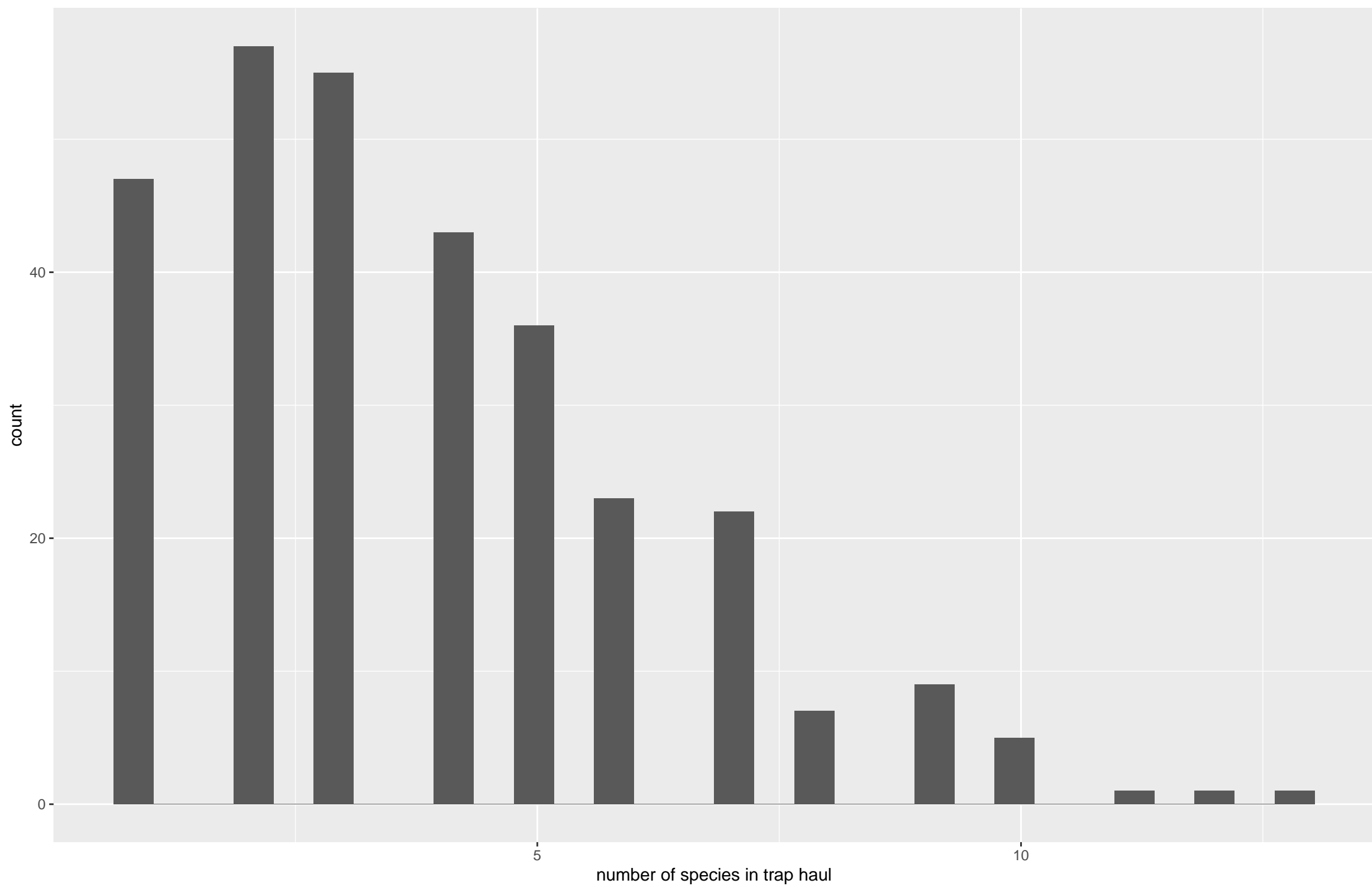
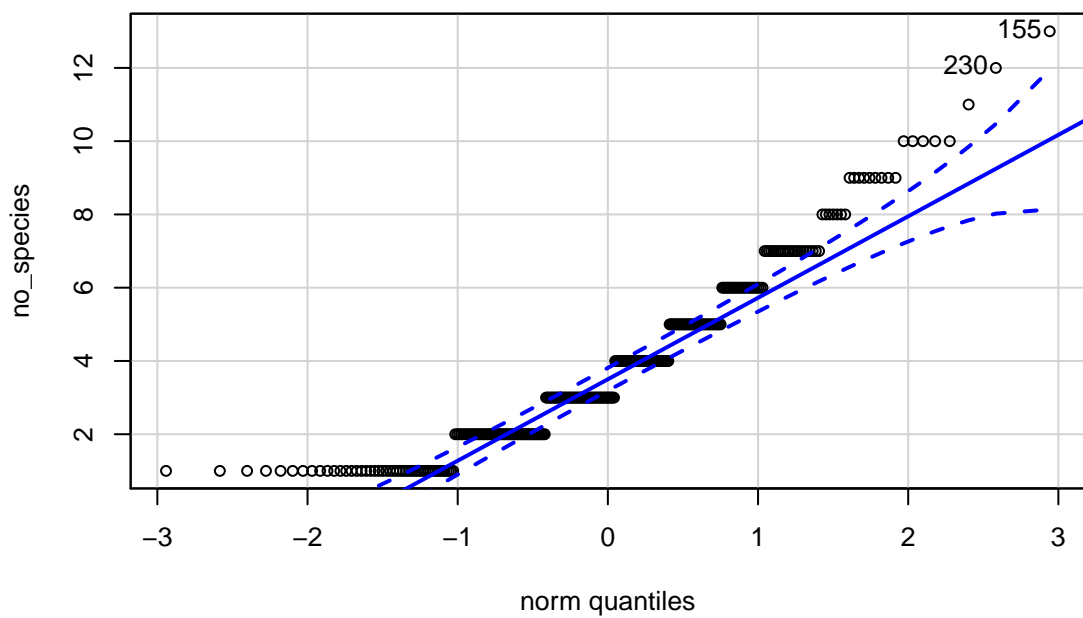


