Small carnivore crossing structure analysis

Script to run GLMM to look at the temporal variation in small carnivore use of underpasses and jumpouts We first separate out the day/season/annual counts by structure type and explore the influence of time of day (crep/day/night) for the day counts, season for the season counts and year for the annual counts. We also explore the influence of vehicles and humans. For all daily/seasonal underpass models only the day/season parameter is explored as the sample size for these models is too small to sample more parameters. The traffic varible is dropped from all models as it was extremely collinear with the day/season/year parameter.

Model structure: count (per structure) ~ crep/day/night or season + traffic volume + human use +

Location + random = sampling effort

Small daily carnivores

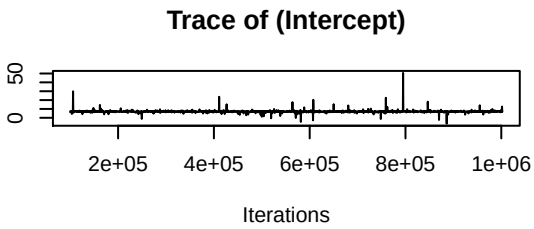
```
prior<-list(R=list(V=1, nu=0.002),
            G = list(G1 = list(V = 1, nu = 0.002)))

prioexp<- list(R = list(V = 1, nu=0.002), #residuals prior
               G = list(G1 = list(V = 1,nu= 0.02,alpha.mu=0,alpha.V=1000)))
```

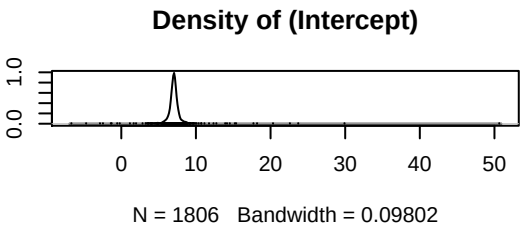
Underpass

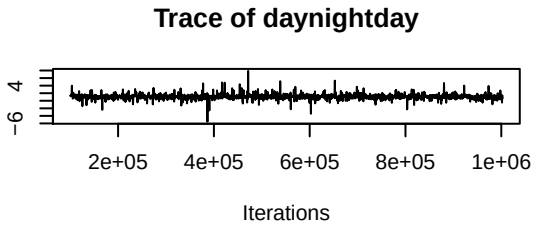
model summary and plots of IG prior and expanded prior respectively

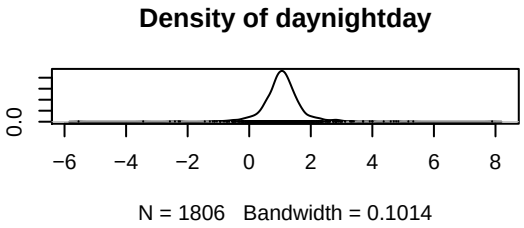
```
##
##  Iterations = 100001:1002501
##  Thinning interval  = 500
##  Sample size  = 1806
##
##  DIC: 70.30611
##
##  G-structure:  ~average.effort
```

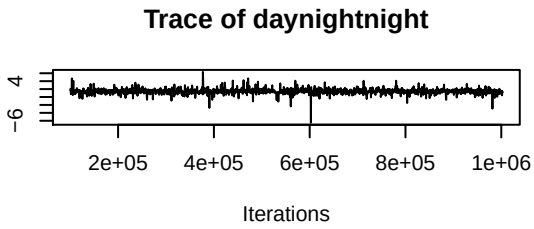
```
##
##                post.mean  l-95% CI u-95% CI eff.samp
## average.effort      6.01 0.0002596    5.522     1806
##
##  R-structure:  ~units
##
##       post.mean l-95% CI u-95% CI eff.samp
## units     0.489  0.01935    1.541     1608
##
##  Location effects: Total ~ daynight
##
##               post.mean l-95% CI u-95% CI eff.samp   pMCMC
## (Intercept)      7.0870   5.4331   8.7914     1806 0.00886 **
## daynightday      1.0769  -0.3556   2.3995     1806 0.08527 .
## daynightnight    1.4252   0.2651   2.8749     1627 0.04319 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

##
##  Iterations = 100001:1002501
##  Thinning interval  = 500
##  Sample size  = 1806
##
##  DIC: 70.32234
##
##  G-structure:  ~average.effort
##
##                post.mean  l-95% CI u-95% CI eff.samp
## average.effort      6586 1.545e-06    484.7     1806
##
##  R-structure:  ~units
##
##       post.mean l-95% CI u-95% CI eff.samp
## units    0.7753  0.02128    2.287     1806
##
##  Location effects: Total ~ daynight
##
##               post.mean l-95% CI u-95% CI eff.samp  pMCMC
## (Intercept)      6.9388  -4.8981  18.9449     1806 0.1085
## daynightday      1.0621  -0.6507   2.5355     1806 0.1052
## daynightnight    1.3948  -0.2688   2.8346     2026 0.0653 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

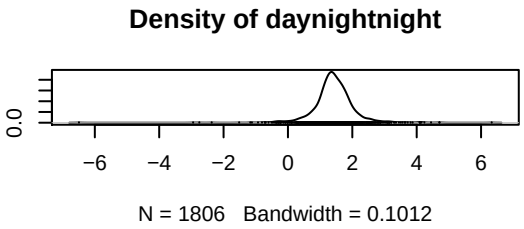

Trace of (Intercept)
0
50
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

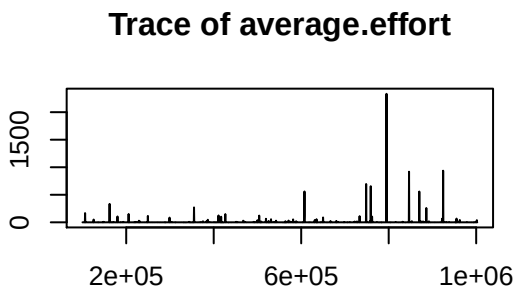

Density of (Intercept)
0.0
1.0
0
10
20
30
40
50
N = 1806 Bandwidth = 0.09802

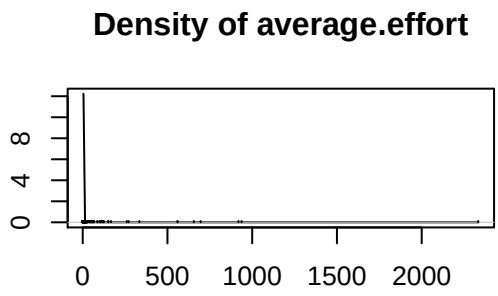

Trace of daynightday
−6
4
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

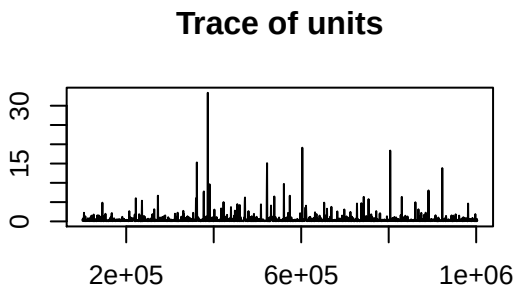

Density of daynightday
0.0
−6
−4
−2
0
2
4
6
8
N = 1806 Bandwidth = 0.1014

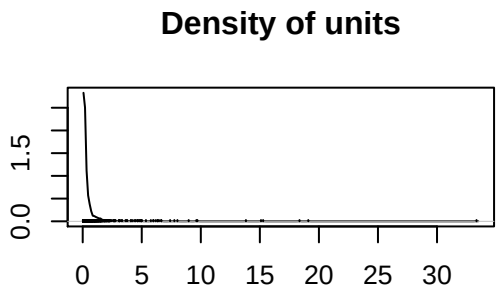

Trace of daynightnight
−6
4
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

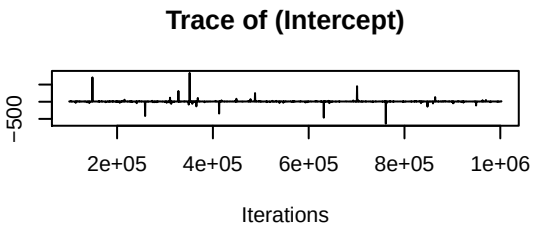

Density of daynightnight
0.0
−6
−4
−2
0
2
4
6
N = 1806 Bandwidth = 0.1012

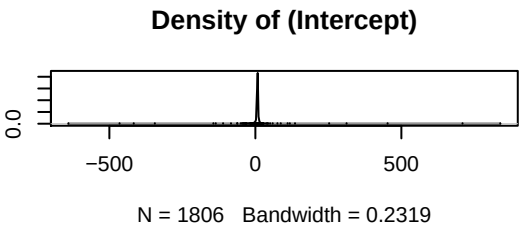

Trace of average.effort
0
1500
2e+05
6e+05
1e+06
Iterations

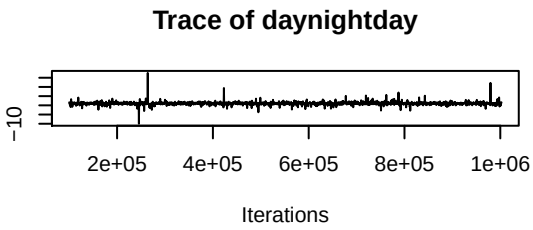

Density of average.effort
0
4
8
0
500
1000
1500
2000
N = 1806 Bandwidth = 0.03135

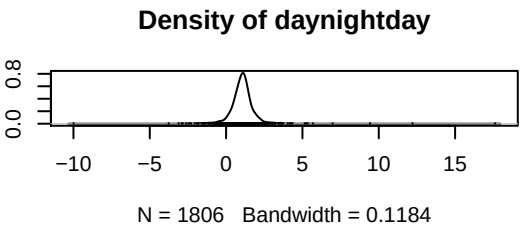

Trace of units
0
15
30
2e+05
6e+05
1e+06
Iterations

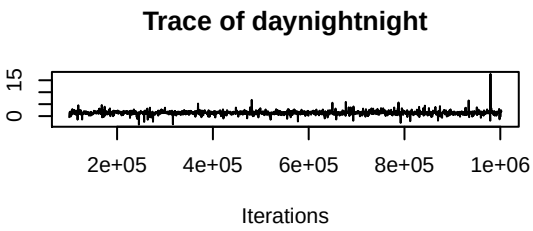

Density of units
0.0
1.5
0
5
10
15
20
25
30
N = 1806 Bandwidth = 0.04964

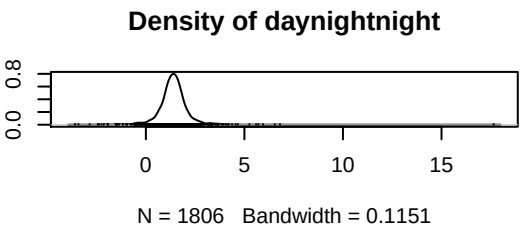

Trace of (Intercept)
−500
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

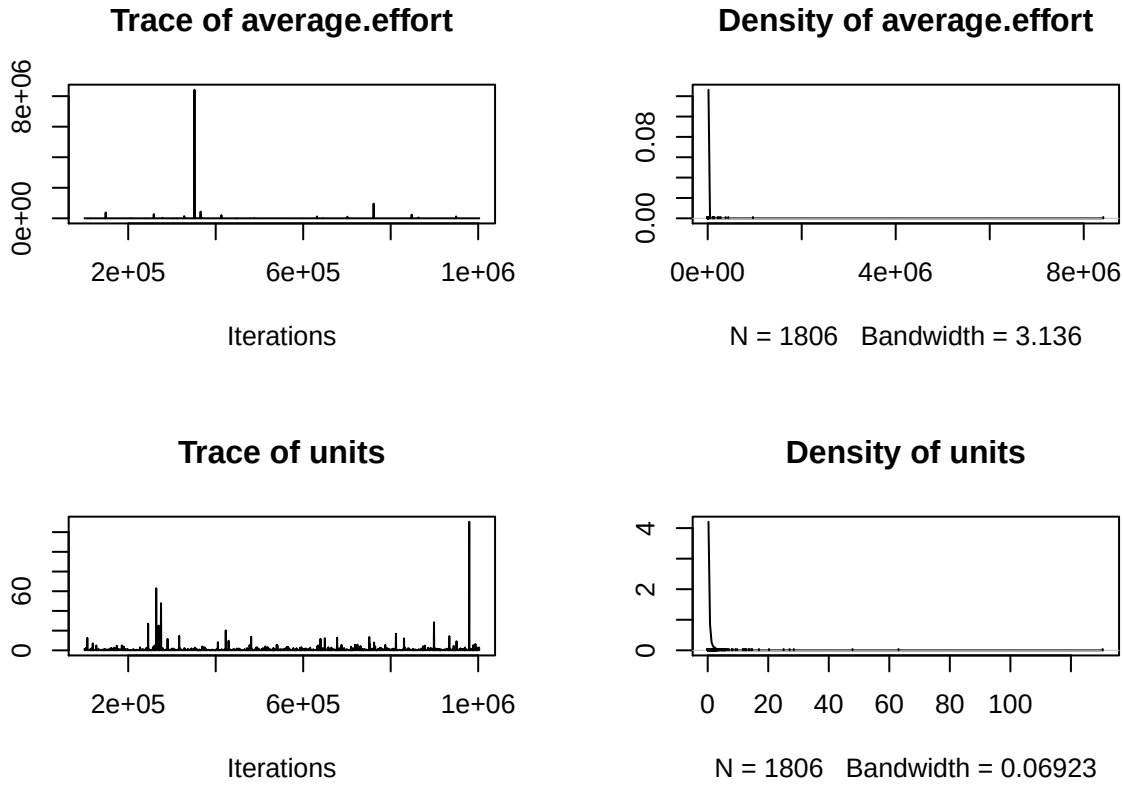

Density of (Intercept)
0.0
−500
0
500
N = 1806 Bandwidth = 0.2319


Trace of daynightday
−10
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations


Density of daynightday
0.0 0.8
−10
−5
0
5
10
15
N = 1806 Bandwidth = 0.1184


Trace of daynightnight
0 15
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations


Density of daynightnight
0.0 0.8
0
5
10
15
N = 1806 Bandwidth = 0.1151

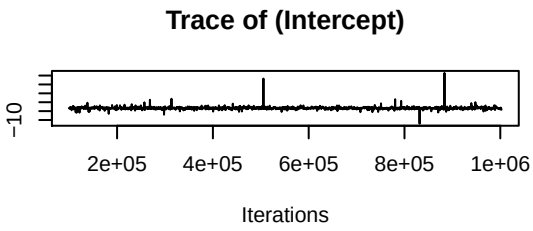


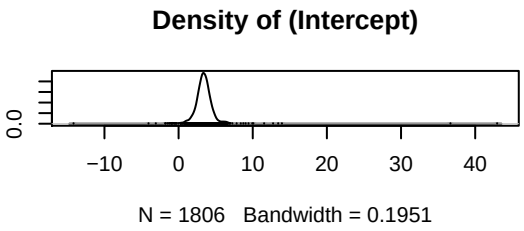
Jumpout

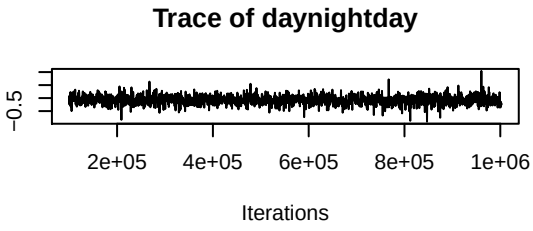
model summary and plots of IG prior and expanded prior respectively

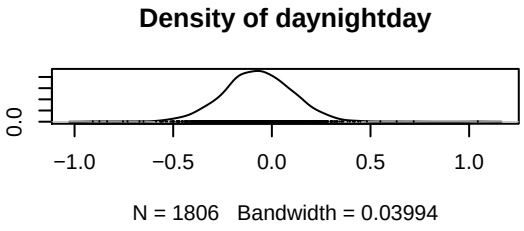
```
##
##  Iterations = 100001:1002501
##  Thinning interval  = 500
##  Sample size  = 1806
##
##  DIC: 104.2818
##
##  G-structure:  ~average.effort
##
##                post.mean l-95% CI u-95% CI eff.samp
## average.effort     5.257   0.0944    15.66     1806
##
##  R-structure:  ~units
##
##       post.mean  l-95% CI u-95% CI eff.samp
## units  0.005618 0.0002228  0.01781     1806
##
##  Location effects: Total ~ daynight + Location2 + daynight.human
##
##                         post.mean l-95% CI u-95% CI eff.samp   pMCMC
## (Intercept)              3.42787  0.84855  5.47947     1806 0.02326 *
## daynightday             -0.07247 -0.40087  0.28426     1806 0.67442
```

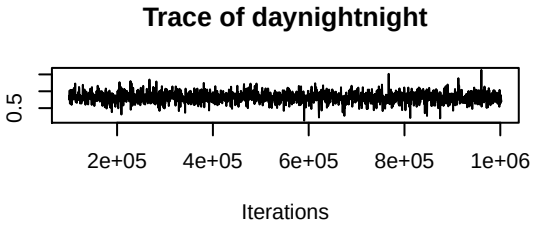
```
## daynightnight            0.82189  0.53665  1.13164     1806 < 6e-04 ***
## Location2Stewart Creek  -0.74211 -4.67790  4.11042     1806 0.56257
## daynight.human           1.12625  0.50455  1.72168     1806 0.00221 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

