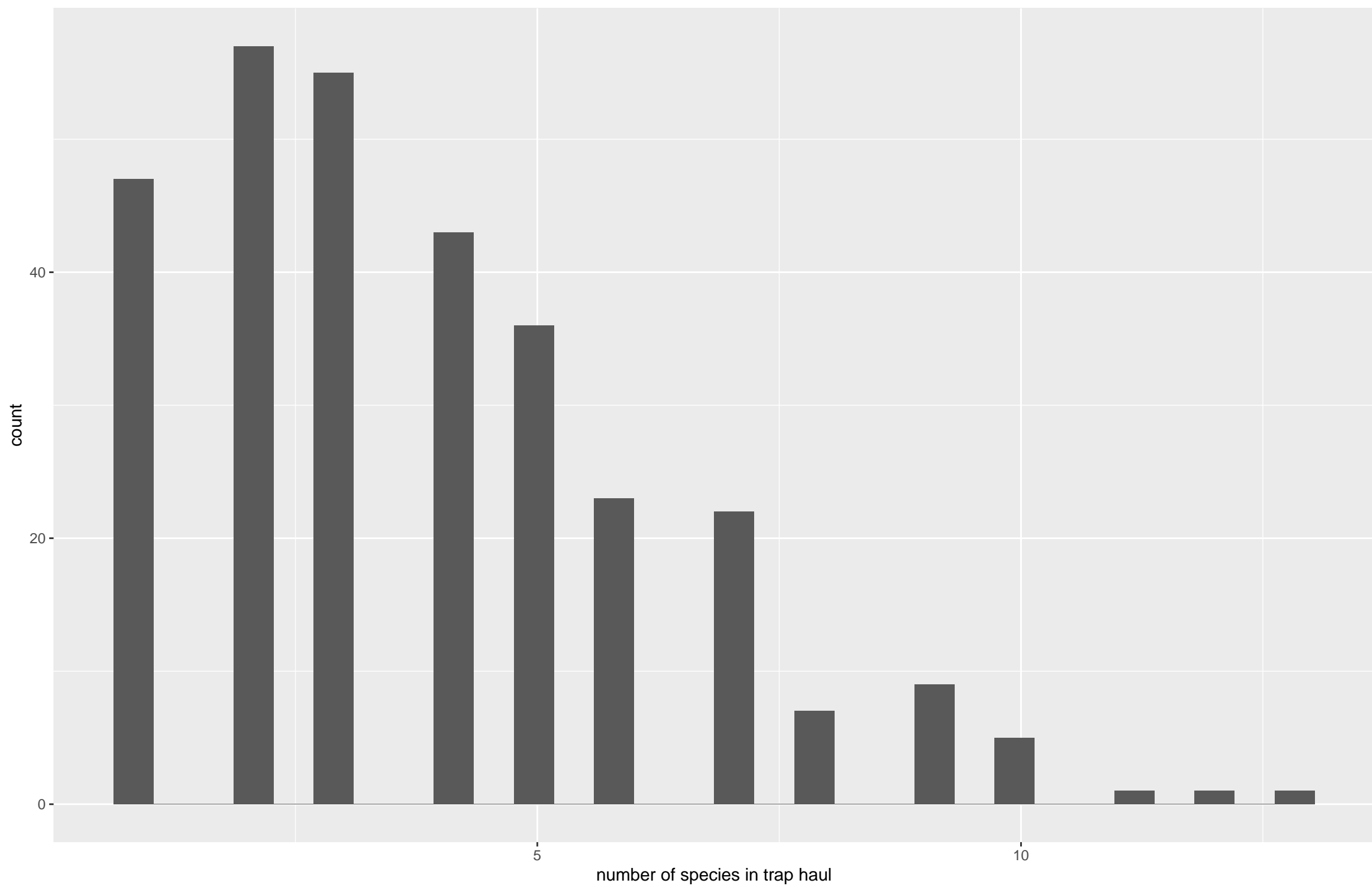
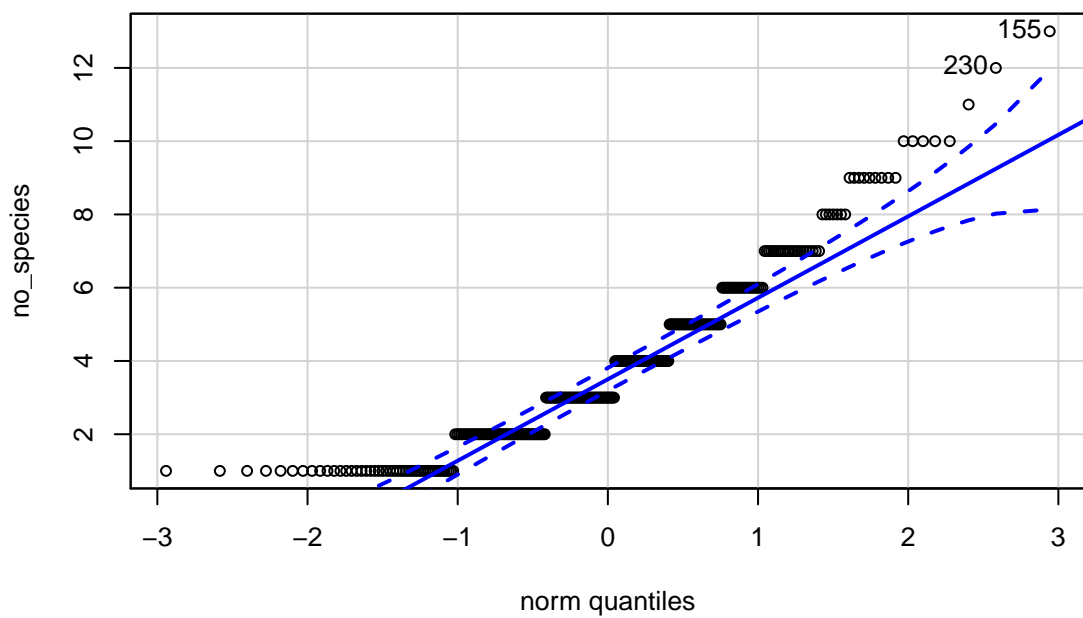


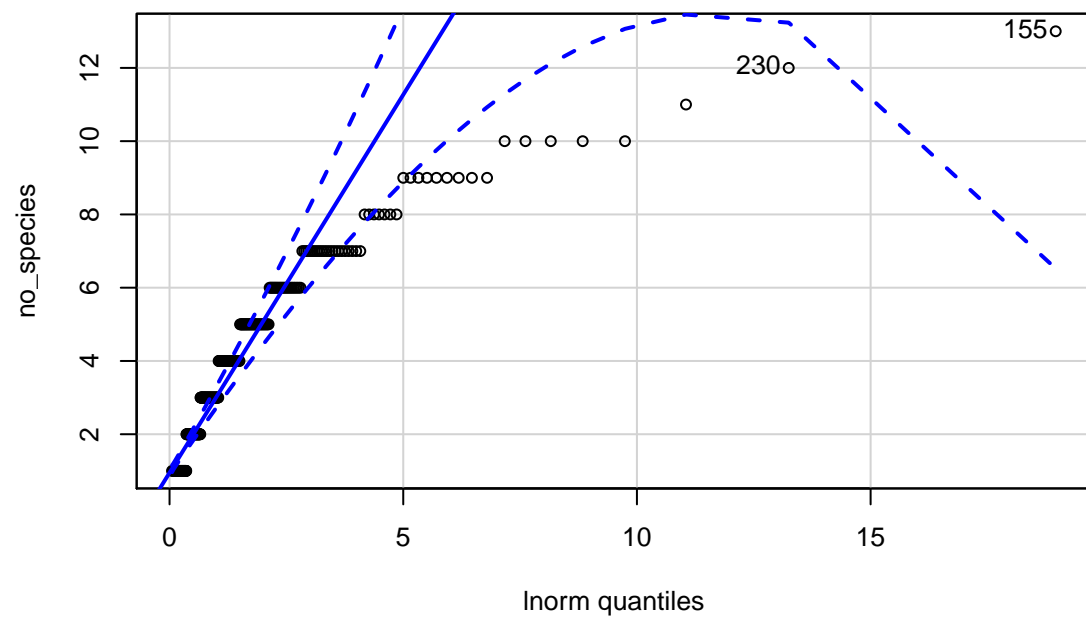
Histogram of number of species



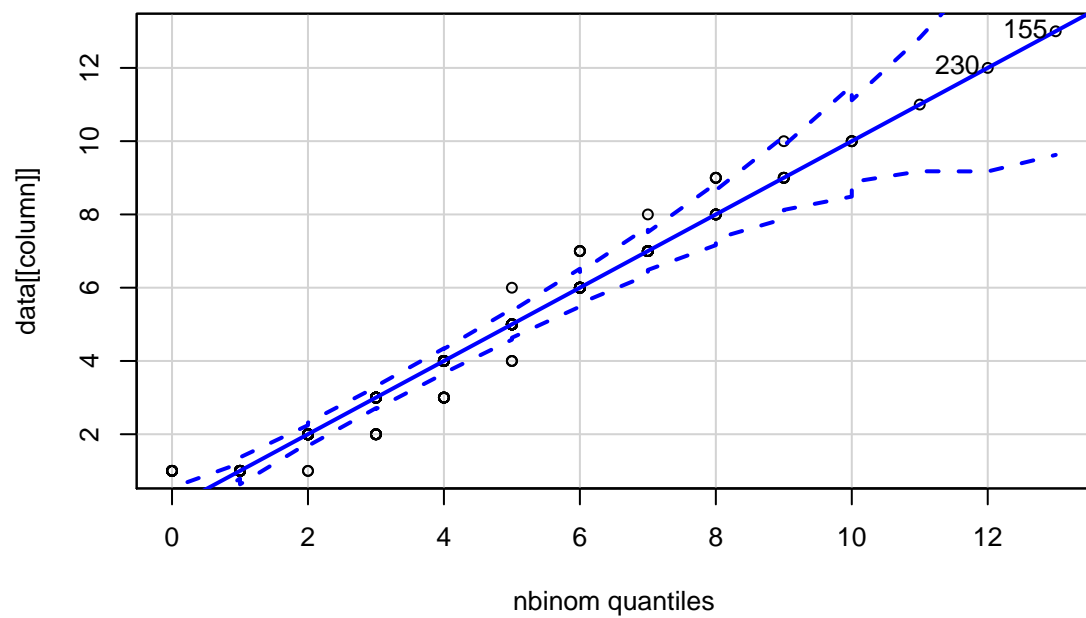
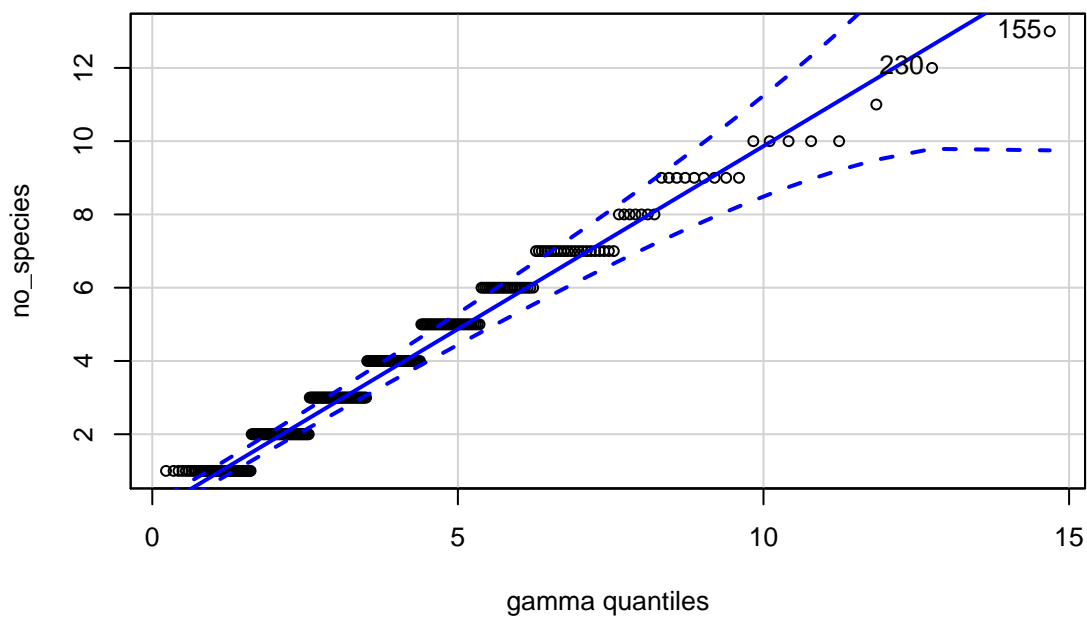
Normal distribution

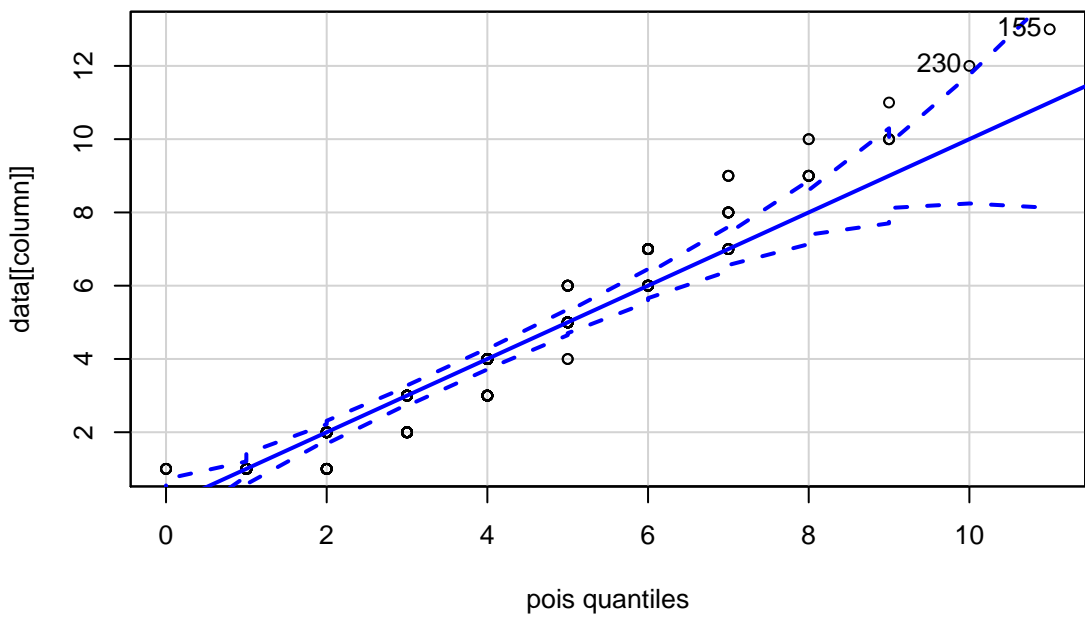


Log-normal distribution



Gamma distribution





```
Global model call: glmer(formula = no_species ~ design + log_days_since_last_haul +
  location_exposure + Exp_or_Cont + Exp_or_Cont * log_days_since_last_haul +
  (1 | TrapID) + (1 | Date_YMD), data = trap_haul_no_zero,
  family = negative.binomial(theta = 16.5694432612583), 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	Exp_or_Cont:log_dys_snc_lst_hal	df	logLik	AICc	delta	weight
13	1.0570			+	0.12250		6	-663.208	1338.7	0.00	0.186
9	1.0250				0.11990		5	-664.501	1339.2	0.51	0.144
14	1.1850	+		+	0.10820		7	-662.834	1340.0	1.35	0.095
5	1.3350			+			5	-665.164	1340.5	1.83	0.074
15	1.0490		+	+	0.12250		7	-663.198	1340.8	2.07	0.066