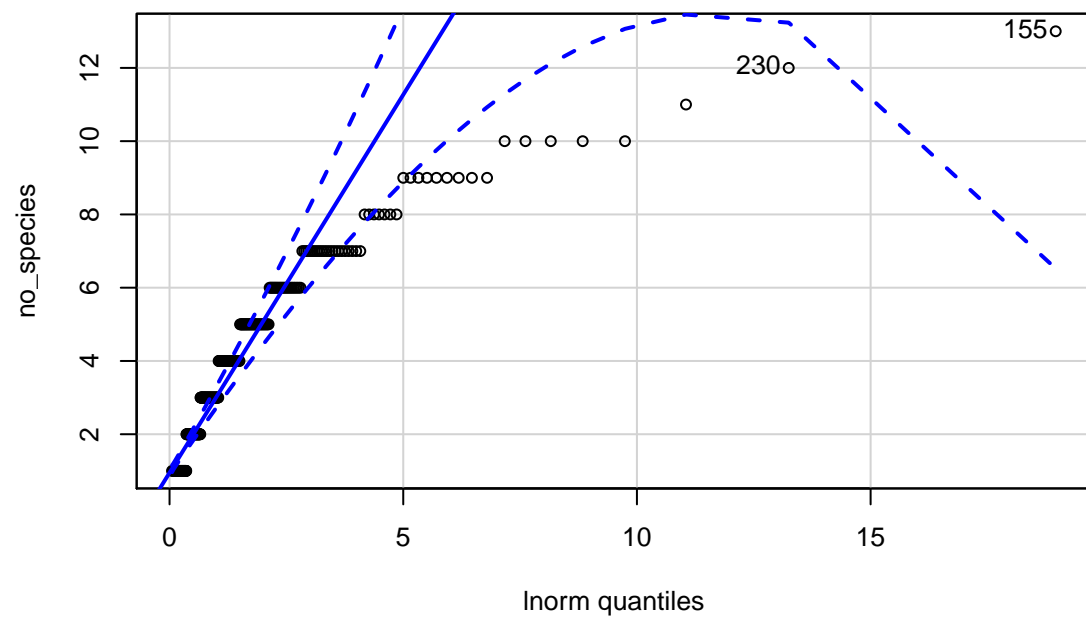
Histogram of number of species



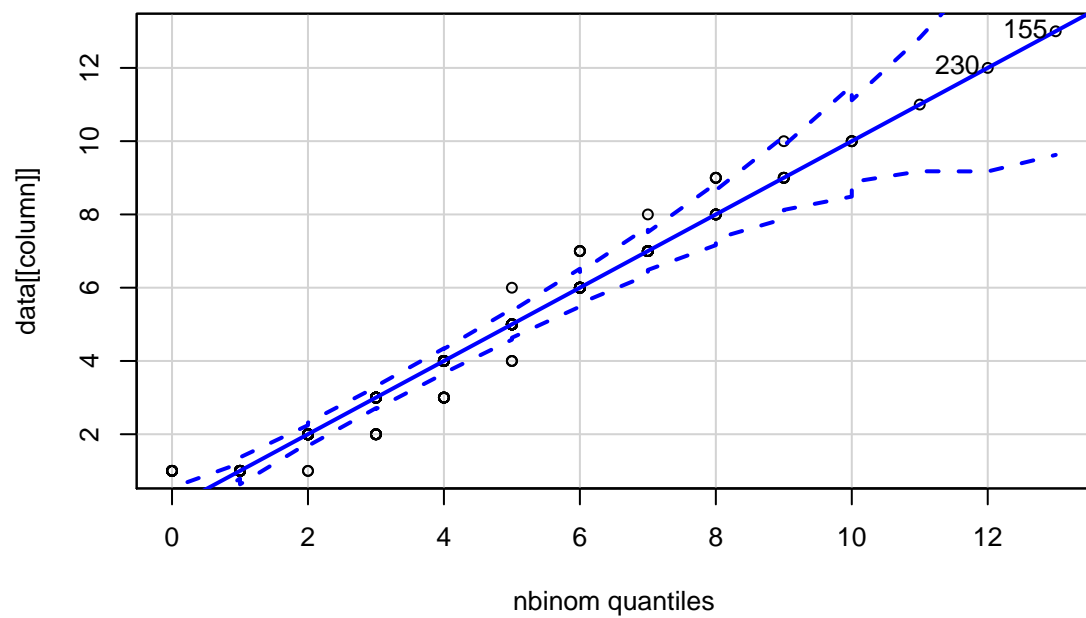
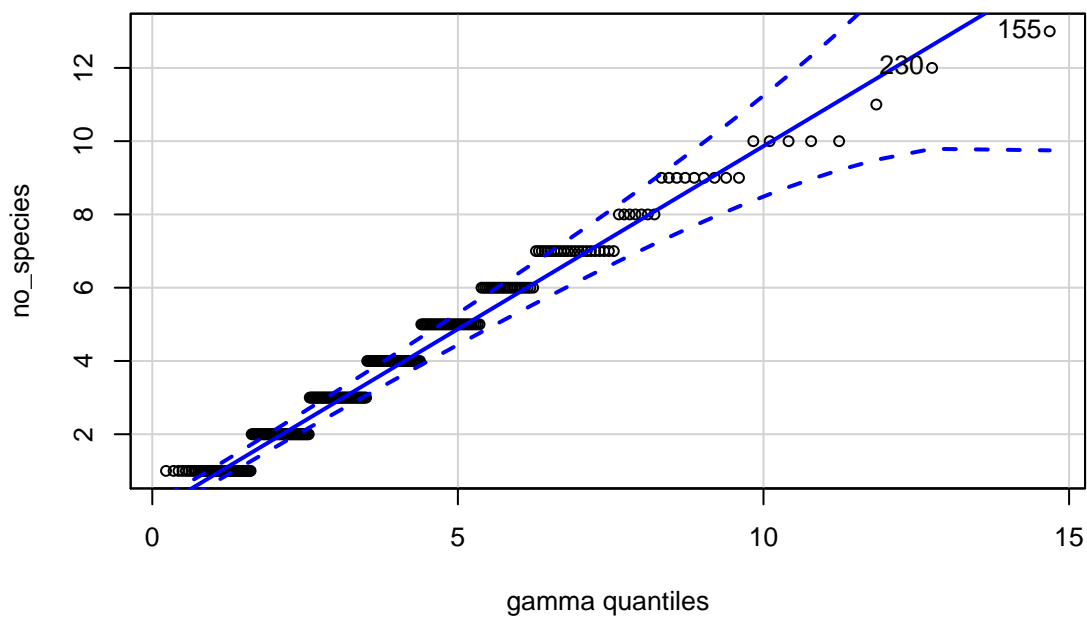
Normal distribution

