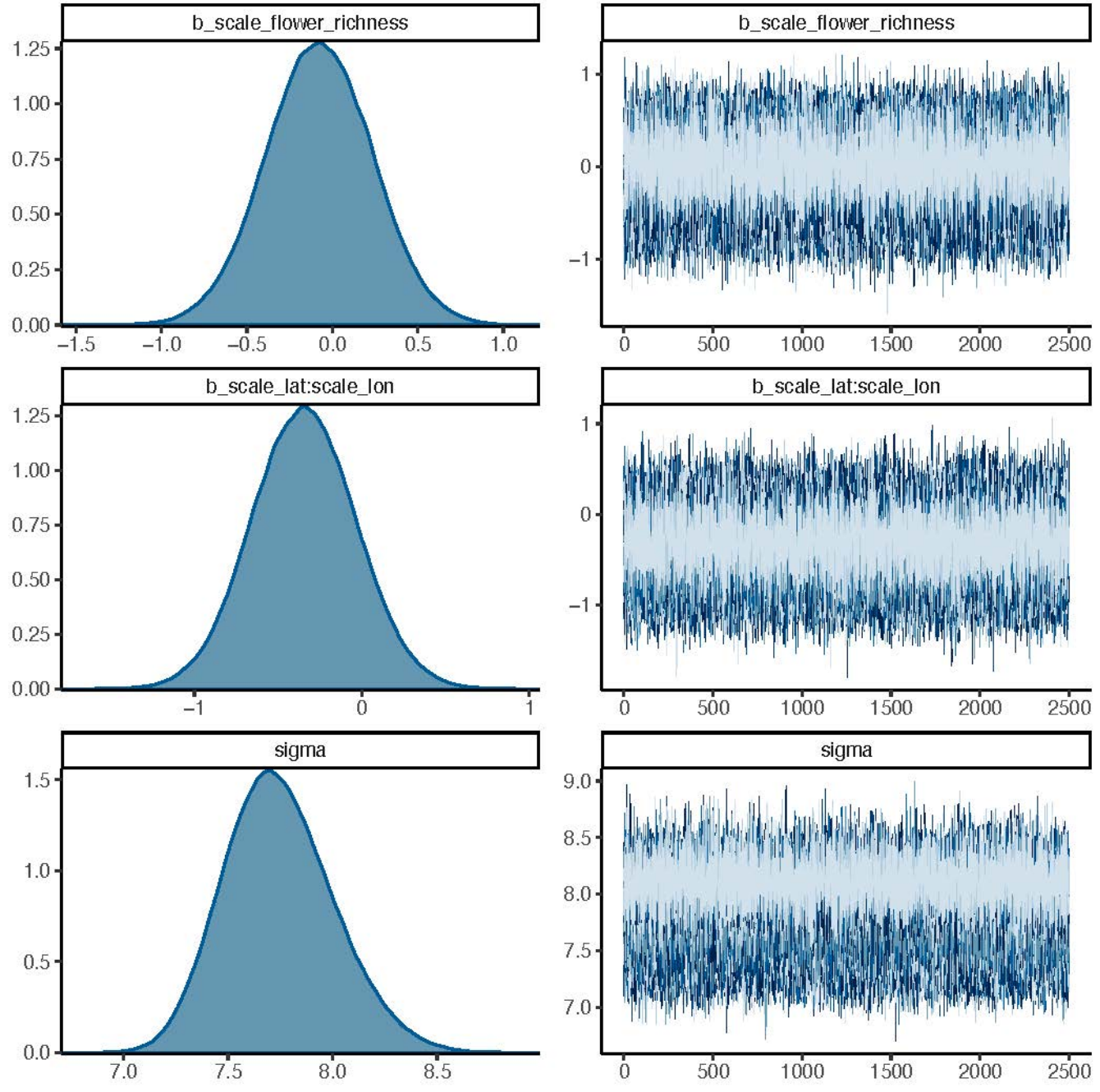

b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon

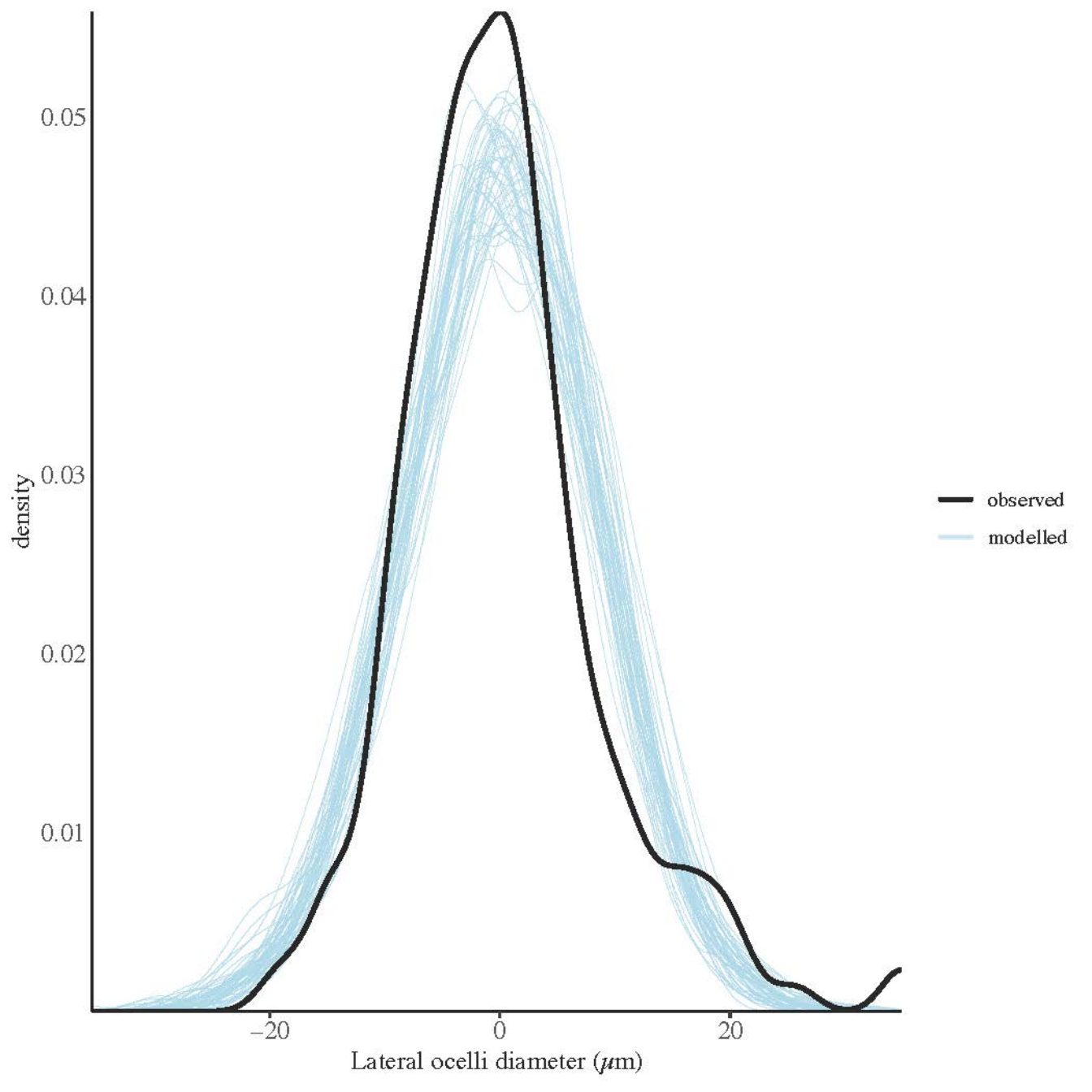

b_scale_flower_richness
b_scale_flower_richness
b_scale_lat:scale_lon