6	1.4810	+		+			6	-664.285	1340.8	2.15	0.063
1	1.2980						4	-666.461	1341.1	2.36	0.057
10	0.9964	+			0.12360		6	-664.465	1341.2	2.51	0.053
11	1.0170		+		0.11990		6	-664.490	1341.3	2.56	0.052
16	1.1770	+	+	+	0.10820		8	-662.821	1342.1	3.43	0.033
7	1.3270		+	+			6	-665.154	1342.6	3.89	0.027
31	1.0690		+	+	0.11390	+	8	-663.187	1342.9	4.16	0.023
8	1.4720	+	+	+			7	-664.270	1342.9	4.22	0.023
3	1.2900		+				5	-666.449	1343.1	4.40	0.021
2	1.3080	+					5	-666.453	1343.1	4.41	0.020
12	0.9885	+	+		0.12360		7	-664.454	1343.3	4.59	0.019
27	1.0400		+		0.10980	+	7	-664.475	1343.3	4.63	0.018
32	1.1970	+	+	+	0.09938	+	9	-662.810	1344.2	5.53	0.012
4	1.2990	+	+				6	-666.441	1345.2	6.47	0.007
28	1.0120	+	+		0.11370	+	8	-664.440	1345.4	6.67	0.007

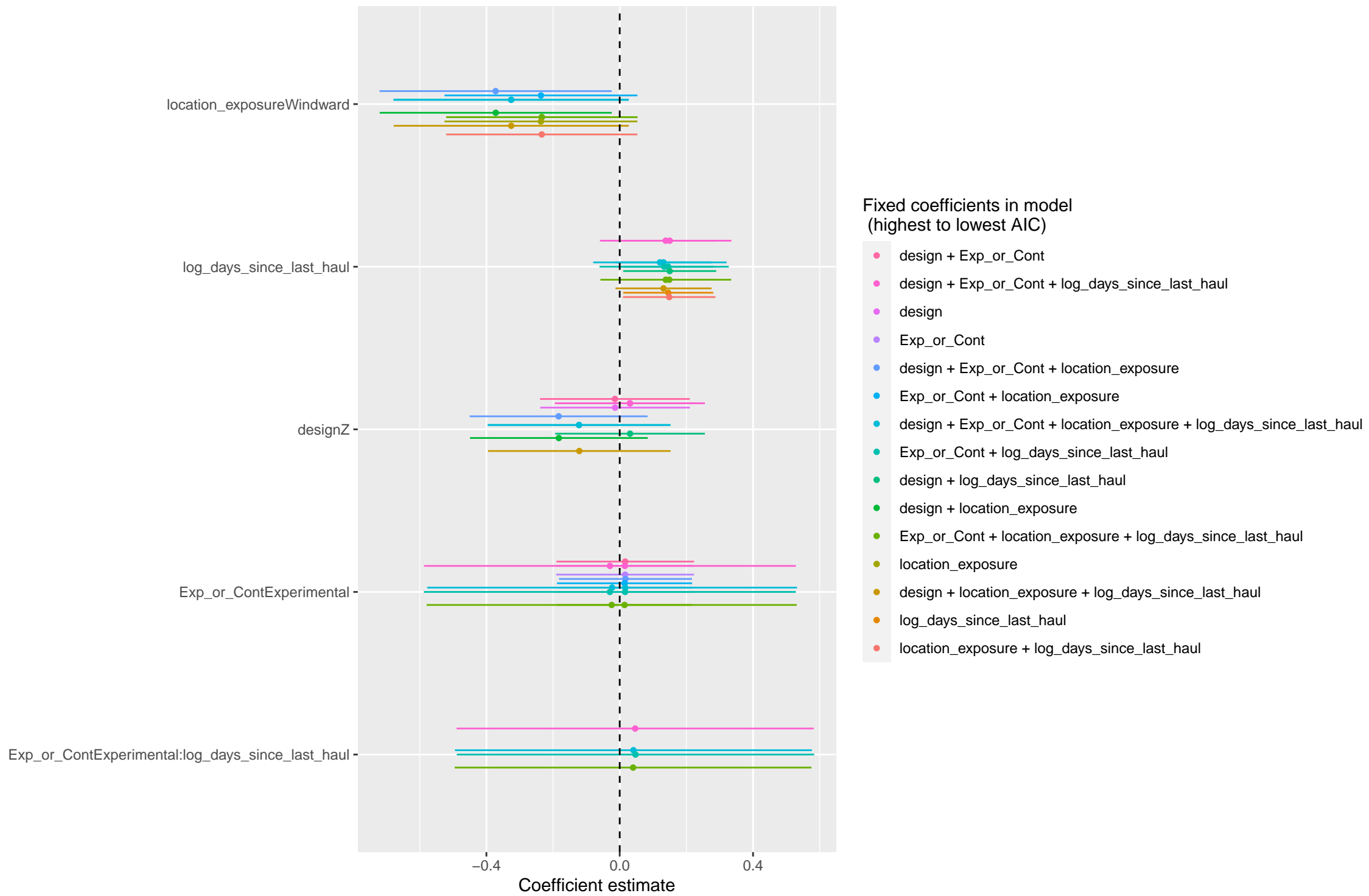
Models ranked by AICc(x)

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	280.19	301.00
log_days_since_last_haul	1.00	-664.50	1339.00	1357.64	283.04	302.00