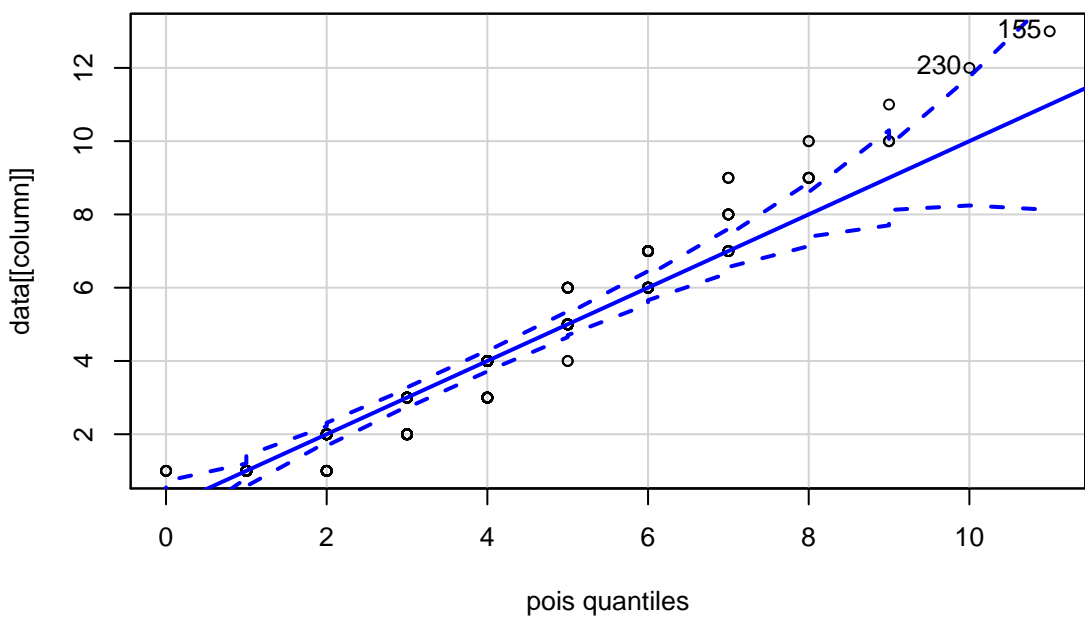


Log-normal distribution



Gamma distribution





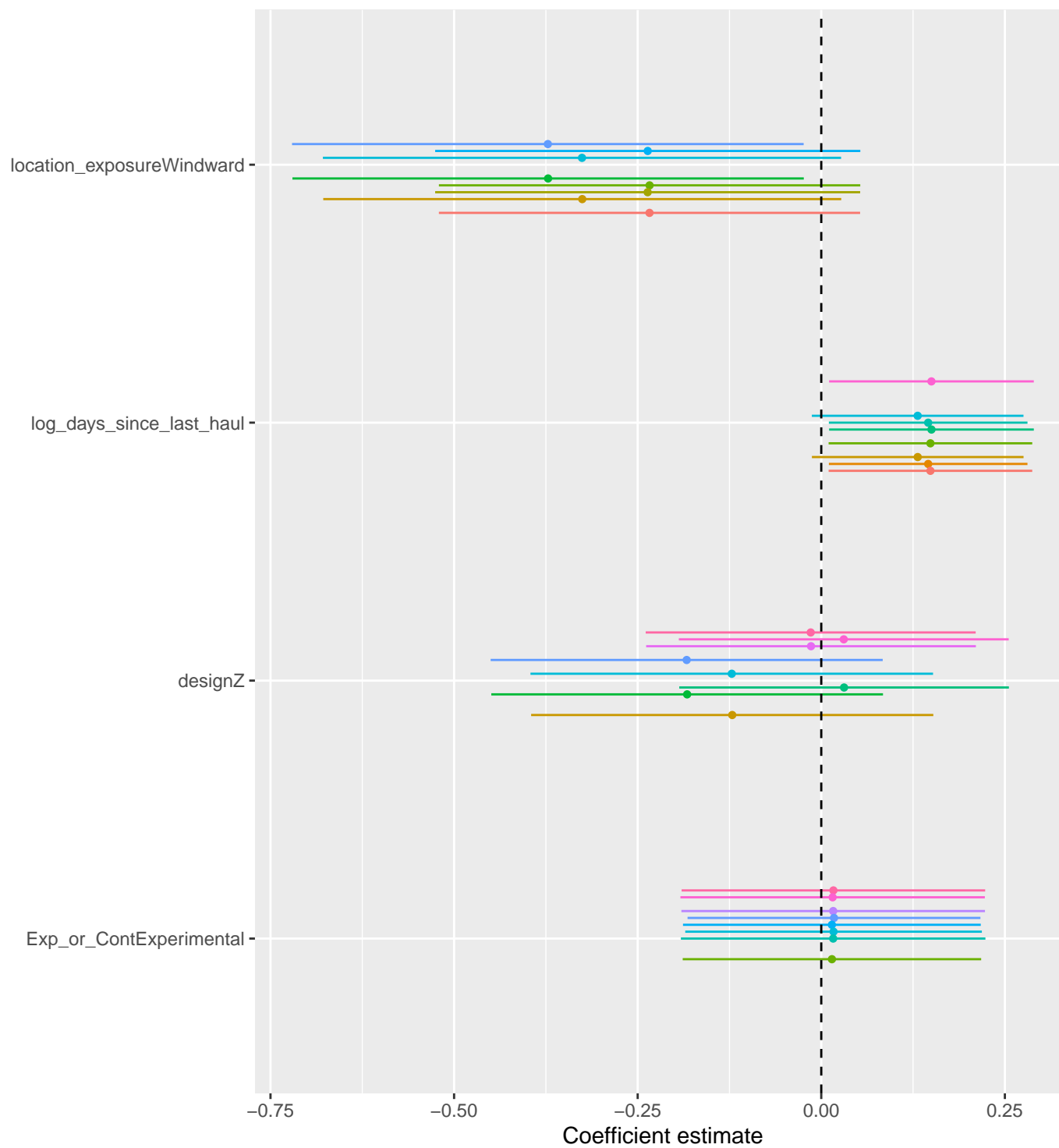
```

Global model call: glmer(formula = no_species ~ design + log_days_since_last_haul +
  location_exposure + Exp_or_Cont + (1 | TrapID) + (1 | Date_YMD),
  data = trap_haul_no_zero, family = negative.binomial(theta = 16.5443613878562),
  control = glmerControl(optimizer = "bobyqa", optCtrl = list(maxfun = 10000)),
  na.action = "na.fail")
---
Model selection table
  (Int) dsg Exp_or_Cont lct_exp log_dys_snc_lst_hal df logLik AICc delta weight
13 1.0570                +          0.1225 6 -663.208 1338.7 0.00 0.198
9 1.0250                +          0.1200 5 -664.501 1339.2 0.51 0.154
14 1.1850 +              +          0.1082 7 -662.834 1340.0 1.35 0.101
5 1.3350                +          5 -665.164 1340.5 1.83 0.079
15 1.0490              + +          0.1225 7 -663.198 1340.8 2.07 0.070
6 1.4810 +              +          6 -664.285 1340.8 2.15 0.067
1 1.2980                +          4 -666.461 1341.1 2.36 0.061
10 0.9964 +              0.1237 6 -664.464 1341.2 2.51 0.056
11 1.0170              +          0.1200 6 -664.489 1341.3 2.56 0.055
16 1.1760 +              + +          0.1082 8 -662.821 1342.1 3.43 0.036
7 1.3270              + +          6 -665.154 1342.6 3.89 0.028
8 1.4720 +              + +          7 -664.270 1342.9 4.22 0.024
3 1.2900              +          5 -666.449 1343.1 4.40 0.022
2 1.3080 +              5 -666.453 1343.1 4.41 0.022
12 0.9885 +              0.1236 7 -664.454 1343.3 4.59 0.020
4 1.2990 +              +          6 -666.441 1345.2 6.47 0.008
Models ranked by AICc(x)
Random terms (all models):
...1 | TrapID..., ...1 | Date_YMD...

```

model	sigma	logLik	AIC	BIC	deviance	df.residual
location_exposure + log_days_since_last_haul	1.00	-663.21	1338.42	1360.78	280.12	301.00
log_days_since_last_haul	1.00	-664.50	1339.00	1357.64	282.98	302.00
design + location_exposure + log_days_since_last_haul	1.00	-662.83	1339.67	1365.76	279.99	300.00
location_exposure	1.00	-665.16	1340.33	1358.96	276.08	302.00
Exp_or_Cont + location_exposure + log_days_since_last_haul	1.00	-663.20	1340.40	1366.48	280.06	300.00
design + location_exposure	1.00	-664.28	1340.57	1362.93	277.41	301.00
none	1.00	-666.46	1340.92	1355.83	278.34	303.00
design + log_days_since_last_haul	1.00	-664.46	1340.93	1363.29	282.76	301.00
Exp_or_Cont + log_days_since_last_haul	1.00	-664.49	1340.98	1363.34	282.92	301.00
design + Exp_or_Cont + location_exposure + log_days_since_last_haul	1.00	-662.82	1341.64	1371.46	279.91	299.00
Exp_or_Cont + location_exposure	1.00	-665.15	1342.31	1364.67	276.02	301.00
design + Exp_or_Cont + location_exposure	1.00	-664.27	1342.54	1368.63	277.33	300.00
Exp_or_Cont	1.00	-666.45	1342.90	1361.53	278.28	302.00
design	1.00	-666.45	1342.91	1361.54	278.53	302.00
design + Exp_or_Cont + log_days_since_last_haul	1.00	-664.45	1342.91	1369.00	282.70	300.00
design + Exp_or_Cont	1.00	-666.44	1344.88	1367.24	278.48	301.00