b_scale_lat:scale_lon
sigma
sigma


0.04
0.03
0.02
0.01
density
−50
−25
0
25
Central ocellus diameter (μm)
observed
modelled

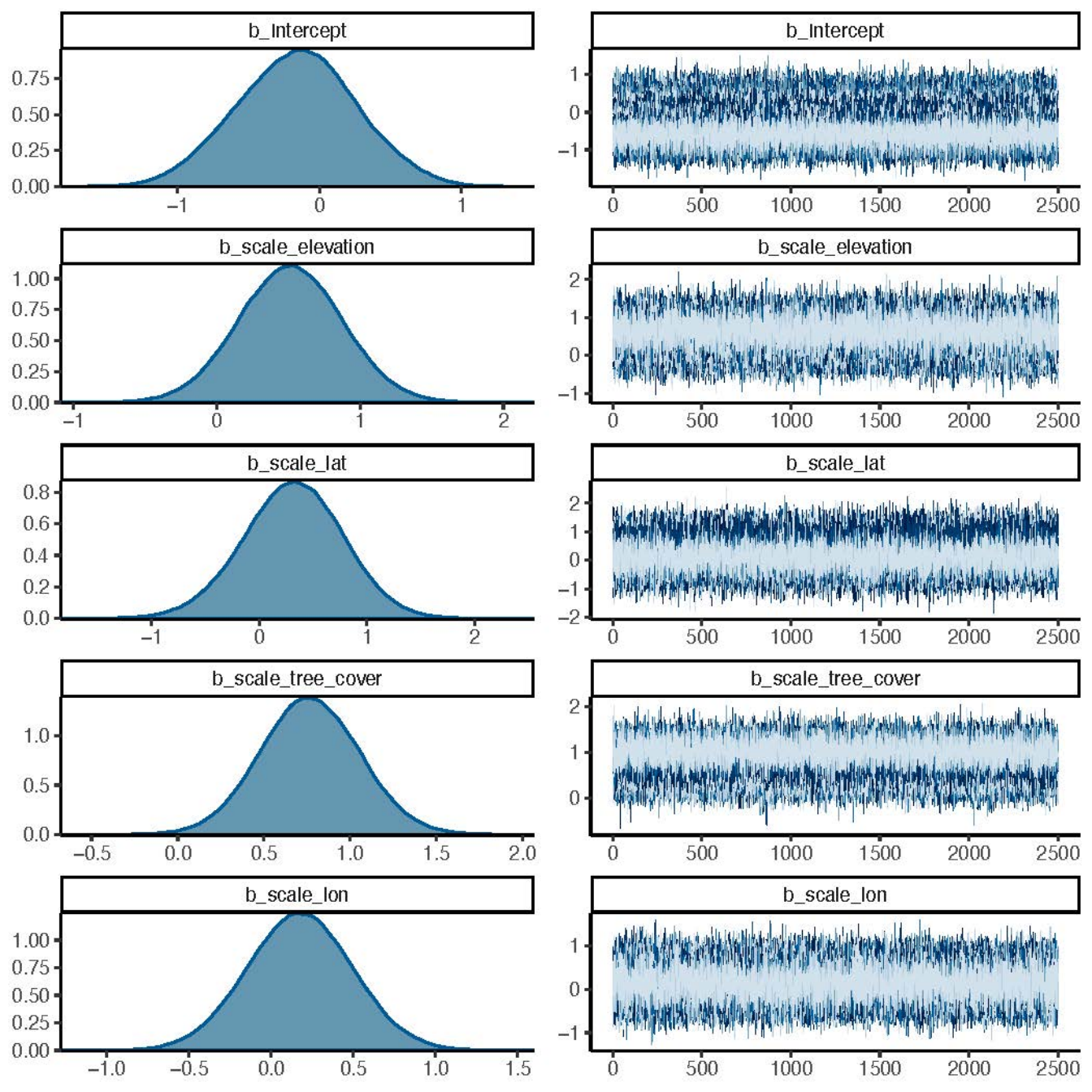
Lateral ocelli diameter (μm)