##
##  Iterations = 100001:1002501
##  Thinning interval  = 500
##  Sample size  = 1806
##
##  DIC: 104.221
##
##  G-structure:  ~average.effort
##
##                post.mean l-95% CI u-95% CI eff.samp
## average.effort     26.55   0.1001    58.47     1036
##
##  R-structure:  ~units
##
##       post.mean  l-95% CI u-95% CI eff.samp
## units  0.005452 0.0002301    0.019     1806
##
##  Location effects: Total ~ daynight + Location2 + daynight.human
##
##                         post.mean l-95% CI u-95% CI eff.samp   pMCMC
## (Intercept)              3.23986 -0.39177  6.81982     1542 0.06755 .
## daynightday             -0.06329 -0.43601  0.28573     1806 0.72204
## daynightnight            0.82749  0.54112  1.16714     1806 < 6e-04 ***
## Location2Stewart Creek  -0.44698 -7.45472  9.68392     1467 0.67885
## daynight.human           1.10722  0.51792  1.81000     1806 0.00111 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

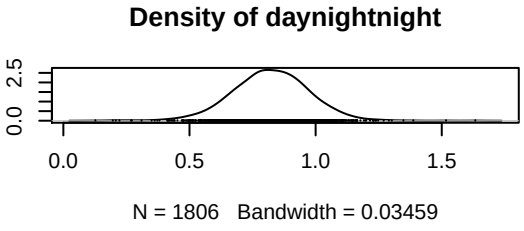

Trace of (Intercept)
−10
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

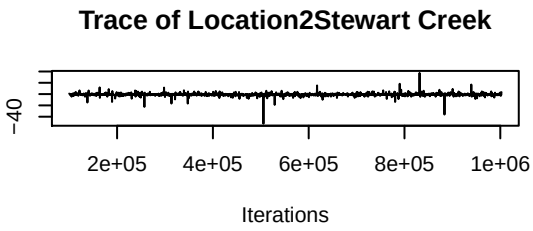

Density of (Intercept)
0.0
−10
0
10
20
30
40
N = 1806 Bandwidth = 0.1951

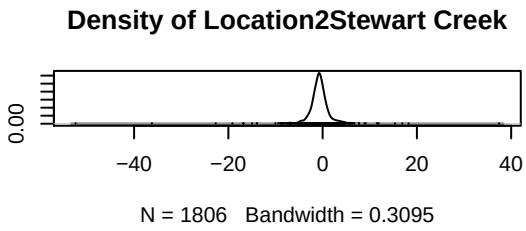

Trace of daynightday
−0.5
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

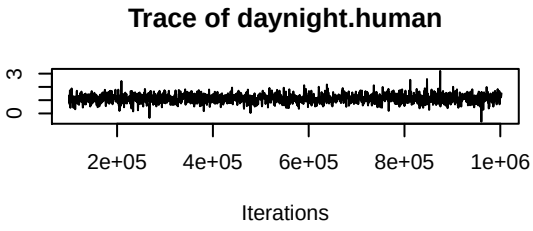

Density of daynightday
0.0
−1.0
−0.5
0.0
0.5
1.0
N = 1806 Bandwidth = 0.03994

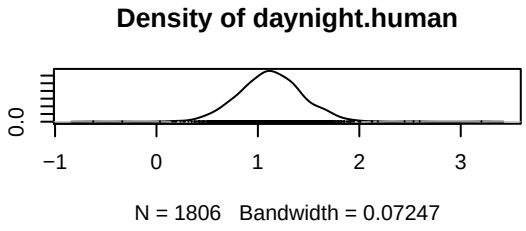

Trace of daynightnight
0.5
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

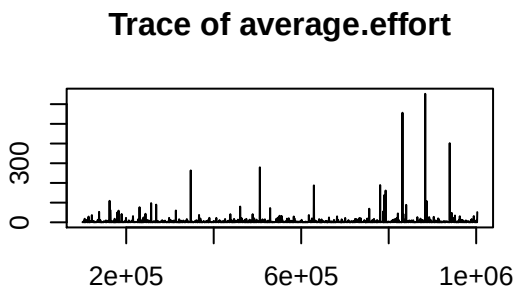

Density of daynightnight
0.0
2.5
0.0
0.5
1.0
1.5
N = 1806 Bandwidth = 0.03459

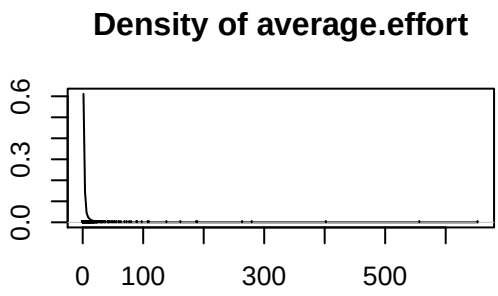

Trace of Location2Stewart Creek
−40
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

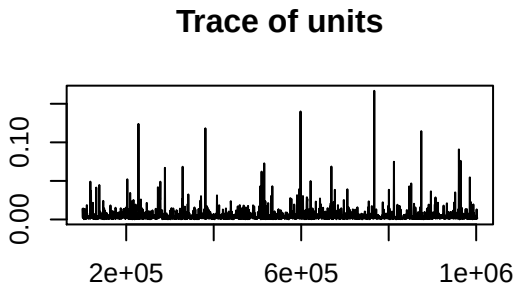

Density of Location2Stewart Creek
0.00
−40
−20
0
20
40
N = 1806 Bandwidth = 0.3095

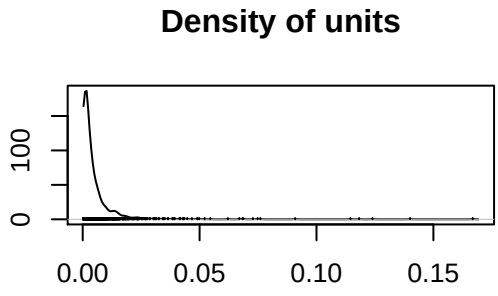

Trace of daynight.human
0 3
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