Predicting number of species in trap haul



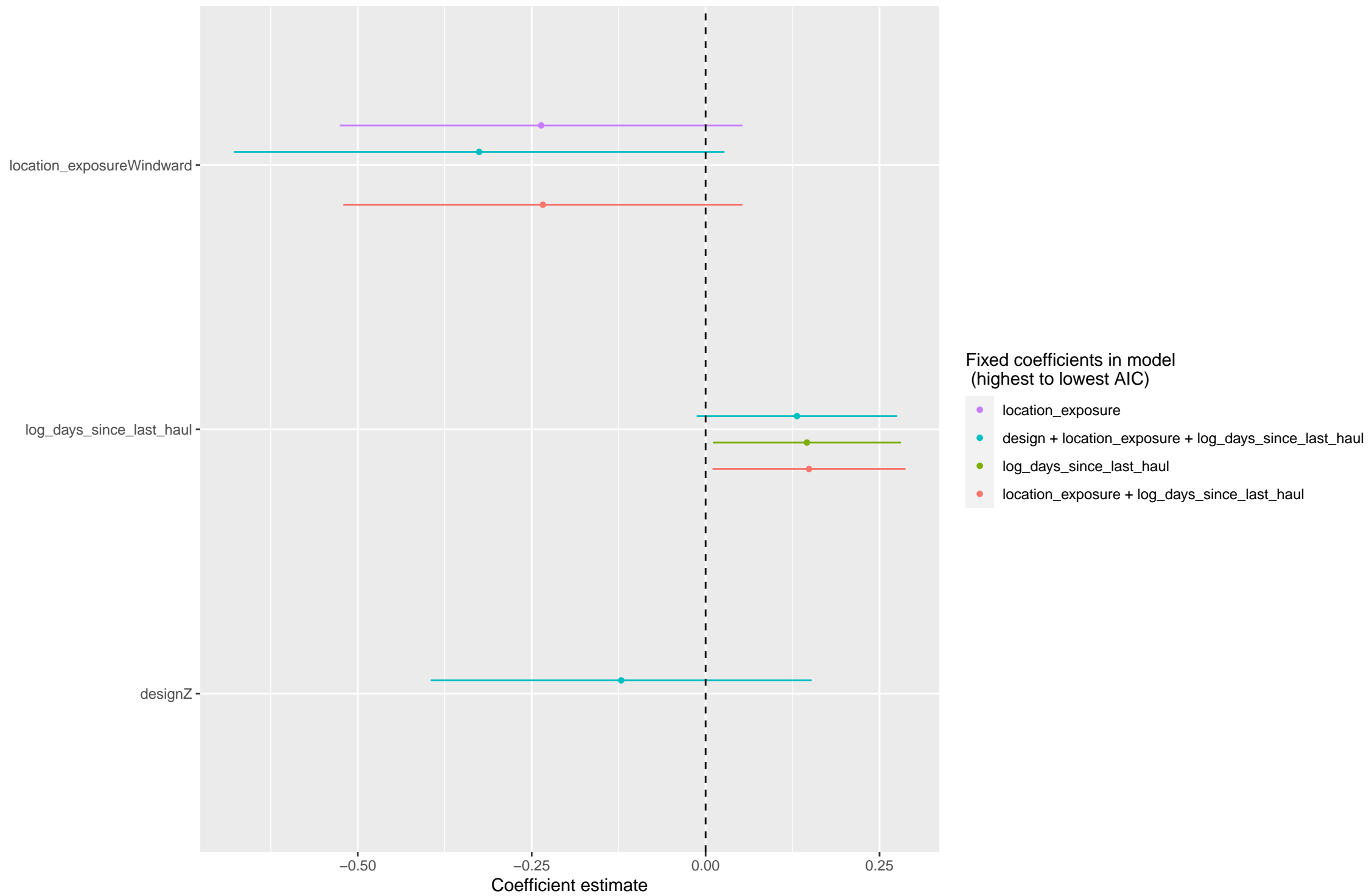
Fixed coefficients in model (highest to lowest AIC)

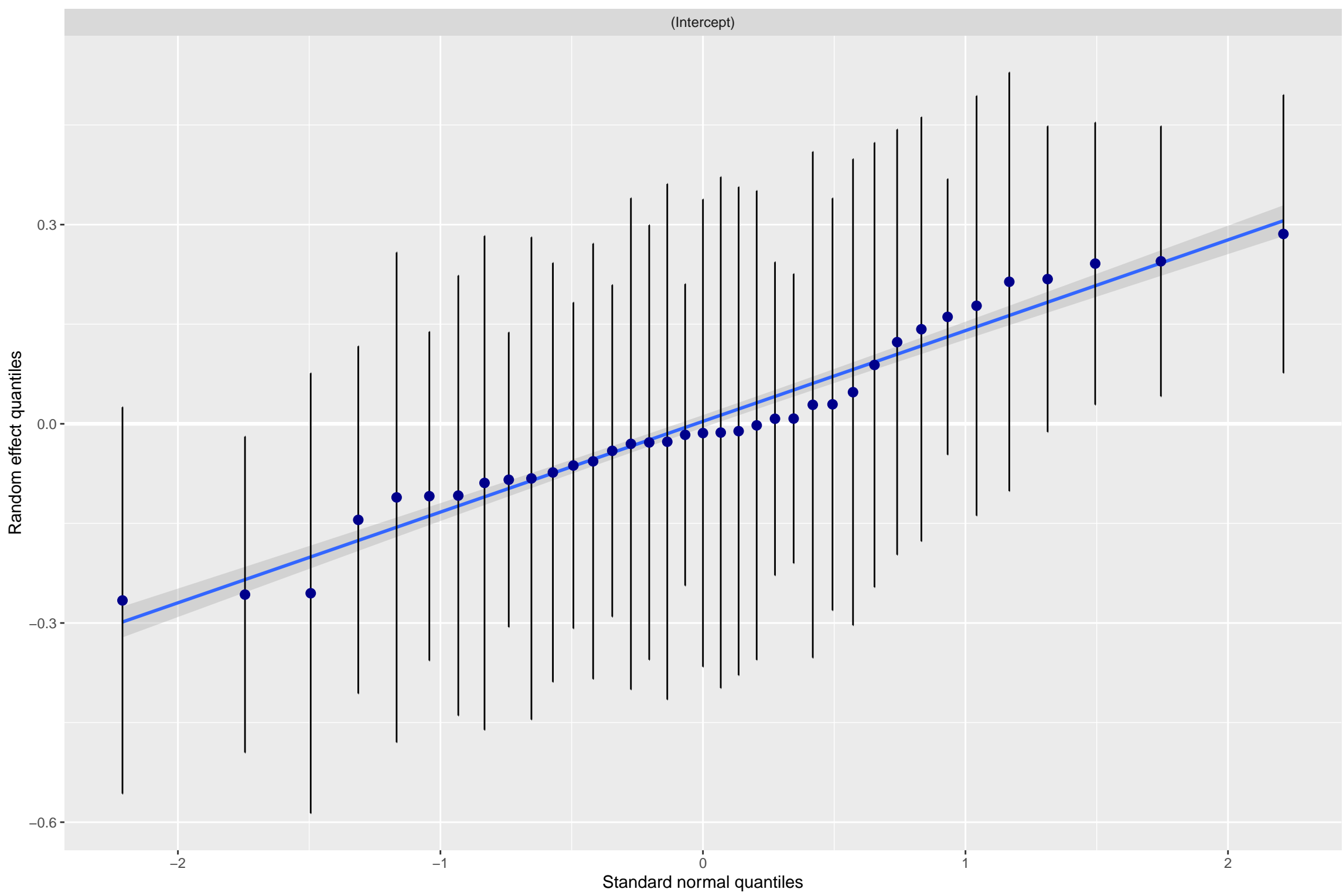
- design + Exp_or_Cont
- design + Exp_or_Cont + log_days_since_last_haul
- design
- Exp_or_Cont
- design + Exp_or_Cont + location_exposure
- Exp_or_Cont + location_exposure
- design + Exp_or_Cont + location_exposure + log_days_since_last_haul
- Exp_or_Cont + log_days_since_last_haul
- design + log_days_since_last_haul
- design + location_exposure
- Exp_or_Cont + location_exposure + log_days_since_last_haul
- location_exposure
- design + location_exposure + log_days_since_last_haul
- log_days_since_last_haul
- location_exposure + log_days_since_last_haul