design + location_exposure + log_days_since_last_haul	1.00	-662.83	1339.67	1365.76	280.05	300.00
location_exposure	1.00	-665.16	1340.33	1358.96	276.14	302.00
Exp_or_Cont + location_exposure + log_days_since_last_haul	1.00	-663.20	1340.40	1366.48	280.12	300.00
design + location_exposure	1.00	-664.28	1340.57	1362.93	277.48	301.00
none	1.00	-666.46	1340.92	1355.83	278.40	303.00
design + log_days_since_last_haul	1.00	-664.46	1340.93	1363.29	282.82	301.00
Exp_or_Cont + log_days_since_last_haul	1.00	-664.49	1340.98	1363.34	282.98	301.00
design + Exp_or_Cont + location_exposure + log_days_since_last_haul	1.00	-662.82	1341.64	1371.46	279.97	299.00
Exp_or_Cont + location_exposure	1.00	-665.15	1342.31	1364.67	276.08	301.00
Exp_or_Cont + location_exposure + log_days_since_last_haul	1.00	-663.19	1342.37	1372.19	280.03	299.00
design + Exp_or_Cont + location_exposure	1.00	-664.27	1342.54	1368.63	277.40	300.00
Exp_or_Cont	1.00	-666.45	1342.90	1361.53	278.34	302.00
design	1.00	-666.45	1342.91	1361.54	278.60	302.00