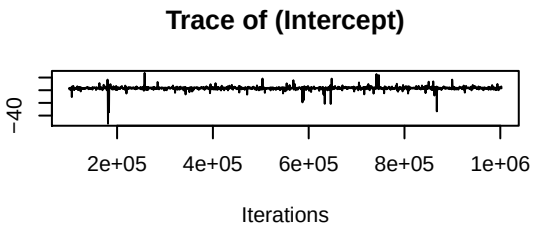

Density of daynight.human
0.0
−1
0
1
2
3
N = 1806 Bandwidth = 0.07247

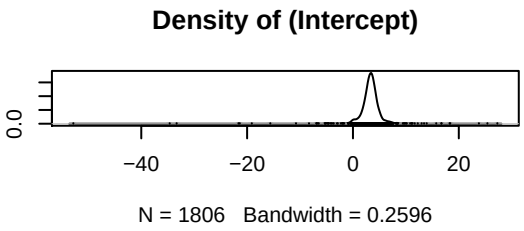

Trace of average.effort
0
300
2e+05
6e+05
1e+06
Iterations

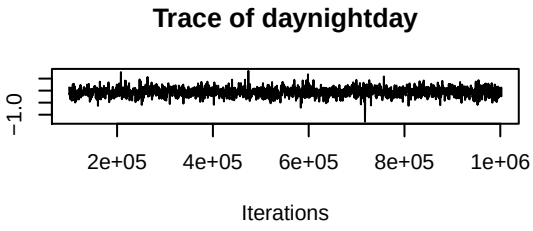

Density of average.effort
0.0
0.3
0.6
0
100
300
500
N = 1806 Bandwidth = 0.4459

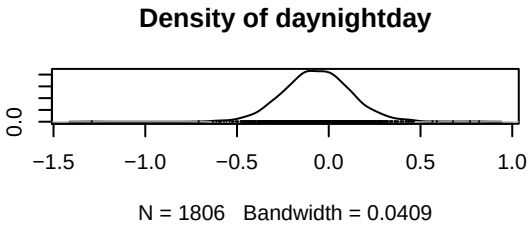

Trace of units
0.00
0.10
2e+05
6e+05
1e+06
Iterations

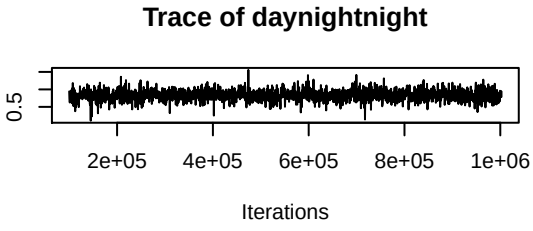

Density of units
0
100
0.00
0.05
0.10
0.15
N = 1806 Bandwidth = 0.0007952

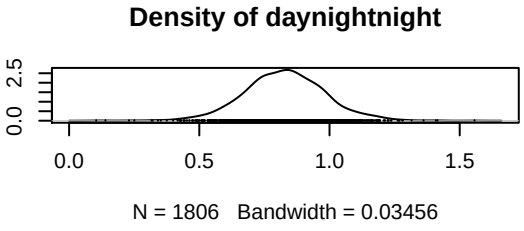

Trace of (Intercept)
−40
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

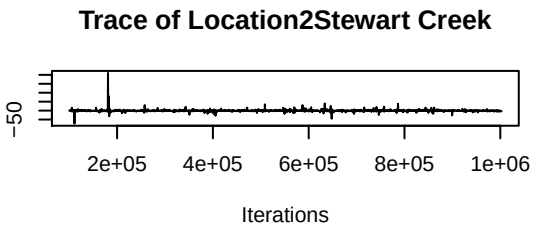

Density of (Intercept)
0.0
−40
−20
0
20
N = 1806 Bandwidth = 0.2596

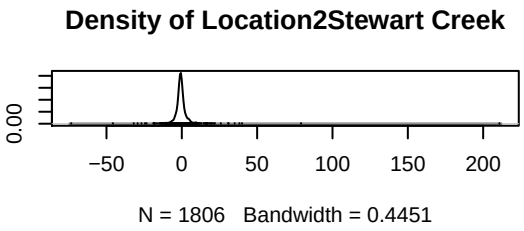

Trace of daynightday
−1.0
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

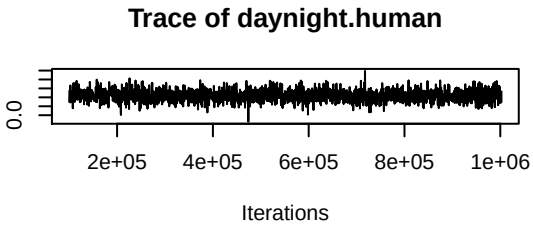

Density of daynightday
0.0
−1.5
−1.0
−0.5
0.0
0.5
1.0
N = 1806 Bandwidth = 0.0409

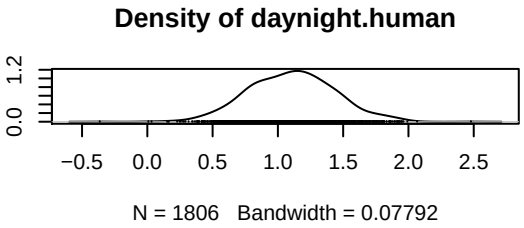

Trace of daynightnight
0.5
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

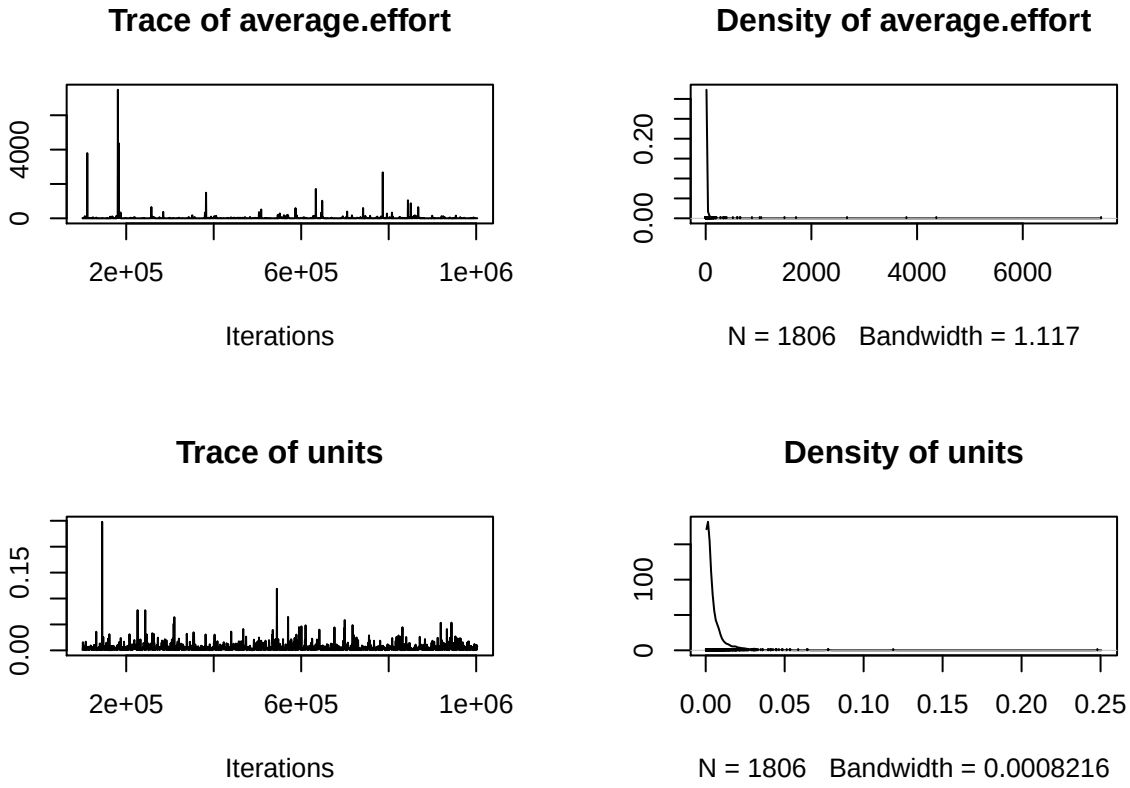

Density of daynightnight
0.0
2.5
0.0
0.5
1.0
1.5
N = 1806 Bandwidth = 0.03456


Trace of Location2Stewart Creek
−50
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations


Density of Location2Stewart Creek
0.00
−50
0
50
100
150
200
N = 1806 Bandwidth = 0.4451


Trace of daynight.human
0.0
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations


Density of daynight.human
0.0
1.2
−0.5
0.0
0.5
1.0
1.5
2.0
2.5
N = 1806 Bandwidth = 0.07792