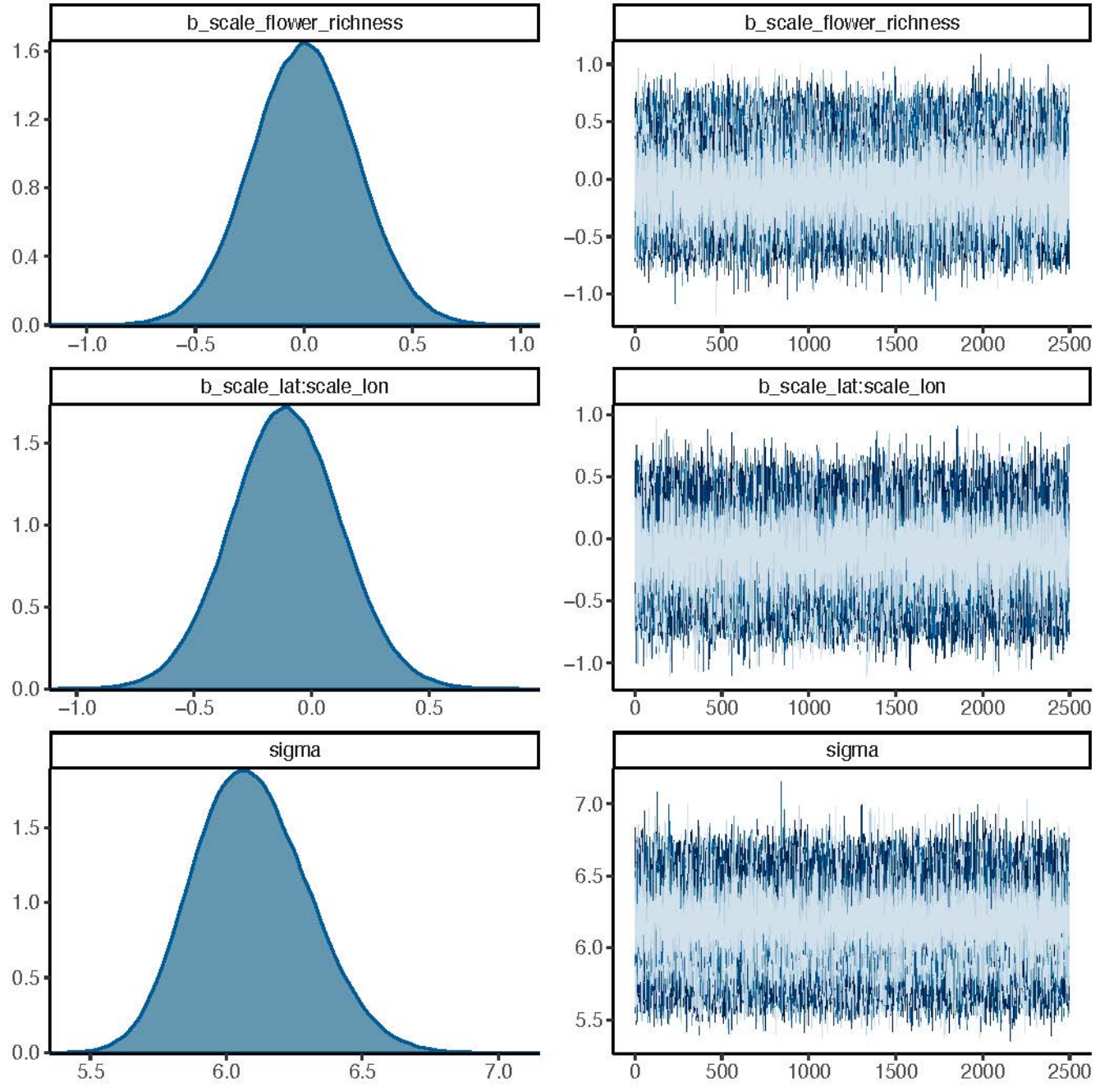

b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon

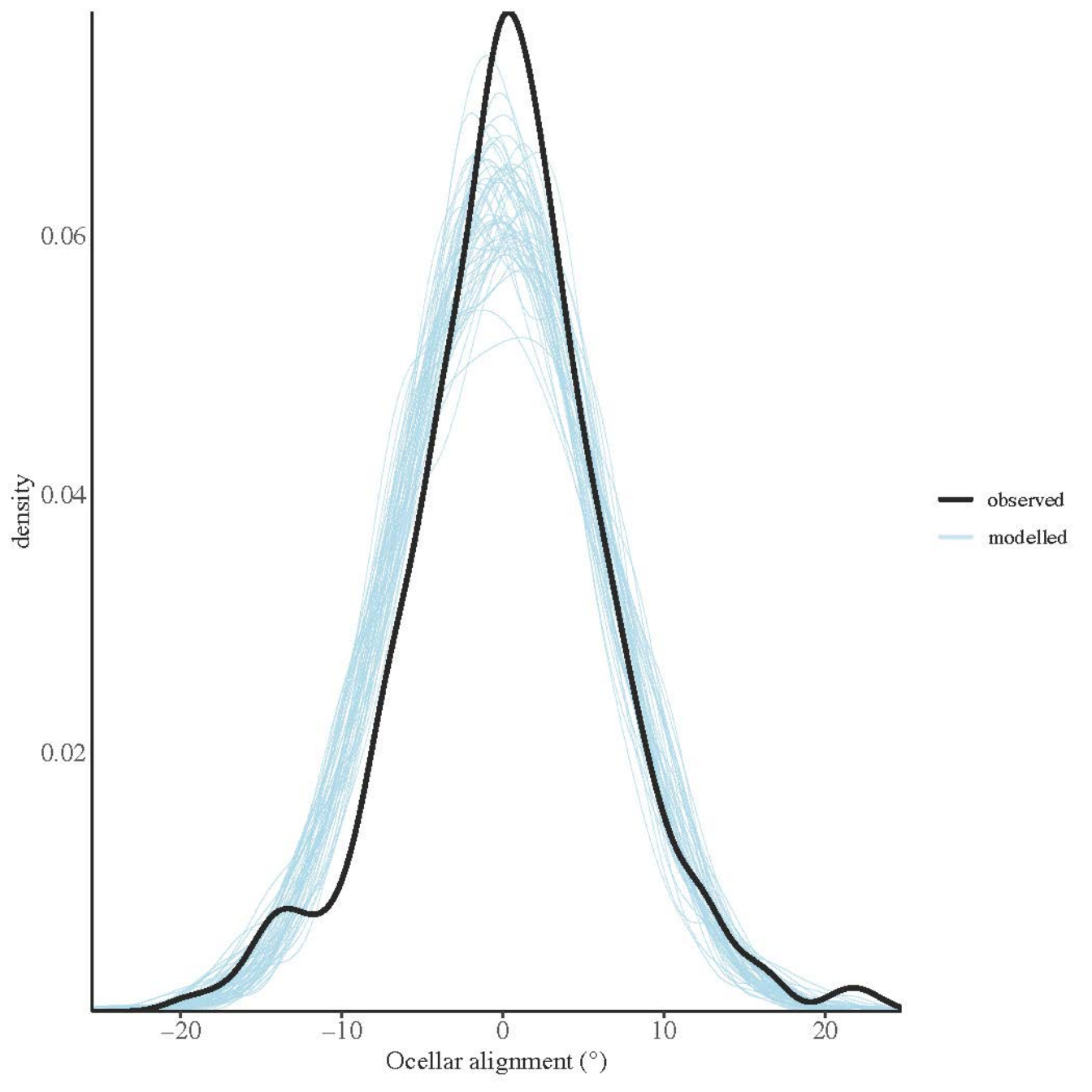

b_scale_flower_richness
b_scale_flower_richness