design + Exp_or_Cont + log_days_since_last_haul	1.00	-664.45	1342.91	1369.00	282.76	300.00
Exp_or_Cont + log_days_since_last_haul	1.00	-664.47	1342.95	1369.04	282.88	300.00
design + Exp_or_Cont + location_exposure + log_days_since_last_haul	1.00	-662.81	1343.62	1377.16	279.87	298.00
design + Exp_or_Cont	1.00	-666.44	1344.88	1367.24	278.54	301.00
design + Exp_or_Cont + log_days_since_last_haul	1.00	-664.44	1344.88	1374.69	282.66	299.00

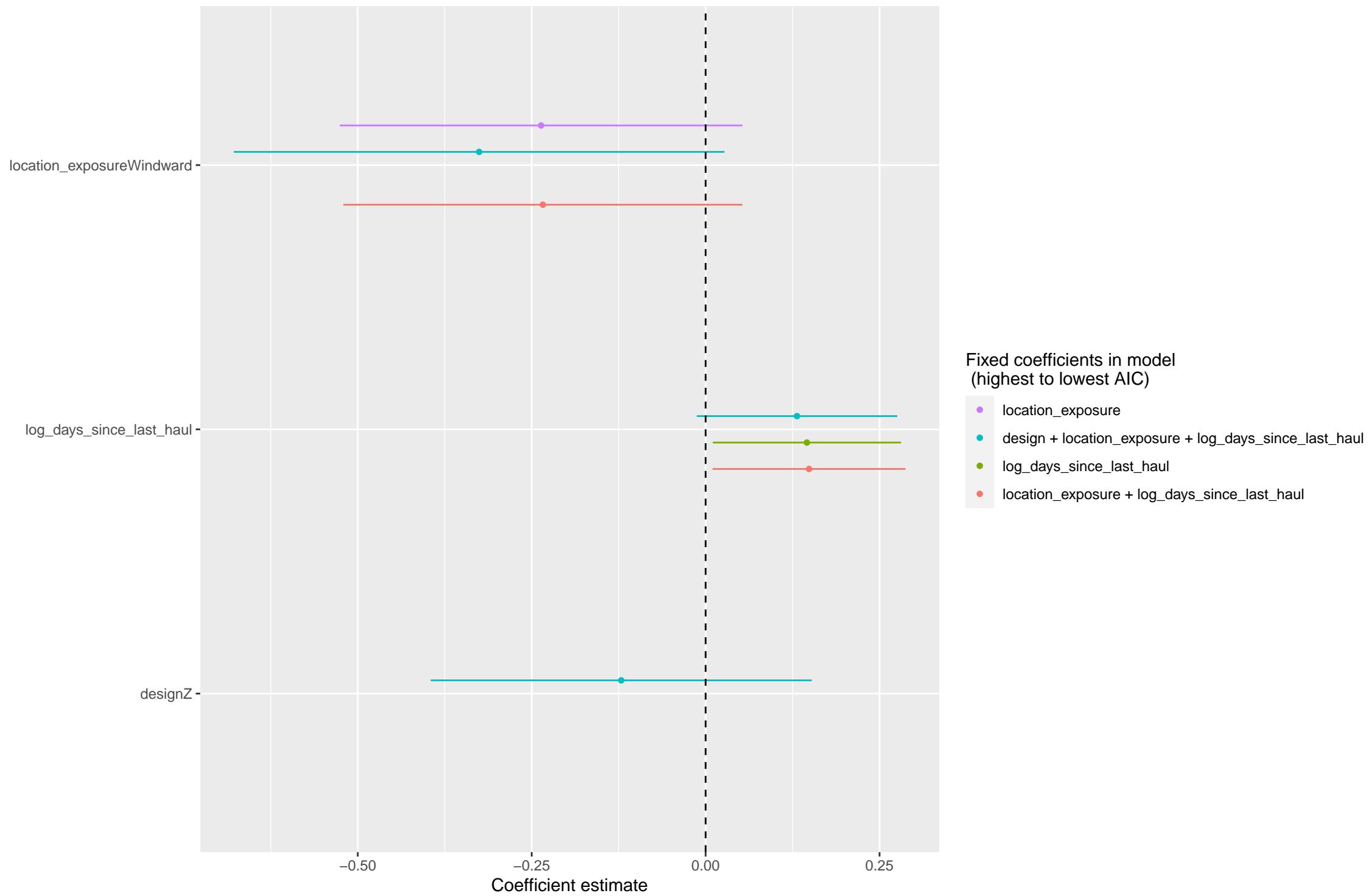
Predicting number of species in trap haul

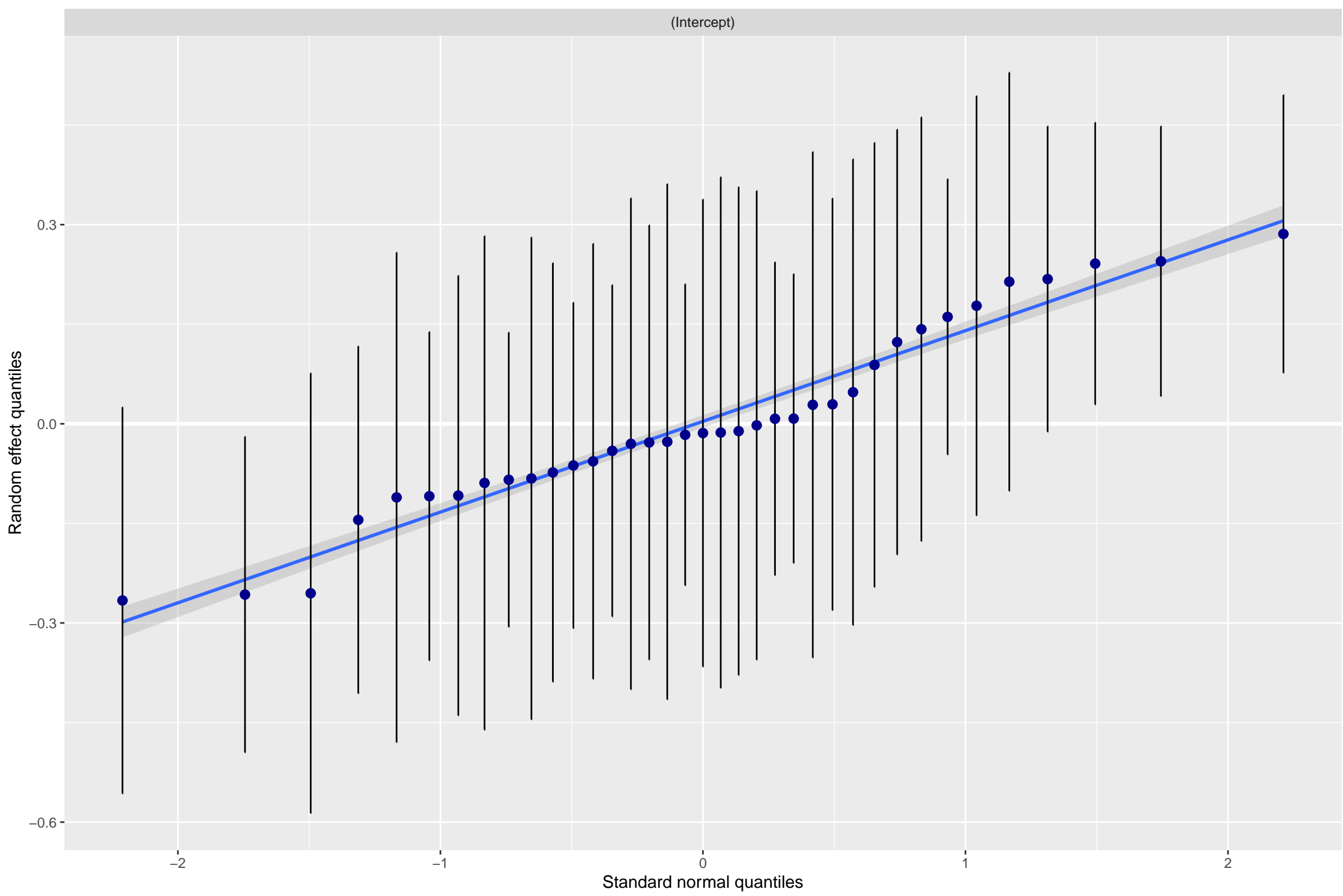


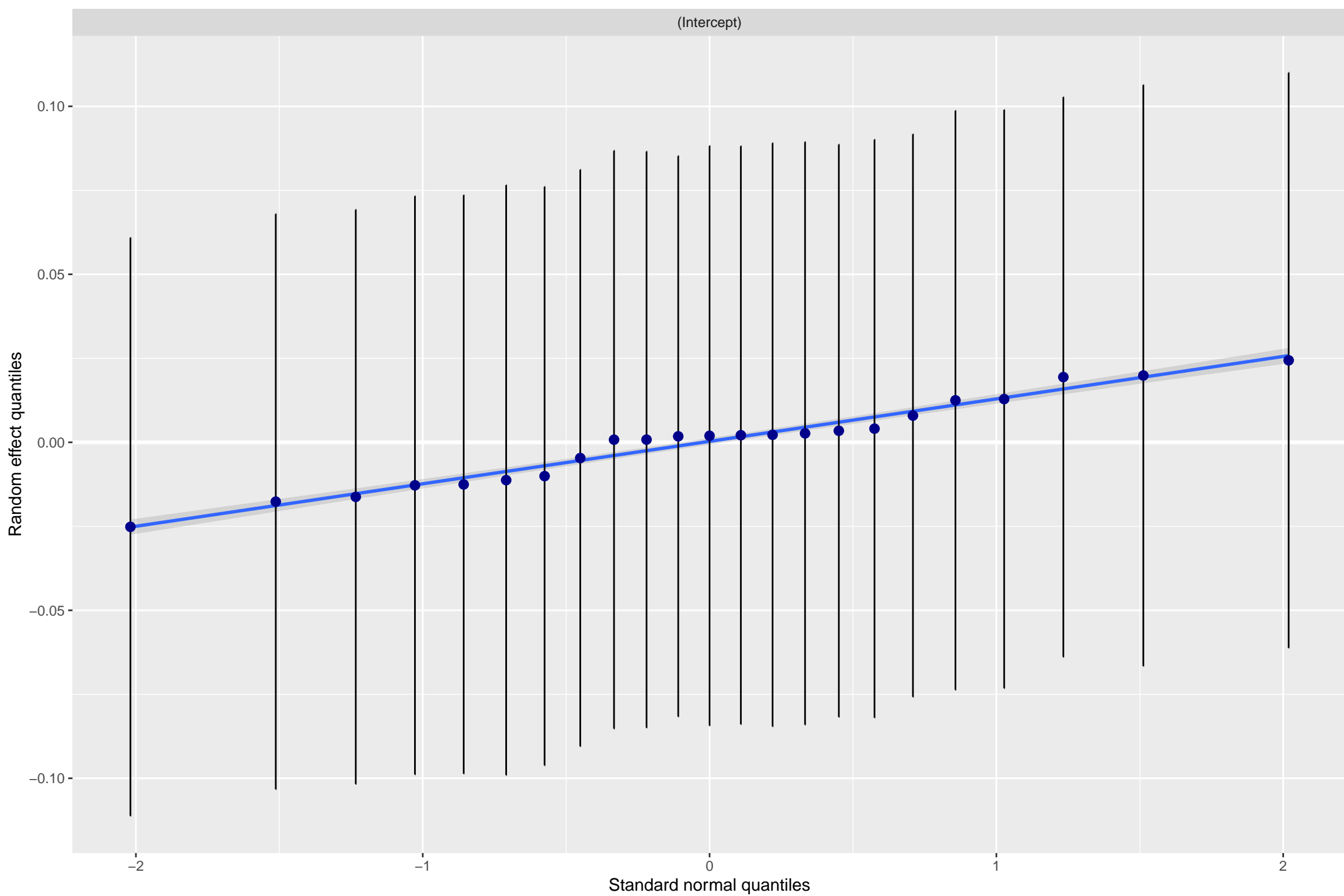
Models with delta AIC <2

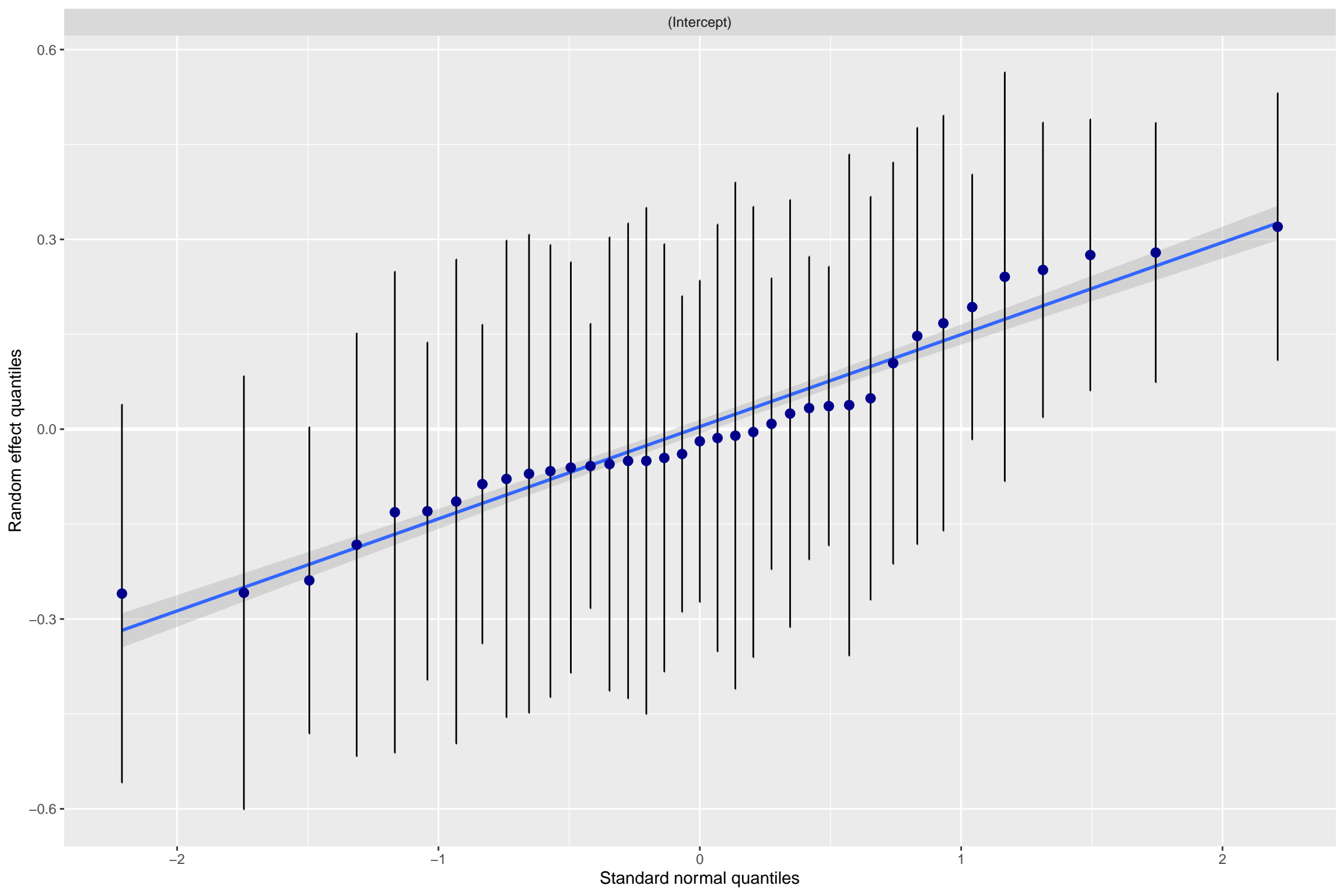
model	sigma	logLik	AIC	BIC	deviance	df.residual
location_exposure + log_days_since_last_haul	1.00	-663.21	1338.42	1360.78	280.19	301.00
log_days_since_last_haul	1.00	-664.50	1339.00	1357.64	283.04	302.00
design + location_exposure + log_days_since_last_haul	1.00	-662.83	1339.67	1365.76	280.05	300.00