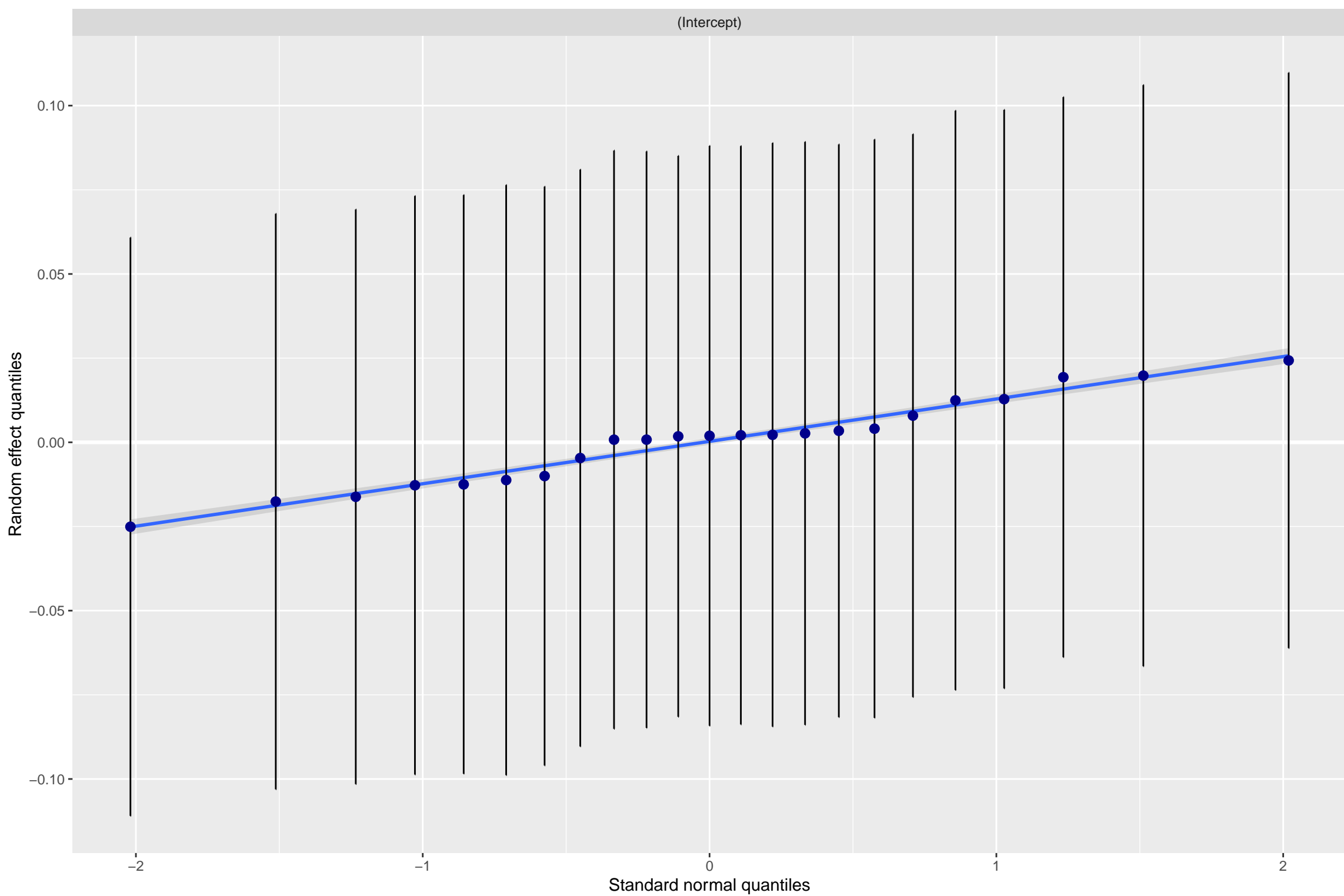
Models with delta AIC <2

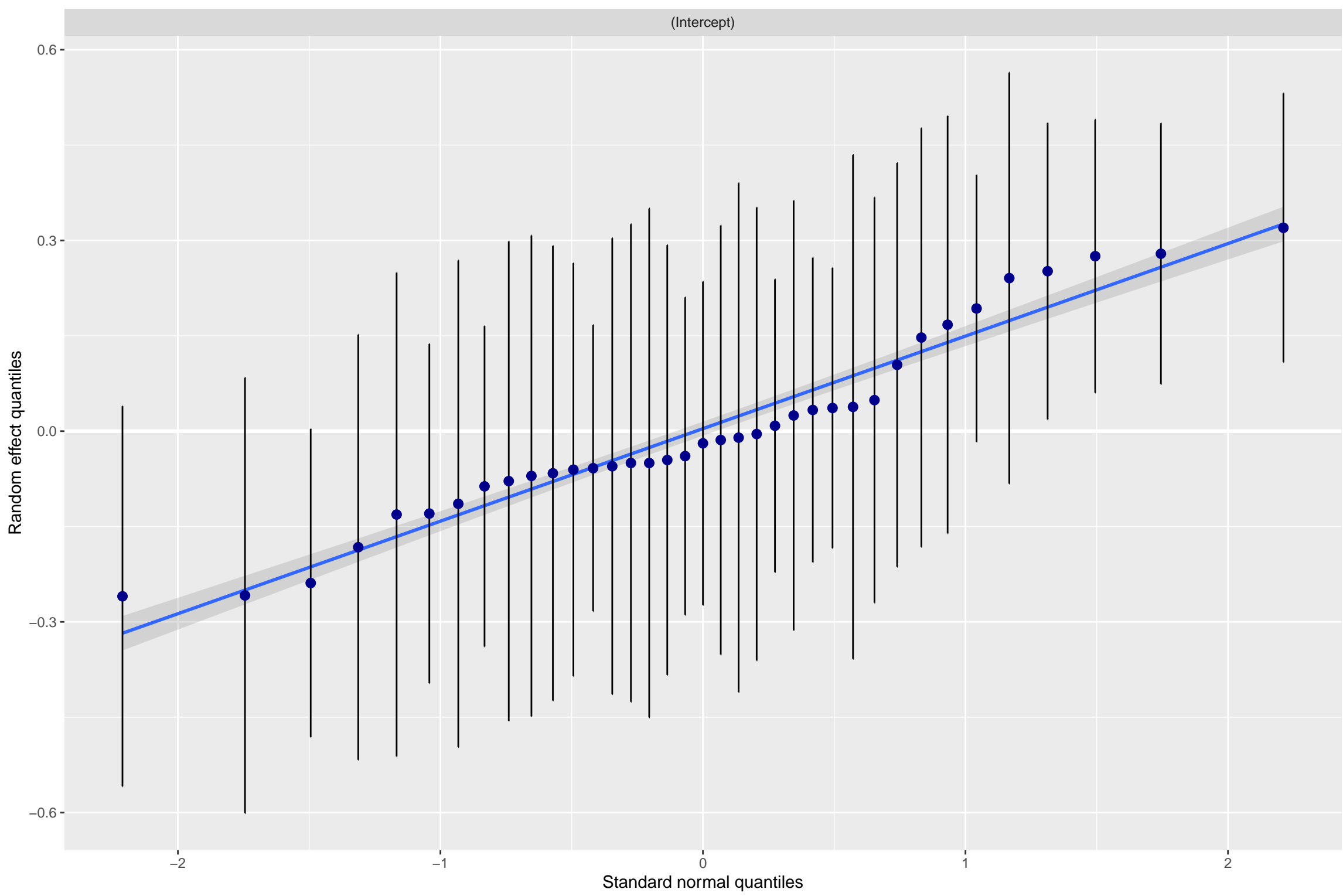
model	sigma	logLik	AIC	BIC	deviance	df.residual
location_exposure + log_days_since_last_haul	1.00	-663.21	1338.42	1360.78	280.12	301.00
log_days_since_last_haul	1.00	-664.50	1339.00	1357.64	282.98	302.00
design + location_exposure + log_days_since_last_haul	1.00	-662.83	1339.67	1365.76	279.99	300.00
location_exposure	1.00	-665.16	1340.33	1358.96	276.08	302.00