b_scale_lat:scale_lon
b_scale_lat:scale_lon
sigma
sigma


0.05
0.04
0.03
0.02
0.01
density
−20
0
20
Lateral ocelli diameter (μm)
observed
modelled

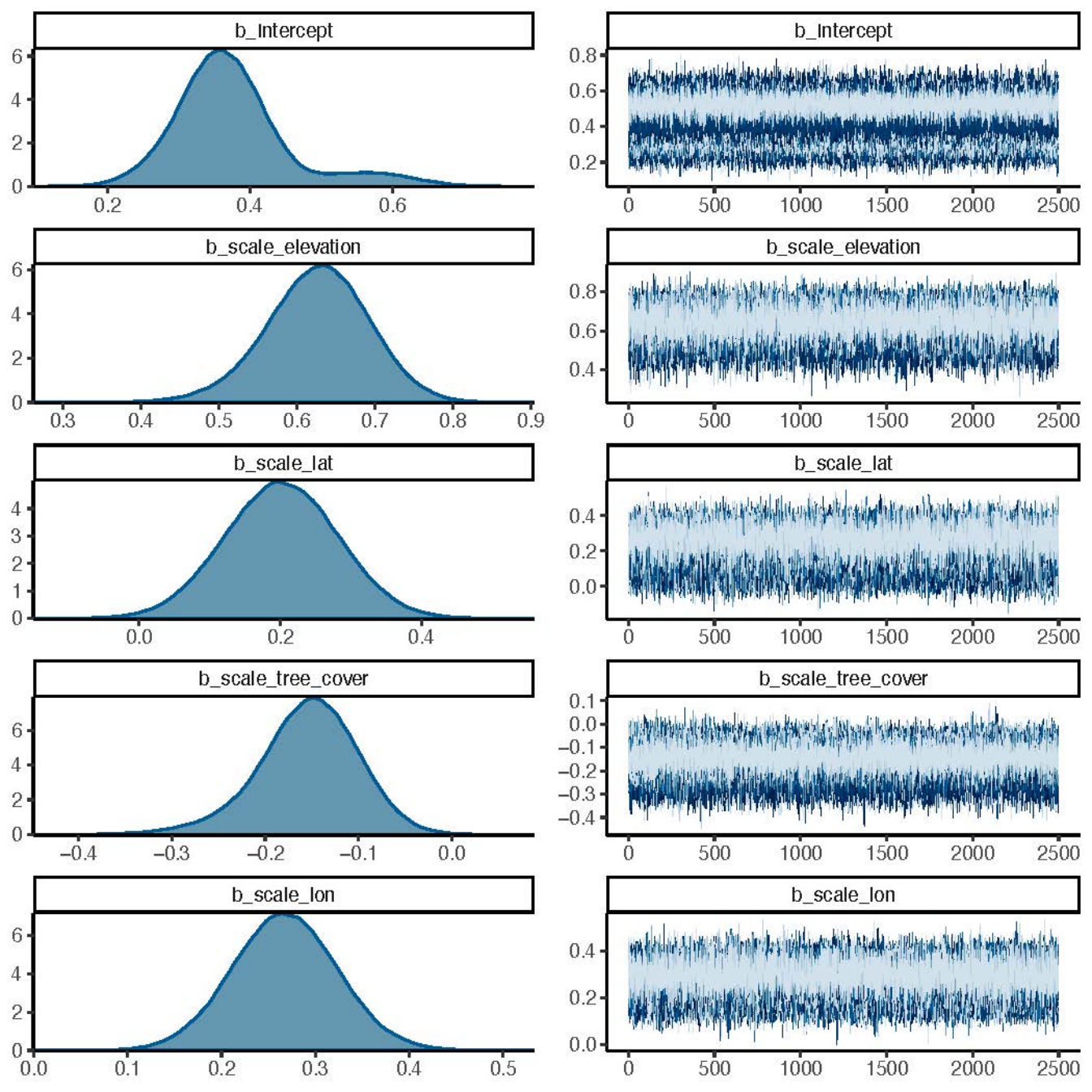
Ocellar alignment (°)