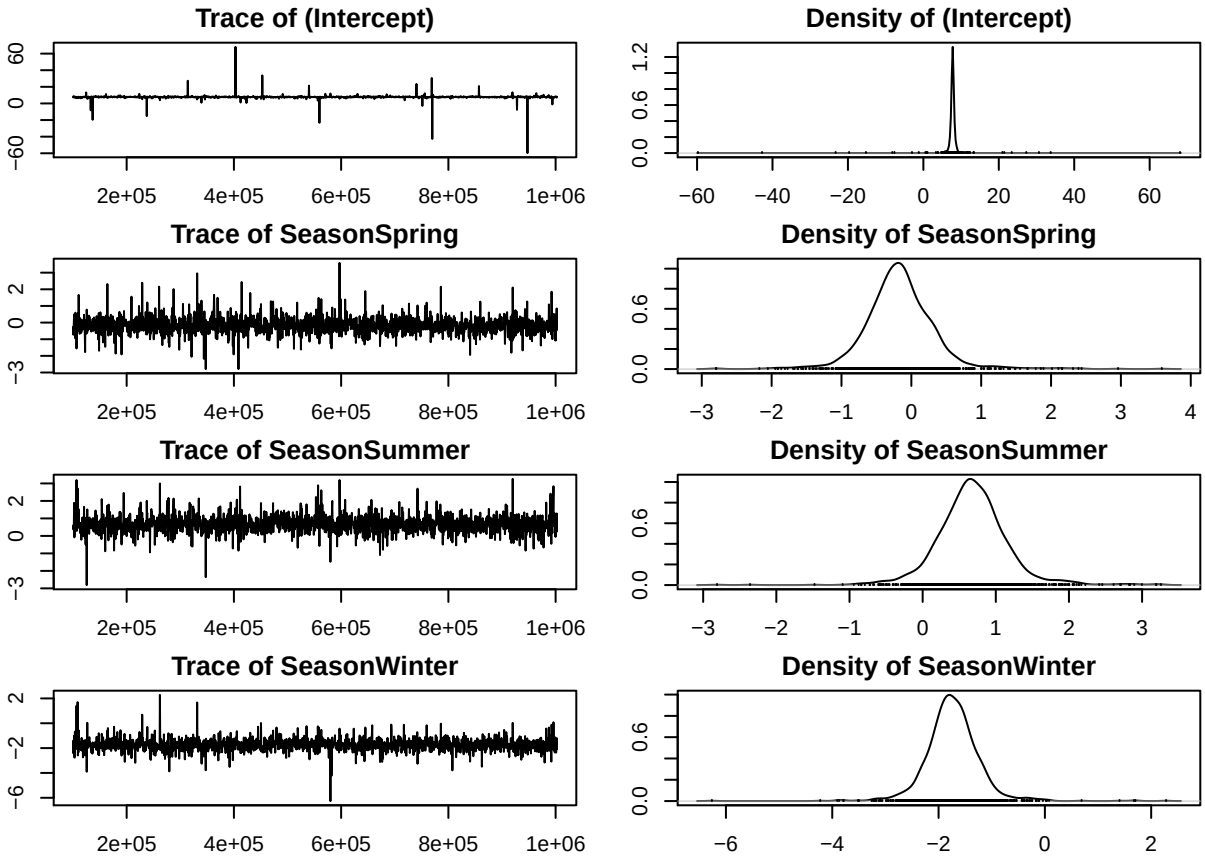


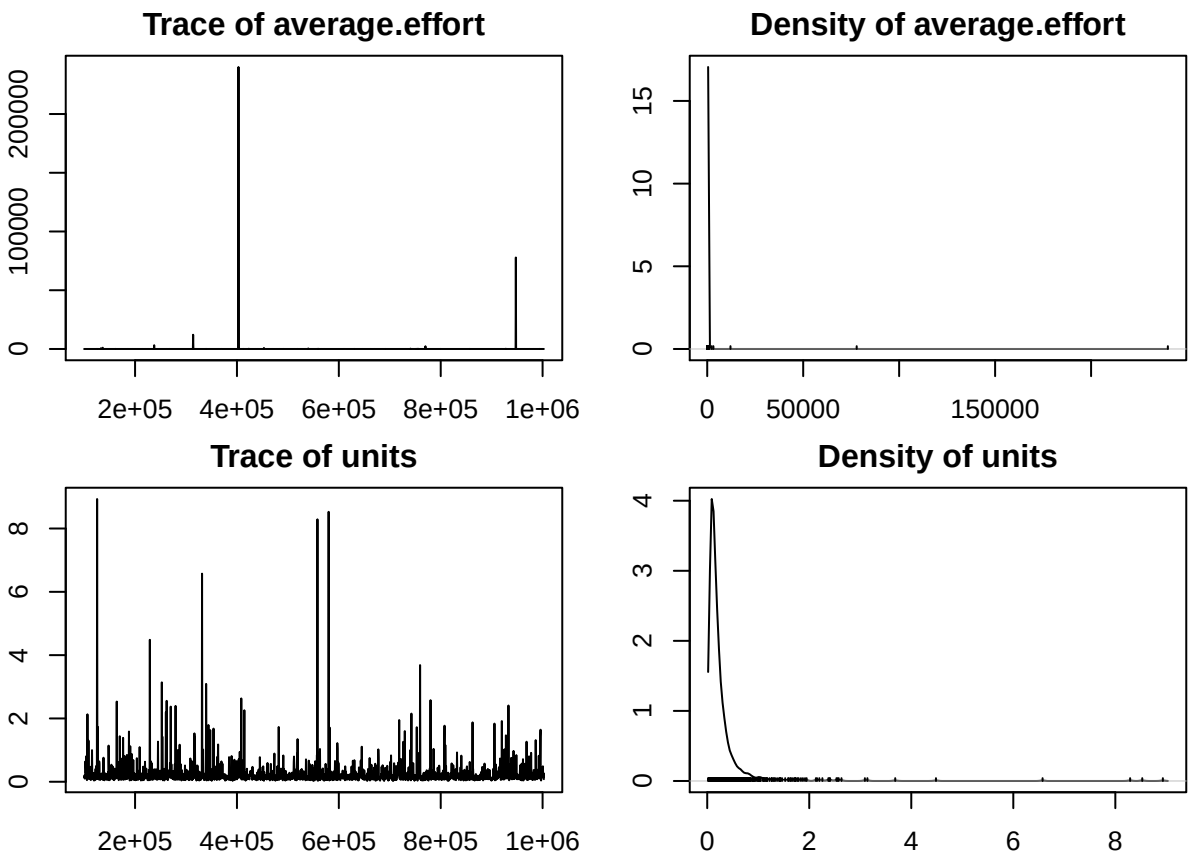
Small seasonal carnivores ## Underpass

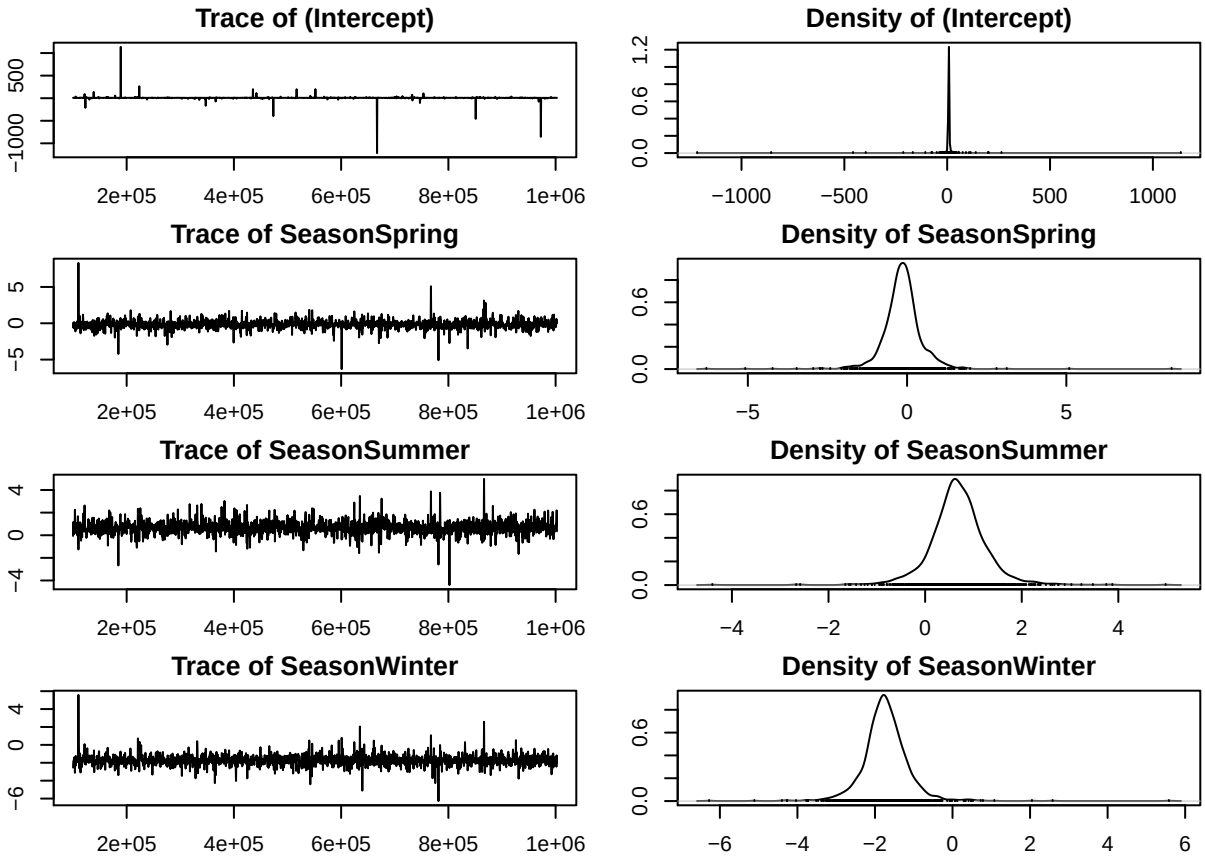
model summary and plots of IG prior and expanded prior respectively

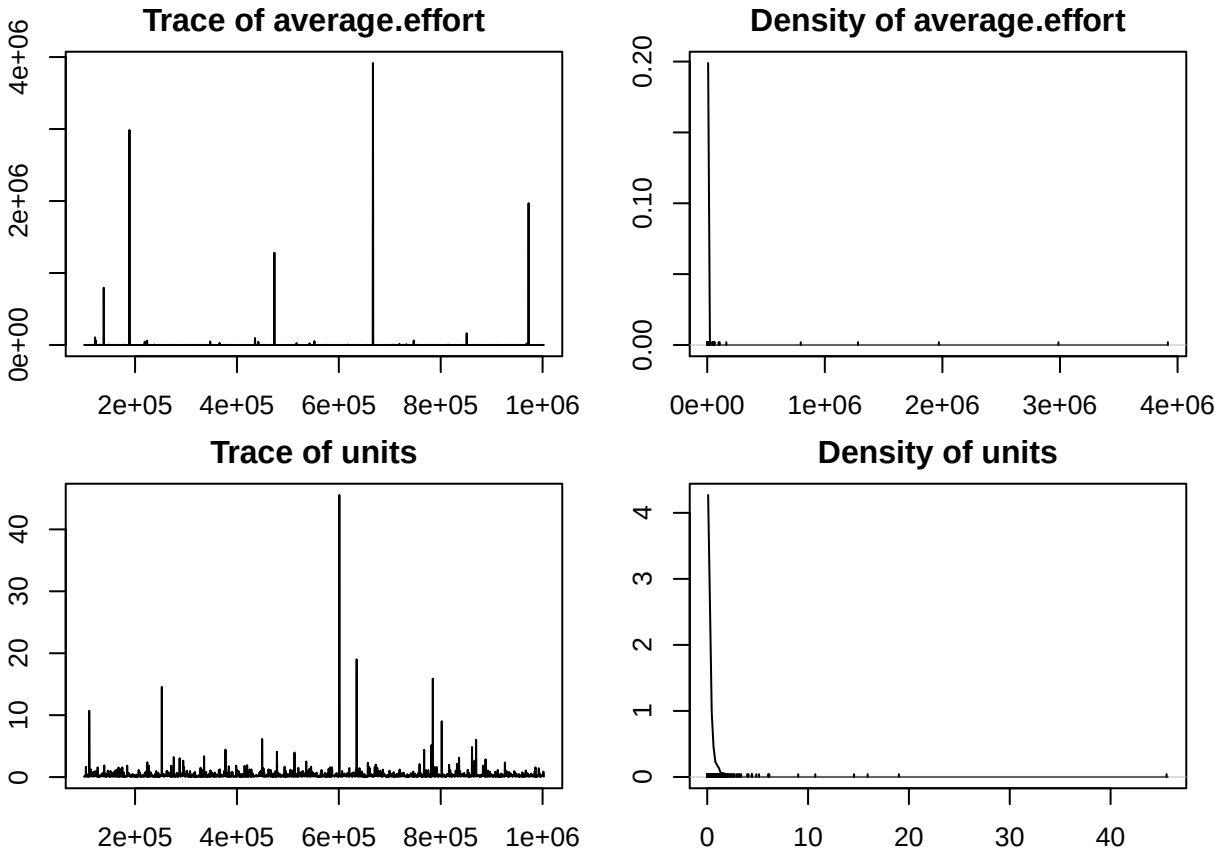
```
##
##  Iterations = 100001:1002501
##  Thinning interval  = 500
##  Sample size  = 1806
##
##  DIC: 90.37455
##
##  G-structure:  ~average.effort
##
##                post.mean  l-95% CI u-95% CI eff.samp
## average.effort     189.5 0.0002621    4.058     1806
##
##  R-structure:  ~units
##
##       post.mean l-95% CI u-95% CI eff.samp
## units    0.2713  0.02441   0.7954     1806
##
##  Location effects: Total ~ Season
##
##              post.mean l-95% CI u-95% CI eff.samp   pMCMC
## (Intercept)     7.7067   6.5476   9.1054     2069 0.00997 **
## SeasonSpring   -0.1669  -1.0713   0.8504     1806 0.62126
```

```
## SeasonSummer    0.6780  -0.2942   1.6591     1806 0.12071
## SeasonWinter   -1.7355  -2.7967  -0.8492     1806 0.00997 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

##
##  Iterations = 100001:1002501
##  Thinning interval  = 500
##  Sample size  = 1806
##
##  DIC: 90.40268
##
##  G-structure:  ~average.effort
##
##                post.mean  l-95% CI u-95% CI eff.samp
## average.effort      6633 1.397e-10    469.7     1806
##
##  R-structure:  ~units
##
##       post.mean l-95% CI u-95% CI eff.samp
## units    0.3925  0.02691    1.142     1806
##
##  Location effects: Total ~ Season
##
##              post.mean l-95% CI u-95% CI eff.samp  pMCMC
## (Intercept)     7.1497  -3.2169  20.4641     1806 0.0676 .
## SeasonSpring   -0.1460  -1.3514   1.0091     1806 0.7187
## SeasonSummer    0.6828  -0.5088   1.8715     1806 0.1717
## SeasonWinter   -1.7272  -2.9510  -0.6369     2477 0.0199 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```


Trace of (Intercept)
Density of (Intercept)
Trace of SeasonSpring
Density of SeasonSpring
Trace of SeasonSummer
Density of SeasonSummer
Trace of SeasonWinter
Density of SeasonWinter
2e+05
4e+05
6e+05
8e+05
1e+06


Trace of average.effort
0
100000
200000
2e+05
4e+05
6e+05
8e+05
1e+06
Density of average.effort
0
5
10
15
0
50000
150000
Trace of units
0
2
4
6
8
2e+05
4e+05
6e+05
8e+05
1e+06
Density of units
0
1
2
3
4
0
2
4
6
8


Trace of (Intercept)
Density of (Intercept)
Trace of SeasonSpring
Density of SeasonSpring
Trace of SeasonSummer
Density of SeasonSummer
Trace of SeasonWinter
Density of SeasonWinter
2e+05
4e+05
6e+05
8e+05
1e+06

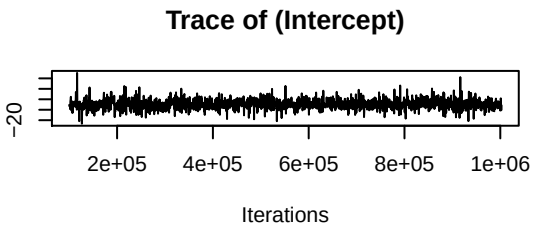


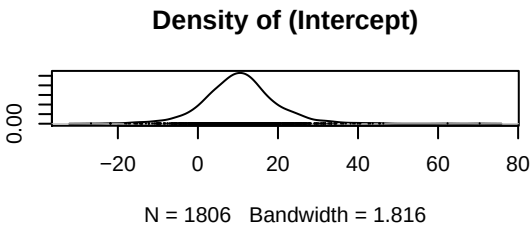
Jumpouts

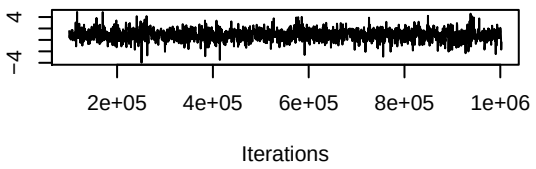
model summary and plots of IG prior and expanded prior respectively

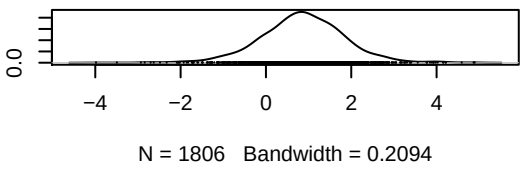
```
##
##  Iterations = 100001:1002501
##  Thinning interval  = 500
##  Sample size  = 1806
##
##  DIC: 134.6026
##
##  G-structure:  ~average.effort
##
##                post.mean  l-95% CI u-95% CI eff.samp
## average.effort     10.51 0.0003061    24.58     1013
##
##  R-structure:  ~units
##
##       post.mean l-95% CI u-95% CI eff.samp
## units     1.863   0.3141    4.654     1666
##
##  Location effects: Total ~ Season + Location2 + seasonal.human
##
##                         post.mean l-95% CI u-95% CI eff.samp pMCMC
## (Intercept)               10.5531  -6.7152  30.2163     1806 0.192
## SeasonSpring               0.8595  -1.1457   2.7482     1949 0.350
```

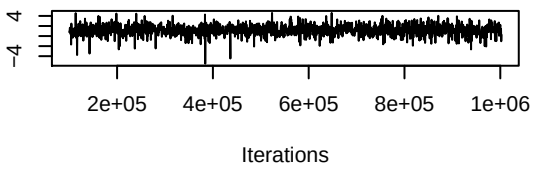
```
## SeasonSummer              1.1801  -1.0357   3.0335     1806 0.198
## SeasonWinter             -0.9726  -3.2744   1.5250     1806 0.361
## Location2Stewart Creek    0.8686  -5.1758   7.8887      911 0.673
## seasonal.human           -3.6849 -14.4402   7.2559     1676 0.437