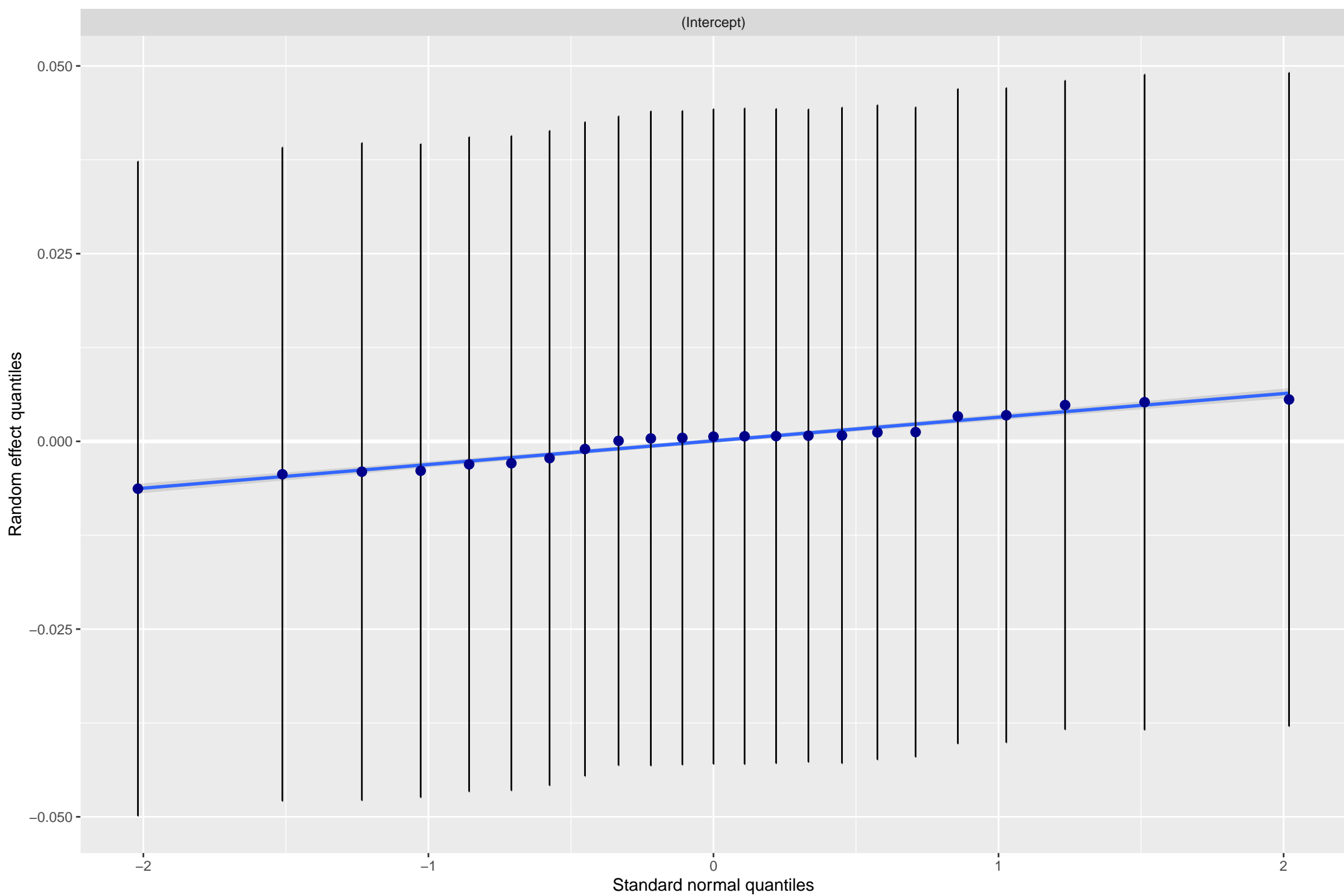
Predicting number of species in trap haul