location_exposure	1.00	-665.16	1340.33	1358.96	276.14	302.00

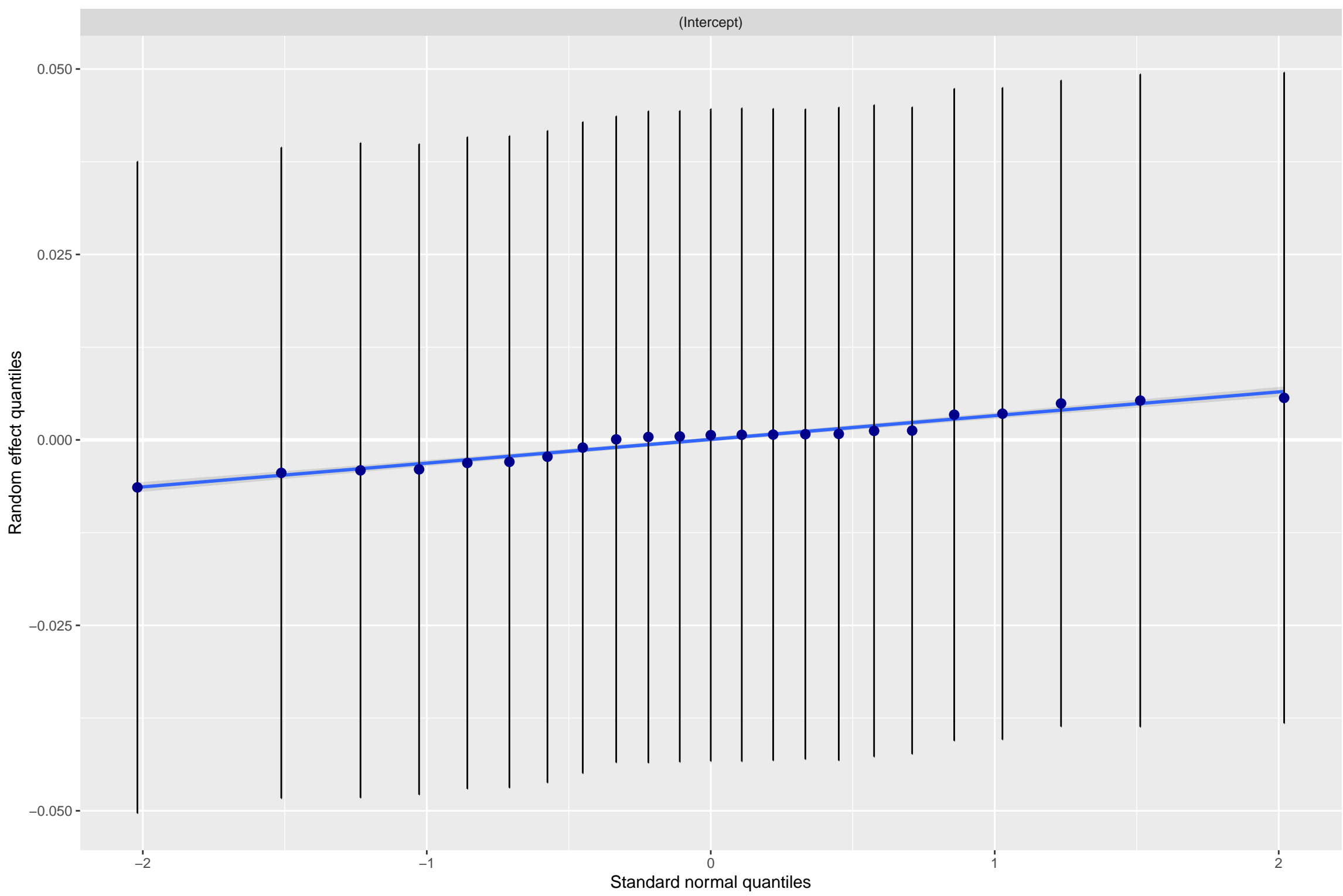
Predicting number of species in trap haul

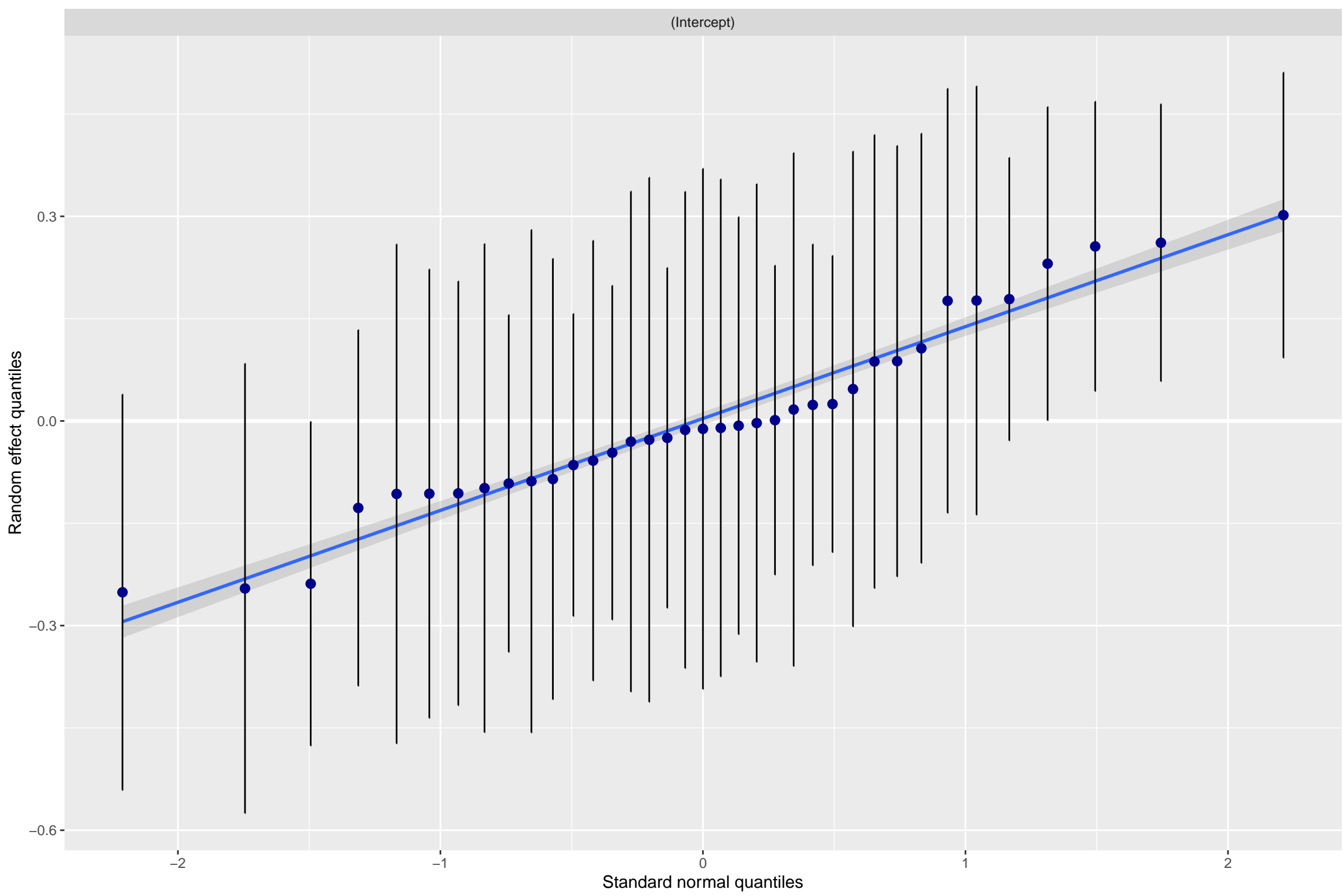


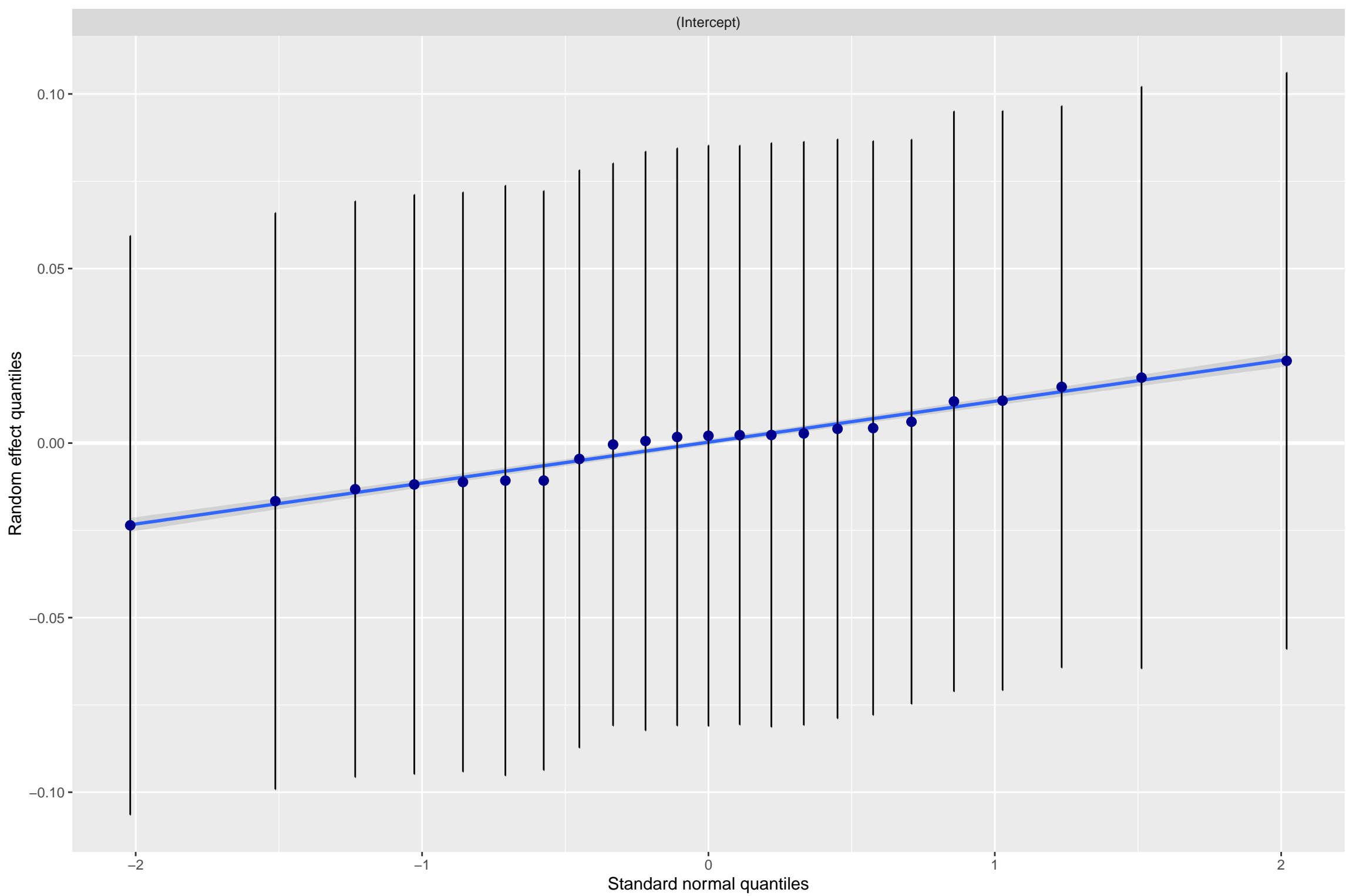






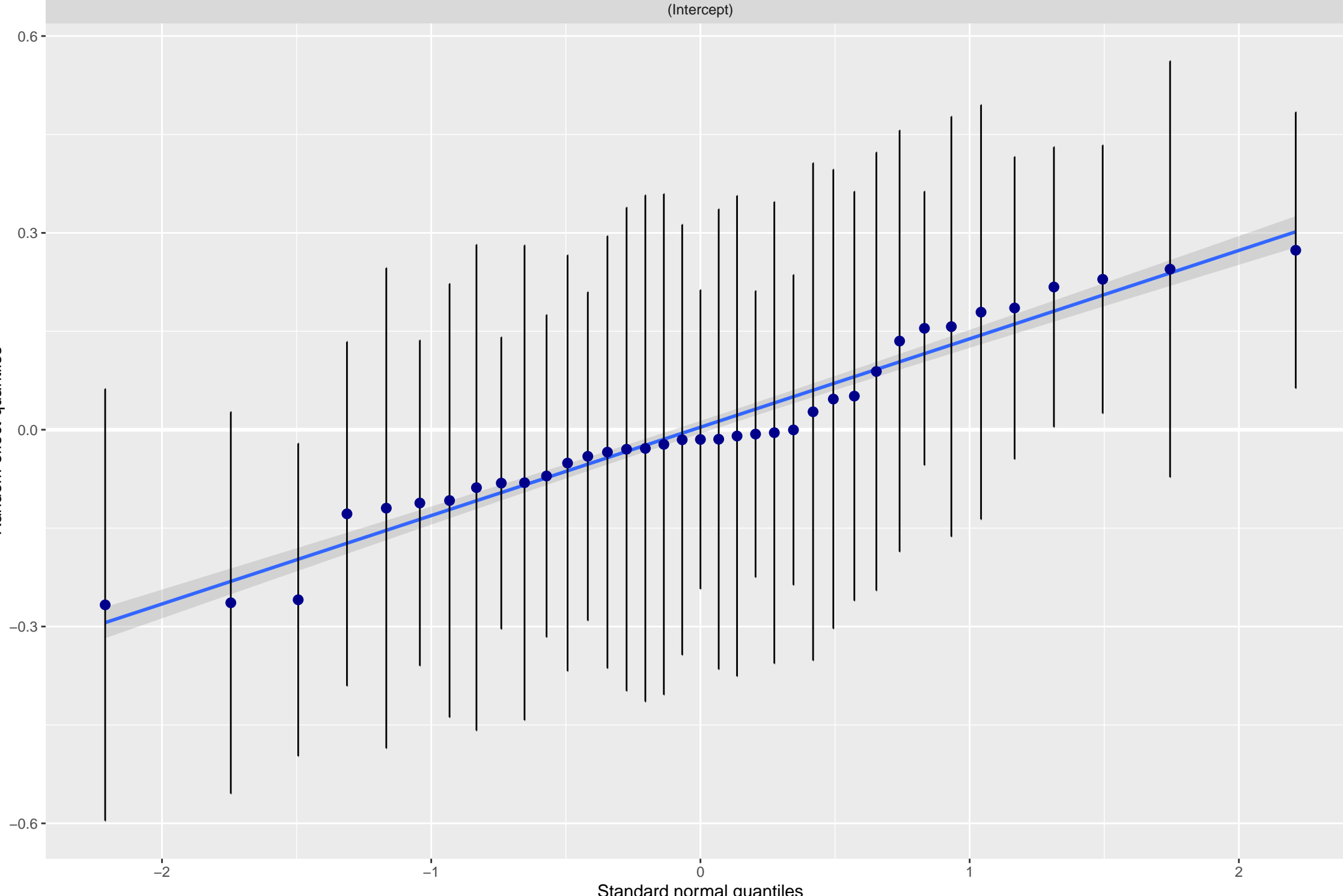






(Intercept)

Random effect quantiles



Standard normal quantiles

(Intercept)

Random effect quantiles

Standard normal quantiles

0.2
0.1
0.0
-0.1
-0.2

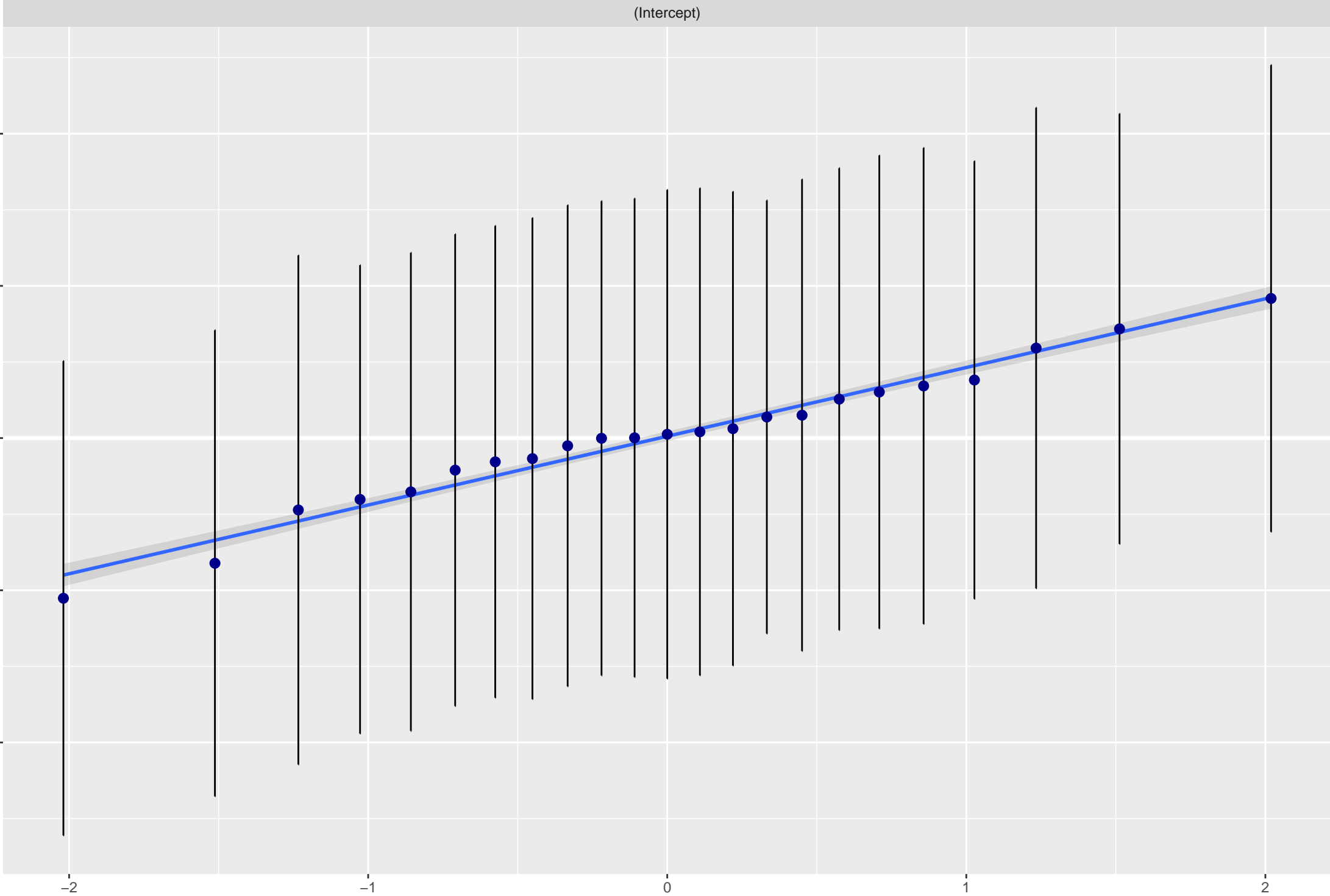
-2

-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(16.5694) ( 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
-1.6562 -0.7715 -0.2150  0.5611  3.5009

Random effects:
 Groups Name Variance Std.Dev.
TrapID (Intercept) 0.04318 0.2078
Date_YMD (Intercept) 0.00207 0.0455
Number of obs: 307, groups: TrapID, 37; Date_YMD, 23

Fixed effects:
              Estimate Std. Error z value Pr(>|z|)
(Intercept)      1.05670    0.14733   7.172 7.38e-13 ***
location_exposureWindward -0.23393    0.14633  -1.599 0.1099