##
##  Iterations = 100001:1002501
##  Thinning interval  = 500
##  Sample size  = 1806
##
##  DIC: 134.5699
##
##  G-structure:  ~average.effort
##
##                post.mean  l-95% CI u-95% CI eff.samp
## average.effort     32.32 0.0005808    91.31     1214
##
##  R-structure:  ~units
##
##       post.mean l-95% CI u-95% CI eff.samp
## units     1.679   0.2607    4.027     1806
##
##  Location effects: Total ~ Season + Location2 + seasonal.human
##
##                         post.mean l-95% CI u-95% CI eff.samp pMCMC
## (Intercept)              10.5625  -6.1646  28.6186     1806 0.196
## SeasonSpring              0.9223  -0.8784   2.8771     1678 0.282
## SeasonSummer              1.2334  -0.5159   3.0800     1806 0.151
## SeasonWinter             -0.9602  -2.8980   1.4199     1806 0.346
## Location2Stewart Creek    1.0598  -8.1561  11.7821     1806 0.738
## seasonal.human           -3.7763 -14.1166   6.1465     1806 0.404
```

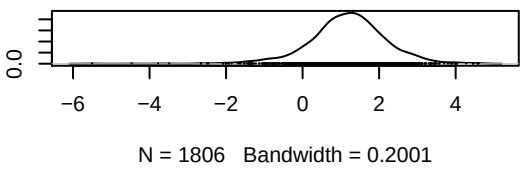

Trace of (Intercept)
−20
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

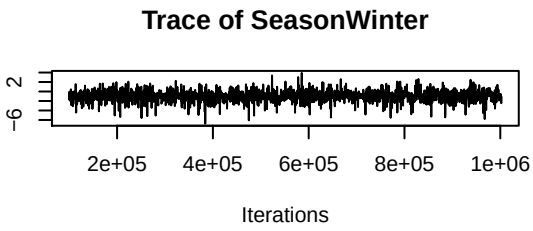

Density of (Intercept)
0.00
−20
0
20
40
60
80
N = 1806 Bandwidth = 1.816

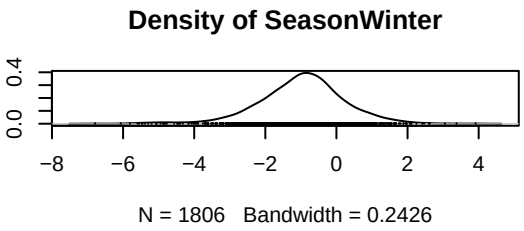

Trace of SeasonSpring
−4
4
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

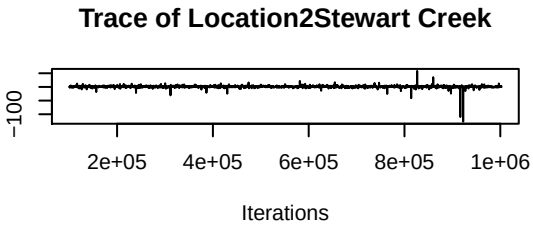

Density of SeasonSpring
0.0
−4
−2
0
2
4
N = 1806 Bandwidth = 0.2094

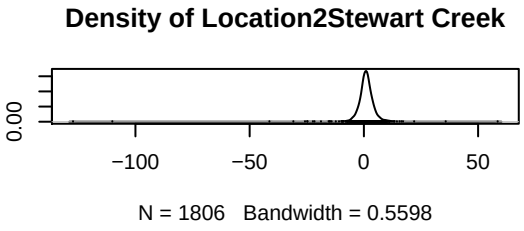

Trace of SeasonSummer
−4
4
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

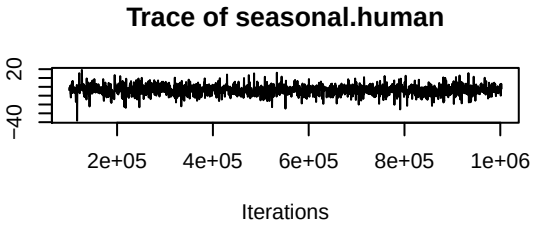

Density of SeasonSummer
0.0
−6
−4
−2
0
2
4
N = 1806 Bandwidth = 0.2001

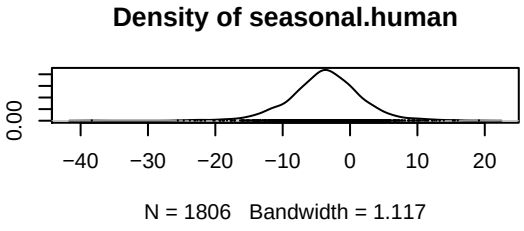

Trace of SeasonWinter
−6
2
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

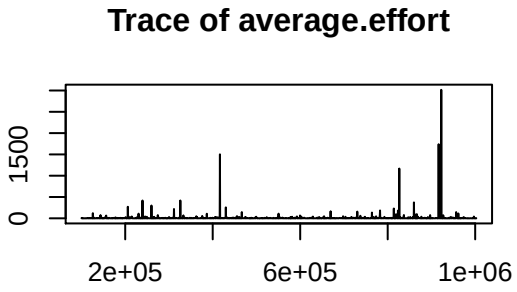

Density of SeasonWinter
0.0
0.4
−8
−6
−4
−2
0
2
4
N = 1806 Bandwidth = 0.2426

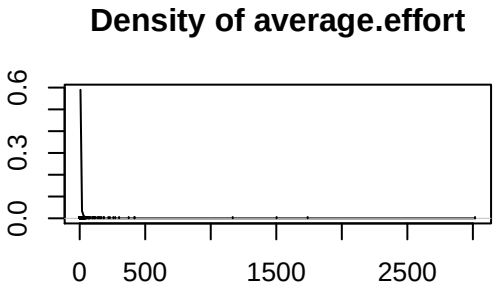

Trace of Location2Stewart Creek
−100
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

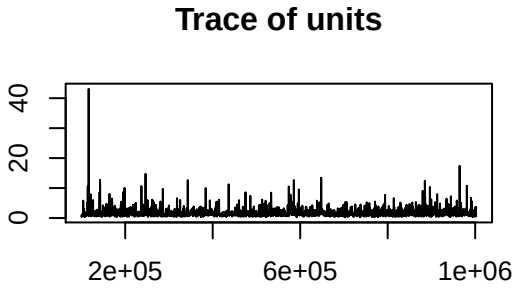

Density of Location2Stewart Creek
0.00
−100
−50
0
50
N = 1806 Bandwidth = 0.5598

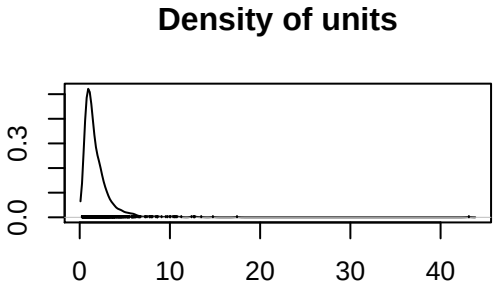

Trace of seasonal.human
−40
20
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

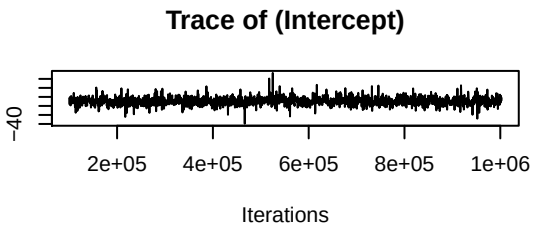

Density of seasonal.human
0.00
−40
−30
−20
−10
0
10
20
N = 1806 Bandwidth = 1.117

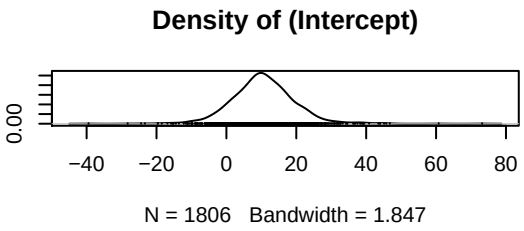

Trace of average.effort
0
1500
2e+05
6e+05
1e+06
Iterations

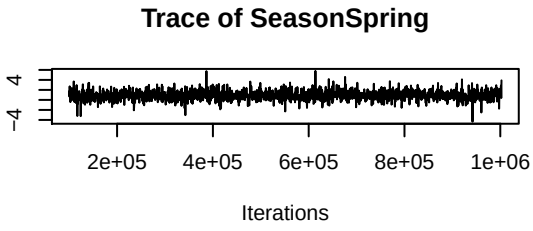