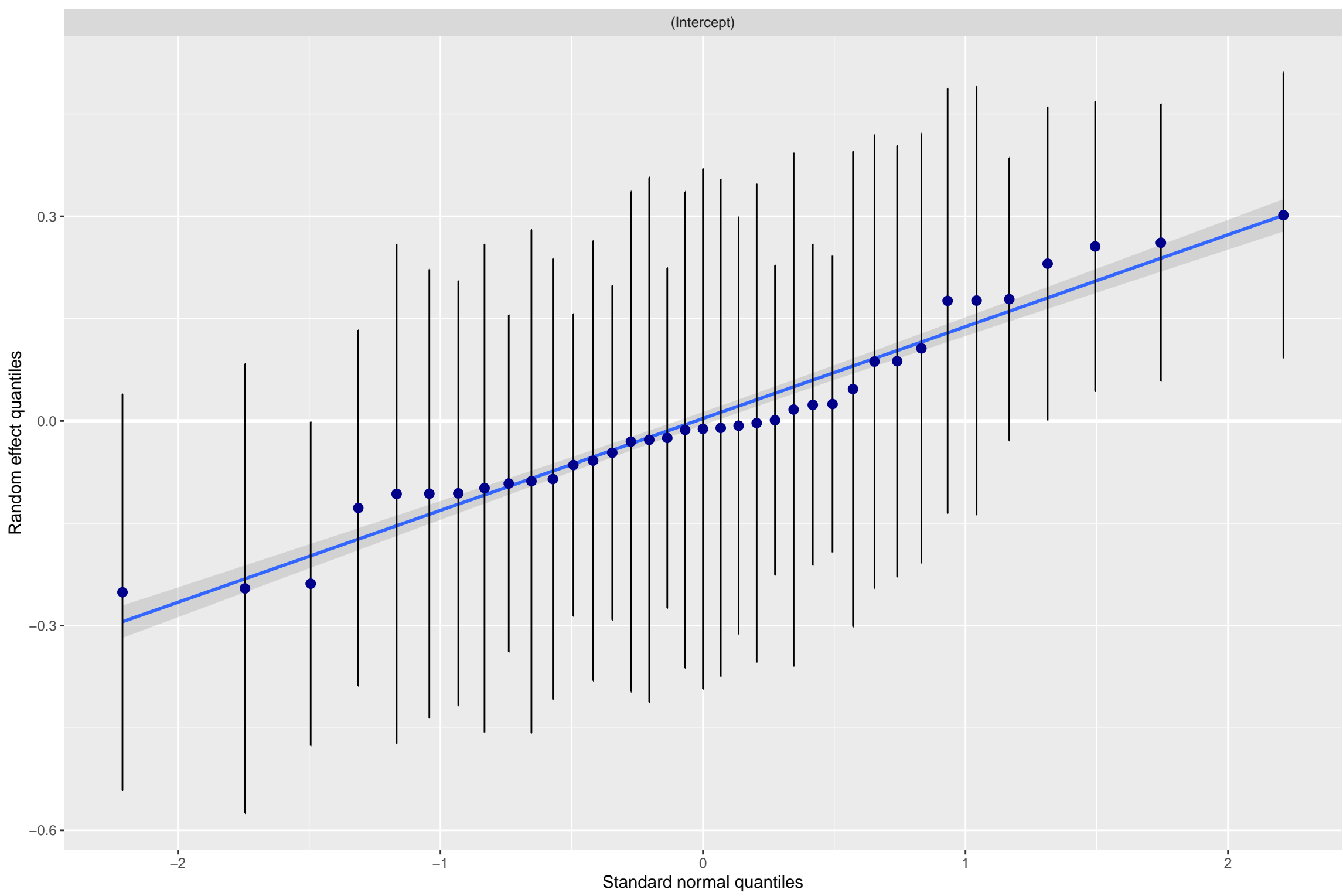


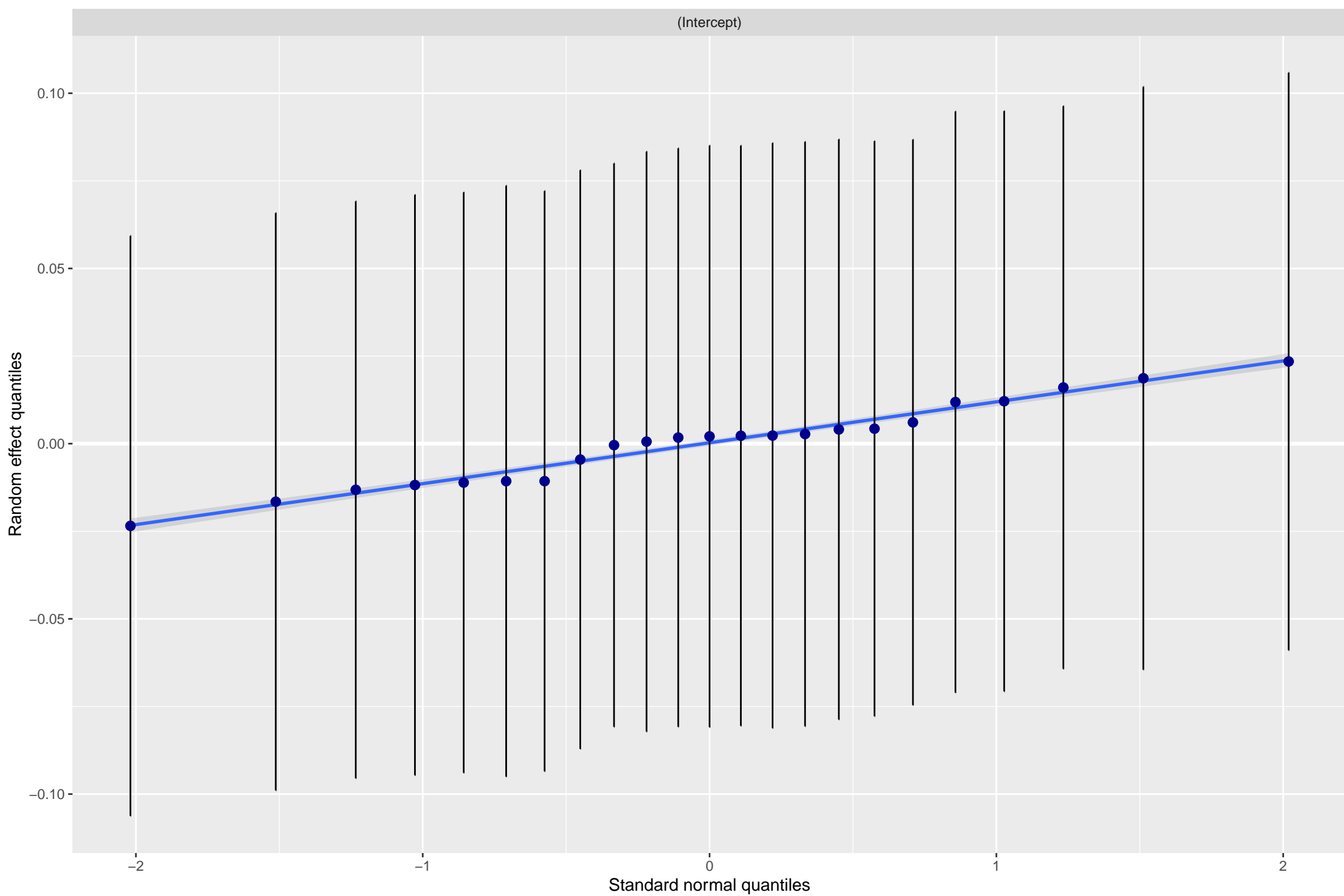






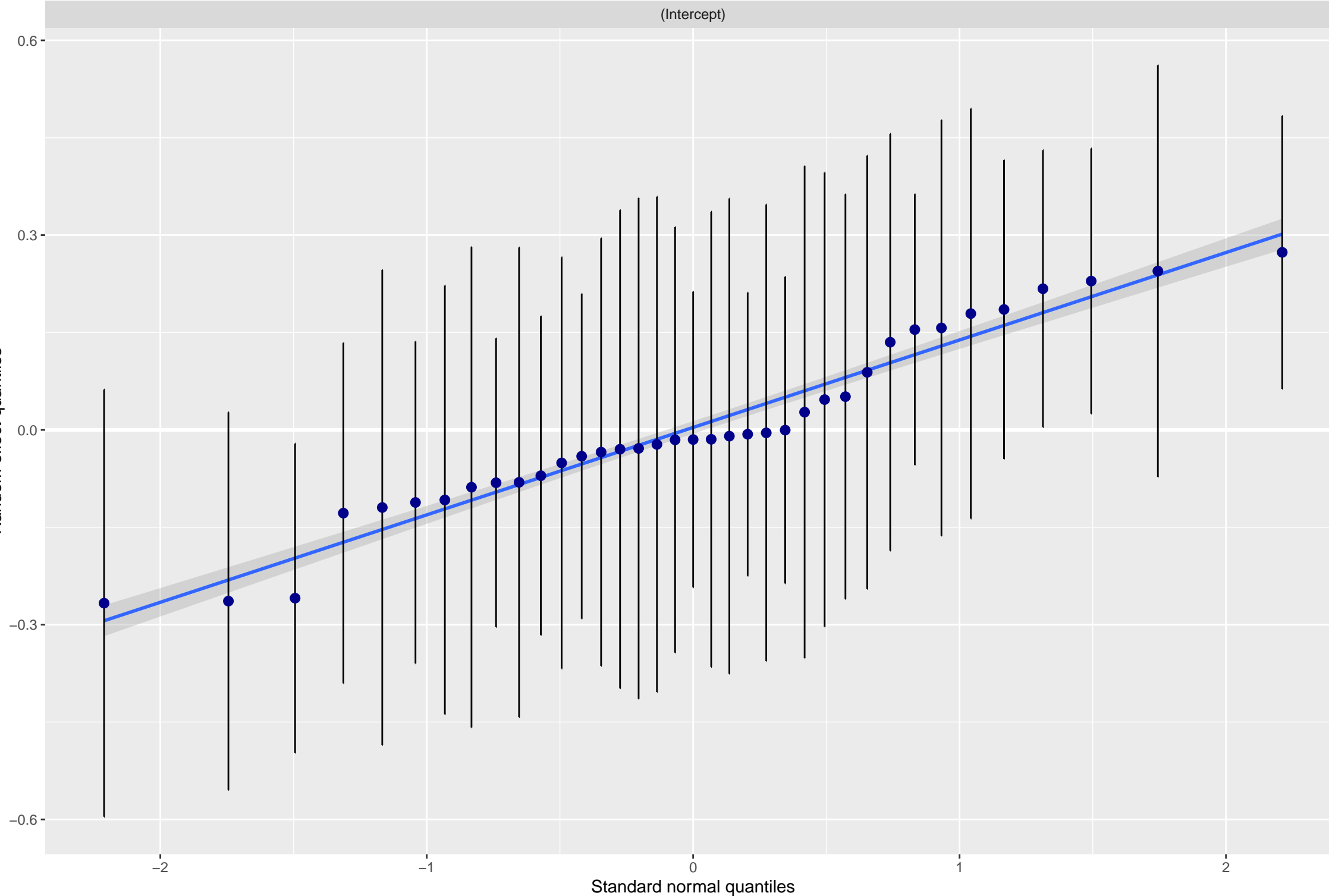






(Intercept)

Random effect quantiles



Standard normal quantiles

(Intercept)