log_days_since_last_haul  0.12247    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(16.5694) ( 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
-1.6624 -0.7691 -0.2212  0.5891  3.5233

Random effects:
 Groups Name Variance Std.Dev.
TrapID (Intercept) 0.0470756 0.21697
Date_YMD (Intercept) 0.0005115 0.02262
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  0.11995    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(16.5694) ( 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
-1.6324 -0.7599 -0.2047  0.5627  3.5342

Random effects:
 Groups Name Variance Std.Dev.
TrapID (Intercept) 0.042311 0.20570
Date_YMD (Intercept) 0.001913 0.04374
Number of obs: 307, groups: TrapID, 37; Date_YMD, 23

Fixed effects:
              Estimate Std. Error z value Pr(>|z|)
(Intercept)      1.18478    0.20802   5.696 1.23e-08 ***
designZ           -0.12126    0.13971  -0.868 0.3854
location_exposureWindward -0.32550    0.17992  -1.809 0.0704 .
log_days_since_last_haul  0.10822    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(16.5694) ( 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
-1.4956 -0.7677 -0.2365  0.5631  3.4627

Random effects:
 Groups Name Variance Std.Dev.
TrapID (Intercept) 0.042638 0.20649
Date_YMD (Intercept) 0.008211 0.09062
Number of obs: 307, groups: TrapID, 37; Date_YMD, 23

Fixed effects:
              Estimate Std. Error z value Pr(>|z|)
(Intercept)      1.33485    0.06056  22.043 <2e-16 ***
location_exposureWindward -0.23643    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

```
lme4 linear mixed model fit by maximum likelihood (Laplace Approximation) [Eigen, Eigen]
r: Negative Binomial(16.5694) ( log )
r: no_species ~ design + log_days_since_last_haul + location_exposure + Exp_or_Cont + Exp_or_Cont * log_days_since_last_haul + (1 |
upID) + (1 | Date_YMD)
r: trap_haul_no_zero
r: glmerControl(optimizer = "bobyqa", optCtrl = list(maxfun = 10000))