Density of average.effort
0.0
0.3
0.6
0
500
1500
2500
N = 1806 Bandwidth = 0.6082

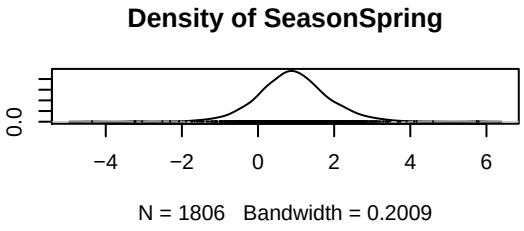

Trace of units
0
20
40
2e+05
6e+05
1e+06
Iterations

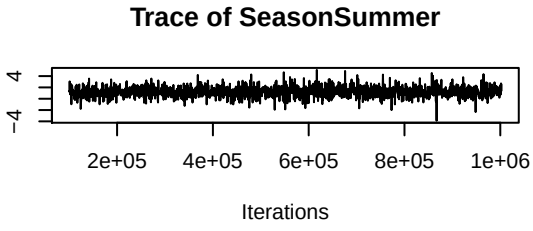

Density of units
0.0
0.3
0
10
20
30
40
N = 1806 Bandwidth = 0.2362

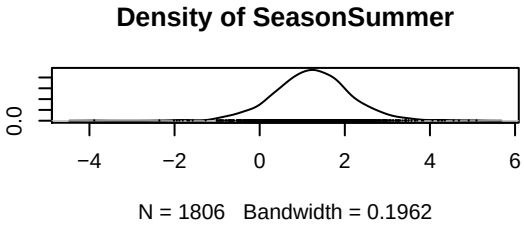

Trace of (Intercept)
−40
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

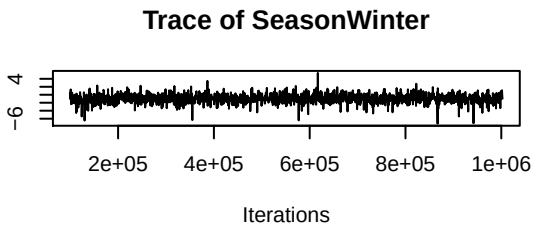

Density of (Intercept)
0.00
−40
−20
0
20
40
60
80
N = 1806 Bandwidth = 1.847

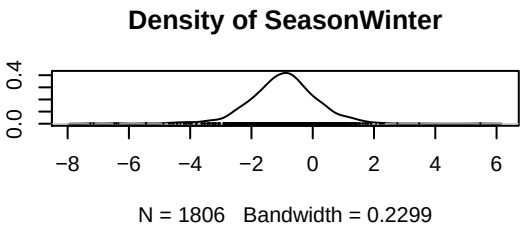

Trace of SeasonSpring
−4
4
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

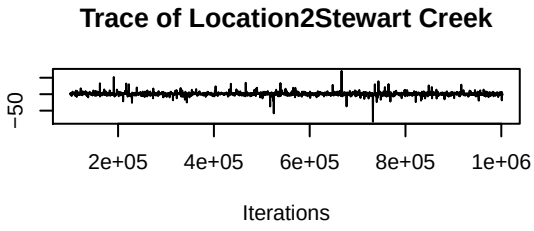

Density of SeasonSpring
0.0
−4
−2
0
2
4
6
N = 1806 Bandwidth = 0.2009

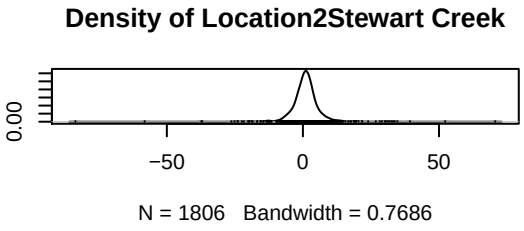

Trace of SeasonSummer
−4
4
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

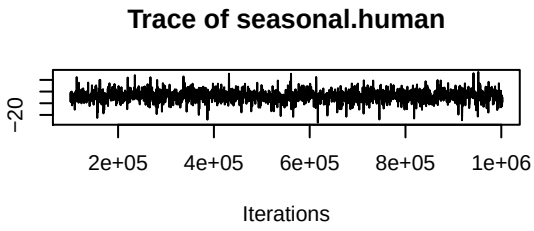

Density of SeasonSummer
0.0
−4
−2
0
2
4
6
N = 1806 Bandwidth = 0.1962

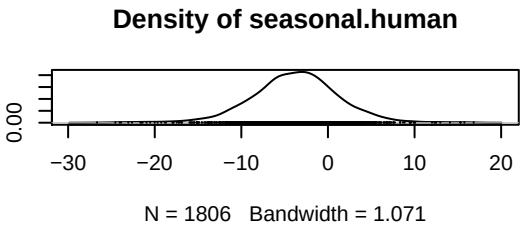

Trace of SeasonWinter
−6
4
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations

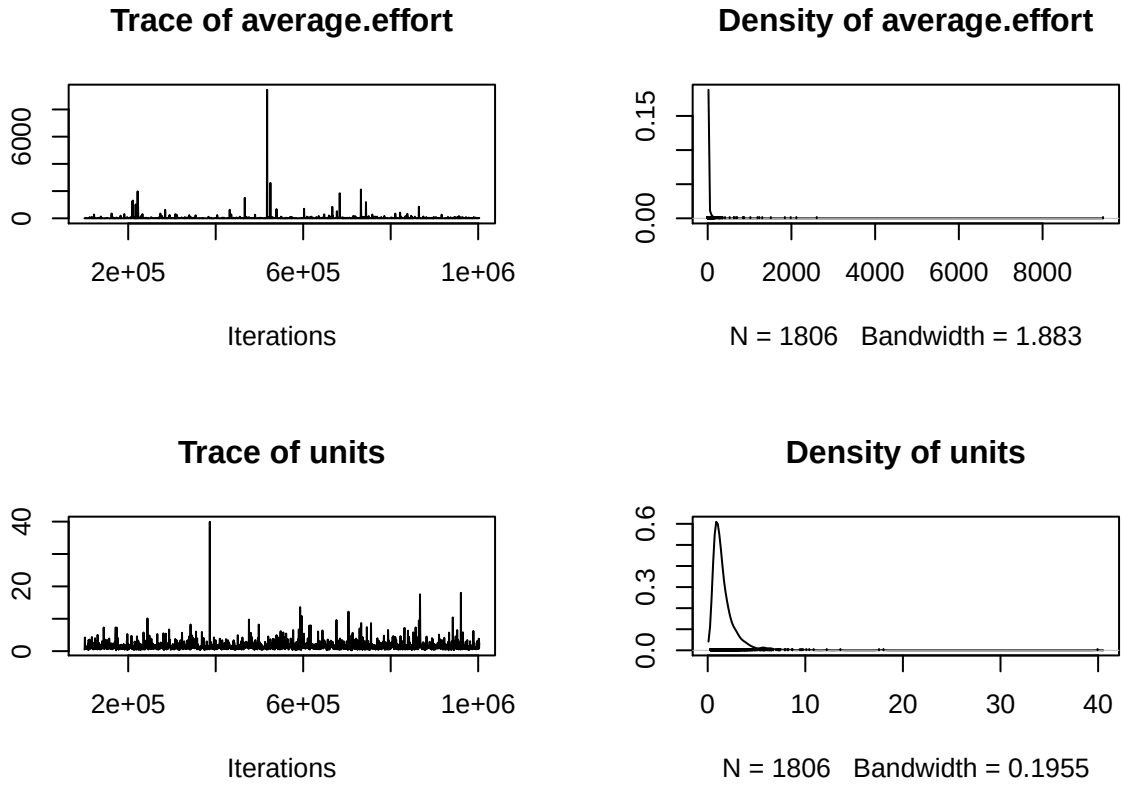

Density of SeasonWinter
0.0
0.4
−8
−6
−4
−2
0
2
4
6
N = 1806 Bandwidth = 0.2299


Trace of Location2Stewart Creek
−50
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations


Density of Location2Stewart Creek
0.00
−50
0
50
N = 1806 Bandwidth = 0.7686


Trace of seasonal.human
−20
2e+05
4e+05
6e+05
8e+05
1e+06
Iterations


Density of seasonal.human
0.00
−30
−20
−10
0
10
20
N = 1806 Bandwidth = 1.071

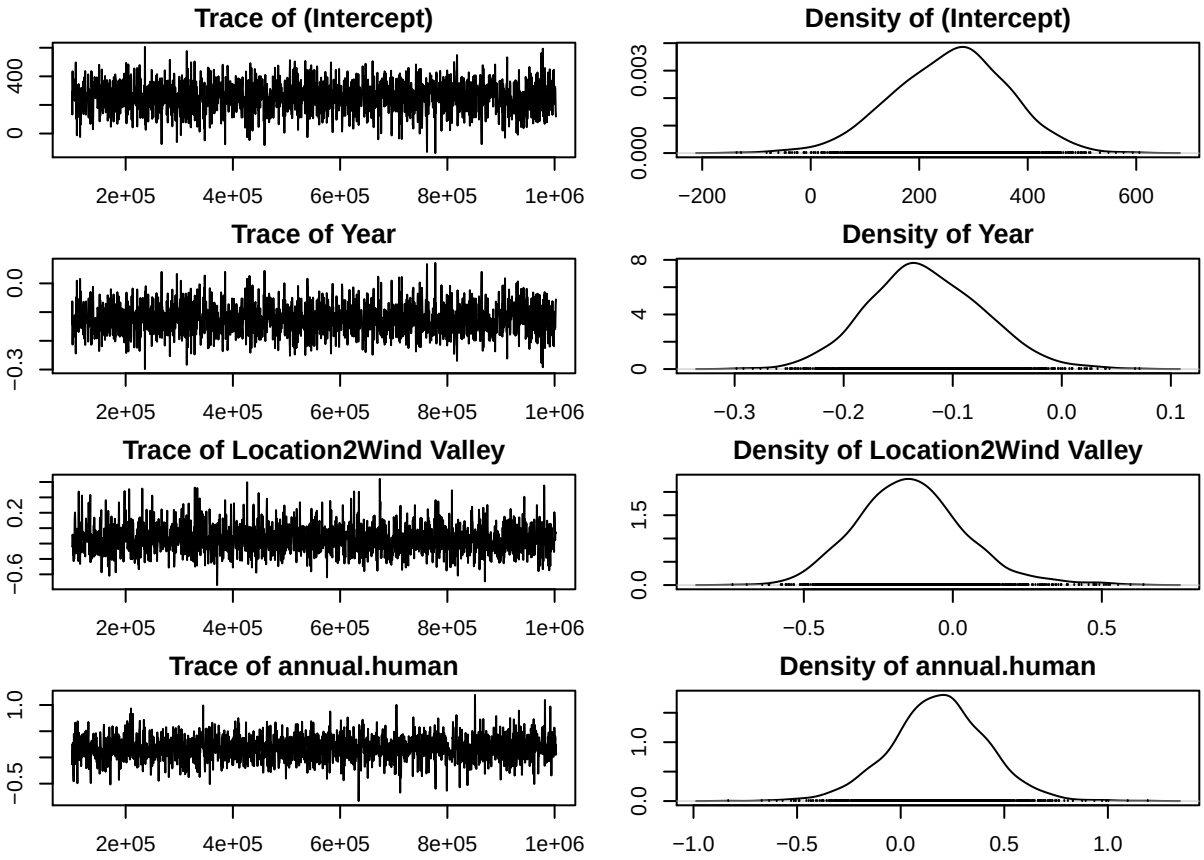


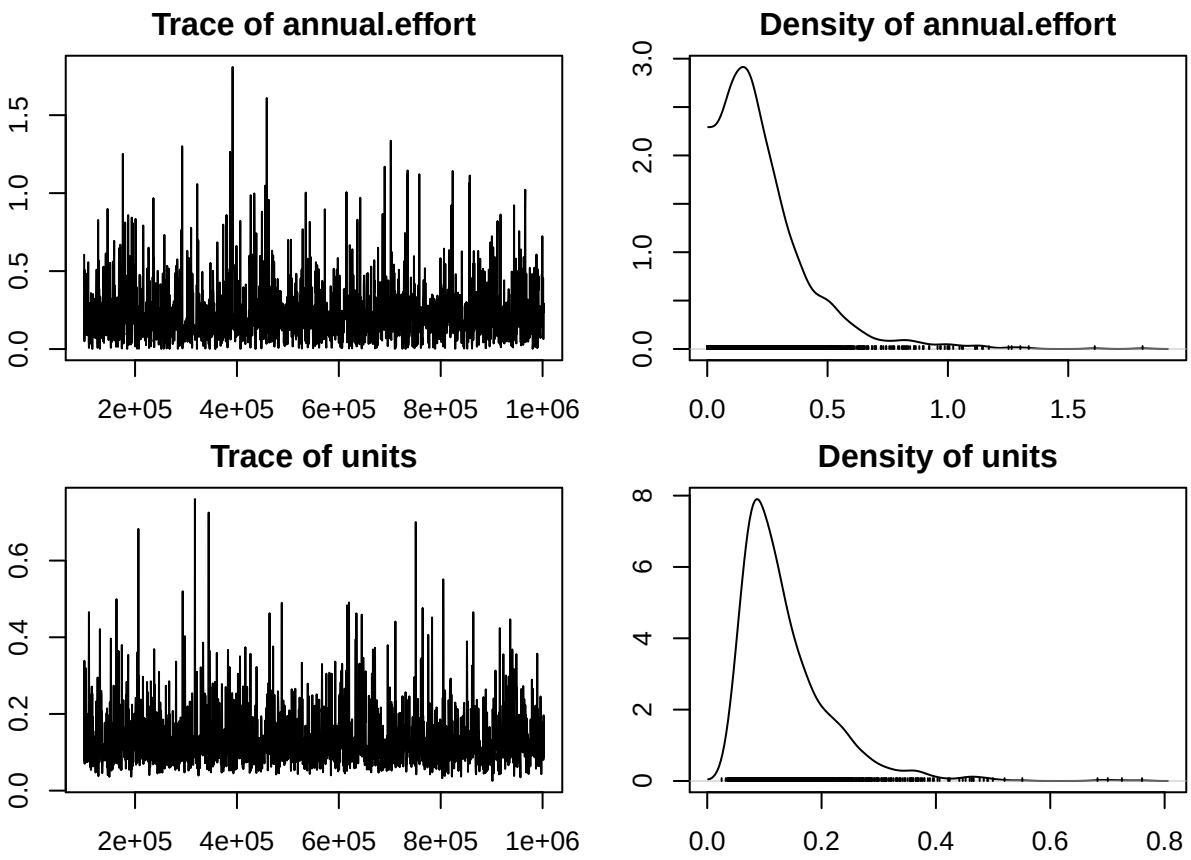
Small annual carnivores ## Underpass

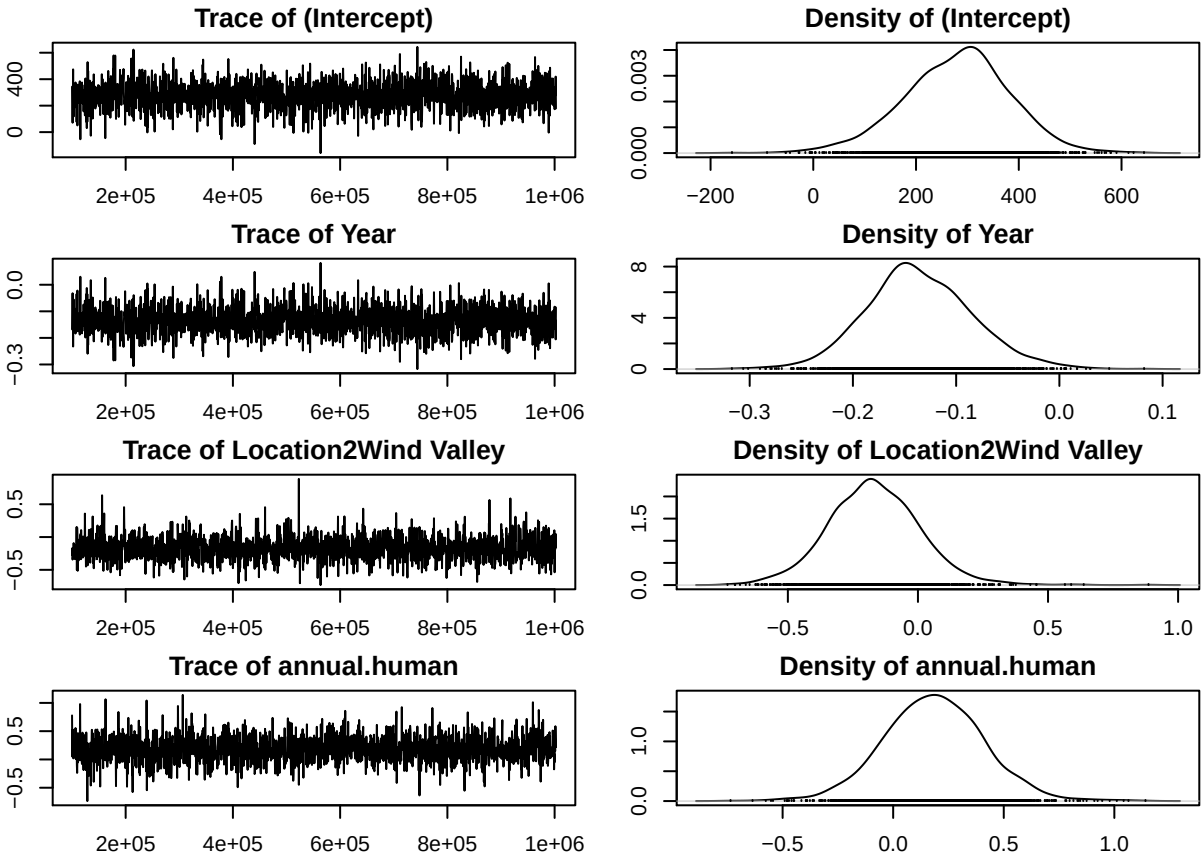
model summary and plots of IG prior and expanded prior respectively

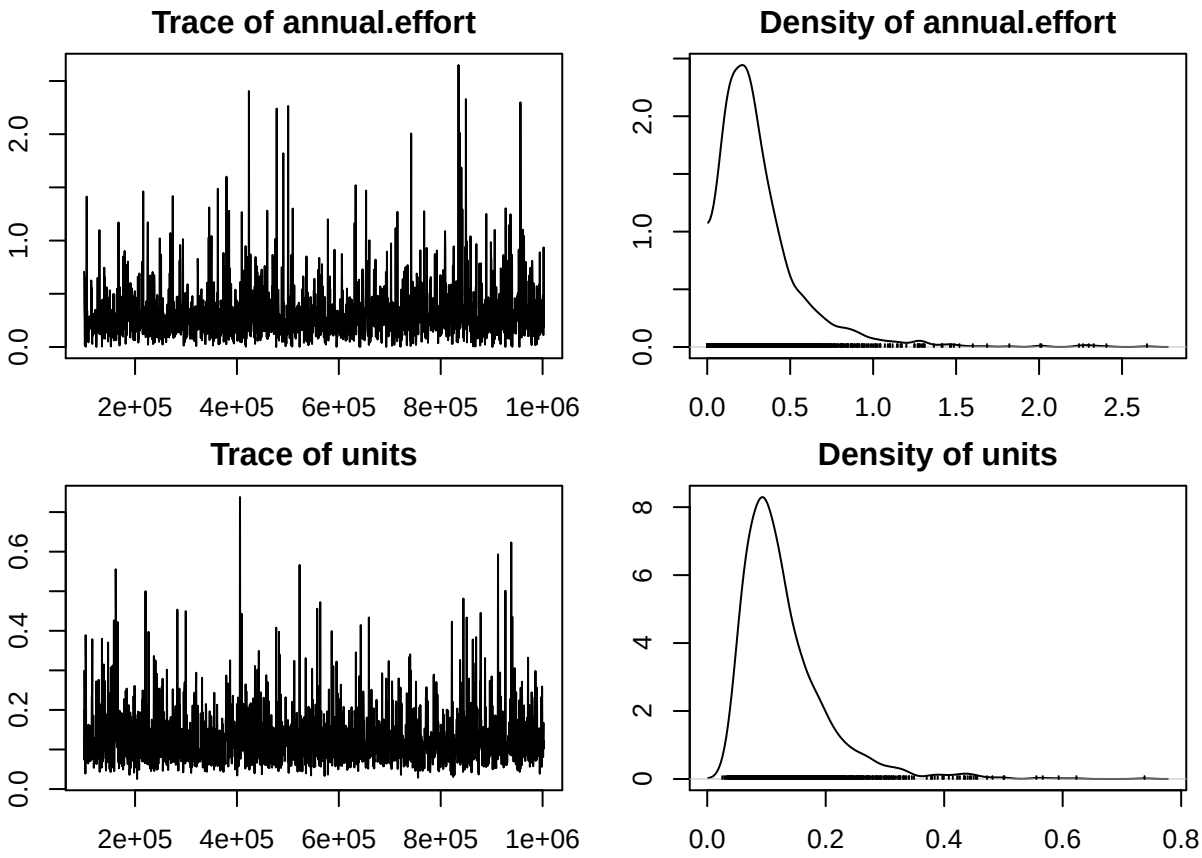
```
##
##  Iterations = 100001:1002501
##  Thinning interval  = 500
##  Sample size  = 1806
##
##  DIC: 241.2368
##
##  G-structure:  ~annual.effort
##
##               post.mean  l-95% CI u-95% CI eff.samp
## annual.effort     0.234 0.0005821   0.5916     1806
##
##  R-structure:  ~units
##
##       post.mean l-95% CI u-95% CI eff.samp
## units    0.1359  0.03638   0.2854     1806
##
##  Location effects: Total ~ Year + Location2 + annual.human
##
##                      post.mean  l-95% CI  u-95% CI eff.samp  pMCMC
## (Intercept)          256.96894  54.93243 461.60693     1574 0.0221 *
## Year                  -0.12452  -0.22622  -0.02372     1574 0.0266 *
```