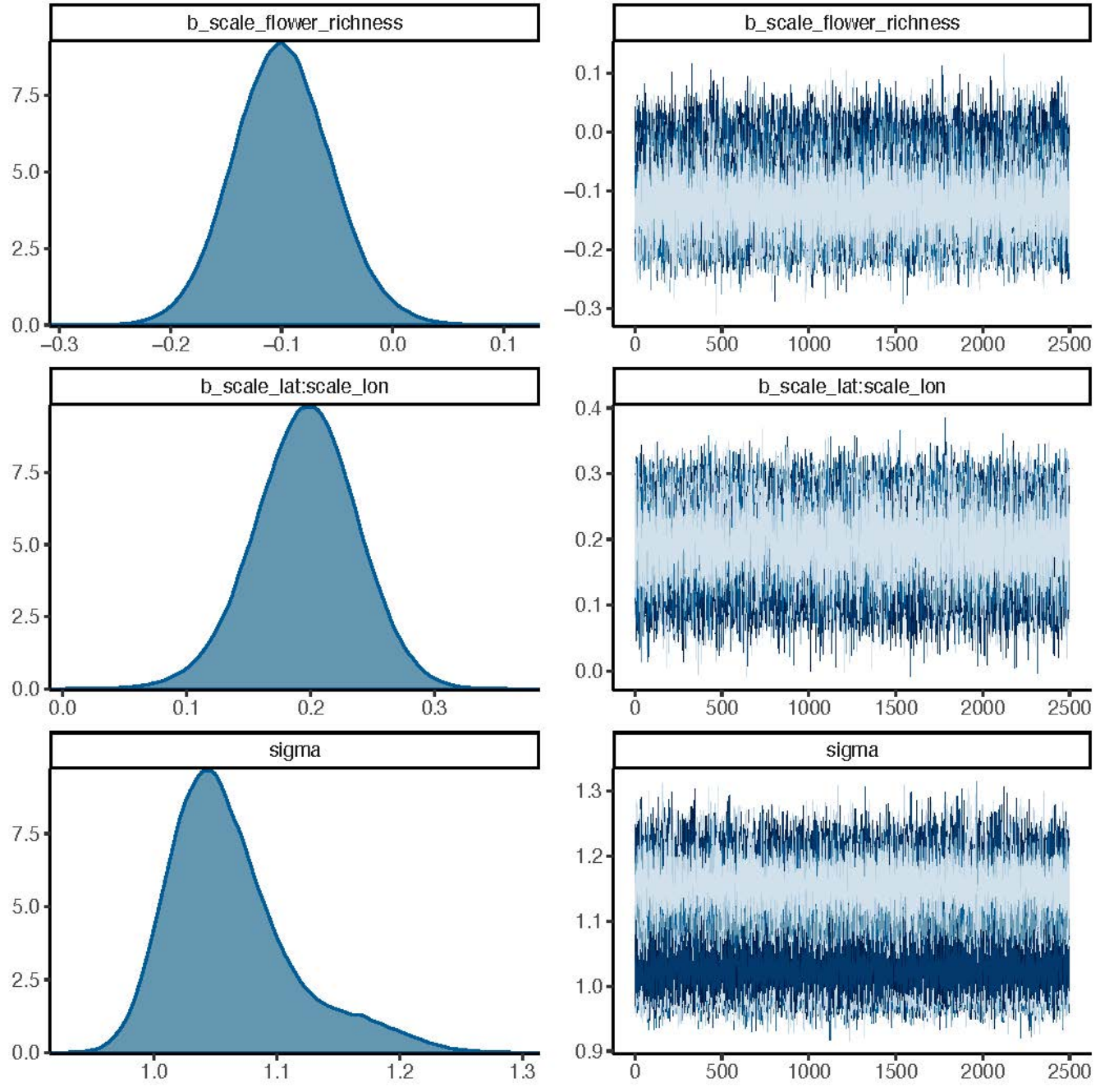

b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon

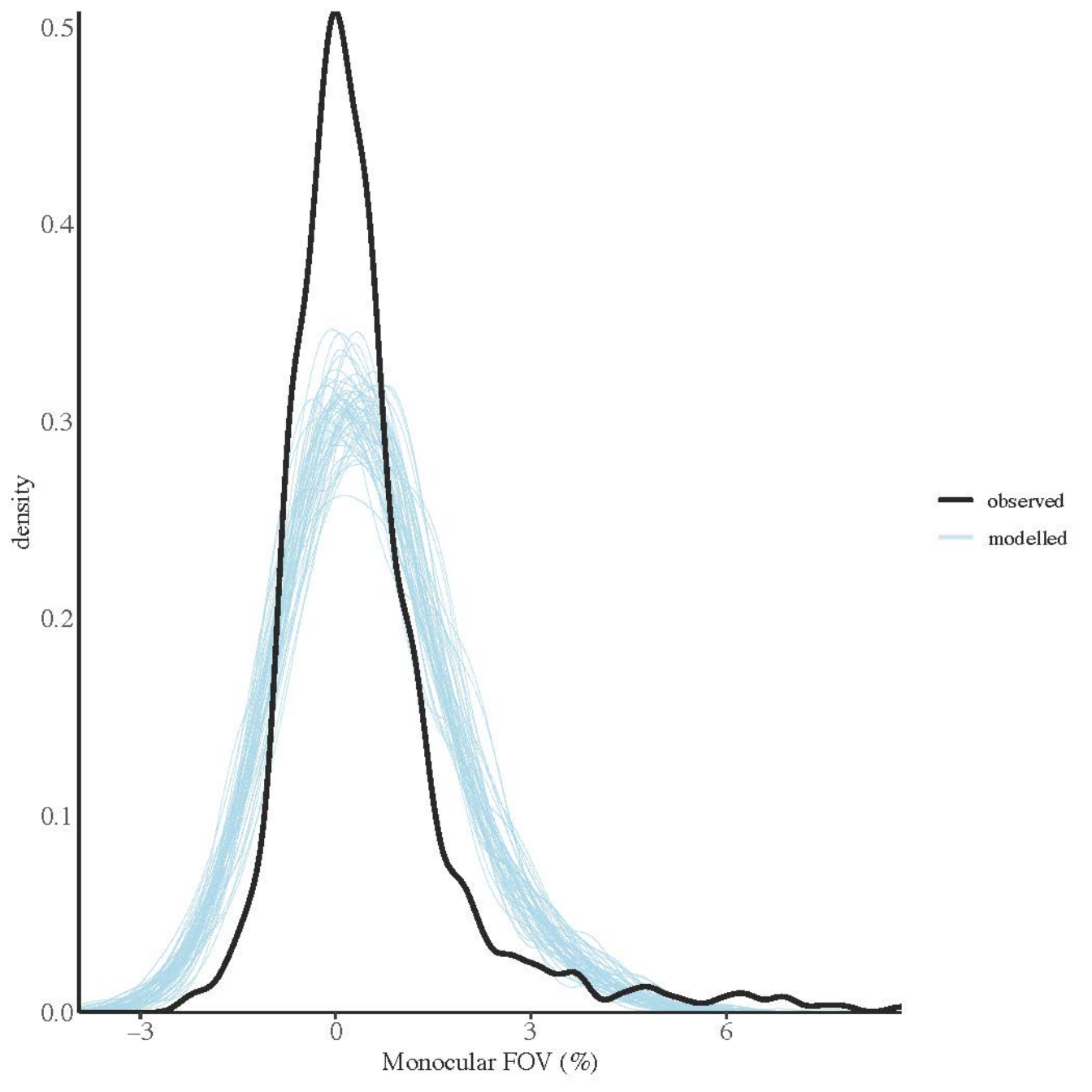

b_scale_flower_richness
b_scale_flower_richness
b_scale_lat:scale_lon
b_scale_lat:scale_lon
sigma
sigma