: C      BIC      logLik deviance df.resid
: 6      1377.2      -662.8      1325.6      298

residuals:
:      1Q      Median      3Q      Max
: -0.7684 -0.2081  0.5596  3.5258

effects:
:      Name      Variance Std.Dev.
: (Intercept) 0.042654 0.2065
: YMD (Intercept) 0.001936 0.0440
: of obs: 307, groups:  TrapID, 37; Date_YMD, 23

effects:
: Estimate Std. Error z value Pr(>|z|)
: (Intercept) 1.19713 0.25461 4.702 2.58e-06 ***
: s_since_last_haul -0.12213 0.14013 -0.872 0.3835
: n_exposureWindward 0.09933 0.08431 1.178 0.2387
: ContExperimental -0.32590 0.18035 -1.807 0.0707
: s_since_last_haul:Exp_or_ContExperimental 0.02297 0.28340 -0.081 0.9354
: s_since_last_haul 0.01696 0.11274 0.150 0.8804

. codes: 0 ...***... 0.001 ...**... 0.01 ...*... 0.05 ..... 0.1 ... .. 1

ation of Fixed Effects:
: (Intr) design lg_____ lctn_W Ex__CE
:      -0.574
: _sn_____ -0.856 0.201
: _sn_____ -0.388 0.588 0.097
: _ntEx -0.574 -0.002 0.645 -0.006
: _CE 0.538 -0.009 -0.694 0.002 -0.931
```