```
## Location2Wind Valley  -0.14017  -0.51179   0.20959     1806 0.3942
## annual.human           0.18310  -0.28682   0.64157     1806 0.3876
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

##
##  Iterations = 100001:1002501
##  Thinning interval  = 500
##  Sample size  = 1806
##
##  DIC: 241.2678
##
##  G-structure:  ~annual.effort
##
##               post.mean  l-95% CI u-95% CI eff.samp
## annual.effort    0.3166 1.558e-06   0.8138     1514
##
##  R-structure:  ~units
##
##       post.mean l-95% CI u-95% CI eff.samp
## units     0.129  0.03578   0.2714     1806
##
##  Location effects: Total ~ Year + Location2 + annual.human
##
##                      post.mean  l-95% CI  u-95% CI eff.samp  pMCMC
## (Intercept)          279.74592  73.30828 477.70097     1806 0.0144 *
## Year                  -0.13584  -0.23412  -0.03277     1806 0.0177 *
## Location2Wind Valley  -0.16781  -0.51818   0.17836     1889 0.3101
## annual.human           0.18363  -0.26348   0.62318     1806 0.3998
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```


Trace of (Intercept)
Density of (Intercept)
Trace of Year
Density of Year
Trace of Location2Wind Valley
Density of Location2Wind Valley
Trace of annual.human
Density of annual.human
2e+05
4e+05
6e+05
8e+05
1e+06
−200
0
200
400
600
−0.3
−0.2
−0.1
0.0
0.1
−0.5
0.5
−1.0
1.0


Trace of annual.effort
0.0
0.5
1.0
1.5
2e+05
4e+05
6e+05
8e+05
1e+06
Density of annual.effort
0.0
1.0
2.0
3.0
0.0
0.5
1.0
1.5
Trace of units
0.0
0.2
0.4
0.6
2e+05
4e+05
6e+05
8e+05
1e+06
Density of units
0
2
4
6
8
0.0
0.2
0.4
0.6
0.8


Trace of (Intercept)
Density of (Intercept)
Trace of Year
Density of Year
Trace of Location2Wind Valley
Density of Location2Wind Valley
Trace of annual.human
Density of annual.human
2e+05
4e+05
6e+05
8e+05
1e+06
−200
0
200
400
600
−0.3
−0.2
−0.1
0.0
0.1
−0.5
0.0
0.5
1.0