Random effect quantiles

Standard normal quantiles

0.2
0.1
0.0
-0.1
-0.2

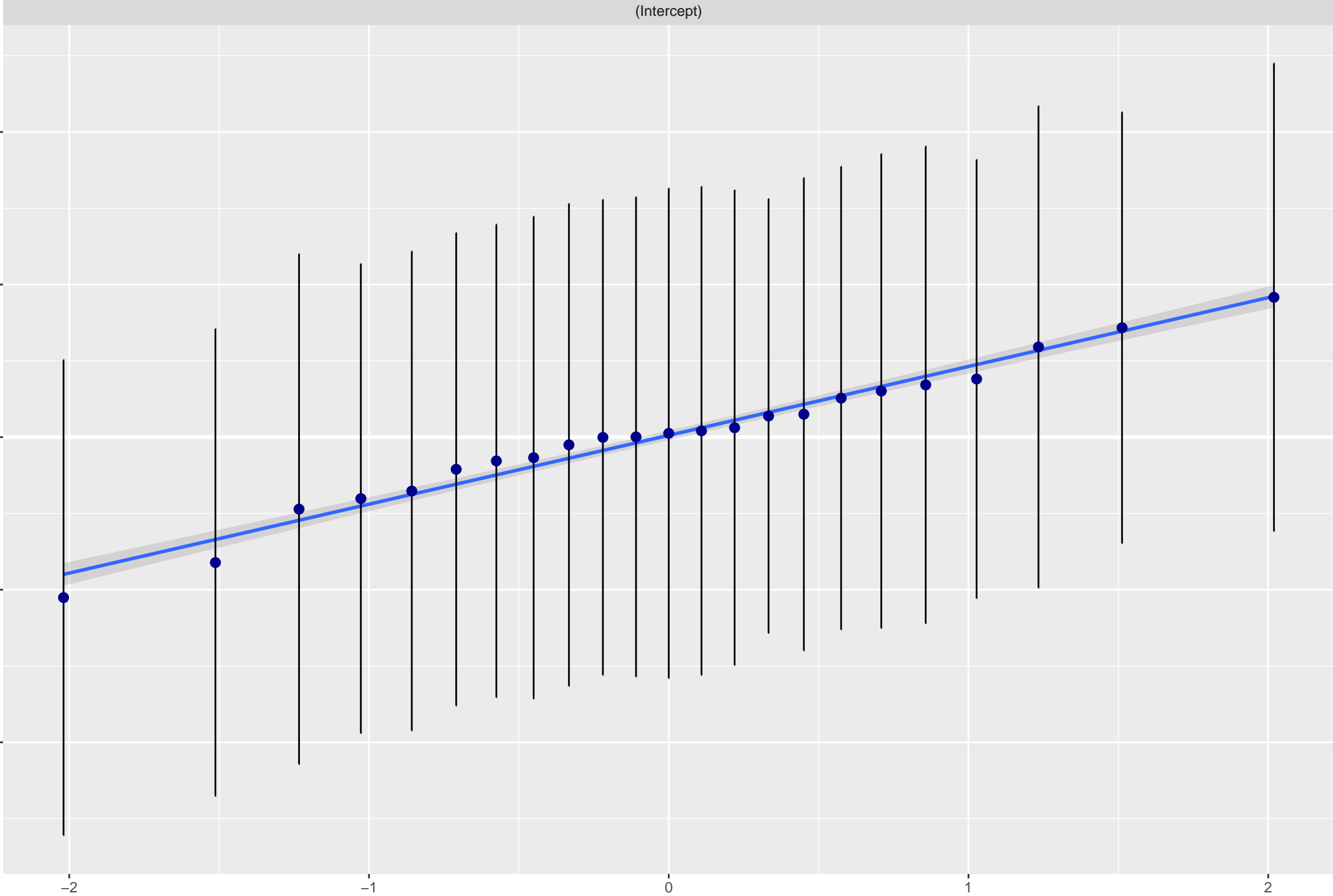
-2

-1

0

1

2



Model summaries for all models with delta AIC < 2

```
$'location_exposure + log_days_since_last_haul'
Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']
Family: Negative Binomial(16.5444) ( log )
Formula: no_species ~ location_exposure + log_days_since_last_haul + (1 | TrapID) + (1 | Date_YMD)
Data: trap_haul_no_zero
Control: glmerControl(optimizer = "bobyqa", optCtrl = list(maxfun = 10000))

      AIC      BIC    logLik deviance df.resid
1338.4   1360.8   -663.2   1326.4       301

Scaled residuals:
  Min       1Q   Median       3Q      Max
-1.6560 -0.7713 -0.2149  0.5611  3.5005

Random effects:
Groups Name Variance Std.Dev.
TrapID (Intercept) 0.043175 0.20779
Date_YMD (Intercept) 0.002062 0.04541
Number of obs: 307, groups: TrapID, 37; Date_YMD, 23

Fixed effects:
              Estimate Std. Error z value Pr(>|z|)
(Intercept)      1.05669    0.14733   7.172 7.38e-13 ***
location_exposureWindward -0.23391    0.14633  -1.598  0.1099
log_days_since_last_haul  0.12248    0.05829   2.101  0.0356 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Correlation of Fixed Effects:
      (Intr) lctn_W
lctn_xparWn -0.112
lg_dys_sn__ -0.919 -0.030

$log_days_since_last_haul
Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']
Family: Negative Binomial(16.5444) ( log )
Formula: no_species ~ log_days_since_last_haul + (1 | TrapID) + (1 | Date_YMD)
Data: trap_haul_no_zero
Control: glmerControl(optimizer = "bobyqa", optCtrl = list(maxfun = 10000))

      AIC      BIC    logLik deviance df.resid
1339.0   1357.6   -664.5   1329.0       302

Scaled residuals:
  Min       1Q   Median       3Q      Max
-1.6621 -0.7690 -0.2211  0.5892  3.5229

Random effects:
Groups Name Variance Std.Dev.
TrapID (Intercept) 0.0470660 0.21695
Date_YMD (Intercept) 0.0005033 0.02243
Number of obs: 307, groups: TrapID, 37; Date_YMD, 23

Fixed effects:
              Estimate Std. Error z value Pr(>|z|)
(Intercept)      1.02522    0.14451   7.094 1.3e-12 ***
log_days_since_last_haul  0.11996    0.05685   2.110  0.0349 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Correlation of Fixed Effects:
      (Intr)
lg_dys_sn__ -0.923

$'design + location_exposure + log_days_since_last_haul'
Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']
Family: Negative Binomial(16.5444) ( log )
Formula: no_species ~ design + location_exposure + log_days_since_last_haul + (1 | TrapID) + (1 | Date_YMD)
Data: trap_haul_no_zero
Control: glmerControl(optimizer = "bobyqa", optCtrl = list(maxfun = 10000))

      AIC      BIC    logLik deviance df.resid
1339.7   1365.8   -662.8   1325.7       300

Scaled residuals:
  Min       1Q   Median       3Q      Max
-1.6321 -0.7597 -0.2046  0.5627  3.5338

Random effects:
Groups Name Variance Std.Dev.
TrapID (Intercept) 0.042303 0.20568
Date_YMD (Intercept) 0.001905 0.04365
Number of obs: 307, groups: TrapID, 37; Date_YMD, 23

Fixed effects:
              Estimate Std. Error z value Pr(>|z|)
(Intercept)      1.18477    0.20803   5.695 1.23e-08 ***
designZ           -0.12125    0.13971  -0.868  0.3855
location_exposureWindward -0.32548    0.17993  -1.809  0.0705 .
log_days_since_last_haul  0.10823    0.06058   1.786  0.0740 .
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Correlation of Fixed Effects:
      (Intr) desgnZ lctn_W
designZ      -0.703
lctn_xparWn -0.479  0.588
lg_dys_sn__ -0.820  0.271  0.137
```

```
$location_exposure
Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']
Family: Negative Binomial(16.5444) ( log )
Formula: no_species ~ location_exposure + (1 | TrapID) + (1 | Date_YMD)
Data: trap_haul_no_zero
Control: glmerControl(optimizer = "bobyqa", optCtrl = list(maxfun = 10000))

      AIC      BIC    logLik deviance df.resid
1340.3   1359.0   -665.2   1330.3       302

Scaled residuals:
  Min       1Q   Median       3Q      Max
-1.4954 -0.7676 -0.2365  0.5630  3.4623

Random effects:
Groups Name Variance Std.Dev.
TrapID (Intercept) 0.042628 0.20646
Date_YMD (Intercept) 0.008205 0.09058
Number of obs: 307, groups: TrapID, 37; Date_YMD, 23

Fixed effects:
              Estimate Std. Error z value Pr(>|z|)
(Intercept)      1.33486    0.06055  22.045 <2e-16 ***
location_exposureWindward -0.23641    0.14764  -1.601  0.109
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Correlation of Fixed Effects:
      (Intr)
lctn_xparWn -0.332
```

Full model summary

```
Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']
Family: Negative Binomial(16.5444) ( log )
Formula: no_species ~ design + log_days_since_last_haul + location_exposure +      Exp_or_Cont + (1 | TrapID) + (1 | Date_YMD)
Data: trap_haul_no_zero
Control: glmerControl(optimizer = "bobyqa", optCtrl = list(maxfun = 10000))

      AIC      BIC    logLik deviance df.resid
1341.6   1371.5   -662.8   1325.6      299

Scaled residuals:
    Min       1Q   Median       3Q      Max
-1.6295 -0.7653 -0.2058  0.5576  3.5232

Random effects:
Groups Name Variance Std.Dev.
TrapID (Intercept) 0.042448 0.20603
Date_YMD (Intercept) 0.001947 0.04413
Number of obs: 307, groups: TrapID, 37; Date_YMD, 23

Fixed effects:
              Estimate Std. Error z value Pr(>|z|)
(Intercept)    1.17650    0.21465   5.481 4.23e-08 ***
designZ         -0.12192    0.14000  -0.871  0.3838
log_days_since_last_haul  0.10815    0.06070   1.782  0.0748 .
location_exposureWindward -0.32594    0.18022  -1.808  0.0705 .
Exp_or_ContExperimental  0.01673    0.10313   0.162  0.8711
---
Signif. codes:  0 '***'... 0.001 '**'... 0.01 '*'... 0.05 '...' 0.1 '.'... 1

Correlation of Fixed Effects:
      (Intr) designZ lg_____ lctn_W
designZ      -0.675
lg_days_sn_ -0.795  0.271
lctn_xparWn -0.462  0.588  0.137
Exp_r_CntEx -0.240 -0.029 -0.004 -0.012
```