density
0.06
0.04
0.02
−20
−10
0
10
20
Ocellar alignment (°)
observed
modelled

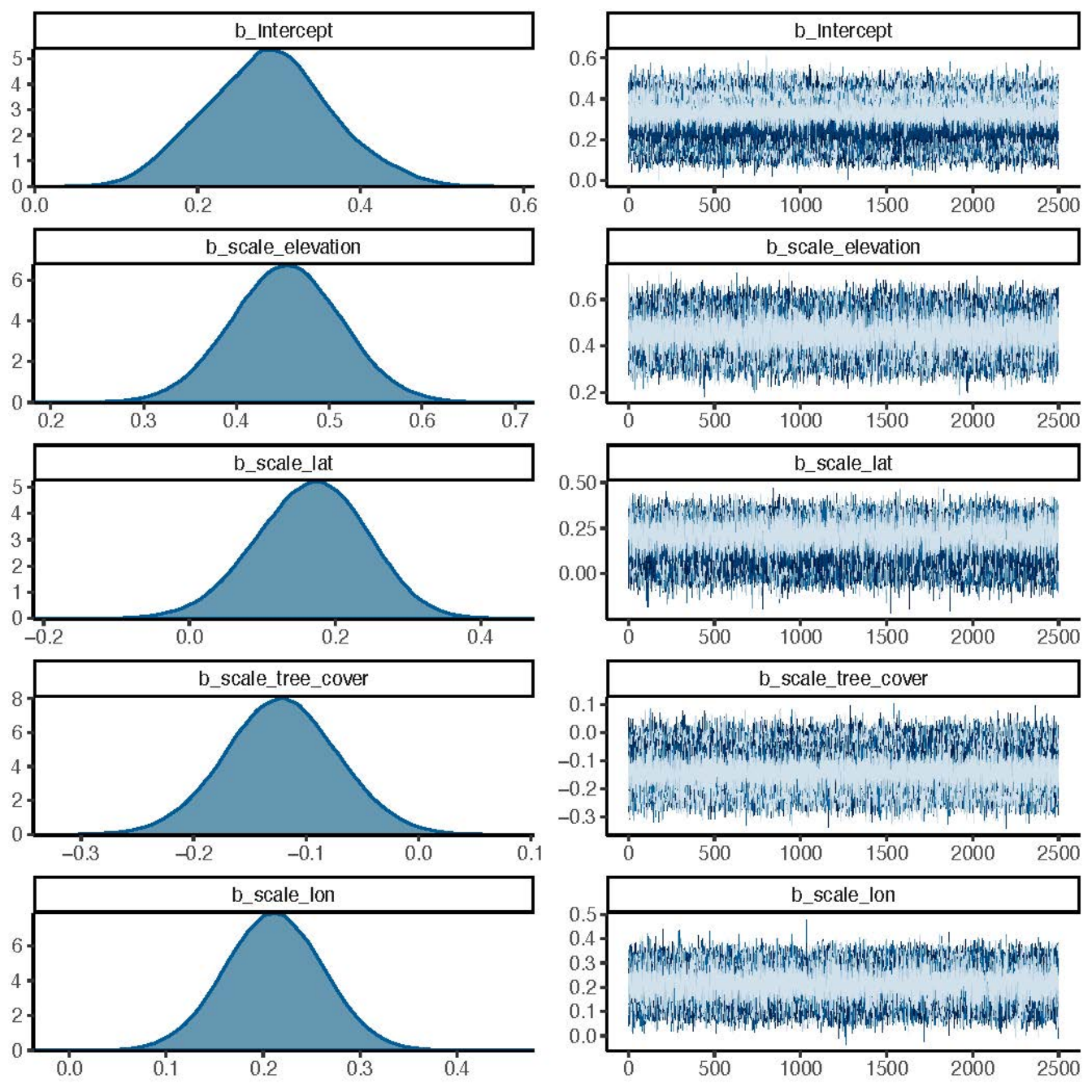
Monocular FOV (%)