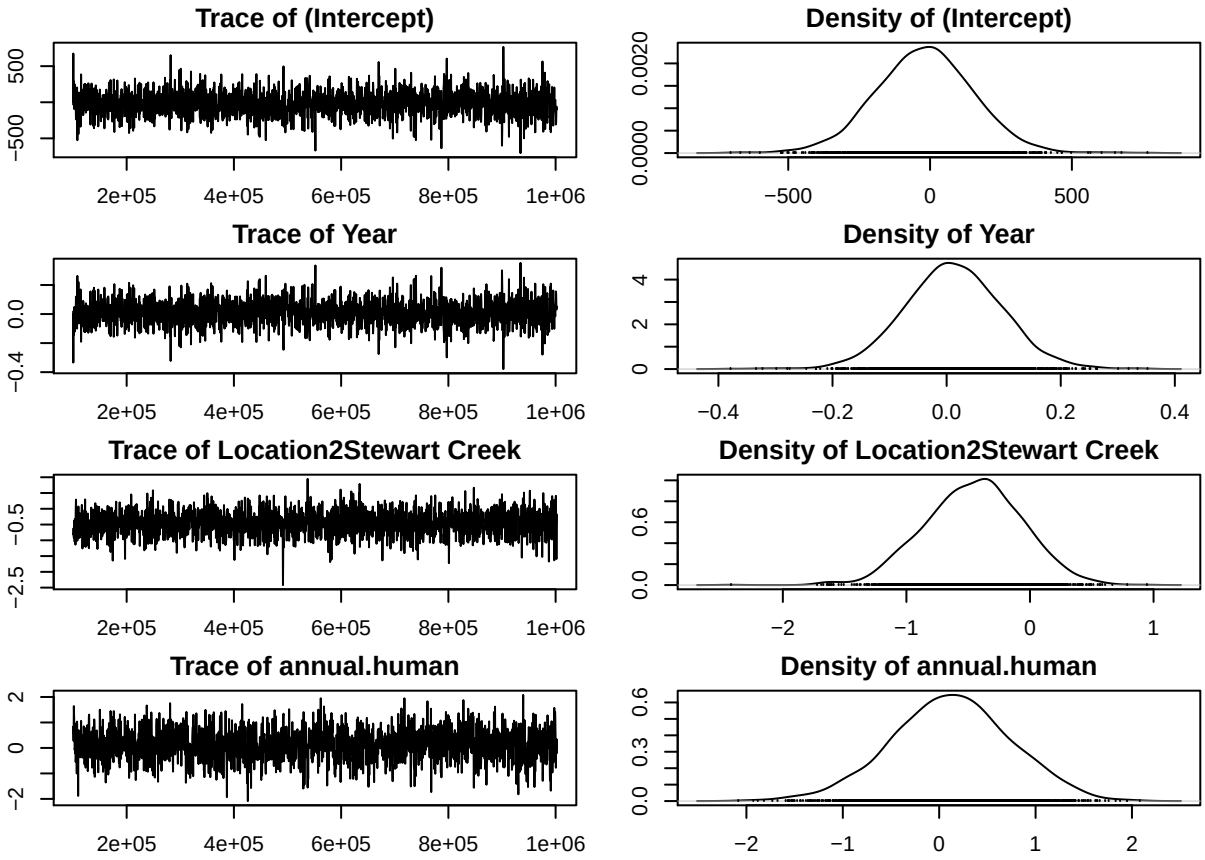


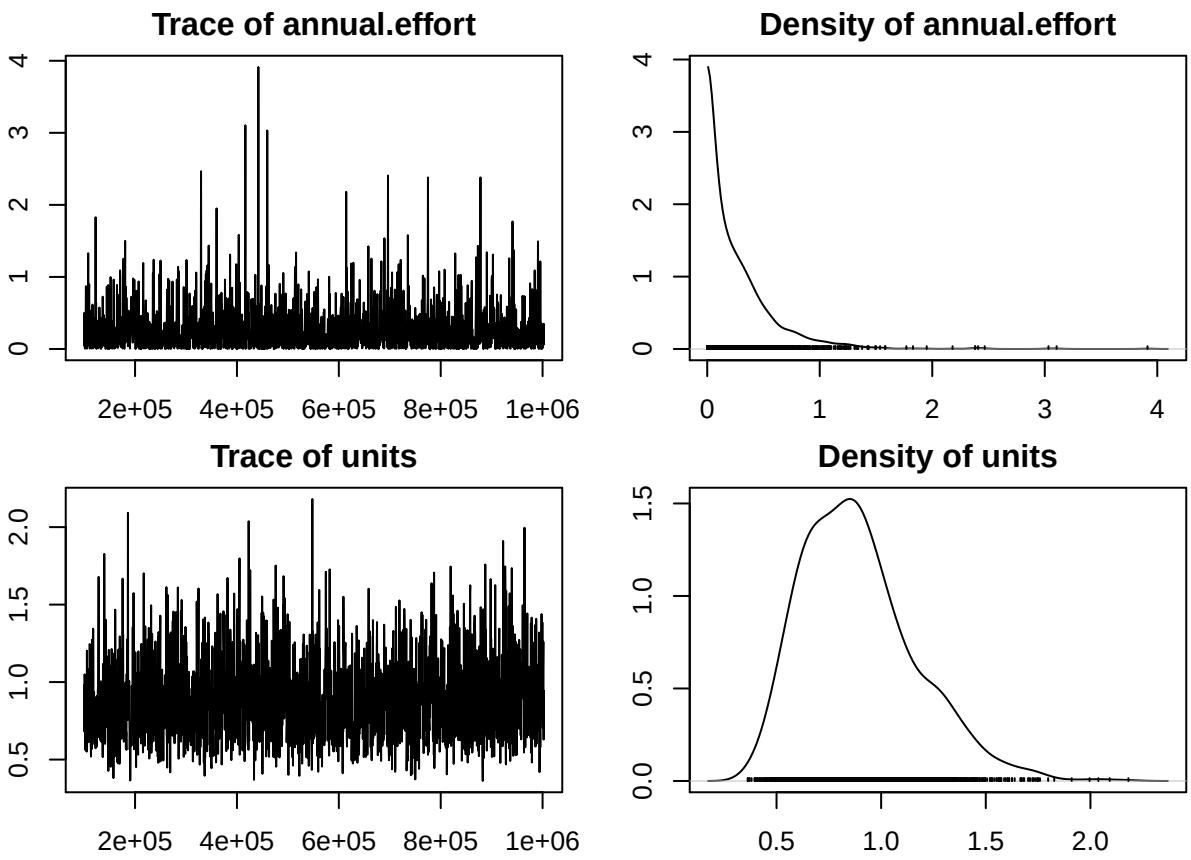
Jumpouts

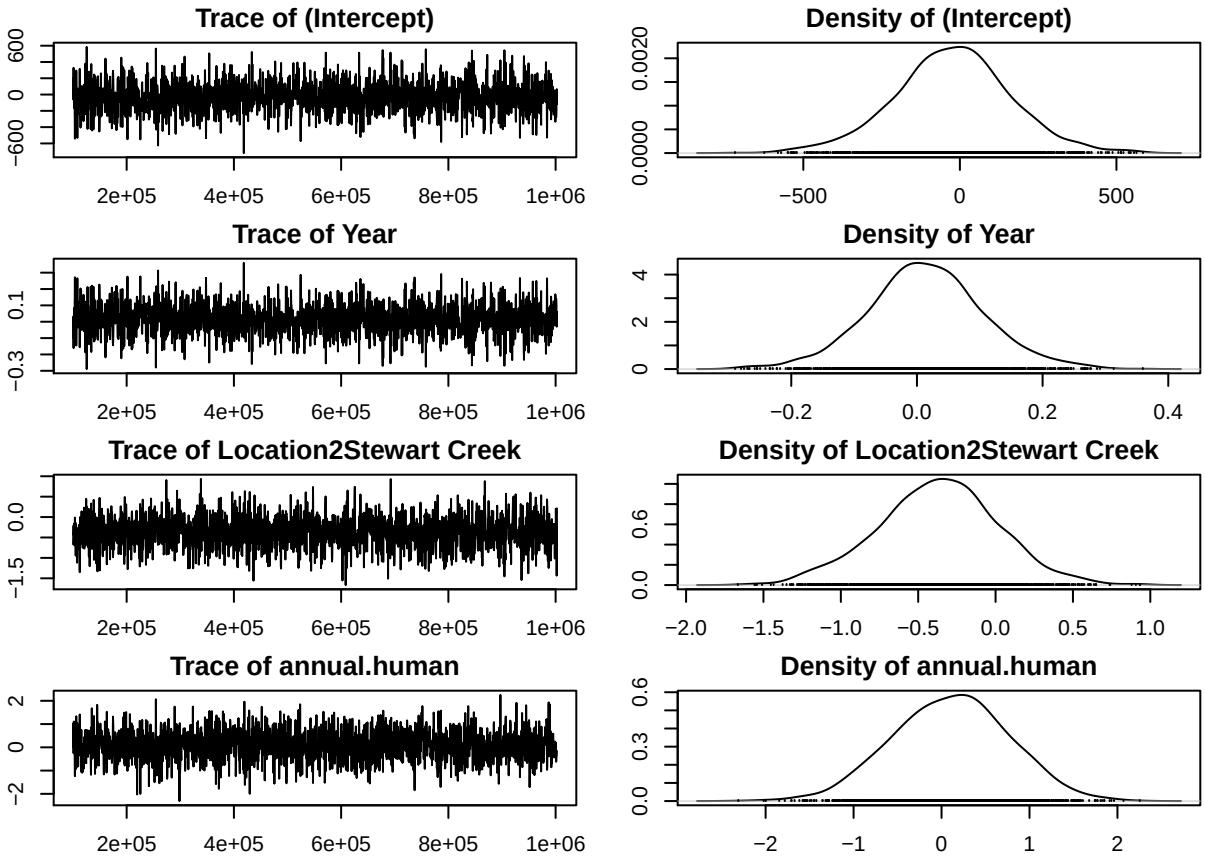
model summary and plots of IG prior and expanded prior respectively

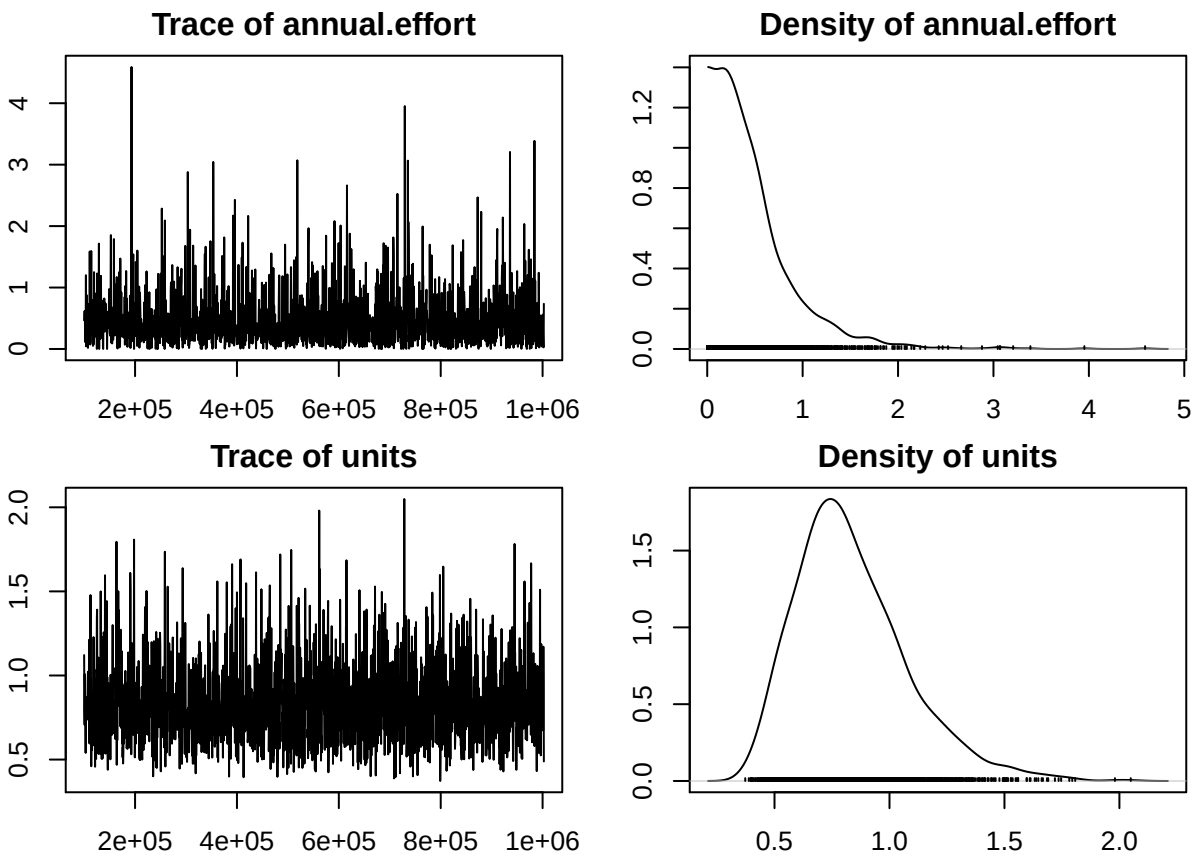
```
##
##  Iterations = 100001:1002501
##  Thinning interval  = 500
##  Sample size  = 1806
##
##  DIC: 323.0645
##
##  G-structure:  ~annual.effort
##
##                post.mean  l-95% CI u-95% CI eff.samp
## annual.effort    0.2822 0.0002336   0.8974     1806
##
##  R-structure:  ~units
##
##       post.mean l-95% CI u-95% CI eff.samp
## units    0.8928   0.4427    1.443     1806
##
##  Location effects: Total ~ Year + Location2 + annual.human
##
##                           post.mean   l-95% CI   u-95% CI eff.samp pMCMC
## (Intercept)             -19.72492 -374.19543  301.40822     1806 0.922
## Year                      0.01172   -0.14829    0.18803     1806 0.897
```

```
## Location2Stewart Creek   -0.45729   -1.21407    0.26305     1806 0.235
## annual.human              0.12152   -1.03478    1.37167     1806 0.842

##
##  Iterations = 100001:1002501
##  Thinning interval  = 500
##  Sample size  = 1806
##
##  DIC: 322.9955
##
##  G-structure:  ~annual.effort
##
##               post.mean  l-95% CI u-95% CI eff.samp
## annual.effort    0.4791 5.058e-08    1.333     1806
##
##  R-structure:  ~units
##
##       post.mean l-95% CI u-95% CI eff.samp
## units     0.836   0.4181    1.318     1806
##
##  Location effects: Total ~ Year + Location2 + annual.human
##
##                          post.mean   l-95% CI   u-95% CI eff.samp pMCMC
## (Intercept)             -23.38105 -379.53105  380.35244     1806 0.897
## Year                      0.01356   -0.18868    0.19091     1806 0.884
## Location2Stewart Creek   -0.37189   -1.21631    0.32180     1806 0.326
## annual.human              0.10335   -1.12742    1.41419     1940 0.863
```


Trace of (Intercept)
Density of (Intercept)
Trace of Year
Density of Year
Trace of Location2Stewart Creek
Density of Location2Stewart Creek
Trace of annual.human
Density of annual.human
2e+05
4e+05
6e+05
8e+05
1e+06


Trace of annual.effort
Density of annual.effort
Trace of units
Density of units
0
1
2
3
4
0.5
1.0
1.5
2.0
0.0
2e+05
4e+05
6e+05
8e+05
1e+06


Trace of (Intercept)
Density of (Intercept)
Trace of Year
Density of Year
Trace of Location2Stewart Creek
Density of Location2Stewart Creek
Trace of annual.human
Density of annual.human


Trace of annual.effort
Density of annual.effort
Trace of units
Density of units
0
1
2
3
4
2e+05
4e+05
6e+05
8e+05
1e+06
0.0
0.4
0.8
1.2
0.5
1.0
1.5
2.0
5