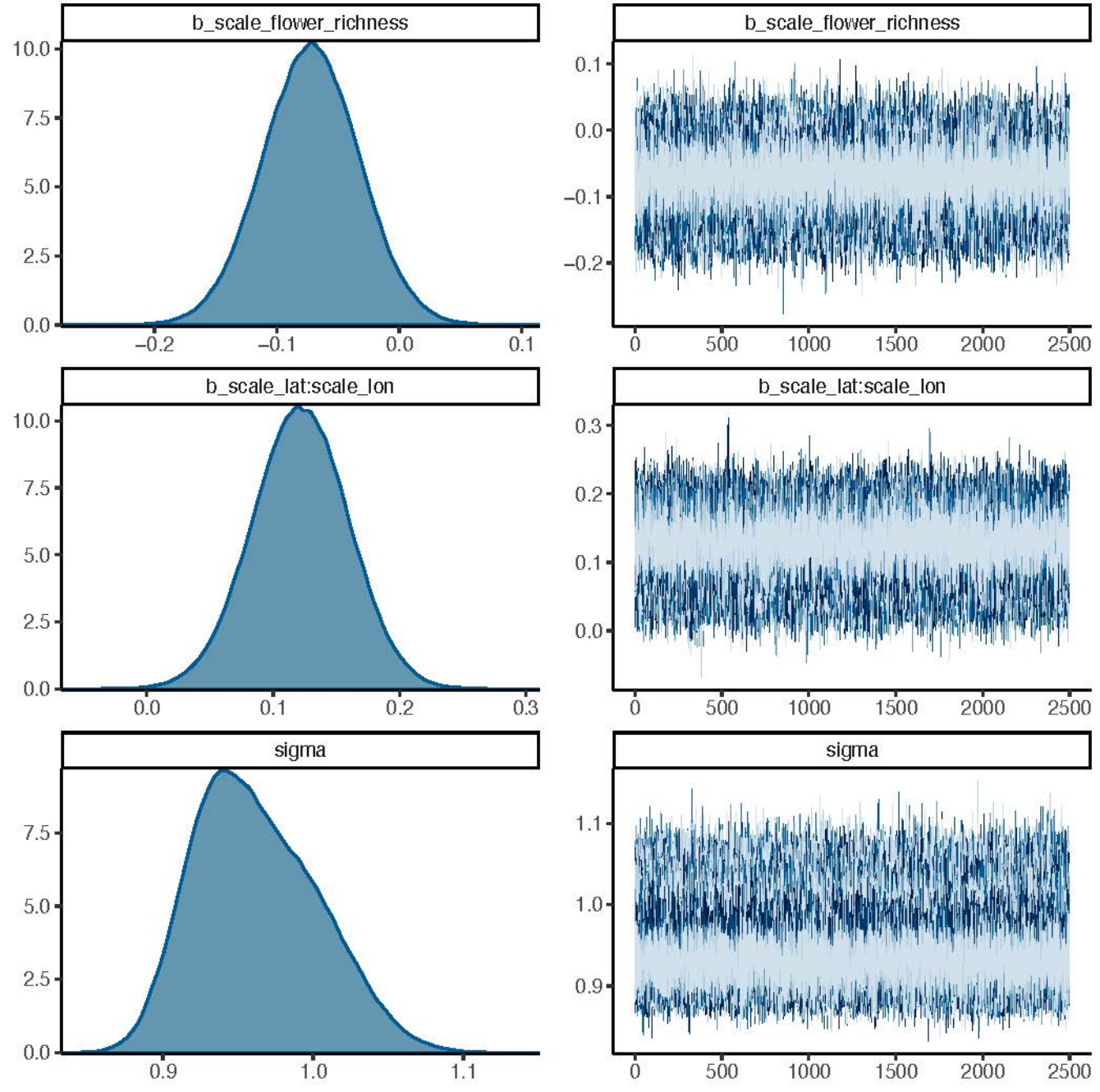

b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon

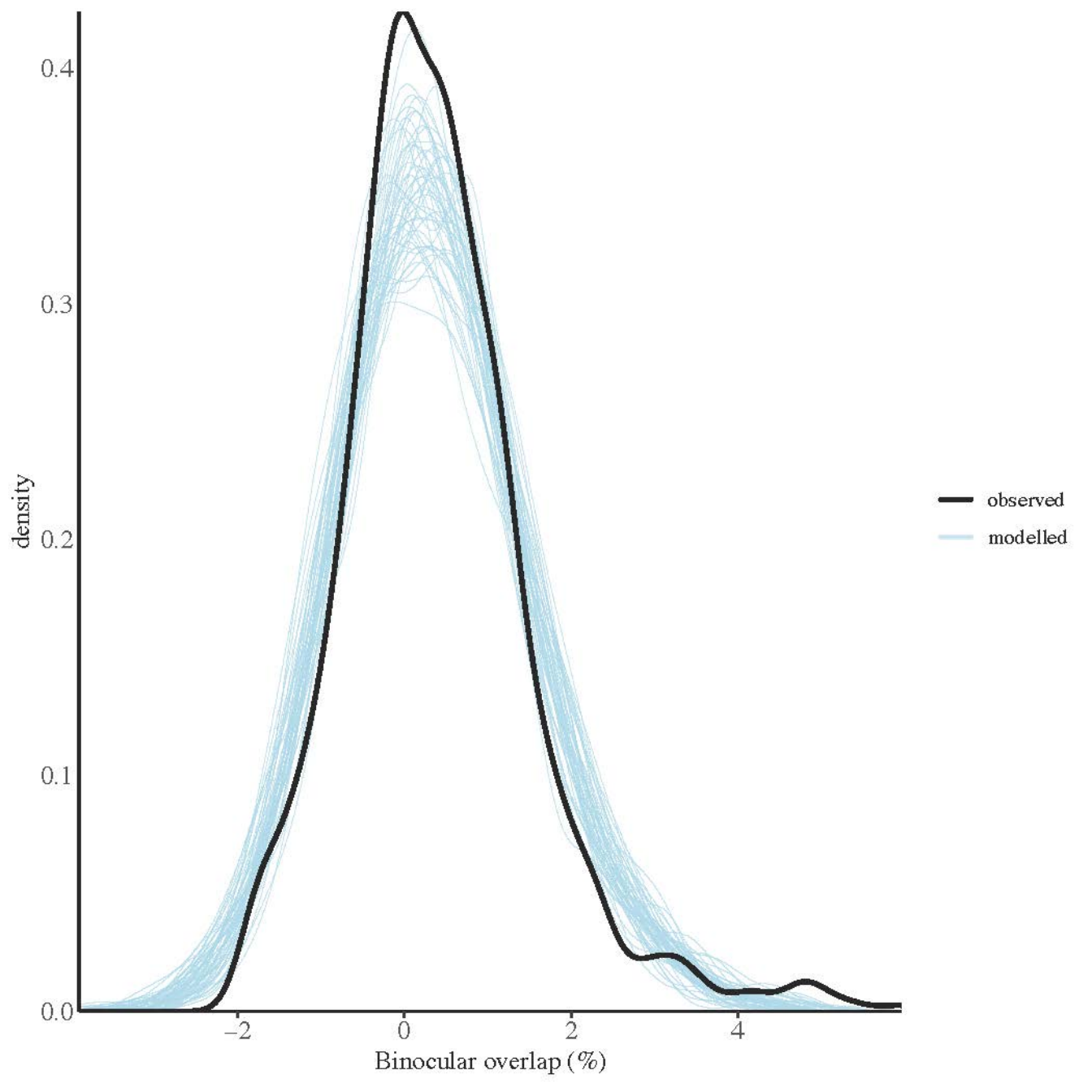

b_scale_flower_richness
b_scale_flower_richness
b_scale_lat:scale_lon
b_scale_lat:scale_lon
sigma
sigma


0.5
0.4
0.3
0.2
0.1
0.0
density
−3
0
3
6
Monocular FOV (%)
observed
modelled

Binocular overlap (%)


b_Intercept
b_Intercept
b_scale_elevation
b_scale_elevation
b_scale_lat
b_scale_lat
b_scale_tree_cover
b_scale_tree_cover
b_scale_lon
b_scale_lon


b_scale_flower_richness
10.0
7.5
5.0
2.5
0.0
−0.2
−0.1
0.0
0.1
b_scale_flower_richness
0.1
0.0
−0.1
−0.2
0
500
1000
1500
2000
2500
b_scale_lat:scale_lon
10.0
7.5
5.0
2.5
0.0
0.0
0.1
0.2
0.3
b_scale_lat:scale_lon
0.3
0.2
0.1
0.0
0
500
1000
1500
2000
2500
sigma
7.5
5.0
2.5
0.0
0.9
1.0
1.1
sigma
1.1
1.0
0.9
0
500
1000
1500
2000
2500


0.4
0.3
0.2
0.1
0.0
density
−2
0
2
4
Binocular overlap (%)
observed
modelled